



# Chagrin River Watershed Partners, Inc.

P.O. Box 229 Willoughby, Ohio 44096-0229

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## SERVING MEMBERS IN THE WATERSHED

Auburn Township  
Aurora  
Bainbridge Township  
Bentleyville  
Chagrin Falls Township  
Chagrin Falls Village  
Chardon  
Chardon Township  
Claridon Township  
Cleveland Metroparks  
Eastlake  
Gates Mills  
Geauga Park District  
Hunting Valley  
Kirtland  
Kirtland Hills  
Lake County  
Lake Metroparks  
Mantua Township  
Mayfield Heights  
Mayfield Village  
Mentor  
Moreland Hills  
Munson Township  
Newbury Township  
Orange Village  
Pepper Pike  
Russell Township  
Solon  
South Russell  
Waite Hill  
Wickliffe  
Willoughby  
Willoughby Hills  
Woodmere

## IN THE COUNTIES OF

Cuyahoga  
Geauga  
Lake  
Portage

## STAFF

Heather Elmer  
Executive Director  
  
Christina Znidarsic  
Watershed Coordinator  
  
Kristen Buccier  
Project Manager  
  
Keely Davidson-Bennett  
Project Manager  
  
Linda Moran  
Administrative Assistant

December 29, 2015

Sandra Kosek-Sills, Ph.D.  
Ohio Lake Erie Commission  
Lake Erie Protection Fund  
111 East Shoreline Drive  
Sandusky, Ohio 44870

Re: Agreement SG461-2014  
*Conservation Development, Parking, and Stormwater Codes*

Dear Dr. Kosek-Sills,

Please find enclosed a copy of the final report documentation for the Chagrin River Watershed Partners, Inc. *Conservation Development, Parking, and Stormwater Codes* project awarded from the Ohio Lake Erie Commission, covering the project period October 15, 2013 through December 31, 2015.

Thank you for the opportunity to work with Ohio Lake Erie Commission on this project, and please contact me if you have any questions about the report form.

Sincerely,

Heather Elmer  
Director

# Conservation Development, Parking And Stormwater Model Codes

## FINAL TECHNICAL REPORT

Lake Erie Protection Fund Award SG 461-2014  
Award: \$15,000  
Project Period October 13, 2013 – December 31, 2015



Chagrin River Watershed Partners, Inc.  
PO Box 229  
Willoughby, Ohio 44096  
[www.crwp.org](http://www.crwp.org)



*This project was funded through the Lake Erie Protection Fund. The LEPF is supported by tax-deductible donation and voluntary contributions of Ohioans who purchase a Lake Erie license plate featuring the Marblehead lighthouse or the Lake Erie life preserver. [www.lakeerie.ohio.gov](http://www.lakeerie.ohio.gov)*

## **Abstract**

The Chagrin River Watershed Partners, Inc. collaborated with the Lake County Planning Commission, Ohio Balanced Growth Program, Ohio Environmental Protection Agency, Ohio Department of Natural Resources and other regional partners to update its model local regulations for stormwater management, off street parking and conservation development to promote green infrastructure. CRWP's updated model off-street parking code will help communities minimize excess impervious cover and the model conservation development code will protect valuable stream, wetland and floodplain resources while allowing development in line with existing planning. CRWP's updated model stormwater codes include recommendations that will help improve stormwater management on private developments, lessen the burden of aging and undersized stormwater infrastructure on public entities, improve water quality, and help communities meet permit requirements. CRWP provided technical assistance to communities to facilitate adoption and implementation of best local land use practices and balanced growth, including land cover trends analysis, recommendations for updates and implementation of local codes and technical assistance with implementation of community land use plans. This project helped to implement the Lake Erie Protection and Restoration Plan, the Chagrin River Watershed Action Plan, the Chagrin River Balanced Growth Plan, and the Eastern Lake County Coastal Tributaries (ELCCT) Balanced Growth Plan.

## **Project Description and Outcomes**

This project resulted in updates to Chagrin River Watershed Partners, Inc.'s (CRWP) model codes for off-street parking, comprehensive stormwater management, erosion and sediment control and conservation development. CRWP's updated model off-street parking code will help communities minimize excess impervious cover and the model conservation development code will protect valuable stream, wetland and floodplain resources while allowing development in line with existing planning. CRWP's model comprehensive stormwater management and erosion and sediment control codes were revised to promote green infrastructure and assist communities with meeting permit requirements. CRWP also provided technical assistance to several communities to facilitate adoption and implementation of best local land use practices

and balanced growth. Project activities were carried out in partnership with the Ohio Balanced Growth Program, Lake County Planning Commission, Ohio Environmental Protection Agency, Ohio Department of Natural Resources and communities throughout the Chagrin River watershed. This project helped to implement the Lake Erie Protection and Restoration Plan, the Chagrin River Watershed Action Plan, the Chagrin River Balanced Growth Plan, and the Eastern Lake County Coastal Tributaries (ELCCT) Balanced Growth Plan.

### **Off-Street Parking Model Code**

CRWP reviewed its existing model off-street parking code and revised the language to update the parking schedule and make allowances for stormwater management in parking lots, shared parking, bicycle parking, land banking, smaller parking stall widths, compact parking, and parking maximums. The updated model code can be found in Appendix A of this report. CRWP presented the updated code to Geauga County, Lake County, Cuyahoga County, the City of Willoughby, Bainbridge Township, South Russell Village and the City of Chardon. CRWP compiled a list of communities that mentioned parking codes in needs assessments, reviewed existing community parking codes and resolutions and made recommendations to assist communities with consideration of updates and revisions to parking codes including review of the City of Willoughby's parking code, Bainbridge Township's zoning code, Geauga County's parking resolution and the City of Chardon's parking code. CRWP also provided Lake County with parking code recommendations.

### **Conservation Development Model Code**

CRWP partnered with Lake County Office of Planning and Community Development with input from Cleveland State University's Maxine Goodman Levin College of Urban Affairs Community Planning Program to revise and develop a conservation development model code. Two process meetings were held on December 10, 2013 and April 10, 2014 to review the draft code, which includes elements like a density calculation instead of a yield plan and development as an overlay district. These elements are intended to streamline the conservation development process and make conservation development a more attractive option for both communities and developers. The model draft was sent to the City of Aurora for review and comment from their Planning Department. Further updates and revisions to the code were accomplished through

email and phone meetings between CRWP, Lake County, and CSU throughout 2015 and the model was finalized internally in December 2015. A draft of the updated model code can be found in Appendix B of this report. Future work with this model code will be to submit it to selected communities including Russell Township and the City of Aurora for review and comment to ensure the code meets zoning standards for both municipalities and townships.

CRWP reviewed Bainbridge Township's zoning code updates on conservation development and made recommendations regarding native landscaping and impervious cover. CRWP analyzed land use patterns and tree canopy cover in Russell Township and discussed potential zoning code and land use guide revisions and updates such as conservation development with Township officials. CRWP worked with the City of Aurora on zoning issues related to their riparian and wetland setbacks on a conservation development site and discussed incorporating elements of the draft model code during a review of their existing conservation development code. An inventory of Lake County communities was developed by CRWP that lists which communities have conservation development or similarly-styled PUD codes and what the basic elements of those codes are. Lake County Planning and Community Development intends to use this list as a way to prioritize their direct work with communities on adopting and integrating the conservation development code. CRWP also served on a Tree Regulation Advisory Group with representatives from CSU's Urban Affairs Community Planning Program, ODNR, Holden Arboretum, Cuyahoga Soil and Water Conservation District and other public and private entities to advise on development of a model code for tree management on development sites. The code can serve as an enhancement to conservation development for communities interested in preserving contiguous forested open space and extending that to prioritizing the preservation and maintenance of pre-development soil structure and contiguous tree cover throughout the community.

### **Comprehensive Stormwater Management and Erosion and Sediment Control Model Codes**

CRWP's model Comprehensive Stormwater Management and Erosion and Sediment Control codes were revised to be in-line with the latest Ohio EPA NPDES Municipal Separate Storm Sewer System (MS4) Permit and Construction General Permits. The updated model stormwater codes can be found in Appendix C and Appendix D of this report, respectively. CRWP added

recommendations to improve stormwater management and promote green infrastructure and assist communities with addressing Total Maximum Daily Load (TMDL) requirements associated with their MS4 Permits. Recommendations include:

1. Require stormwater management for all commercial and industrial site development or for projects with less than one acre of soil disturbance.
2. Credit volume reduction attained through low impact development stormwater control measures (SCMs) toward peak discharge requirements.
3. Require use of SCMs to reduce the temperature of runoff for development projects in watersheds draining to coldwater habitat streams.
4. Require redevelopment projects to manage greater than 20% of the water quality volume and incentivize infiltration-based SCMs for redevelopment.
5. Require soil preservation and post-construction soil restoration.

Adopting these recommendations will improve stormwater management on private developments, lessen the burden of aging and undersized stormwater infrastructure on public entities, improve water quality, and help communities meet permit requirements. Language describing the benefits of green infrastructure and runoff reduction practices for water quality in streams and Lake Erie and other community co-benefits of green infrastructure was also added to the model code. Key stormwater code recommendations and rationale are summarized below.

### **1. Stormwater management for all commercial and industrial site development or for projects with less than one acre of soil disturbance**

Development and redevelopment of small sites less than one acre provides an opportunity to lessen the burden of stormwater runoff on MS4s. CRWP recommends communities require post-construction stormwater management for all commercial and industrial site development. The City of Eastlake already requires stormwater management for all commercial and industrial development projects. Communities may also consider adopting a lower than one acre threshold for stormwater management requirements to minimize these impacts. Reviewing building permits for typical residential and commercial development may assist communities with determining an appropriate threshold. For example, the City of Lakewood requires stormwater

management for all developments disturbing 8,000 square feet or more (Lakewood Zoning Code Chapter 1339.01). The City of Aurora requires a Comprehensive Stormwater Management Plan for additions to commercial or industrial properties where that addition will add more than one-half (½) acre of impervious area to this site. (Aurora Zoning Code Chapter 1175.05). The U.S. government requires the sponsor of any development or redevelopment project involving a federal facility with a footprint that exceeds 5,000 square feet to use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow. Adopting this recommendation will help Phase II communities meet the TMDL requirements of their MS4 permit by addressing the following TMDLs: habitat, total suspended solids, nutrients, flow and dissolved oxygen.

## **2. Stormwater Quantity Control**

Research has demonstrated that low impact development (LID) SCMs such as permeable pavement and bioretention systems can reduce the volume and peak flow rates of runoff, even on sites with poorly draining soils (Winston et al. 2015). CRWP's revised model comprehensive stormwater management code includes recommended language that will allow communities to credit the runoff volume reduction provided by permeable pavement, bioretention or other LID SCMs toward the required volume for peak discharge requirements. The Ohio Department of Natural Resources is currently developing design guidance and volume reduction calculators to support crediting of runoff volume reduction from the use of LID SCMs toward local peak discharge requirements. The Chagrin River Watershed Partners, Inc. co-led research to inform the development of these tools with ODNR, Old Woman Creek National Estuarine Research Reserve, North Carolina State University, and Erie Soil and Water Conservation District. Adopting this recommendation will help Phase II communities meet the TMDL requirements of their MS4 permit by addressing the following TMDLs: flow, habitat, nutrients, dissolved oxygen and bacteria (bioretention only).

## **3. Stormwater Quality Control**

Especially during the summer, pavement and rooftops capture solar radiation, reaching temperatures much higher than those of natural surfaces. During a storm, this heat is transferred

to stormwater runoff, with runoff temperatures at times exceeding 110°F. Heated runoff can potentially affect any aquatic ecosystem, but it is especially a concern in coldwater stream environments that support coldwater fish, such as the native brook trout for whom the maximum temperature requirements of less than 73°F in July. In addition to the direct effects of increased temperature, warm water contains less dissolved oxygen which is vital for fish and many other aquatic organisms. The survival of fish is important to both the ecosystem and the economy. For example, according to a 2011 survey by the U.S. Fish and Wildlife Service, an estimated 1.4 million anglers fishing in Ohio spend more than \$2.2 billion a year. CRWP recommends that communities require that development projects on sites within watersheds of coldwater habitat streams use SCMs that infiltrate the water quality volume or reduce the temperature of discharged runoff. SCMs that reduce the temperature of discharged runoff include bioretention, permeable pavement, underground detention, and incorporation of shading and infiltration in parking lot design (Jones and Hunt 2009, Long and Dymond 2013, University of New Hampshire Stormwater Center 2011, Wardynski et al. 2013). Adopting this recommendation will help Phase II communities meet the TMDL requirements of their MS4 permit by addressing habitat TMDLs.

#### **4. Stormwater Management on Redevelopment Projects**

Communities can reduce the burden on their stormwater infrastructure by incentivizing infiltration of stormwater runoff and removal of impervious surfaces. In addition to providing water quality benefits, these techniques reduce stormwater volume, which limits stress on community infrastructure and mimics pre-development hydrology. CRWP developed code recommendations to incentivize infiltration of stormwater runoff and removal of impervious surface during development based on model policies and design guidance currently in effect or in development for other states including Maryland and New York. CRWP recommends communities require that Comprehensive Stormwater Management Plans for redevelopment projects accomplish one of the following three options:

1. Reduce existing site impervious areas by at least 25 percent. A one-for-one credit towards the 25 percent net reduction of impervious area can be obtained through the use green roofs.
2. Infiltrate at least 25 percent of the water quality volume.

3. Capture, treat and release 50 percent of the water quality volume

Adopting this recommendation will help Phase II communities meet the TMDL requirements of their MS4 permit by addressing TMDLs for total suspended solids, nutrients, habitat, flow, dissolved oxygen and bacteria.

**5. Soil Preservation and Post-Construction Soil Restoration**

Healthy soils help reduce stormwater runoff. CRWP recommends that communities require development projects to minimize soil disturbance and protect soil from compaction. If soil disturbance is unavoidable, communities may require restoration of disturbed soils by tilling the subsoil to 15-18 inches, incorporating compost in the top 12 inches, and replacing topsoil to a minimum depth of 4 inches. This recommendation is based on standards adopted by King County, Washington and the City of Salem, Oregon. Soil restoration is also a recognized best management practice in the State of New York. Adopting this recommendation will help Phase II communities meet the TMDL requirements of their MS4 permit by addressing flow and habitat TMDLs.

**Outreach, Agency Review and Technical Assistance**

CRWP discussed and received feedback on its stormwater code updates from Jay Dorsey and John Mathews of the Ohio Department of Natural Resources, Division of Soil and Water Resources, Dan Bogoevski and Lynette Hablitzel of Ohio EPA, the Northeast Ohio Regional Sewer District, Cuyahoga Soil and Water Conservation District, Erie Soil and Water Conservation District, Lake Soil and Water Conservation District (Erosion and Sediment Control Code only), Old Woman Creek National Estuarine Research Reserve, municipal, consulting and consulting engineers. Stormwater code updates were also discussed with Tim Miller of the Lake County Stormwater Management Department and Lynn Garrity of the Ohio Department of Natural Resources Office of Coastal Management in regard to the Ohio Coastal Nonpoint Pollution Control Program.

CRWP's stormwater code recommendations were presented at the May 21, 2015 CRWP Board of Trustees meetings, which was attended by 32 local community staff and elected representatives; two offerings of a training that reached 119 engineers, landscape architects, local

government employees, state agency staff members, and soil and water conservation districts; and the 2015 Ohio Stormwater Conference. CRWP has begun distributing the model stormwater codes to its members and developed coldwater habitat maps for Solon, Aurora, Chagrin Falls Village and Mayfield Village to aid communities in considering requiring use of stormwater control measures that reduce the temperature of runoff in sites draining to cold water habitat streams. Examples of these maps can be found in Appendix E.

CRWP worked with Ohio EPA and the Northeast Ohio Areawide Coordinating Agency through the Northeast Ohio Stormwater Training Council to develop pollutant factsheets, an up-to-date regional map of urbanized areas, and a comprehensive spreadsheet of the Total Daily Maximum Loads (TMDL) that apply to Northeast Ohio communities. CRWP worked with NEOSWTC to host a training on these materials in February 2015 to help Phase II communities understand the TMDL process and how it applies to their Stormwater Management Program (SWMP) and code updates that must be completed by the end of 2016.

Conservation development and parking code updates were developed in coordination with Kirby Date of Cleveland State University and the Ohio Balanced Growth Program and Dave Radachy of the Lake County Planning Commission. CRWP gave a presentation on model off street parking, riparian and wetland setbacks, conservation development and stormwater codes at the American Planning Association's 2014 Northeast Ohio Planning and Zoning Conference. The updated off-street parking code is available on CRWP's website. Model conservation development and stormwater codes are available upon request.

## **Technical Assistance with Balanced Growth and Best Local Land Use Practice**

### **Implementation**

- CRWP partnered with Kirby Date of the Ohio Balanced Growth Program and the Northeast Ohio Stormwater Training Council to host a bus tour June 24, 2015 entitled *Utilizing Planning, Zoning, and Building Codes to Improve Stormwater Management*. The training focused on local stormwater projects that fulfilled multiple community planning goals for smart development and economic growth, and was attended by

approximately 50 stormwater professionals including consultants, engineers, and planners.

- Met with South Russell officials and staff to discuss the Village's stormwater management program and codes.
- Presented on stormwater code updates at a Kirtland Planning and Zoning meeting.
- Discussed erosion and sediment control code updates with the City of Willoughby.
- Analyzed forest cover trends for Russell Township. Canopy cover in 1995 was 7,872 acres or 63.7% of the land area in the township. Canopy cover increased to 66.8% in 2006 and then fell to 63.8% in 2010. CRWP observed that the overall trend of loss of canopy cover between 2006 and 2010 appears to be patterned in smaller lot-sized losses scattered throughout the Township, not large-scale clearing concentrated in a particular location.
- Held discussions with the Port Authority of Eastlake, Eastlake Economic and Community Development Council and Lake County Port and Economic Development Authority regarding priorities and funding opportunities for implementation of a park plan in a designated PCA along the Chagrin River. This planning area encompasses both PCAs and PDAs and builds on the balanced growth planning process, the City of Eastlake Comprehensive Plan, and the Lake County Coastal Plan. CRWP developed a map for the City of Eastlake highlighting recreation and public access opportunities, priority development and conservation areas, and flood control and stormwater management needs to assist with project planning and grant writing.
- Reviewed language for a conservation business development code in Mantua Township and provided Mantua Township with adoption assistance for the Commercial Development - Conservation District code. CRWP attended two Township Planning and Zoning meetings and one Township Trustees meeting to provide technical assistance on the adoption of the code.
- Discussed CRWP's model codes for stormwater management, off-street parking and conservation development with Mike Foley of the Cuyahoga County Department of Sustainability.
- Assisted Gates Mills with updating their protected land database and mapping PCAs.
- Discussed CRWP's model riparian setback code with staff of the Village of Gates Mills.

- Assisted Mayfield Village with stormwater code updates and operation and maintenance requirements.
- Met with the Orange Village Phase II Stormwater Committee on March 6, 2015 to review the Village's 2014 Phase II Annual Report and discuss erosion and sediment control and comprehensive stormwater management code updates.
- Assisted Willoughby Hills with implementation of its protected areas code.
- Reviewed Bainbridge Township's proposed zoning code updates and discussed methods to encourage bike parking and reduce parking lot size with Township staff.
- Shared the results of CRWP's research on the performance of low impact development stormwater control measures and suggested stormwater code updates at a NOACA Water Quality Strategic Plan stakeholders meeting on May 28, 2015.
- Reviewed Bainbridge Township's zoning code updates and made recommendations for inclusion of native planting provisions, additional riparian and wetland setback provisions, and landscaping in their Mixed Use Planned Unit Development district.
- Reviewed and edited a case study on the evolution of the City of Aurora's conservation development code for the Balanced Growth Program website.
- Met as part of a Tree Protection Regulation Advisory group on June 5, 2015 to advise Kirby Date of Cleveland State University's Best Local Land Use Practices program on the development of an innovative tree model code that facilitates/optimizes tree survival, is cost-effective, and is doable for both developers and communities.

### **Project Challenges and Future Implementation Needs**

Delays in finalizing Ohio EPA's general permit for Small Municipal Separate Storm Sewer Systems (MS4) and staff transitions postponed the update of CRWP's erosion and sediment control and comprehensive stormwater management codes. The draft permit contained additional requirements for local communities that must be included in CRWP's model codes for them to maintain compliance. In addition, work by CSU's Best Local Land Use Practices program on tree and soil protections for new development and redevelopment that would enhance further work on the model conservation development code extended past the grant end date. CRWP requested additional time at no additional cost to the grant for revision of the codes, request and receive review of the erosion and sediment control and comprehensive stormwater

management codes by Ohio EPA and assist communities with adoption of the revised codes. The request was granted and CRWP was able to complete the expected deliverables for the project. Beyond the grant term CRWP will continue to assist its communities with adoption and implementation of model codes to promote green infrastructure and implement balanced growth plans. A key need to support implementation of local codes promoting green infrastructure is state guidance for crediting runoff volume reduction from low impact development stormwater control measures. CRWP plans to seek additional funding to continue implementation and refinement of its model code suite as an accessible quality standard for not only Chagrin River watershed communities but also for communities throughout the Lake Erie watershed.

## References

- Jones, M.P. and W.F. Hunt. 2009. "Bioretention impact on runoff temperature in trout sensitive waters." *Journal of Environmental Engineering*, August 2009, 577 - 585.
- Long, D.L. and R.L. Dymond. 2013. "Thermal pollution mitigation in cold water stream watersheds using bioretention." *Journal of the American Water Resources Association*, 50 (4): 977-987.
- University of New Hampshire Stormwater Center. 2011. *Examination of thermal impacts from stormwater best management practices*. Report prepared with support from U.S. Environmental Protection Agency Region 1 TMDL Program, January 2011.
- Wardynski, B.J., R.J. Winston, and W.F. Hunt. 2013. "Internal water storage enhances exfiltration and thermal load reduction from permeable pavement in the North Carolina mountains." *Journal of Environmental Engineering*, February 2013, 187 – 195.
- Winston, R.J., J.D. Dorsey, and W.F. Hunt. 2015. *Monitoring the Performance of Bioretention and Permeable Pavement Stormwater Controls in Northern Ohio: Hydrology, Water Quality, and Maintenance Needs*. Report to Chagrin River Watershed Partners, Inc., August 15, 2015.

# LAKE ERIE PROTECTION FUND

## SMALL GRANT - FINAL ACCOUNTING

Grant Number: 461-2014

v2016

Budget Categories	Original Budget	Funds Spent	Current Balance	Matching Funds
<b>A. Salaries &amp; Wages</b>				
CRWP Director and Staff	12730	12179.46	0.00	5271.87
<b>B. Fringe Benefits</b>				
CRWP Director and Staff	1747.20	2297.74	0.00	944.65
<b>C. Total Salaries &amp; Benefits (A+B)</b>	<b>\$14,477.20</b>	<b>\$14,477.20</b>	<b>\$0.00</b>	<b>\$6,216.52</b>
<b>D. Non-expendable Equipment</b>				
<b>E. Expendable Materials &amp; Supplies</b>				
<b>F. Travel</b>				
<b>G. Services or Consultants</b>				
LCPC for Staff Support	522.80	522.80	0.00	
<b>H. Computer Costs</b>				
<b>I. Publications/Presentations</b>				
<b>J. All other direct costs</b>				
<b>K. Total Direct Costs (C thru J)</b>	<b>\$15,000.00</b>	<b>\$15,000.00</b>	<b>\$0.00</b>	<b>\$6,216.52</b>
<b>L. Indirect Costs</b>				
<b>Total Costs (K + L)</b>	<b>\$15,000.00</b>	<b>\$15,000.00</b>	<b>\$0.00</b>	<b>\$6,216.52</b>

Ohio Lake Erie Commission  
 111 E. Shoreline Drive  
 Sandusky, Ohio 44870  
 p 419-621-2040  
 f. 419-621-2042  
 lakeerie.ohio.gov

I certify that the grant expenditures listed and descriptions of the charges are true and accurate to the best of my knowledge. These expenditures represent approved grant costs that have been previously paid for and for which complete documentation is on file.

Project Director  
 Authorizing Agent  
 Fiscal Agent

*[Handwritten Signature]*  
*[Handwritten Signature]*  
*[Handwritten Signature]*

Date  
 | 12/29/15  
 | 12/29/15  
 | 12/29/15

# Appendix A



**MODEL ORDINANCE FOR OFF STREET PARKING**

**PLEASE NOTE**

- The following model parking ordinance is recommended as part of a community’s regulations to minimize impervious cover and improve stormwater management.
- This model may need to be modified to fit the needs of each community. This includes integration with current local parking requirements and comprehensive stormwater management regulations. Please contact CRWP for assistance in tailoring this model to your community’s needs, development patterns, and current requirements.

Throughout this model duties are assigned to the “*Community*.” These should be assigned to specific staff and departments. Areas in *bold/italics* need to be adjusted for your community.

**WHEREAS**, the construction of parking areas in the [*watersheds to which community belongs*] watershed[s] increases impervious cover, alters the hydrologic response in *these/this* watershed[s], and increases in the rate and volume of stormwater run off; and,

**WHEREAS**, flooding is a significant threat to property and public health and safety, and pervious surfaces lessen the damage from flooding by slowing water velocity, enabling water to soak into the ground, and by providing temporary storage of runoff; and,

**WHEREAS**, streambank erosion is a significant threat to property and public health and safety, and limitations on impervious cover, including in parking areas, slow runoff and reduce its erosive force; 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*] watershed[s] 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/this* watersheds to minimize flooding and streambank erosion by controlling runoff within its borders; and,

**WHEREAS**, the [*river, if State Scenic*], 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,

**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**, 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 Stormwater Management Program that, among other components, requires the [*Community*] to implement standards,



principles, and procedures to regulate the quality of stormwater runoff during and after soil disturbing activities, including the construction of parking areas; 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.

**SECTION 1:** Codified Ordinance *Chapter XXXX Off Street Parking Regulations* is hereby adopted to read in total as follows:

**CHAPTER XXXX  
OFF STREET PARKING REGULATIONS**

**XXXX.01 PURPOSE AND SCOPE**

- A. The purpose of this regulation is to establish technically feasible and economically reasonable parking standards to achieve a level of stormwater 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 control the volume, rate, and quality of stormwater originating from their parking areas so that surface water and ground water are protected and flooding and erosion are not increased. Specifically, applicants must:
  - 1. Minimize the creation of excess impervious cover:
  - 2. Preserve infiltration and ground water recharge, and maintain subsurface flow that replenishes water resources, except in slippage prone soils.
  - 3. Incorporate stormwater quality and quantity controls into parking area design at the earliest possible stage in the development or redevelopment process.
- C. The *[Community]* established this regulation to:
  - 1. Reduce minimum parking requirements and set minimum and maximum parking ranges.
  - 2. Encourage stormwater management practices in parking areas including pervious pavements, bioretention, and other practices that integrate stormwater management into parking and landscaping areas.
  - 3. Reduce the pollutant load and temperature of stormwater runoff from parking areas.
  - 4. Promote the general convenience, welfare, and prosperity of residential, industrial, commercial, and institutional uses that depend on off-street parking.
  - 5. Promote shading and cooling of parking areas.
  - 6. Promote multiple modes of transportation, including bicycling.
- D. This regulation shall apply to all parcels used or being developed, either wholly or partially, for new or redevelopment projects involving parking areas on industrial, commercial, institutional, or residential projects.

**XXXX.02 DEFINITIONS**

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



- A. ALLEY: A dedicated public way not more than 30 feet wide affording a secondary means of access to abutting property and not intended for general traffic circulation.
- B. COMMERCIAL VEHICLE: Any vehicle serving purposes other than the transportation of persons or registered for a gross vehicle weight of more than 9,000 pounds. This definition includes, but is not limited to buses, semi-trailers, tractors, skid loaders, flatbeds, dump trucks, hearses, farm equipment, trailers, and trucks that are designed for use in construction, snow removal, or tree trimming.
- C. 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.
- D. IN-LIEU PARKING FEES: Provides the developer with an option to build the required number of parking spaces or contribute fees to a fund at the direction of the *[Community]*. These fees may be used at a future date for off-street parking facilities. Fees may also be used to fund programs that promote alternative modes of transportation. In-lieu fees provide opportunities to cluster parking, to build parking more efficiently, and to facilitate development in locations with difficult parcel configurations. Fees can be calculated on a case-by-case or on a fee per space basis.
- E. LOADING SPACE: An off-street space, on the same lot with a building or group of buildings, for the temporary parking of a commercial vehicle while loading and unloading merchandise or materials.
- F. LOADING DOCK: A large building door primarily used for loading/unloading items from trucks. The floor of a loading door dock is raised above the truck ramp's surface. This excludes bay doors that are large building doors through which vehicles can drive.
- G. LAND BANKING: An adjustment to parking requirements that is a specific agreement between a property owner and the *[Community]* that the number of spaces actually needed for a building or land use is, or will likely be, less than otherwise required due to the site-specific circumstances such as provision for shared parking or alternative transportation reduction actions. The petitioner for an adjustment must agree to provide an area of land or the right to the use of land set aside for possible future development of a surface lot or parking structure so that if circumstances prove that more parking is required, it can be added. This set aside area is called a Land Bank.
- H. PARKING: The placement of automobiles, trucks, trailers, semi-trailers, inter-modal cargo containers, or other vehicles for 5 or fewer days.
- I. PARKING AREA: All areas, spaces, and structures designed, used, required, or intended to be used for the parking of more than 3 motor vehicles. This definition is intended to include adequate driveways, access ways, parking bays, garages, or a combination thereof, but does not include public roads, streets, highways, and alleys.
- J. PARKING SPACE: An area of definite length and width designed for parking of motor vehicles; said area shall be exclusive of drives, aisles, or entrances giving access thereto.
- K. SHARED PARKING: Parking areas that serve 2 or more land uses, either on the same site or



nearby sites.

**XXXX.03 APPLICABILITY**

All off-street parking for new or redevelopment projects in industrial, commercial, institutional, or residential areas shall meet the requirements of this regulation.

**XXXX.04 GENERAL REQUIREMENTS.**

- A. Required off-street parking shall not occupy livable space or loading facilities.
- B. Required off-street parking shall not be used for the storage, sale, dismantling, or servicing of vehicles, equipment, materials, or supplies.
- C. Required off-street parking shall be located on the lot containing the use for which the required parking is being provided, unless a shared parking agreement has been accepted by the [Community] per Section XXXX.07 of this regulation.
- D. The capacity of an off-street parking area shall be the number of parking spaces, having required dimensions.
- E. The construction and surfacing of required off-street parking shall be completed prior to the initiation of the use, unless an extension is granted by the [Community].
- F. The final design of all off street parking shall be approved by the [Community] engineer.

**XXXX.05 DESIGN STANDARDS FOR OFF-STREET PARKING**

The following standards shall apply:

- A. All required off-street parking spaces shall have a vertical clearance of at least six (6) feet and six (6) inches.
- B. Handicapped off-street parking spaces shall be provided in size and number as specified in the Ohio Basic Building Code.
- C. Required off-street parking spaces shall have a maximum square foot area of no more than 165 square feet or 8.5 feet wide and 19 feet in length exclusive of access drives and aisles.

**XXXX.06 STANDARD SPECIFIC DESIGN REQUIREMENTS FOR REDUCING IMPERVIOUS COVER ON PARKING AREAS**

- A. Compact car parking spaces and minimizing stall dimensions:
  - 1. Parking areas designed to hold 100 parking spaces or more shall dedicate at least 25% of the spaces to compact cars.
  - 2. The maximum layout dimensions for compact car parking spaces shall be 130 square feet. See Table 1 in Section XXXX.06.C.5 for recommended dimensions.
  - 3. The owner of the parking area shall designate compact car spaces by signs approved



by the [Community] with a minimum of 1 sign per every 4 compact car spaces.

4. Compact car parking spaces shall be grouped to promote better use.

**Note: Please review the above requirements regarding the percentage of off street parking dedicated to compact cars to ensure it is acceptable to your community.**

B. Parking lot access drives and aisle ways:

1. Access drives: Drive apron access widths and geometries shall conform to the *ODOT Location and Design Manual*.

- a. Two-way access drives shall not be wider than 28 feet not including the apron.
- b. One-way access drives shall not be wider than 20 feet not including the apron.
- c. Joint use driveways: A system of joint use driveways and cross access easements shall be established and used to the maximum extent practicable as determined by the [community]. The system of joint use driveways shall incorporate the following:
  - i. A design speed of 10 miles per hour (mph) and a maximum width of 28 feet to accommodate two-way travel aisles designated for automobiles, service vehicles, and loading vehicles.
  - ii. Stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide cross-access via a service drive.
  - iii. A unified access and circulation plan for coordinated or shared parking areas.
  - iv. An easement with the deed recorded by all participating property owners allowing cross access to and from other properties served by the joint use driveways.

2. Parking lot aisle widths:

- a. Two-way parking aisle widths shall not exceed 22 feet.
- b. One-way parking aisle widths shall have the following maximum widths based on the configuration of the adjacent parking spaces:
  - i. Perpendicular 22 feet
  - ii. 60° 20 feet
  - iii. 45 -30° 18 feet

C. The maximum lengths and widths for parking spaces shall be as prescribed in the following



table. If a column or other obstruction is adjacent to a parking space and would interfere with car door openings, then the maximum stall width of that space shall be increased by 1 foot. The inner face of the column or other obstruction shall form the actual boundary of the space when measuring the width or length of the spaces.

Table 1

Parking Angle	Standard Parking Space (maximum 165 sq. ft.)		Compact Car Parking Space (maximum 130 sq. ft.)	
	Width (ft.)	Length (ft.)	Width (ft.)	Length (ft.)
0 (parallel)	7	22	7	18
45 to 59	8.5	19	8	16
60 to 75	8.5	19	8	16
90 (perpendicular)	8.5	19	8	16

D. Incorporation of stormwater control measures.

The following stormwater control measures shall be incorporated into the Comprehensive Stormwater Management Plan for the proposed development or redevelopment project involving the construction of off street parking. Review and approval by the [Community] engineer shall be as detailed in *Chapter XXXX Comprehensive Stormwater Management* as well as the required inspection and maintenance agreements and easements.

1. Permeable pavement: Permeable pavements shall be allowed upon review and approval by the [Community] engineer.
2. Interior landscaping: In addition to parking lot perimeter landscaping and screening requirements, surface parking lots shall include landscaping to cover not less than 10% of the parking and maneuvering area. This landscaping requirement shall include bioretention cells and sand filter strips for stormwater management where suitable and appropriate. The layout of the interior landscaped areas shall meet the following requirements:
  - a. Bioretention for stormwater management shall be allowed upon review and approval by the [Community] engineer.
  - b. Bioretention cells shall be arranged between rows of parking stalls to provide the maximum stormwater management benefit. Where parking lot dimensions, slopes, or other constraints make landscape strips between rows of parking unfeasible, interior landscaping shall be arranged in areas at the ends of rows of parking or between spaces within rows.



- c. Curbs separating landscaped areas from parking areas shall allow stormwater runoff to pass through them. Curbs shall be:
  - (A) Perforated with gaps or breaks, and
  - (B) Removed from the perimeter of paved areas, allowing sheet flow from stormwater runoff into the bioretention cells or sand filter strips.
3. Bioretention cells shall be designed and clearly signed so that they are not used for snow piling or any other above ground storage area(s).

**XXXX.07 SHARED PARKING**

The *[Community]* encourages parking lots for different land uses, or for mixed land uses, to be shared in any zoning district. At the applicant's request, shared parking may be provided, subject to the following provisions:

- A. A reciprocal written agreement shall be executed by all the parties concerned that guarantee the perpetual joint use of such common parking, a copy of which has been submitted to and is accepted by the *[Community]*.
- B. The *[Community]* may require the applicant to provide a parking study with information deemed necessary to its review of a shared parking arrangement. This information includes but is not limited to:
  1. The type and hours of operation and parking demand, for each land use.
  2. A site plan displaying shared use spaces in the lot and walking distance to the uses sharing the lot.
  3. A description of the character of land use and parking patterns of adjacent land uses.
  4. An estimate of anticipated turnover in parking space use over the course of 12 to 24 hours at the site.
- C. Parking spaces to be shared must not be reserved for individuals or groups on a 24-hour basis.
- D. Users sharing a parking facility do not need to be contained on the same lot, but each user shall be a maximum of 500 feet from the closest parking space in the lot providing the shared parking spaces. A waiver of the maximum allowable distance between the user and associated shared parking may be approved by the *[Community]* with written justification and supporting information provided by the applicant.
- E. Users sharing a parking facility shall provide for safe, convenient walking between land uses and parking, including safe, well-marked pedestrian crossings, signage, and adequate lighting.
- F. If the conditions for shared parking become null and void and the shared parking arrangement is discontinued, this will constitute a violation of zoning regulations for any use approved expressly with shared parking. The applicant must then provide written notification of the



change to the *[Community]* within 60 days of change, providing a remedy satisfactory to the *[Community]* to ensure adequate parking.

- G. Reduction in parking space requirements for shared parking: Where shared parking is provided among mixed land uses, the *[Community]* may allow the following reductions in parking space requirements, at the applicant's request:
1. Up to 30% of the parking spaces required for the predominant use on a site may be shared with other land uses operating during the same time of day and days of the week. The predominant land use is considered to be that which requires the most parking of those sharing the parking facilities.
  2. Up to 75% of the parking spaces required for uses such as theaters, public auditoriums, bowling alleys, nightclubs, movie theaters, and similar predominantly evening uses may be shared with uses such as banks, offices, and similar predominantly daytime uses.
  3. Up to 75% of the parking spaces required for land uses such as churches and other land uses predominantly operating during the weekend may be shared with uses such as medical offices, banks, and other similar uses predominantly operating on weekdays.

#### **XXXX.08 LAND BANKING OF REQUIRED PARKING**

Land banking for parking spaces may be authorized by the *[Community]* in the same manner as any other variance per the following conditions:

- A. Reduction in the number of parking spaces to actually be constructed may be authorized by the *[Community]* when the applicant shows that the required number of parking spaces set forth in the Exhibit A is substantially in excess of the parking needed to reasonably serve the employees, patrons, and other persons frequenting the subject property. The *[Community]* shall determine the number of parking spaces to actually be constructed as may be appropriate, in its opinion, based on the evidence submitted.
- B. Land bank provisions shall provide a site plan showing how the additional number of spaces otherwise required could subsequently be provided on the site. The additional parking area shall maintain all required yards, setbacks, and driveways for subject property and shall meet all requirements of this code. The additional parking areas design may be a surface lot or parking garage, as determined in the site plan.
- C. Sufficient usable space shall be reserved upon the subject property for the future construction of such additional spaces as may be necessary to accommodate any differential between the number of spaces to actually be constructed as part of the proposed project and the number of spaces required by the *[Community]* per Exhibit A. The reservation of said spaces and the purpose therefore, shall be shown upon the approved plan and shall be a component of any future submittal involving the subject property.
- D. The property deed shall be revised and re-recorded to include a deed restriction setting forth the area to be land banked and a statement of the purpose thereof, and binding any future



assigns or heirs to said restrictions and any other conditions as may be required by the [Community], in associated with this variance.

- E. A certified copy of the recorded deed with said restrictions shall be provided to the [Community], within 60 days of the [Community] action to approve this variance.

**XXXX.09 IN-LIEU PARKING**

The [Community] encourages parking lots for different land uses, or for mixed land uses, to have in-lieu parking in any zoning district. At the applicant’s request, in-lieu parking may be provided, subject to the following provisions:

- A. Within designated parking districts established by the [Community], and shown on the map, a parking requirement serving nonresidential uses on a site may be met by a cash in-lieu payment to the [Community] prior to issuance of a building permit or a certificate of occupancy if no permit is required. The fee shall be to provide public off-street parking in the vicinity of the use. The [Community] shall not be obligated to accept a fee for more than the contraction, acquisition and maintenance per space, and then only with the express approval of the [Community].
- B. In establishing parking districts, the [Community] may set limitations on the number of spaces or the maximum percentage of parking spaces required for which an in-lieu fee may be tendered.

**XXXX.11 PARKING SPACES PER LAND USES**

Exhibit A attached to this regulation and incorporated thereto details the parking requirement per each land use permitted in the [Community]. Parking requirements for any land use may be decreased, increased, and/or land banked by determination of the [Community] based upon evidence provided by the applicant from an acceptable industry publication (for example, the Institute of Transportation Engineers, Urban Land Institute, American Planning Association) or by a parking generation study prepared by a qualified professional that documents the requirements for said land use.

*The following list of parking recommendations has been cross-referenced with the 2002 American Planning Association “Parking Standards” Report*

**Exhibit A**

	<b>Minimum</b>	<b>Maximum</b>
<b>(a) Residential</b>		
Single Family	2 spaces per dwelling	None
Efficiency/Studio	1 spaces per unit	2 per unit
1 Bedroom Unit	1 spaces per unit	2 per unit
2 Bedroom Unit	1.5 spaces per unit	2.5 per unit
3 Bedroom Unit	2.25 spaces per unit	2.5 per unit
4 Bedroom Unit	2.5 space per unit	3 per unit



Extended-Stay Hotel/Rooming/Boarding House	0.5 space guest parking per dwelling unit	1.5 spaces/unit
<b>(b) Commercial Residential</b>		
Hotel	1 space per guest room	1.5 spaces/ guest room
Motel	1 space per guest room	1.5 spaces/ guest room
<b>(c) Institutions</b>		
Welfare or correctional	1 per employee of largest shift	1.5 per each employee of largest shift
Convalescent hospital, nursing home, sanitarium, rest home, home for the aged	1 space per 3 beds for patients or residents	1 space per 2.5 beds for patients or residents
Hospital	1.5 spaces per bed	2 spaces per bed
<b>(d) Places of Public Assembly</b>		
Church	1 space per 4 seats or 8 feet of bench length in the main auditorium	1 per 3 seats
Library, reading room, museum, art gallery	1 space per 400 square feet of usable floor area plus 1 space per 2 employees	1 per 250 sq. ft. of gross floor area
Pre-school nursery or kindergarten	2 spaces per teacher	2.5 spaces per teacher
Elementary or Junior High School	1 space per employee or 1 space per 4 seats or 8 feet of bench length in auditorium or assembly room, whichever is greater	1 per 15 classroom seats



High School	1 space per employee plus 1 space for each 6 students or 1 space per 4 seats or 8 feet of bench length in the main auditorium, whichever is greater	1 per 8 classroom seats
College or commercial school for adults	.33 space per classroom seat	0.4 space per classroom seat
Other auditorium or meeting room	1 space per 4 seats or 8 feet of bench length. If no fixed seats or benches, 1 space per 60 square feet of usable floor area	.3 space per seat
<b>(e) Commercial Amusements</b>		
Stadium, arena or theater	1 space per 4 seats or 8 feet of bench length	.3 space per seat
Bowling alley	6 spaces per lane plus 1 space per 2 employees	4 spaces per lane
Dance Hall or Skating Rink	1 space per 100 square feet of usable floor area plus 1 space per 2 employees	1 per 80 sq. ft. of usable floor area
Fitness facility or health center	1 space per 300 square feet of gross floor area	1 per 150 sq. ft. of gross floor area
<b>(f) Commercial</b>		
Beauty parlor and Barber shop	2 spaces for each beauty or barber chairs	3 spaces per beauty or barber chair
Retail store except stores selling bulky merchandise	1 space per 300 square feet of usable floor area	1 per 200 sq. ft. of gross floor area



Service or repair shops, retail stores and outlets selling furniture, automobiles, or other bulkymerchandise where the operator can show the bulky merchandise occupies the major area of the building	1 space per 600 square feet of usable floor area	1 per 500 sq. ft. of gross floor area
Bank or office (except medical and dental)	1 space per 300 square feet of usable floor area	1 per 150 sq. ft. of gross floor area
Medical and dental office or clinic	1 space per 150 square feet of usable floor area	4 per examination room
Eating or drinking establishments	1 per 4 seats	1 per 2.5 seats
Mortuaries	1 space per 5 seats or 10 feet of bench length in chapels	1 per 4 seats of maximum capacity
<b>(g) Industrial</b>		
Manufacturing establishment	1 per employee of largest shift	1.25 per employee of largest shift
Storage warehouse, wholesale establishment, rail or trucking freight terminal	1 per employee of largest shift	1.5 per employee of largest shift

\*Usable Floor Area; refers to areas that are NOT storage, shelf space, areas of floor standing equipment and walking areas/aisle.

**XXXX.12 BICYCLE PARKING**

Bicycle parking must be provided for all new non-residential development projects. Required bicycle spaces must meet the following design standards:

- A. Bicycle racks shall be capable of locking the bicycle and of supporting the bicycle in an upright position.
- B. Bicycle racks and lockers shall be securely anchored to the ground or a building. Bicycle racks must provide a stable frame to which the bicycle may be conveniently secured, such as the



inverted-U, post and loop, or another type of rack that meets these standards. Bicycle racks that support the wheel but not the frame of the bicycle may not be used.

- C. Installation of bicycle racks shall conform to the requirements set forth by the bicycle rack manufacturer with a rectangular space no less than 2.5 feet wide by 6 feet long per bicycle, unless a locker or permanent device to stand the bicycle on end is provided.
- D. Bicycle rack shall be installed with adequate space beside the parked bicycle so that a bicyclist will be able to reach and operate the locking mechanism.
- E. Pervious pavement in bicycle rack areas shall be encouraged.
- F. Bike racks shall be located such that they are highly visible from the street and/or building entrance from where bicyclists approach. Bicycle parking areas shall be separate from motor vehicle parking areas.

Bicycle parking shall be provided according to the following schedule. Non-residential uses not identified in the table below shall provide bicycle spaces equal to at least 5% of the required automobile parking spaces.

<b>Use</b>	<b># of Bike Spaces</b>
Church	1 per 40 seats
Theater	0.4 space/seat
Office	0.4 space/1,000 sq. ft.
Medical Office	0.4 space/1,000 sq. ft.
Nursing Home	1 per 20 employees
School	8 per classroom
Retail	0.3 per 1,000 sq. ft.
Restaurant	1 per 1,000 sq. ft.

*☞ Upon request, CRWP can provide language for reducing the number of car spaces provided if bicycle parking is offered.*

# Appendix B

# Conservation Development Overlay District

*NOTE: Conservation development is to be reviewed and approved at the local level. Provisions are given for use by townships. However, because subdivisions in townships must also be reviewed and approved by the County Planning Commission, the Model identifies ways in which county subdivision regulations may need to be modified in order to allow for conservation developments. The provisions in the Model Zoning Regulations sometimes overlap the Model Subdivision Regulations. To the extent that a township has adopted resource protection regulations and design criteria, the County Planning Commission should defer to the township's policy decisions. The model regulations should be carefully reviewed and only those standards and criteria that serve the goals of the community should be selected. THE LANGUAGE OF THE MODEL REGULATIONS SHOULD NOT BE ADOPTED VERBATIM.*

## **Section 100 PURPOSE AND AUTHORITY**

*NOTE: An overlay district refers to ORC 519.021 and is recommended over establishment of a separate district. Overlay districts allow for increased flexibility in local zoning since they more closely tailor needed requirements (or incentives) to areas within the community which share certain characteristics. Overlay districts are a useful and increasingly common tool employed by communities attempting to direct planning and land use controls at specific problems or issues. They should be carefully drafted to ensure that they reach planning and policy goals and are not simply another layer of general zoning regulation.*

The Conservation Development Overlay District is an overlay district referenced on the Official District Zoning Map to which it is applied; the rights and obligations hereinafter set forth are in addition to those specified by the underlying District.

The purpose of this overlay district is to preserve the critical natural resources of **[Community]** through the application of flexible residential development techniques in the arrangement and construction of dwelling units and roads. Such flexibility is intended to maximize the conservation of open space while accepting development and retaining the same overall density/development rights permitted under the current zoning district for the property. This code encourages innovative and livable housing environments within specially designated areas of the community through the permanent dedication of open space and a planned reduction of individual lot area requirements.

These codes are intended to achieve these corollary purposes:

- A. To promote health, safety, and welfare of the community by encouraging the most appropriate use of land throughout **[Community]**.
- B. To maximize protection of the community's natural resources by:
  - a. Avoiding development on and destruction of sensitive natural resource areas;

- b. Reducing the quantity and improving the quality of stormwater runoff from expected development;
  - c. Maintaining natural characteristics (such as woods, wetlands, floodplains, natural vegetation, meadows, slopes and streams);
  - d. Reducing the amount of disturbed land, limiting the conversion of natural areas to landscaped areas for lawns, and discouraging the use of non-native, invasive plant species; and
  - e. Conserving areas of prime agricultural soils, to the extent possible.
- C. To conserve (within the framework of natural resource conservation) the environmental quality in a community which is characterized by:
- a. Large, aggregated, undeveloped land areas;
  - b. Natural features such as woodlands, steep slopes, floodplains, wetlands, stream and river corridors, State Scenic rivers, and rock outcroppings;
  - c. Scenic vistas and rural views;
  - d. Significant historic features such as old barns, heritage trees, etc.;
  - e. Traditional historic settlement patterns characterized by clusters of compact groupings of development in otherwise wide open spaces; and/or
  - f. Appropriate topographic or vegetative screening.
- D. To encourage more efficient use of land and public services through unified development.
- E. To establish development review criteria which promote creative design solutions in a manner which best conserves the area's resources.
- F. To establish a review process which maintains local review and approval of the overall development plan and which results in the timely consideration of an application.
- G. To ensure that the proposed Conservation Development complies with the objectives of ***[Community] as expressed in [Community Open Space Plan, Balanced Growth Plan, Watershed Action Plan, Comprehensive Plan or other existing documents that establish priority areas for open space conservation, environmental resource protection, or other community considerations related to conservation development.]***

These regulations are established under the authority of the Ohio Revised Code (ORC) Section 519.021, Planned Unit Development or ORC 713.06-ORC 713.12.

All subdivision standards and procedures in these regulations are applicable to conservation developments unless specifically waived or modified by this Section and approved by the County or municipal Planning Commission.

## Section 110 DEFINITIONS

*NOTE: Since these regulations are intended to be incorporated in the Zoning Resolution, it is recommended that these definitions be located within the Resolution's overall Definitions article. Many of these terms may already be defined in the Zoning Resolution, in which case care must be taken to ensure that conflicting definitions are eliminated and terms are used consistently throughout the Resolution. In the case of an "overlay district", it is possible that two sets of definitions could apply to one district, which must be avoided by incorporating all of the definitions into one set.*

For the purpose of these regulations the following terms, whenever used in these regulations, shall have the meaning herein indicated:

- A. **ACTIVE RECREATION:** Leisure time activities characterized by repeated and concentrated use of land, often requiring equipment and taking place at prescribed places, sites or fields. Examples of active recreation facilities include community centers, pavilions, gazebos or similar structures, golf courses, tennis courts, swimming pools, softball, baseball, and soccer fields. For the purpose of these regulations, active recreation facilities do not include paths for bike riding, hiking, and walking, and unpaved picnic areas.
- B. **ASSOCIATION:** A legal entity operating under recorded land agreements or contracts through which each unit owner in a conservation development is a member and each dwelling unit is subject to charges for a proportionate share of the expenses of the organization's activities such as maintaining restricted open space and other common areas and providing services needed for the development. An association can take the form of a homeowners' association, community association, condominium association or other similar entity.
- C. **BUILDING ENVELOPE:** An area within a conservation development that is designated as a location within which a dwelling unit is to be placed in compliance with the building setback and spacing requirements established by the township zoning regulations. A building envelope may or may not be located within a subplot and may or may not have frontage on a public street.
- D. **BUFFER:** A designated area between uses or adjacent to the perimeter of natural features designed and intended to provide protection and which shall be permanently maintained.
- E. **COMMON AREA:** Any land area, and associated facilities, within a conservation development that is held in common ownership by the residents of the development through a Homeowners' Association, Community Association or other legal entity (political subdivision or 501(c)(3) non-profit), or which is held by the individual members of a Condominium Association as tenants-in-common.

- F. CONSERVATION DEVELOPMENT: A contiguous area of land to be planned and developed as a single entity, in which housing units are accommodated under more flexible standards, such as building arrangements and setbacks, than those that would normally apply under single-family district regulations, allowing for the flexible grouping of houses in order to conserve open space and existing natural resources.
- G. CONSERVATION EASEMENT: A legal interest in land which restricts development and other uses of the property in perpetuity for the public purpose of preserving the rural, open, natural or agricultural qualities of the property as authorized by ORC§ 5301.67 through 5301.70.
- H. CONVENTIONAL SUBDIVISION: A major or minor subdivision, as defined by the Ohio Revised Code, in which property is subdivided into lots having the minimum front, side and rear yards as specified by the Zoning Resolution and with each lot having the requisite frontage on a dedicated public right-of-way.
- I. DEVELOPMENT AGREEMENT: The complete package of information and submittals an applicant for a Conservation Development must have approved by **[Community]** before beginning construction. This Agreement shall contain approved versions of all necessary materials required per the terms of the underlying District and the Conservation Development Overlay.
- J. DEVELOPMENT PLAN: A proposal including drawing(s) and map(s) for a conservation development, prepared in accordance with these regulations, illustrating the proposed design, layout and other features for the development and including all elements set forth in this code.
- K. DWELLING, DETACHED SINGLE-FAMILY: A building designed for, or used exclusively for, residence purposes by one family situated on a parcel having a front, side, and rear yard.
- L. DWELLING, SINGLE-FAMILY ATTACHED: Dwelling units that are structurally attached to one another, side by side, and erected as a single building, each dwelling unit being separated from the adjoining unit or units by a party wall without openings extending from the basement floor to the roof with each unit including separate ground floor entrances, services, and attached garages.
- M. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA): The agency with the overall responsibility for administering the National Flood Insurance Program (NFIP).
- N. 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.

- O. **INVASIVE SPECIES.** Organisms that harm, or have the potential to harm, the environment, economy, or human health; species so listed shall be as defined by the Ohio Department of Natural Resources.
- P. **ISOLATED LAND.** Any portion of the parcel that is separated from the remainder of the parcel by slope exceeding 25%, an Ohio EPA Category 2 or 3 wetland, a watercourse, or other feature that would not support a road and/or crossing under normal building standards and applicable state and federal permit requirements.
- Q. **LAND TRUST:** A non-profit, tax-exempt entity whose primary purpose includes the preservation of open space, natural land, rural land, or agricultural land, and which is permitted to hold conservation easements under ORC§ 5301.68.
- R. **LOT or SUBLOT:** For the purposes of the conservation development regulations, a lot or subplot shall be a parcel of land owned fee simple and intended for a single dwelling unit whether or not such lot or subplot is located with frontage on a dedicated right-of-way.
- S. **NATIVE LANDSCAPING:** Landscaping which principally uses hardy, primarily native, plants and vegetation, including wildflowers and prairie grasses, which require little or no artificial planting and care.
- T. **NATURAL FEATURE:** An existing component of the landscape maintained as a part of the natural environment and having ecological value in contributing beneficially to air quality, erosion control, groundwater recharge, noise abatement, visual amenities, the natural diversity of plant and animal species, human recreation, reduction of climatic stress, and energy costs.
- U. **OHIO EPA WETLANDS:** Those wetlands classified as Category 1, 2, or 3 wetlands under OAC 3715-1-54, in accordance with generally accepted wetland assessment methods acceptable to the U.S. Army Corps of Engineers and Ohio EPA at the time of application of this regulation.
- V. **OPEN SPACE:** An area that is intended to provide light and air. Open space may include, but is not limited to, meadows, wooded areas, and waterbodies. See also Restricted Open Space.
- W. **OVERLAY DISTRICT:** A zoning district which is superimposed over an underlying zone, or zones, which identifies special provisions in addition to those in the underlying zone(s).
- X. **PRIVATE ROAD OR DRIVEWAY:** Every way or place in private ownership used for vehicular travel by the owner and those having express or implied permission from the owner but not by other persons, that is maintained by the owner.

- Y. **PROJECT BOUNDARY:** The boundary defining the tract(s) of land that is included in a development project to meet the minimum required project area for a conservation development. The term “project boundary” shall also mean “development boundary”.
- Z. **RESTRICTED OPEN SPACE:** Open space within a conservation development that is of sufficient size and shape to meet the minimum zoning requirements that is restricted from further development according to the provisions of this chapter.
- AA. **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.
- BB. **RIPARIAN SETBACK:** Also known as a stream setback, defined as the real property adjacent to a designated watercourse or wetland where natural vegetation is encouraged and soil disturbing activities are limited, as defined by the [Community’s riparian or stream setback regulation] or the criteria set forth in this regulation.
- CC. **SHARED-USE PATH:** A public way with paved or other hard surfaces and sufficient width to allow pedestrians, cyclists, and other users the ability to use the path, that may or may not be located in the street right-of-way.
- DD. **SPECIAL FLOOD HAZARD AREA:** The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The SFHA may also refer to areas that are flood prone and designated from other federal state or local sources of data including but not limited to historical flood information reflecting high water marks, previous flood inundation areas, and flood prone soils associated with a watercourse. The SFHA includes:
1. **FLOODPLAIN:** Any land area susceptible to being inundated by flood waters from any source. 100-year floodplains are defined by these classifications:
    - a) **Zone A:** The SFHA (except coastal V Zones) shown on a community’s Flood Insurance Rate Map. There are five types of A Zones:
      - 1) **A:** SFHA where no base flood elevation is provided.
      - 2) **A1-30:** Numbered A zones (e.g., A7 or A14), SFHA where base flood elevations are provided relative to the National Geodetic Vertical Datum (NGVD).
      - 3) **AE:** SFHA where base flood elevations are provided. AE zone delineations are now used on new FIRMs instead of A# Zones.

- 4) AO: SFHA with sheet flow, ponding, or shallow flooding. Base flood depths (feet above grade) are provided.
  - 5) AH: Shallow flooding SFHA. Base flood elevations in relation to NGVD are provided.
  - b) Zone B: Area of moderate flood hazard, usually depicted on Flood Insurance Rate Maps (FIRMs) as between the limits of the base and 500-year floods. B Zones are also used to designate base floodplains of little hazard, such as those with average depths of less than 1 foot. B zones may have flooding that does not meet the criteria to be mapped as a SFHA.
  - c) Zone C: Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. C Zones may have flooding that does not meet the criteria to be mapped as a SFHA.
2. FLOODWAY: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.
- EE. STRUCTURAL STORMWATER CONTROL MEASURES: Structural Stormwater Control Measures, also known as Structural Best Management Practices, are practices that must be built to provide treatment of stormwater either through storage, filtration or infiltration. Examples include dry detention basins, bioretention cells, permeable pavement systems, sand filters, vegetated filter strips, water quality swales, and infiltration trenches.
- FF. WATER RESOURCE: Any public or private body of water including lakes and ponds, as well as any watercourse.
- GG. WATERCOURSE: Any brook, channel, creek, river, or stream having banks, a defined bed, and a definite direction of flow, either continuously or intermittently flowing.
- HH. 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).
- II. WETLAND SETBACK: The real property adjacent to a designated wetland where natural vegetation is encouraged and soil disturbing activities are limited, as defined by *[the Community's wetland setback regulation]* or the criteria set forth in this regulation.

**Section 120 PERMITTED USES**

*NOTE: In the past, many communities have designated standard development as the permitted use, and conservation development as a conditional use. This is a disincentive to the applicant to choose conservation development, since the conditional use increases the risk and time needed to accomplish the development review. This model designates both standard and conservation development as permitted uses, with clear review criteria, to make both approaches equal in risk and time. It should be noted that some communities have recently chosen to designate the conservation development as a permitted use, and standard development as a conditional use.*

The following uses shall be permitted based on the type of development proposed:

- A. Conservation Development in accordance with the regulations set forth in Sections 130 through 180, inclusive:
  - 1. Detached single-family dwellings;
  - 2. Single-family attached dwellings;
  - 3. Recreation facilities for use by residents;
  - 4. Accessory buildings;
  - 5. Restricted open space as required in Section 140.

*NOTE: Attached units are recommended when the permitted density is two units/acre or higher, otherwise it may not be possible to achieve the required open space or to aggregate the open space in a desirable manner.*

- B. Standard detached single-family dwellings in accordance with the regulations set forth in Chapter [XX.XX].

*NOTE: This option is the conventional lot-by-lot single-family development currently in the community's zoning and which typically has no requirement for open space. The reference should be to the existing single-family district regulations. Area and bulk requirements for the standard detached single-family dwelling remain in effect should a property owner choose this option. The existing single-family district standards should be the basis for determining many of the standards for conservation development.*

**Section 130 ESTABLISHMENT OF CONSERVATION DEVELOPMENT DISTRICT**

The following shall govern the establishment of any Conservation Development:

- A. No Conservation Development shall be permitted or approved except subsequent to petition by the owner(s) of land proposed to be included within the Conservation Development.
- B. Sewage Treatment Facilities. When sewers are not available, each Conservation Development shall be served by an on-site wastewater disposal system approved by the

*[Community]* in coordination with the *[Appropriate Board/Department of Health]* or the Ohio Environmental Protection Agency. Said system may provide for a common system, serving all properties, if practical and feasible, and allowable by those agencies having approval/permitting authority over such systems.

- C. Each Conservation Development shall have a minimum area of not less than twenty (20) contiguous acres. Property that is contiguous to other property at any point that is burdened by a public right-of-way shall not be deemed contiguous for the purposes of this code. The area proposed shall be in one ownership or, if in multiple ownership, the application shall be filed jointly by all the owners of the properties included in the conservation development.

*NOTE: A minimum project size ensures that at least a minimum amount/size of open space will be conserved. The appropriate size may vary from community to community depending on the patterns of lot ownership, the extent of existing development, etc. However, a larger minimum project size is preferred over a smaller minimum not only because of the potential for larger contiguous areas of open space but also to ensure that the homeowners' association is large enough to sustain itself and fulfill its open space management and maintenance responsibilities.*

*A smaller project size may be appropriate, especially when the restricted open space for the project is a targeted component of the community's overall open space plan.*

#### **Section 140 PERMITTED DENSITY**

- A. The maximum density shall be *[X]* dwelling units per acre. The maximum number of dwelling units permitted in a conservation development shall be calculated by:
1. Deducting the following from the total project area:
    - a) Any public right-of-way within the project boundary existing at the time the development plan is submitted; and
    - b) Where the underlying minimum lot size is greater than 1/2 acre: The area of the SFHA, designated wetlands, isolated land, slopes exceeding 25%, or water resources that exceed the minimum acreage required for restricted open space as set forth in Section 150. Where the SFHA and wetlands overlap, they shall be counted only once. OR
    - c) Where the underlying minimum lot size is less than 1/2 acre: The area of the SFHA, designated wetlands, isolated land, slopes exceeding 25%, or water resources.
  2. Multiplying the result of subsection 1 by the maximum density permitted per acre as set forth in this Section above.

*NOTE: The overall density of the project is the most important factor in determining its overall character and compatibility with the surrounding community. Each community needs to establish the precise density for conservation development based on its prevailing characteristics. Normally, this will be the actual overall density that is typically built in standard development in the single-family zoning district now in place in the areas where conservation development is desired. This is known as “neutral density”. Refer to Appendix A, “Calculating Density” for recommendations and explanations regarding the options for density calculations in conservation development codes.*

**Section 150 REGULATIONS FOR RESTRICTED OPEN SPACE**

- A. The minimum restricted open space shall be based off the following maximum density ranges:
1. Fifty percent (50%) minimum restricted open space for a maximum density of 2 units/acre or less;
  2. Forty percent (40%) minimum restricted open space for a maximum density greater than 2 units/acre.

*NOTE: It is recommended that local officials test the various density and open space parameters on existing conventional subdivisions in their community, to ensure creation of a code that maximizes the community’s conservation development potential. Some communities may be able to set minimum open space restrictions at greater than 50%, for example, and preserve more contiguous natural areas as a result.*

- B. To encourage the development of larger areas of open space, a density bonus on a sliding scale has been established. The community will afford increases in the permitted base density, as determined in Section 140 above, as designated areas of open space within the development are increased. The following table sets forth the allowable density bonuses based on the percentage of open space proposed. Open space areas proposed shall be limited to the percentages outlined below and shall be in conformance with the design criteria set forth in Section 150. The maximum allowable increase in the base density shall not exceed 10%. If the result of the bonus calculation is not a whole number, the community may round up or down to the nearest whole number at their discretion.

Open space (%)	Density Increase (%)
45-49.9	2
50-59.9	5
60-69.9	8
70+	10

*NOTE: This language on density bonus can be optional, as communities may or may not be able to implement this effectively.*

- C. Restricted open space shall be located and designed to be integrally related to the overall design of the development and to conserve and protect significant natural features. The following shall be protected:
1. Streams, lakes, and rivers;
  2. The SFHA;
  3. And riparian areas and wetlands.

*NOTE: The community can add to this list in order of priority additional features they would like to conserve and protect. Suggestions include: steep slopes, woodlands, historic features, or other environmentally sensitive areas.*

- D. Restricted open space shall be kept in its natural state unless authorized in an approved Development Plan, and shall be planted with native landscaping wherever possible.
- E. All of the restricted open space within a Conservation Development shall be contiguous unless otherwise specifically authorized by [**Community Authority**]. It is preferred that proposed restricted open space abut areas that have existing conservation easements. Where possible, restricted open space shall be connected with open space areas on land adjacent to the development.

*NOTE: County Health Department regulations include minimum requirements for area, length, and width of on-site septic systems and minimum spacing of such systems from site elements as well as from other systems. It is recognized that such requirements are likely to require larger lots and greater spacing between buildings, thereby reducing flexibility in the arrangement of units and limiting the conservation of open space.*

*However, whenever on-site septic systems are required, two approaches are possible: the septic system is located in the restricted open space and septic easements are granted to homeowners; or conservation easements could be applied over contiguous private yards. In either option, the easement would permit construction and maintenance of the septic system. Otherwise, these areas would be “conserved” and be part of the natural area or restricted open space. In either case, the spacing requirements for the leach fields may not permit the grouping of units to the extent advocated in this Model.*

*In order to maximize rear yard areas for conservation easements, the front building setback should be reduced. The area of the conservation easement should only be disturbed for the construction and maintenance of septic systems. All other structures, impervious surfaces, tree cutting, grading and similar environmental impacts would be prohibited or discouraged. Despite this accommodation for individual septic systems on large lots, conservation development principles prefer the restricted open space alternative where possible.*

- F. In order to encourage the creation of large areas of contiguous open space, areas that shall not be considered restricted open space include:
1. Private roads and public road rights-of-way;
  2. Parking areas, accessways and driveways;
  3. Required setbacks between buildings, parking areas and project boundaries;

4. Required setbacks between buildings and streets;
5. Minimum spacing between buildings, and between buildings and parking areas;
6. Private yards;
7. A minimum of 15 feet between buildings and restricted open space;
8. Areas containing wastewater treatment, water supply, wells, drilling and mining operations, and/or structural stormwater control measures; and
9. Other small fragmented or isolated lands that:
  - a) have a dimension less than **[X]** feet in any direction; and
  - b) Are less than one (1) acre in total area.

*NOTE: Recommended standards for 9(a) range from 50-100 feet. While we recognize that the above land fragments serve important functions to ensure adequate light, air, and privacy for units, this provision helps simplify the density calculation significantly and encourages the creation of larger areas of restricted open space.*

- G. Any restricted open space intended to be devoted to recreational activities shall be of a usable size and shape for the intended purposes. The maximum percentage of the total project area that may be developed for active recreation areas, including a community center, shall be five percent (5%) of the total project area.
- H. Any area within the restricted open space that is disturbed during construction or otherwise not preserved in its natural state, other common areas such as required setback areas, and both sides of new streets shall be landscaped with vegetation that is compatible with the natural characteristics of the site.
- I. The restricted open space, including any recreational facilities proposed to be constructed in such space, shall be clearly shown on the general development plan.
- J. Restricted open space in a conservation development shall be prohibited from further subdivision or development by deed restriction, conservation easement, or other agreement in a form acceptable to the community's Legal Advisor and duly recorded in the office of the Recorder of Deeds of **[Relevant County]**.
- K. Ownership of Restricted Open Space. Subject to such permanent restriction as set forth above, restricted open space in a conservation development may be owned by an association, the community, a land trust or other conservation organization recognized by the community, or by a similar entity, or may remain in private ownership.
  1. Offer of Dedication. The community may, but shall not be required to, accept dedication in the form of fee simple ownership of the restricted open space.
  2. Associations. Restricted open space may be held by the individual members of a Condominium Association as tenants-in-common or may be held in common ownership by a Homeowners' Association, Community Association, or other similar legal entity. The community's legal advisor shall determine that, based on documents submitted with the development plan, the association's bylaws or code of regulations specify the following requirements:

- a) Membership in the Association shall be mandatory for all purchasers of lots in the development or units in the condominium.
  - b) The Association shall be responsible for maintenance, control, and insurance of common areas, including the required open space.
  - c) The Association shall have a mechanism for funding ongoing maintenance of common areas, and for funding capital improvements that may be needed, in perpetuity.
  - d) The Association shall grant to *[Community]* or their designee authority to enter the Restricted Open Space to assess and/or address any maintenance or management problem, and be compensated for associated costs, after duly notifying the Association and giving the Association a reasonable amount of time to rectify the problem.
3. Transfer of Conservation Easement. With the permission of the community, the owner(s) of the restricted open space may, in accordance with the provisions of ORC § 5301.67-70, grant a conservation easement to any of the entities listed in ORC § 5301.68, provided that:
- a) The entity is acceptable to the community;
  - b) The provisions of the conservation easement are acceptable to the community; and
  - c) The conveyance contains appropriate provision for assignment of the conservation easement to another entity authorized to hold conservation easements under ORC § 5301.68 in the event that the original grantee becomes unwilling or unable to ensure compliance with the provisions of the conservation easement.
4. Private Ownership of Restricted Open Space. Restricted open space may be retained in ownership by the applicant or may be transferred to other private parties subject to compliance with all standards and criteria for restricted open space herein.

## **Section 160 DEVELOPMENT AND SITE PLANNING STANDARDS**

- A. **Maximum Height.** Buildings shall comply with the provisions of *[Zoning Districts where Code Applies]* as applicable.
- B. **Maximum Building Ground Coverage.** The maximum coverage for a single-family dwelling shall be *[XXXX]* square feet. The maximum coverage for a building containing two (2) attached dwellings shall be *[XXXX]* square feet. The maximum coverage by a building containing three (3) attached dwelling units shall be *[XXXX]* square feet.

*NOTE: Communities commonly determine appropriate building height or number of square footage footprints. These provisions are often desired to address concerns of massive structures that would not align with the integrated design and visual character of a community. Communities can add to or remove Parts A-B as they see fit. Should the community not already have these requirements in their conventional code and chooses to adopt these requirements in their conservation development code, it is strongly recommended to also adopt them in their conventional development code so as to not discourage developers from choosing conservation development.*

C. Access and Street Requirements.

1. All streets constructed as part of a Conservation Development shall be public streets, but private roads may be permitted for access to individual residences where such roads do not serve an interconnection function between the public streets.
2. Public streets will meet **[Community]** standards in place at the time of application and shall be designed as approved by the **[Community or County]** Engineer. Private roads, if permitted must meet the standards as established by the **[County or Community]**.
3. Each dwelling unit shall have access to a public street or to a spur road internal to the Conservation Development in a manner approved by the **[Community]** and said access shall be defined on the Development Plan.
4. Street alignments should follow natural contours and be designed to conserve natural features.
5. Locations of streets should be planned to avoid excessive stormwater runoff and the need for storm sewers.
6. The area of the project devoted to streets and related pavement should be the minimum necessary to provide adequate and safe movement through the development.

D. Stormwater Management.

All Conservation Developments shall provide for stormwater management and erosion and sediment control in accordance with the provisions of the Subdivision Regulations and any other applicable **[Community or County]** regulation. Plans for stormwater management and erosion and sediment control shall be subject to the review and approval of the **[Community or County]** Engineer. No structural stormwater control measures shall be located within the restricted open space.

E. Setbacks and Separations.

If developed as a condominium development, dwelling units within a Conservation Development shall be a part of a condominium arrangement in accordance with Chapter 5311 of the Ohio Revised Code. For all developments, building setbacks and separations shall be established on the approved Development Plan. In establishing said setbacks and separations, *[Community authority(s)]* shall consider the spacing necessary for adequate visual and acoustical privacy, adequate light and air, fire and emergency access, building configurations, energy-efficient siting, and the relationships of building sites to circulation patterns. In no instance shall the established setbacks and/or separations be less than those required by the underlying zoning or the following, whichever is more restrictive:

1. No building, structure, or parking area shall be located closer than *[XX]* feet to the right-of-way line of an existing public street.

*NOTE: The setback from existing public streets should not be more than the front yard setback in the standard single-family district zoning regulations. Recommended standards include 50 feet for densities of 2 units/acre or greater, and 75 feet for densities less than 2 units/acre.*

2. No building, structure, lighting, or parking area shall be located closer than *[XX]* feet to any Development Plan boundary line.

*NOTE: The minimum setback from the project boundary should match the rear yard setback of adjacent properties. Recommended standards include 50 feet for densities of 2 units/acre or greater, and 75-100 feet for densities less than 2 units/acre.*

3. Buildings and accessory structures in Conservation Developments shall be located no closer than 25 feet from the edge of pavement or edge of easement of any private road constructed as part of the Conservation Development.
4. The minimum distance between buildings shall be *[XX]* feet.

*NOTE: Recommended standards include 10-20 feet for densities of 2 units/acre or greater, and 25 feet for densities less than 2 units/acre.*

5. The setback and separation codes contained herein shall not apply to structures such as boundary fences, driveways, entry gates, and gateposts.

F. Resource Protection Regulations.

*NOTE: These Model regulations advocate highest priority consideration to the conservation of floodplains, wetlands, and stream corridor protection zones. A conservation development approach allows flexibility for development while still providing protection for health, safety and property by avoiding these areas. It is recommended that communities provide flexibility on front, side, and rear setbacks before they allow encroachment into riparian and wetland areas.*

1. Conservation Developments shall provide for riparian and wetland protection in accordance with the provisions of the most recent version of the community's **[Riparian and/or Wetland Setback Code]** and any other applicable **[Community]** regulation. If no such applicable code exists, the community shall follow the riparian and wetland setback standards established in the most recent versions of the Chagrin River Watershed Partners, Inc.'s model riparian and wetland setback codes, or the riparian and wetland setback standards established in the most recent version of the Ohio Department of Natural Resources *Rainwater and Land Development Manual*.
  - a) Shared-use paths may be permitted to be located within riparian setbacks when the **[Planning/Zoning Commission]** determines that such will create minimal change to the riparian setback.

*NOTE: Recommendations for "minimal change" that communities can adopt include permitting only pervious surfaces (such as wood chips, gravel, pervious asphalt, or pervious concrete) within the setback.*

G. Landscaping and Lawns.

1. Existing trees and other plant growth shall be preserved in areas where disturbance is not necessary outside of the building envelope.
2. Where landscaping is proposed, species native to Ohio and appropriate to the applicable growing region should be used.

**Section 170 APPLICATION REQUIREMENTS AND PROCEDURES**

Under the authority established in ORC §519.021, the Township Zoning Commission shall review and approve development plans for a proposed conservation development according to the procedures set forth in this Section.

*NOTE: This applies only to Townships. Remove the above paragraph for municipalities.*

- A. Property owners who wish to have their land approved for a Conservation Development shall complete the following steps:

1. Provide notice to the [Zoning Board/Planning Commission] of intent to pursue a Conservation Development on a parcel or parcels.
2. Present a preliminary Existing Conditions Site Report prepared in accordance with the provisions of this code to the **[Zoning Board/Planning Commission]** and request preliminary approval to pursue a Conservation Development. This preliminary presentation to the **[Zoning Board/Planning Commission]** is intended to notify the **[Community]** of the potential for a Conservation Development on a specific parcel and to make the property owner aware of any potential development issues. The **[Zoning Board/Planning Commission]** will take no formal action on the preliminary Existing Conditions Site Report at this step.
3. Finalize with the **[Zoning Board/Planning Commission]** the Existing Conditions Site Report and the preliminary Development Plan for the Conservation Development.
4. Any approvals granted by **[Zoning Board/Planning Commission]** shall be forwarded to **[Community Council/Township Trustees]** as detailed in Paragraph B below.

*NOTE: Depending on local requirements, the community may need to add in language about referral to any additional Boards of Review, such as a Historical Review Board, prior to any formal action from the Zoning Board/Planning Commission related to preliminary plan approval.*

- B. Applications for approval of a Conservation Development shall be made by filing an application to **[Community Council/Township Trustees]**. Said application shall be heard and action taken in accordance with the procedures and provisions set forth herein. The following submission requirements shall also be submitted with all applications for approval of a Conservation Development:
1. Existing Conditions Site Report and Preliminary Development Plan, all conforming to the requirements of Paragraph **[X]**. Additionally, applications shall include a Proposed Development Agreement with an approvable form of the Conservation Easement.
  2. A Stormwater Management Plan that addresses the proposed methods of controlling stormwater runoff and mitigating erosion and sediment impacts.
  3. Proposed covenants and restrictions intended to govern the development and future use of the Conservation Development Overlay District including a perpetual maintenance plan setting forth the proposed ownership arrangement, maintenance responsibility, and financing method for all recreation facilities, common parking areas, private streets, stormwater structures, and other commonly owned facilities.

**Section 180 PROCESSING OF PRELIMINARY DEVELOPMENT PLANS AND REZONING APPLICATIONS**

- A. Once an application is deemed complete by the **[Zoning Board/Planning Commission]**, the applicant shall present to the **[Zoning Board/Planning Commission]** for review the

preliminary development plan per Paragraph [X]. The *[Zoning Board/Planning Commission]* may refer the submittal to the Architectural Board of Review.

- B. The *[Zoning Board/Planning Commission]* shall review the comments and/or recommendations provided by the Architectural Board of Review. Once this review is complete, the *[Zoning Board/Planning Commission]* shall determine whether to forward the preliminary Development Plan to *[Community Council/Township Trustees]*.
- C. If the *[Zoning Board/Planning Commission]* provides its approval under Paragraph (b) herein, the applicant shall present the preliminary Development Plan to *[Community Council/Township Trustees]*.
- D. If *[Community Council/Township Trustees]* approves the preliminary Development Plan, the applicant shall proceed with preparation and presentation of the final Development Plan. Said final Development Plan shall be approved consistent with procedures in place for final subdivision approval in place at the time of final plan submittal. Final Development Plan submittal shall include all elements required by Paragraph [X] below.

#### **Section 190 REVIEW CRITERIA FOR PRELIMINARY DEVELOPMENT PLANS**

- A. When reviewing an application for a Conservation Development Overlay District, *[Community Council/Township Trustees]* the *[Zoning Board/Planning Commission]*, and the Architectural Board of Review shall consider, but shall not be limited to consideration of, the following characteristics of the proposed development:
  - 3. The comprehensive nature and design of the preliminary Development Plan, including appropriate design of the physical, aesthetic, and economic relationships among its parts;
  - 4. The anticipated impacts of the proposed development upon the *[Community]* and upon adjoining and proximate neighbors and properties;
  - 5. The proposed architectural and site design characteristics;
  - 4. The nature and extent of proposed landscaping, existing vegetation and landform to be retained, and of proposed screening and buffering;
  - 5. The suitability of the proposed separations between buildings, including any proposed setbacks or yards: and
  - 6. Conformance with the maximum density as established by this chapter based upon the density calculation.

#### **Section 200 ARCHITECTURAL BOARD OF REVIEW**

If referred to the Architectural Board of Review, the Board shall act upon the preliminary Development Plan within forty-five (45) days of the date the application was referred from the *[Zoning Board/Planning Commission]*. The Architectural Board of Review may recommend either approval, approval with modifications and/or stipulations, or denial of the preliminary Development Plan to the *[Zoning Board/Planning Commission]*.

## **Section 210 APPROVAL OF PRELIMINARY DEVELOPMENT PLANS**

- A. In addition to considering the review criteria as provided in Section 190 above, the *[Zoning Board/Planning Commission]* may take into consideration the recommendation of the Architectural Board of Review, but is not bound by such recommendation.
- B. The *[Zoning Board/Planning Commission]* shall act upon Preliminary Development Plans within sixty (60) days of the date the application was deemed complete by the *[Building Commissioner, Zoning Inspector, Community Engineer]* or, if applicable, the date Architectural Board of Review herein acted under Section 200 above, whichever is later. The *[Zoning Board/Planning Commission]* may recommend approval, approval with modifications and/or stipulations, or denial of the preliminary Development Plan to *[Community Council/Township Trustees]*.
- C. Failure of the *[Zoning Board/Planning Commission]* to act within sixty (60) days from the date the application was determined complete, or an extended period as may be agreed upon, shall at the election of the applicant be deemed a denial of the general development plan.
- D. *[Community Council/Township Trustees]* shall act by motion upon the preliminary Development Plan within sixty (60) days of receipt of the recommendation of the *[Zoning Board/Planning Commission]*.

## **Section 211 SUBMISSION OF FINAL DEVELOPMENT PLANS**

Final Development Plans conforming to the requirements of Section 212 below submitted to the *[Zoning Board/Planning Commission]* for review shall be based on a previously approved preliminary Development Plan and may be for portion or phases of the entire project. Final Development Plans shall be submitted at least thirty (30) working days prior to the meeting at which said plans will be reviewed by the *[Zoning Board/Planning Commission]*. A minimum of ten (10) copies shall be submitted. Submission shall include fees and deposits as established by *[Community Council/Township Trustees]*.

## **Section 212 APPROVAL OF FINAL DEVELOPMENT PLANS**

The *[Zoning Board/Planning Commission]* shall review each final Development Plan and shall make a recommendation to *[Community Council/Township Trustees]* regarding same within forty-five (45) days of the date at which said final Development Plan is first heard by the *[Zoning Board/Planning Commission]* unless such time is extended with the consent of the applicant. The *[Zoning Board/Planning Commission]* may suggest, and *[Community Council/Township Trustees]* may attach, such conditions to the approval of a final Development Plan as may be reasonably required by the public health, safety and welfare and deemed appropriate to carry out the purposes and intent of this code. *[Community Council/Township Trustees]* shall act by motion upon each final Development Plan referred by the *[Zoning Board/Planning Commission]* within forty-five (45) days of receipt of the Planning

Commission's recommendation provided, however, that said time period may be extended by *[Community]* Council with the consent of the applicant.

### **Section 213 COMPLIANCE REQUIRED**

- A. Subsequent to the approval of a Development Plan for Conservation Development, all site plans, building permits, zoning certificate(s), and other plans for improvements and any development or construction within the Conservation Development shall be in substantial compliance with the approved final Development Plan and Development Agreement and any conditions of such approval adopted by the *[Community]* in approving the Conservation Development.
- B. Any departure from the approved final Development Plan and any conditions or Development Agreements attached thereto, shall be deemed to be a violation of this code. When the *[Zoning Inspector/Building Commissioner]* determines that a proposed plan, request for zoning certificate, development or construction may not be in compliance with the final Development Plan, they shall take appropriate action as authorized by this Zoning Code to compel compliance.

### **Section 214 AMENDMENTS TO DEVELOPMENT PLANS**

- A. The owner, homeowners association, or condominium association of an approved Conservation Development Overlay District may submit plans for amendment of the approved final Development Plan. The *[Zoning Board/Planning Commission]* and *[Community Council/Township Trustees]* shall review such proposed modifications to the final Development Plan and may grant approval of such changes if the *[Zoning Board/Planning Commission]* and *[Community Council/Township Trustees]* determine that all of the following are met:
  - 1. The amendment is generally in conformance with the form, nature, and intent of the approved final Development Plan;
  - 2. The total number of dwelling units within the Conservation Development will not be increased;
  - 3. The percent of impervious cover on the total area of the Conservation Development will not be increased above ten percent (10%); and
  - 4. The amount of restricted open space will not be reduced.

### **Section 215 SUBMITTAL REQUIREMENTS**

Each application for a Conservation Development shall include six (6) copies of the following documents drawn to scale and these documents shall include, at a minimum, the following data:

- A. Existing Conditions Site Report
  - 1. The name of the development, the name of the owner or developer, north arrow, date, and scale;
  - 2. A boundary survey;

3. Existing topography and proposed finished grade with a maximum two foot (2') contour interval;
4. Floodplains, wetlands, and watercourses: These site features shall be based on best available record information and wetlands and watercourses shall be based on a delineation performed in accordance with US Army Corps of Engineers requirements in place at the time of application of this code. This delineation does not have to be approved by the U.S. Army Corps of Engineers when the preliminary Development Plan is submitted but must have Corps' approval with the submission of final Development Plans;
5. Isolated lands as defined in this code;
6. Threatened and endangered species; and

B. Preliminary Development Plan

1. Existing Conditions Site Report.
2. Proposed building locations, separations, and setbacks;
3. Vehicular, non-motorized and pedestrian circulation plans.
4. A stormwater management plan; including preliminary arrangements for stormwater control measures.
5. All existing and proposed water facilities including the location and sizes of water main, and the location of fire hydrants;
6. Location and size of sewage disposal system(s);
7. General concept plans for landscaping and buffering;
8. Architectural concept plans of proposed buildings and structures if required by the *[Planning/Zoning Commission]*;
9. Typical sections for all access drives;
10. Proposed phases if the project is to be developed in stages;
11. Maximum density calculation using the method set in Section 140; and
12. A table containing calculations of building ground coverage and the total area of impervious cover.

**Section 216 FINAL DEVELOPMENT PLAN REQUIREMENTS**

- A. Final Development Plans shall be prepared and certified by persons professionally qualified to do such work. Final Development Plans shall be prepared at an appropriate scale, but not less than one inch equals one hundred feet (1" = 100'). Profiles must be submitted on standard plan profile sheets.
- B. Final Development Plans shall include detailed design information for all of the items contained on preliminary Development Plans but shall also include detailed construction drawings for proposed improvements including such items as:
- C. Detailed improvement plans including all pipe sizes, types, grades, and invert elevations, and the location of manholes for sanitary and storm sewers, and the location and sizes of water mains, and the location of fire hydrants;

- D. A detailed landscaping and buffering plan including a listing of all plant material by type, size, and number;
- E. Provisions for the adequate control of erosion and sediment;
- F. The location, type, size and height of all fencing, screening, and retaining walls;
- G. The location, width, size and intended purpose of all easements; and
- H. Detailed site grading and storm water management plans including storm detention calculations and pipe sizing analyses.
- I. All proposed improvements must conform to the Improvement Standards of the **[Community]** subdivision regulations unless a variance is granted to such regulations by the **[Zoning Board/Planning Commission]** in accordance with the procedural requirements of such subdivision regulations.

#### **Section 217 CONSTRUCTION INSPECTION**

During construction, the **[Community]**'s representatives shall be afforded adequate opportunity to inspect the development to confirm proper installation of improvements and compliance with the provisions of this Zoning Code, the approved standards and conditions for the Conservation Development Overlay District, the applicable subdivision regulations, and such other codes as may be applicable. Such inspections shall be permitted on all improvements regardless of final ownership.

*NOTE: Section 217 applies primarily to municipalities. Townships do not have the ability to inspect roads, require maintenance bonds, or require construction bonds, and may need to rework or eliminate this language in their version.*

#### **Section 218 FEES AND DEPOSITS**

- A. All applications for Development Plan review and approval shall be accompanied by a non-refundable fee in an amount as set forth in the fee schedule as established and modified from time to time by **[Community Council/Township Trustees]**.
- B. All applications for Development Plan review and approval shall be accompanied by a cash deposit for professional consultant services in an amount as set forth in the fee schedule as established from time to time by **[Community Council/Township Trustees]**. Any balance of unused funds shall be refunded to the applicant within sixty (60) days of the **[Community's]** final action on the application.
- C. Prior to commencement of construction, the developer of a Conservation Development Overlay District shall deposit with the **[Community]** an amount based upon the estimated cost of construction of inspection services as determined by the **[Developer's or**

*Community's]* consultants, which funds shall be used by the [*Community*] to pay for project inspections during construction as provided in Paragraph [*X*] above.

*NOTE: Section 218.C applies only to municipalities in conjunction with Section 217. Townships should eliminate this language from their version.*

DRAFT

## APPENDIX A - Determining Density and Open Space

### OVERVIEW OF DENSITY CONCEPTS

**Density in Conservation Developments.** Because conservation development is an approach that provides for flexibility in lot sizes in order to protect resources, the number of homes in them cannot be regulated based on a standard lot size and dimensions. At the same time, the goal of that flexibility is to retain the same number of homes as would be permitted by the underlying zoning, known as “neutral density”. Hence, there is a need for a method for calculating “density”, or the number of permitted homes, in any particular conservation development subdivision.

There are two methods for calculating density usually chosen by communities: 1) The Yield Plan approach, which requires the applicant to obtain initial approval of a standard development layout for the site, according to the underlying zoning, to determine actual buildable density; and 2) a Formula which is tailored to the community to approximate the actual buildable density of development sites.

**The Yield Plan.** The Yield Plan approach requires the applicant to prepare a preliminary layout for a conventional development for the site, according to the underlying zoning regulations. This plan is reviewed and approved by the zoning commission to determine the permitted number of homes for the project. Once the number is agreed upon, the developer and designer “return to the drawing board” to design the conservation development using that number. The conservation plan is then reviewed and approved, before a final development plan is done. The Yield Plan approach is a disincentive to applicants to plan for conservation development, as its two-step process increases risk and review time, and results in a buildable plan before the conservation development can be designed. A well-thought out formula approach provides the same results without the disincentive.

**Statistical Formulas.** The simplest approach to a formula for calculating density is to divide the parcel area by the lot size required in the underlying zoning. For example, a 100-acre parcel in a 2-acre zoning district would yield 50 homes. This approach is not recommended, because it results in an effective density bonus, depending on the conditions of the site. Due to inefficiencies of site layout, the need for public roads, and the presence of terrain irregularities, streams, and water bodies, an actual development layout would result in a 10 to 20% reduction from the statistical density, or more. In our example, somewhere between 40 and 45 homes would be buildable in a true 2-acre district, and even less if there is substantial terrain or water bodies present. While density bonuses can be an incentive to applicants, they should be within reason and usually less than or equal to 10% total. They should also be clearly identified and quantified, and not just a fortunate result of a simple formula.

**Discounted Formulas.** One of the principles of the conservation development regulations is to be density neutral when comparing the number of potential units under the conservation development regulations to the number of potential units under the conventional standard detached single family development option. However, it is recognized that floodways, wetlands and waterbodies are natural features that affect the development capacity of a site. At the same time, it is possible that in a standard subdivision, especially a larger lot subdivision, much of the area within floodways, wetlands and smaller ponds could be included in the rear yards of individual

lots, thereby not reducing or only moderately reducing the overall development capacity of the site.

Therefore, this Conservation Development Model recommends that there be a reduction in density for projects, particularly those with overall lot sizes less than 1/2 acre, that are substantially impacted by floodways, wetlands, isolated land, excessively steep slopes, and/or waterbodies. When the area of these key environmental open space components exceeds the number of open space acres that are required to be set aside, the acreage that is in excess of the open space requirement is to be deducted from the total project area, and the density is to be based on the net area. See below for an example of how this deduction is calculated.

More complex formulas are possible to determine the extent to which these natural features impact a site. Additional natural resource characteristics (i.e. steep slopes, prime farmland, drainage courses outside designated floodways, etc.) could also be deducted depending on the priorities of the community. Some communities have found it useful to test their draft formula on actual built subdivision plans in their community, to verify the formula's ability to approximate underlying zoning, without requiring a yield plan.

**Density Bonuses.** Providing a density bonus can be an effective way to incentivize developers to take a conservation development approach, particularly when conservation development is an option or voluntary choice. A moderate density bonus can make the difference in the profitability of a conservation development approach. This choice is a very personal one taken by each community, based on public interest. In some communities, conservation development is seen as acceptable ONLY if “not one additional house” would result. In others, the benefits of open space protection are seen as worth the permitting of a moderate number of additional homes.

When density bonuses are permitted, it is important to remember the original purposes of the conservation development regulation. Ideally the maximum density for an area of the community will be designated and justified in the community's comprehensive plan, and all codes, whether conventional or conservation development, will comply with this policy. Where there are no specific policies, it will be important to ensure that the density bonus permitted will not result in greater environmental impact to the site than conventional development under the underlying zoning. This can be measured in terms of equal impervious surface, area of grading and/or vegetation removal, or impact to floodplains, streams and wetlands. In most cases, a modest density bonus of less than 10 percent will provide an incentive to the developer, while retaining environmental and site characteristics, when compared to a conventional development that could be built on the same site.

## **EXAMPLES**

In order to more clearly explain certain recommendations in the model regulations, three conservation development scenarios for a township are illustrated below.

- ◆ “Rural” development, which is viewed as having a density of 0.66 units per acre (2 acre zoning) or less;
- ◆ “Semi-rural” development, which has a density ranging between 0.66 to 2 units/acre; and
- ◆ “Suburban” development, which is more than 2 units per acre.

These labels were chosen to provide a convenient reference throughout the appendices. They do not necessarily represent the existing character of any community.

**Minimum Open Space.** The model recommends that the open space requirement be a minimum of 40 percent of the total project area. However, in communities where the residential pattern is more "rural", the restricted open space requirement should be increased. See below.

"A. The minimum required restricted open space shall be \_ percent of the total project area."

Recommended standards are in bold while standards included for illustration purposes are shaded.		
"Rural"	"Semi-Rural"	"Suburban"
60%	50%	40%

The minimum restricted open space requirement is dependent on the density and type of units permitted. The higher the density, the more difficult it is to achieve a large percentage of open space unless sufficient flexibility is available in terms of dwelling types and setback requirements.

In order to satisfy the conventional concept of conservation development, the "conservation area" or "restricted open space" should be a minimum of 50% of the project area. Nevertheless, recognizing that higher density projects may not achieve this standard, this model advocates that a minimum restricted open space should be 40% to truly create a noticeable difference between a standard subdivision and a conservation development.

In contrast, when the permitted density is very low (i.e. 5 - 10 acres per lot), it may be possible to set aside upwards of 80% of the site as open space.

**Maximum Density.** Each township needs to establish the precise density for conservation development based on the prevailing characteristics in the township. Normally, this will be the existing density of the single-family zoning district now in place in the areas where conservation development is desired. In order to be "density neutral," as explained below, the maximum density should be approximately 80% of the minimum lot area for the existing conventional detached single-family.

For example, if the minimum lot area for conventional lots is .....  
Then Section 140.B would be:

"B. The maximum density shall be \_\_\_\_ dwelling units per acre."

"Rural"	"Semi-Rural"	"Suburban"
2 acres	1 acre	20,000 sq.ft.
0.4 units per acre	0.8 units per acre	1.74 units per acre

As described above under “statistical formulas”, the actual density of a typical single-family subdivision is about 80% of the statistical density. Therefore, in order for a conservation development to have the same density (and the regulations to be “density neutral”) the maximum density should be about 80% of the statistical density of the standard subdivision. In order to make the regulations easier to use, it is preferable to specify the maximum density as a precise number of units per acre.

**Calculating Permitted Units:** The model advocates calculating the total number of units for a conservation development by multiplying the permitted density by the total acres in a project, less 10 or 20% to accommodate normal inefficiencies. The exception is that when a substantial portion of the project area is impacted by natural features such as the Special Flood Hazard Area (SFHA), wetlands and existing water resources, the model recommends that an adjustment be made. Therefore, Section 140.A reads as follows:

"A. The maximum density shall be *[X]* dwelling units per acre. The maximum number of dwelling units permitted in a conservation development shall be calculated by:

1. Deducting the following from the total project area:
  - a) Any public right-of-way within the project boundary existing at the time the development plan is submitted; and
  - b) Where the underlying minimum lot size is greater than 1/2 acre: The area of the SFHA, designated wetlands, isolated land, slopes exceeding 25%, or water resources that exceed the minimum acreage required for restricted open space as set forth in Section 150. Where the SFHA and wetlands overlap, they shall be counted only once. OR
  - c) Where the underlying minimum lot size is less than 1/2 acre: The area of the SFHA, designated wetlands, isolated land, slopes exceeding 25%, or water resources.
2. Multiplying the result of subsection 1 by the maximum density permitted per acre as set forth in this Section above."

One of the fundamental principles of the conservation development regulations is to be density neutral when comparing the number of potential units under the conservation development regulations to the number of potential units under the conventional standard detached single family development option. The maximum density for conservation development has been adjusted to factor in an allowance for roads and inefficiency in lot layouts.

However, it is recognized the SFHA, wetlands, isolated land, excessively steep slopes, and water resources are natural features that affect the development capacity of a site. At the same, it is possible that in a standard subdivision, especially a larger lot subdivision, much of the area within the SFHA, wetlands, isolated land, steep slopes, and water resources could be included in the rear yards of individual lots, thereby not reducing or only moderately reducing the overall development capacity of the site. In smaller lot subdivisions, where the underlying lots are less than 1/2 acre, it is more likely that the development capacity of the site will be affected by the presence of the SFHA, wetlands, isolated land, steep slopes, and water resources.

Therefore, the Model recommends that there be a reduction in density for projects that are substantially impacted by the SFHA, wetlands, isolated land, steep slopes, and/or water resources.

For subdivisions where underlying lot sizes are less than 1/2 acre, the area of these features is deducted. For subdivisions with larger lot sizes, when the area of these key environmental open space components exceeds the number of open space acres that are required to be set aside, the acreage that is in excess of the open space requirement is to be deducted from the total project area, and the density is to be based on the net area.

Following are three examples illustrating this method for calculating the permitted number of dwelling units. These are based on the density and required open space given in Section 140 above. The examples illustrate how the same set of conditions would be treated for each of the three development scenarios: “rural”, “semi-rural” and “suburban”. Each project involves 100 acres, 60 acres of floodways, wetlands, and/or lakes and no existing street located within the project boundaries.

	<u>Project A</u> “Rural”	<u>Project B</u> “Semi Rural”	<u>Project C</u> “Suburban”
1. Total Project Area:	100 ac	100 ac	100 ac
a. Deduction for area of EXISTING Public Right-of-Way (located within project boundary area)	(0 ac)	(0 ac)	(0 ac)
b. Deduction for area of floodways, wetlands, and waterbodies, slopes over 25%, and isolated land			
1) Total area of floodway/ wetland/ waterbody/steep slope/isolated land	60 ac	60 ac	60 ac
2) Required open space (as specified in Section 140A)	60 ac	50 ac	N/A
c. Amount that exceeds open space requirement	(0 ac)	(10 ac)	N/A
2. Net Area (Result of 1 minus a and b.3)	100 ac	90 ac	40 ac
3. Maximum density (80% of statistical density, as explained above)	<u>x 0.4</u>	<u>x 0.8</u>	<u>x 1.74</u>
4. Total Permitted Units	40 units	72 units	70 units

Some adjustment to the formula may be needed in the “semi-rural” zone, depending on specific conditions in the community. Additional natural resource characteristics (i.e. prime farmland, drainage courses outside designated floodways, etc.) could be deducted depending on the priorities of the community.

# Appendix C



**MODEL ORDINANCE FOR COMPREHENSIVE STORMWATER MANAGEMENT**

**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 Stormwater Management requirements for post-construction stormwater-management under Minimum Control Measure #5. This model was updated to reflect changes to Ohio EPA's post-construction stormwater requirements in Ohio EPA Permit #OHC000004 effective April 21, 2013 and OHQ000003 effective September 11, 2014.

Phase II designated communities must implement ordinances for erosion and sediment control, and stormwater management. This model ordinance only addresses post-construction stormwater quality and quantity management. CRWP and partners have developed a separate model ordinance for erosion and sediment control. The stormwater 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 stormwater administrator, service director, or other staff may actually perform these duties.

To maintain compliance with Ohio EPA Permit #OHC000004 effective April 21, 2013 and OHQ000003 effective September 11, 2014 add the text **highlighted yellow** and delete ~~red strikethrough text~~. Recommendations to assist communities with meeting Phase II permit TMDL requirements and improve stormwater management are **highlighted green**.

Throughout the model code storm water has been replaced with stormwater and Best Management Practice (BMP) has been replaced with Stormwater Control Measure (SCM).

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 Ohio Department of Natural Resources-Division of Soil and Water Resources. John Aldrich, Camp Dresser and McKee, Inc. contributed to early versions of this model. Funding for revisions of the model in 2014-2015 was provided by the National Estuarine Research Reserve System Science Collaborative and the Lake Erie Protection Fund. The monies for the LEPF are supported by citizens of Ohio through their purchase of the Lake Erie License Plate.

**WHEREAS**, flooding is a significant threat to property and public health and safety and stormwater 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 stormwater management slows runoff and reduces its erosive force; and,

**WHEREAS**, insufficient control of stormwater 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 stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; and,

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

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

**WHEREAS**, the United States Environmental Protection Agency has approved a Total Maximum Daily Load (TMDL) for *[applicable TMDLs]* in the *[rivers to which community drains]* watershed(s); *[A TMDL identifier table for Northeast Ohio communities is available at <http://www.nehiostormwater.com/>]*

**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 stormwater runoff; and,

**WHEREAS**, the use of green infrastructure and runoff reduction practices improves water quality in our streams and Lake Erie and reduces the magnitude and frequency of flooding and combined sewer overflow events through the infiltration, evapotranspiration, treatment and reuse of stormwater runoff; and

**WHEREAS**, the use of green infrastructure produces community benefits including reduced crime, increased property values, increased retail sales and lower infrastructure costs; 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 stormwater 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 Stormwater Management Program that, among other components, requires the *[community]* to implement standards, principles, and procedures to regulate the quality of stormwater 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 Stormwater Management*, is hereby adopted to read in total as follows:

**CHAPTER XXXX  
COMPREHENSIVE STORMWATER MANAGEMENT**

**XXXX.01 PURPOSE AND SCOPE**

- A. The purpose of this regulation is to establish technically feasible and economically reasonable stormwater management standards to achieve a level of stormwater 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 stormwater runoff from their property and ensure that all **SCMs** ~~stormwater 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 stormwater runoff originating from their property so that surface water and groundwater 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 stormwater 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 stormwater management.
  8. Maximize use of ~~stormwater management practices~~ **SCMs** 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]**'s 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 Stormwater 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 **Professional 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)**: **Also STORMWATER CONTROL MEASURE (SCMs)**. Schedule of activities, prohibitions of practices, operation and maintenance procedures, treatment requirements, and other **management practices (both structural and non-structural)** to **prevent or** reduce the pollution of water resources and to control stormwater volume and rate. This includes practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. For guidance, please see U.S. EPA's National Menu of BMPs at <http://water.epa.gov/polwaste/npdes/swbmp/index.cfm>.



- 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 STORMWATER MANAGEMENT PLAN: The written document and plans meeting the requirements of this regulation that sets forth the plans and practices to minimize stormwater 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 stormwater quality and stream channels.
- G. CRITICAL STORM: A storm that is ~~calculated by means~~ determined by calculating the ~~of~~ the percentage increase in volume of runoff by a proposed development area for the 1 year 24 hour event. The critical storm is used to calculate the maximum allowable stormwater discharge rate from a developed site.
- H. ~~DETENTION FACILITY: A basin, pond, oversized pipe, or other structure that reduces the peak flow rate of stormwater 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 FACILITY: A stormwater management practice control measure that replaces and/or enhances traditional detention facilities by releasing the runoff collected during the stormwater 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. GREEN INFRASTRUCTURE: Wet weather management approaches and technologies that utilize, enhance or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration and reuse.
- S. 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.
- T. 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.
- U. INFILTRATION CONTROL MEASURE: A stormwater management practice control measure that does not discharge to a water resource during the stormwater quality event, requiring collected runoff to either infiltrate into the groundwater and/or be consumed by evapotranspiration, thereby retaining stormwater pollutants in the facility.
- V. 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.
- W. LOW IMPACT DEVELOPMENT: Low-impact development (LID) is a site design approach, which seeks to integrate hydrologically functional design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. LID's goal is to mimic natural hydrology and processes by using small-scale, decentralized practices that infiltrate, evaporate, detain, and transpire stormwater. LID stormwater control measures (SCMs) are uniformly and strategically located throughout the site.
- X. 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 Stormwater Phase II, must meet.
- Y. MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4): A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are:  
1. Owned or operated by the federal government, state, municipality, township, county, district, or other public body (created by or pursuant to state or federal law) including a special district under



- state law such as a sewer district, flood control district or drainage districts, or similar entity, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into water resources; and
2. Designed or used for collecting or conveying solely stormwater,
  3. Which is not a combined sewer, and
  4. Which is not a part of a publicly owned treatment works.
- Z. ~~NPDES~~-National Pollutant Discharge Elimination System (NPDES): 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.
- AA. ~~NONSTRUCTURAL STORMWATER MANAGEMENT PRACTICE OR~~ NONSTRUCTURAL STORMWATER CONTROL MEASURE (SCM): Any technique that ~~Stormwater runoff control and treatment techniques that~~ uses natural ~~practices~~ processes and features to ~~control runoff and/or reduce pollution levels.~~ prevent or reduce the discharge of pollutants to water resources and control stormwater volume and rate.
- BB. 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 stormwater runoff.
- CC. 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 submitted and approved ~~and submitted~~.
- DD. 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 stormwater runoff.
- EE. 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.
- FF. REDEVELOPMENT: A construction project on land ~~where~~ that has been ~~impervious cover has~~ previously ~~been~~ developed and where the new land use will not increase the runoff coefficient used to calculate the water quality volume. 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).
- GG. 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.
- HH. 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/or*



*wetland setback regulations].*

- II. RUNOFF: The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and is eventually returned to water resources.
- JJ. 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.
- KK. SEDIMENTATION: The deposition of sediment in water resources.
- LL. 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.
- MM. SOIL DISTURBING ACTIVITY: Clearing, grading, excavating, filling, or other alteration of the earth's surface where natural or human made ground cover is destroyed that may result in, or contribute to, increased stormwater quantity and/or decreased stormwater quality.
- NN. STABILIZATION: The use of Best Management Practices or Stormwater Control Measures that reduce or prevent soil erosion by stormwater runoff, trench dewatering, wind, ice, gravity, or a combination thereof.
- OO. STORMWATER OR STORM WATER: Defined at 40 CFR 122.26(b)(13) and means stormwater runoff, snow melt runoff and surface runoff and drainage.
- PP. STORMWATER CONTROL MEASURE (SCM): Also Best Management Practice (BMP). Schedule of activities, prohibitions of practices, operation and maintenance procedures, treatment requirements, and other management practices (both structural and non-structural) to prevent or reduce the pollution of water resources and to control stormwater volume and rate. This includes practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. For guidance, please see U.S. EPA's National Menu of BMPs at <http://water.epa.gov/polwaste/npdes/swbmp/index.cfm>.
- QQ. STRUCTURAL STORM WATER MANAGEMENT PRACTICE OR STORMWATER CONTROL MEASURE (SCM): Any constructed facility, structure, or device that provides storage, conveyance, and/or treatment of storm water runoff. prevents or reduces the discharge of pollutants to water resources and controls stormwater volume and rate.
- RR. SURFACE WATERS OF THE STATE: Also Water Resource. Any streams, lakes, reservoirs, pond, 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.



- SS. 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 ensure attainment and maintenance of water quality standards.
- TT. WATER QUALITY VOLUME: “Water Quality Volume (WQv)” means the volume of stormwater runoff which must be captured and treated prior to discharge from the developed site after construction is complete. WQv is based on the expected runoff generated by the mean storm precipitation volume from post-construction site conditions at which rapidly diminishing returns in the number of runoff events captured begins to occur. ~~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.~~
- UU. 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.~~ Also SURFACE WATER WATER OF THE STATE. Any stream, lake, reservoir, pond, marsh, wetland, or waterway 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.
- VV. 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.
- WW. WATERSHED: The total drainage area contributing stormwater runoff to a single point.
- XX. 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 Stormwater Management Plan under this regulation, the *[community]* does not accept responsibility for the design, installation, and operation and



maintenance of **SCMs** ~~stormwater 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 STORMWATER MANAGEMENT PLANS**

- A. This regulation requires that a Comprehensive Stormwater Management Plan be developed and implemented for **all commercial and industrial site development and all** 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. **The community engineer reserves the right to require a comprehensive stormwater management plan on sites disturbing less than 1 acre.**
- 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, **state agencies**, private engineers, stormwater districts, or other technical experts in reviewing the Comprehensive Stormwater 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 Stormwater Management Plan: The applicant shall submit two (2) sets of a Preliminary Comprehensive Stormwater Management Plan (Preliminary Plan) and the applicable fees to the *[community engineer]* and/or the *[stormwater administrator]*. The



Preliminary Plan shall show the proposed property boundaries, setbacks, dedicated open space, public roads, water resources, stormwater 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 **SCMs stormwater 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 Stormwater Management Plan: The applicant shall submit two (2) sets of a Final Comprehensive Stormwater Management Plan (Final Plan) and the applicable fees to the *[community engineer]* and/or the *[stormwater 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 *[stormwater 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 Stormwater 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 Environmental Protection Agency (Ohio EPA) National Pollutant Discharge Elimination System (NPDES) Permits authorizing stormwater 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 **Soil and Water Resources** permit application tracking number, a copy of the project approval letter from the ODNR Division of **Soil and Water Resources**, or a letter from the site owner certifying and explaining why the Ohio Dam Safety Law is not applicable.

**XXXX.08      COMPREHENSIVE STORMWATER MANAGEMENT PLAN**

- A. Comprehensive Stormwater Management Plan Required: The applicant shall develop a Comprehensive Stormwater Management Plan describing how the quantity and quality of stormwater will be managed after construction is completed for every discharge from the site and/or into a water resource or small municipal separate storm sewer system (MS4). The Plan will illustrate the type, location, and dimensions of every structural and non-structural **SCM stormwater management practices** incorporated into the site design, and the rationale for their selection. The rationale must address how these **SCMs stormwater 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 **SCMs stormwater 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 Stormwater Management Plan shall be prepared by a registered **P**Professional **E**ngineer 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 **R**egistered 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 stormwater 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 Stormwater Management Plan meet the requirements of this regulation. The **[community engineer]** may also maintain a list of acceptable **Best Management Practices (SCMs)** that meet the criteria of this regulation to be used in the **[community]**.
- D. Contents of Comprehensive Stormwater Management Plan: The Comprehensive Stormwater Management Plan shall contain an application, narrative report, construction site plan sheets, a long-term **Inspection and Maintenance Plan** and Inspection and Maintenance Agreement **and Inspection and Maintenance Plan**, 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. **Selection (source and justification) and/or calculations of runoff coefficients for water quality volume determination, peak discharge control (curve number/critical storm method), and rational method. Calculation of all runoff coefficients for both pre-construction and post-construction site conditions, including water quality volume, peak discharge (critical storm method), and culvert/bridge sizing (rational method)**



- f. Existing data describing the soils throughout the site, including soil map units including the soil series, complexes, and association, hydrologic soil group, porosity, infiltration characteristics, depth to groundwater, depth to bedrock, and any impermeable layers.
  - g. 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.
  - h. The location and name of the immediate water resource(s) and the first subsequent water resource(s).
  - i. 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.
  - j. If applicable, identify the point of discharge to a municipal separate storm sewer system and the location where that municipal separate storm sewer system ultimately discharges to a stream, lake, or wetland. The location and name of the immediate receiving stream or surface water(s) and the first subsequent receiving water(s) and the aerial extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from undisturbed areas of the project. ~~For discharges to a municipal separate storm sewer system (MS4), the point of discharge to the MS4 and the location where the MS4 ultimately discharges to a stream or surface water of the state shall be indicated~~
  - k. TMDLs applicable for the site [refer to TMDL community identifier table at <http://www.nehiostormwater.com/>]; demonstrate that appropriate (SCMs) have been selected to address these TMDLs.
  - l. For each SCM, identify the drainage area, percent impervious cover within the drainage area, runoff coefficient for water quality volume, peak discharge, and the time of concentration for each subwatershed per Appendix 1 of Ohio's stormwater manual, *Rainwater and Land Development*. Pervious and impervious areas should be treated as separate subwatersheds unless allowed at the discretion of the community engineer. Identify the SCM surface area, discharge and dewatering time, outlet type and dimensions. Each SCM shall be designated with an individual identification number.
  - m. 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~~ map units 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 Stormwater 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 **SCMs** ~~stormwater management practices~~.
  - b. The geographic coordinates of the site AND each proposed practice in North American Datum Ohio State Plane 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. **Inspection and Maintenance Agreement.** The Inspection and Maintenance Agreement required for SCMs under this regulation as a stand-alone document between the *[community]* and the applicant. A copy of this agreement should be attached to the property deed. The agreement shall contain the following information and provisions:
  - a. Identification of the landowner(s), organization, or municipality responsible for long-term inspection and maintenance, including repairs, of the SCMs.
  - b. The landowner(s), organization, or municipality shall maintain SCMs in accordance with this regulation.
  - c. The *[community]* has the authority to enter upon the property to conduct inspections as necessary, with prior notification of the property owner, to verify that the SCMs are being maintained and operated in accordance with this regulation.
  - d. 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 in writing any corrective actions required to bring the SCMs into proper working condition.
  - e. 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 as determined by the *[community]*.
  - f. The *[community]* is authorized to enter upon the property and 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]*, or more with written approval from the *[community engineer]*.
  - g. The method of funding long-term maintenance and inspections of all SCMs.
  - h. 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 SCMs.
11. **Inspection and Maintenance Plan.** This plan will be developed by the applicant and reviewed by the *[community]*. Once the Inspection and Maintenance Plan is approved, a



recorded copy of the Plan must be submitted to the [community] as part of the final inspection approval as described in XXXX.12. The plan will include at a minimum:

- a. The location of each SCM and identification of the drainage area served by each SCM.
- b. Photographs of each SCM, including all inlets and outlets upon completion of construction.
- c. Schedule of inspection.
- d. A schedule for regular maintenance for each aspect of the stormwater 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 Stormwater Management Plan. A maintenance inspection checklist written so the average person can understand it shall be incorporated. The maintenance plan will include a detailed drawing of each SCM and outlet structures with the parts of the outlet structure labeled. This schedule may include additional standards, as required by the [community] Engineer, to ensure continued performance of SCMs permitted to be located in, or within 50 feet of, water resources.
- e. The location and documentation of all access and maintenance easements on the property.

Alteration or termination of these stipulations is prohibited. ~~The applicant must provide a draft of this Inspection and Maintenance Plan as part of the Comprehensive Stormwater Management Plan submittal. Once the Inspection and Maintenance Plan is approved, a recorded copy of the Plan 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 and Plans to ensure they are acceptable to your community. Please also review the coordination of these requirements with provisions for Easements to SCMs stormwater management practices in Section XXXX.11 and Ownership of SCMs stormwater management practices in Section XXXX.09 (A)(8)**

12. **Required Calculations required:** The applicant shall submit calculations for projected stormwater runoff flows, volumes, and timing into and through all SCMs stormwater 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 offsite upper watershed areas have been considered in the calculations.



13. 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 and their names, addresses, and phones involved with the implementation of the Comprehensive Stormwater 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 Stormwater Management Plan.
14. Existing and proposed drainage patterns: The location and description of existing and proposed drainage patterns and SCMs stormwater management practices, including any related SCMs stormwater management practices beyond the development area and the larger common development area.
15. For each stormwater management practice SCM 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 stormwater inlets and permanent nonstructural and structural SCMs stormwater management practices. Details of SCMs shall be drawn to scale and shall show volumes and sizes of contributing drainage areas.
  - c. Any other structural and/or non-structural SCMs stormwater management practices necessary to meet the design criteria in this regulation and any supplemental information requested by the [community engineer].
  - d. Each SCM shall be designated with an individual identification number.

~~Inspection and Maintenance Agreement. The Inspection and Maintenance Agreement required for storm water management practices under this regulation as a stand alone document between the [Community] and the applicant. A copy of this agreement should be attached to the property deed. The agreement shall contain the following information and provisions:~~

- ~~a. Identification of the landowner(s), organization, or municipality responsible for long-term maintenance, including repairs, of the storm water management practices.~~
- ~~b. The landowner(s), organization, or municipality shall maintain storm water management practices in accordance with this regulation.~~
- ~~c. The [community] has the authority to approve changes in the inspection and maintenance plan.~~
- ~~d. 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.~~
- ~~e. 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.~~

~~f.—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].~~

~~g.—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].~~

~~h.—The method of funding long term maintenance and inspections of all storm water management practices.~~

~~i.—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.~~

## **XXXX.09 PERFORMANCE STANDARDS**

A. General: The stormwater system, including **SCMs** ~~stormwater 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 **SCMs** ~~stormwater 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 stormwater 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 **comply** with Chapter *XXXX.XX* [*community's riparian setback requirements if applicable*].

- 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 stormwater peak flows to less than **predevelopment levels**.**
- e. **Be designed according to the methodology included in the most current edition of *Rainwater and Land Development* or another design manual acceptable for use by the **[community]** and Ohio EPA.**

**SCMs** ~~stormwater 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: **SCMs** ~~stormwater management practices~~ shall be designed to achieve the stormwater 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**-routine maintenance.
3. Stormwater management for all lots: Areas developed for a subdivision, as defined in Chapter *XXXX* [*community subdivision code*], shall provide stormwater 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~~ **each** lot.
4. Stormwater facilities in water resources: **SCMs** ~~stormwater 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. Stormwater ponds and surface conveyance channels: All stormwater 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 stormwater 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 stormwater management requirements for the site are provided by an existing SCMs stormwater management practices, or if the stormwater management requirements for the site are provided by practices defined in a regional or local stormwater management plan approved by the [community engineer].
7. Maintenance: All SCMs stormwater management practices shall be maintained in accordance with the Inspection and Maintenance Plan and Agreements and Plans approved by the [community engineer] as detailed in Section XXXX.08.
8. Ownership: Unless otherwise required by the [community], SCMs stormwater 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]. SCMs stormwater 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 vegetative buffer strips; phasing of construction operations in order to minimize the amount of disturbed land at any one time, and designation of tree preservation areas or other protective clearing and grubbing practices; and maintaining unconcentrated stormwater runoff to and through these areas. Post-construction stormwater practices shall provide perpetual management of runoff quality and quantity so that a receiving stream's physical, chemical and biological characteristics are protected and ecological functions are maintained.
10. Preservation of Wetland Hydrology: Concentrated stormwater runoff from SCMs to wetlands shall be converted to diffuse flow before the runoff enters the wetlands 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 that support the wetland.
11. Soil Preservation and Post-Construction Soil Restoration: To the maximum extent



practicable leave native soil undisturbed and protect from compaction during construction. Except for areas that will be covered by impervious surface or have been incorporated into an SCM, the soil moisture-holding capacity of areas that have been cleared and graded must be restored to that of the original, undisturbed soil to the maximum extent practicable. Areas that have been compacted or had the topsoil or duff layer removed should be amended using the following steps: 1. till subsoil to a depth of 15-18 inches, 2. incorporate compost through top 12 inches, 3. Replace with stockpiled site or imported suitable topsoil to a minimum depth of 4 inches.

- B. Stormwater Conveyance Design Criteria: All **SCMs** ~~stormwater management practices~~ shall be designed to convey stormwater 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 ~~Surface water protection~~: The *[community engineer]* may allow modification to streams, rivers, lakes, wetlands or other surface waters ~~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 stormwater discharges: Off-site stormwater runoff that discharges to or across the applicant's development site shall be conveyed through the stormwater conveyance system planned for the development site at its existing peak flow rates during each design storm. Off-site flows shall be diverted around stormwater quality control facilities or, if this ~~is~~ not possible, the stormwater quality control facility shall be sized to treat the off-site flow. Comprehensive Stormwater 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 **SCMs** ~~stormwater management practices~~ 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 **SCMs** ~~stormwater management practices~~ shall be provided by an open



channel with vegetated banks and designed to carry the 10-year, 24-hour stormwater runoff from upstream contributory areas.

5. Open drainage systems: Open drainage systems shall be preferred on all new development sites to convey stormwater 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 stormwater conveyance design criteria. Either use these criteria or include the pertinent sections of your existing stormwater 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 drainage** 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. The conduit or conveyance must to be sized to carry the 25-year storm under these conditions.
  - 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 stormwater runoff from the 100-year, 24-hour storm event to an adequate receiving water resource or **SCM stormwater management practices** 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 of all structures**. 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 providing removing an equivalent storage 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. Stormwater Quality Control:

1. Direct runoff to an SCM: The site shall be designed to direct runoff to one or more of the following SCMs ~~stormwater 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.~~ Extended detention facilities that detain stormwater; settle or filter particulate pollutants; and release the controlled stormwater to a water resource.
  - b. Infiltration facilities that retain stormwater; promote settling, filtering, and biodegradation of pollutants; and infiltrate captured stormwater 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.

For sites less than five (5) acres, but required to create a comprehensive



stormwater management plan, the *[community engineer]* may approve other SCMs if the applicant demonstrates to the *[community engineer's]* satisfaction that these SCMs meet the objectives of this regulation as stated in Section XXXX.09.C.6.

- c. 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 SCMs if the applicant demonstrates to the *[community engineer's]* satisfaction that these SCMs meet the objectives of this regulation as stated in Section XXXX.09.C.6, and has prior written approval from the Ohio EPA.
- d. 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 SCMs not included in Table 2 of this regulation, but must show compliance with the current version of the Ohio Department of Transportation “*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. Note: The water quality volume (WQv) orifice shall be an anti-clogging or non-clogging design such as a reverse slope pipe or a perforated tile pipe with gravel filter. Alternatively, the community may encourage the use of other SCMs for smaller drainage areas.***

2. Criteria applying to all SCMs ~~stormwater management practices.~~ SCMs 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 SCMs controlling the amount and/or timing of runoff from the site; and local long-term hourly records, or
    - (2) Using the following equation:
$$WQ_V = C * P * A / 12$$
where terms have the following meanings:
      - WQ<sub>v</sub> = 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 stormwater practice, in acres.



Runoff coefficients required by the Ohio Environmental Protection Agency (Ohio EPA) for use in determining the WQv 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:~~

$C=0.858i^3 - 0.78i^2 + 0.774i+0.04$ , 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 stormwater 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 WQv shall be incorporated into the stormwater practice for sediment storage. This volume shall be incorporated into the sections of stormwater practices where pollutants will accumulate.
- c. Each individual SCM must be sized to treat the WQv associated with its entire contributing drainage area. Exceptions to this may be granted by the **[community engineer]** and/or the OEPA on a case-by-case basis.
- d. Stormwater 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.
- e. Sites within watersheds of coldwater habitat streams shall include SCMs to infiltrate the water quality volume or reduce the temperature of discharged runoff. SCMs that reduce the temperature of discharged runoff include bioretention, permeable pavement, underground detention, and incorporation of shading and infiltration in parking lot design.
- f. Each practice shall be designed to facilitate sediment removal, vegetation management, debris control, and other maintenance activities defined in the Inspection **Plan** and Maintenance Agreement for the site.



**Table 2: Draw Down Times for Stormwater Control Measures Management Practices**

<b>Best Management Practice Stormwater Control Measure</b>	<b>Drain Time of WQ<sub>v</sub></b>
Infiltration Facilities Basin or Trench <sup>1</sup>	24– 48 hours
Permeable Pavement – Infiltration <sup>1</sup>	48 hours
Permeable Pavement – Extended Detention	24 hours
<del>Extended Conveyance Facilities (Vegetated Swales, Filter Strips)</del>	<del>24 hours</del>
<del>▪—Vegetated Filter Strip with Berm</del>	<del>24 hours</del>
<del>▪—Enhanced Water Quality Swale</del>	<del>**</del>
<del>▪—Flow Through Design</del>	
Extended Detention Facilities	
▪ Dry Extended Dry Detention Basins <sup>2</sup>	48 hours
▪ Wet Extended Detention Basin <sup>3</sup>	24 hours
▪ Pocket Wetland <sup>4</sup>	24 hours
▪ Constructed Wetlands (above permanent pool) <sup>4</sup>	24 hours
▪ Bioretention Area/Cell <sup>5,6</sup>	40 24 hours
▪ Sand and other Media Filtration <sup>5</sup>	40–24 hours
▪ Pocket Wetland <sup>7</sup>	24 hours
<sup>1</sup> Practices designed to fully infiltrate the WQ <sub>v</sub> shall completely infiltrate empty within 48 hours so there is no standing or residual water to provide storage for subsequent storm events. <sup>2</sup> _____ <sup>**</sup> Sized to pass a hydrograph with a volume equal to the WQ <sub>v</sub> , 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. <sup>3</sup> The use of a forebay and micropool is required on all dry extended dry detention basins. Each is to be sized at a minimum 10% of the WQ <sub>v</sub> . <sup>3</sup> Provide both a permanent pool and an extended detention volume above the permanent pool, each sized with at least 0.75*WQ <sub>v</sub> . <sup>4</sup> Extended detention shall be provided for the WQ <sub>v</sub> above the permanent water pool. <sup>5</sup> The surface ponding area shall completely empty within 24 hours so that there is no standing water. Shorter drawdown times are acceptable as long as design criteria in Rainwater and Land Development have been met. <sup>6</sup> This includes grassed linear bioretention, which was previously titled enhanced water quality swale. <sup>7</sup> Pocket wetlands must have a wet pool equal to the WQ <sub>v</sub> , with 25% of the WQ <sub>v</sub> in a pool and 75% in marshes. The ED <sub>v</sub> above the permanent pool must be equal to the WQ <sub>v</sub> .	

**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.**



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.~~ **Infiltration facilities should be designed to meet all criteria in *Rainwater and Land Development*.**
  - 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.

~~Additional criteria applying to extended conveyance facilities:~~

~~Facilities shall be lined with fine turf forming, flood-tolerant grasses.~~

~~Facilities designed according to the extended conveyance detention design drain time shall:~~

~~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.~~

~~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.~~

~~Facilities designed according to the flow through design drain time shall:~~

~~Only be allowed on sites where:~~

~~The total area disturbed is 5 acres or less~~

~~The discharge rate from the BMP will have negligible hydrologic impacts to received waters as described in Chapter XXXX.09.C. 6.b.~~

~~Prior written approval is given by the [community engineer]; and~~

~~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.~~

~~Be designed to slow and filter runoff flowing through the turf grasses with a maximum depth of flow no greater than 3 inches.~~

~~Be designed to have a minimum hydraulic residence time of 5 minutes.~~

~~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.~~

4. 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 native plant species comparable to wetland vegetation that are able to withstand prolonged inundation. The use of invasive plant species is prohibited.
    - (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).
    - (4) Detention basins shall be provided with an emergency drain, where practicable, so that the basin may be emptied if the primary outlet becomes clogged and/or to drain the permanent pool to facilitate maintenance. The emergency drain should be designed to drain by gravity where possible.

*Note: The section below identifies the criteria that are currently being 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.*

5. Criteria for the Acceptance of Alternative post-construction SCMs: The applicant may



request approval from the [*community engineer*] for the use of alternative structural post-construction SCMs if the applicant shows to the satisfaction of the [*community engineer*] that these SCMs 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 SCM 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 SCM 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 SCM 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 stormwater discharge is directed into an existing storm sewer system.
  - (4) The stormwater 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. Stormwater Quantity Control: The Comprehensive Stormwater Management Plan shall describe how the proposed ~~SCMs~~ ~~stormwater management practices~~ are designed to meet the following requirements for stormwater 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) Model pervious, directly connected impervious and disconnected impervious areas as separate subwatersheds.
    - (4) Drainage area maps shall include area, curve number, time of concentrations. Time of concentration shall also show the flow path and the separation in flow type.
    - (5) Rainfall Depth - For the most accurate, up-to-date, location-specific rainfall data for stormwater design, use the Precipitation-Frequency Atlas of the United States, NOAA Atlas 14, Vol 2(3). [available online: [http://hdsc.nws.noaa.gov/hdsc/pfds/.](http://hdsc.nws.noaa.gov/hdsc/pfds/)]
    - (6) Temporal Distribution – Use the SCS Type II rainfall distribution for all design events with a recurrence interval greater than 1 year. Include lot coverage assumptions used for full build out of the proposed condition.
    - (7) Curve numbers for the pre-development condition shall reflect the average type of land use over the past 10 years and not only the current land use.
      - i. Pre-development Curve Numbers – For wooded or brushy areas, use listed values from TR-55 NRCS USDA Urban Hydrology for Small Watersheds, 1986 in good hydrologic condition. For meadows, use listed values. For all other areas (including all types of agriculture), use pasture, grassland, or range in good hydrologic condition.
      - ii. Post-development Curve Numbers - Open space areas shall use post-construction HSGs from *Rainwater and Land Development* unless the soil is amended after development according to the following protocol: till the subsoil to 15-18 inches, then till using a chisel, spader, or rotary tillage and incorporate compost through top 12



inches, replace topsoil to a minimum depth of 4 inches. All undisturbed areas or open space with amended soils shall be treated as “open space in good condition.”

(8) Time of Concentration\_- Use velocity based methods from (TR-55 NRCS USDA Urban Hydrology in Small Watersheds, 1986) to estimate travel time (Tt) for overland (sheet) flow, shallow concentrated flow and channel flow.

- i. Maximum sheet flow length is 100 ft.
- ii. Use the appropriate “unpaved” velocity equation for shallow concentrated flow from NEH-4 (Spell this out).

(9) The volume reduction provided by permeable pavement, bioretention, or other LID SCMs may be subtracted from the post development stormwater volume. Volume reductions for these practices may be demonstrated using methods outlined in *Rainwater and Land Development* or a hydrologic model acceptable to the [community engineer].

- b. 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 **except in instances of engineered permeable pavement systems**. 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. Stormwater Management on Redevelopment Projects

1. Comprehensive Stormwater 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, ~~SCMs stormwater management practices~~ shall be implemented to ~~provide stormwater quality control facilities for~~ treat at least 20 percent of the ~~WQv site's impervious area~~. **Alternate to XXXX.09(E)(I):** Comprehensive Stormwater Management Plans for redevelopment projects must accomplish one of the following options:
  - a. Reduce existing site impervious areas by at least 25 percent, a one-for-one credit towards the 25 percent net reduction of impervious area can be obtained through the use green roofs.
  - b. Infiltrate at least 25 percent of the WQv
  - c. Capture, treat and release 50 percent of the WQv
2. ~~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.~~ When a combination of impervious area reduction and stormwater quality control facilities are used, ensure a 20-percent net reduction of the site impervious area, provide for treatment of at least 20 percent of the WQv, or a combination of the two.
3. Where projects are a combination of new development and redevelopment, the total water quality volume ~~required to 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 ~~25 or 50~~ percent.
4. 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 stormwater quantity. Such alternatives shall meet the following standards:
  1. Shall achieve the same level of stormwater 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) ~~14-12~~ 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 ~~SCMs stormwater management practices~~.
  2. Implementation of off-site ~~SCMs stormwater 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 stormwater control such as wetland complexes.

#### **XXXX.11 EASEMENTS**

Access to ~~SCMs stormwater 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 Stormwater 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 ~~SCMs stormwater management practices~~ shall be no less than 25-foot wide. The easement shall also incorporate the entire practice plus an additional 25-foot wide band around the perimeter of the ~~SCM stormwater management practices~~.
- 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 **SCMs** ~~stormwater management practices~~ shall be restricted against the construction therein of buildings, fences, walls, and other structures that may obstruct the free flow of stormwater 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 **by the applicant** and provided to the *[community engineer]*:

- A. Final stabilization must be achieved and all permanent **SCMs** ~~stormwater management practices~~ must be installed and made functional, as determined by the *[community engineer]* and per the approved Comprehensive Stormwater Management Plan.
- B. An As-Built Certification, including **aAs-Built** Survey and Inspection, must be sealed, signed and dated by a Professional Engineer and a Professional Surveyor with a statement certifying that the stormwater **control measures** ~~management practices~~, as designed and installed, meet the requirements of the Comprehensive Stormwater Management Plan approved by the *[community engineer]*. In evaluating this certification, the *[community engineer]* may require the submission of a new set of stormwater practice calculations if he/she determines that the design was altered significantly from the approved Comprehensive Stormwater 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 Plan and** Inspection and Maintenance Agreement as specified in Section XXXX.08 must be provided to the *[community engineer]*.

#### XXXX.13 ON-GOING INSPECTIONS

The ~~owner~~ *[community]* shall inspect **SCMs** ~~stormwater management practices~~ **periodically** regularly as described in the Inspection and Maintenance Plan and Inspection and Maintenance Agreement. The *[community]* has the authority to enter upon the property to conduct inspections as necessary, with prior notification of the property owner, to verify that the SCMs are being maintained and operated in accordance with this regulation. Upon finding a malfunction or other need for maintenance **or repair**, 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 in place, the *[community]* may undertake the necessary repairs and assess the responsible party.



**XXXX.14 FEES**

The Comprehensive Stormwater 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 Stormwater 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~~ stormwater control measures as described in XXXX.12 ~~pass an As-Built Inspection conducted~~ is approved by the *[community engineer]*.
3. An Inspection and Maintenance Plan has been approved by the *[community]* and Inspection and Maintenance Agreement has been signed by the developer, the contractor, the *[community]*, and the private owner or homeowners association who will take long term responsibility for these SCMs, is accepted by the *[community engineer]*.

B. 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 stormwater 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~~ STORMWATER CONTROL MEASURES**

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 D



## MODEL ORDINANCE FOR EROSION AND SEDIMENT CONTROL

### PLEASE NOTE

- Ohio EPA's Phase II Program requires erosion and sediment control and post-construction stormwater management. This model ordinance ONLY addresses the construction site erosion and sediment control portion of these NPDES requirements. Phase II communities must implement separate post-construction stormwater management regulations under their Phase II Stormwater Management Programs. This model was updated to include changes to Ohio EPA's erosion and sediment control requirements in Ohio EPA Permit #OHC000004 effective April 21, 2013.
- As detailed in Section XXXX.06, this model ordinance relies on county soil and water conservation districts for plan review in conjunction with community engineers. Please review these roles in your community and adjust the language in this model code accordingly.
- All areas highlighted in bold/italics must be addressed and/or adjusted when tailoring this model to your community.
- All definitions should be reviewed for consistency with other code provisions when tailoring this model to your community.
- Text highlighted yellow must be added and ~~red-strikethrough-text~~ deleted to maintain compliance with Ohio EPA Permit #OHC000004 effective April 21, 2013. CRWP recommendations to assist communities with improving stormwater management are highlighted green. Adopting these recommendations may help communities address the Total Maximum Daily Load (TMDL) requirements of their Municipal Separate Storm Sewer (MS4) permit.
- "Storm water" has been replaced with "stormwater" throughout the model code.
- This model is a collaborative effort of CRWP and the Lake County Soil and Water Conservation District and has been reviewed for Phase II compliance by Ohio EPA. Funding for revisions to create the 2015 version of this model code was provided by the National Estuarine Research Reserve System Science Collaborative and the Lake Erie Protection Fund. The monies for the LEPF are supported by citizens of Ohio through their purchase of the Lake Erie License Plate.

**WHEREAS**, soil is most vulnerable to erosion by wind and water during soil disturbing activities and this eroded soil necessitates repair of sewers and ditches and dredging of rivers, harbors, and lakes; accelerates downstream bank erosion and damage to public and private property; damages water resources ~~and wetlands~~ by reducing water quality; and causes the siltation of aquatic habitat; and

**WHEREAS**, communities throughout the watershed(s) in which the [community] is located have experienced and continue to experience costs associated with inadequate erosion and sediment control and increased State and Federal regulation; and



**WHEREAS**, there are watershed-wide efforts to reduce sedimentation in the *[rivers to which community drains]* and to protect and enhance the unique water resources or wetlands of the *[rivers to which community drains]* watershed(s);

**WHEREAS**, the United States Environmental Protection Agency has approved a Total Maximum Daily Load for *[applicable TMDLs]* in the *[rivers to which community drains]* watershed(s); *[Use the TMDL Community Identifier Table at <http://www.nehiostormwater.com/to identify applicable TMDLs for your community>]*

**WHEREAS**, the *[community]* is a member of the *(insert names of watershed organizations or utilities in which the community is participating. Remove this statement if there is no participation)* and recognizes its obligation as a part of these *watersheds/organizations* to reduce sedimentation and to protect water quality by controlling soil disturbing activities within its borders; and

**WHEREAS**, 40 C.F.R. Parts 9, 122, 123 and 124, referred to as NPDES Stormwater Phase II, require designated communities, including the *[community]* to develop and implement a Stormwater Management Program to address, among other components, erosion and sediment control during soil disturbing activities; and

**WHEREAS**, Article XVIII, Section 3 of the Ohio Constitution grants municipalities the legal authority to adopt rules to abate soil erosion and water pollution by soil sediments; and

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

**SECTION 1:** Codified Ordinance *Chapter XXXX Erosion and Sediment Control*, is hereby adopted to read in total as follows:

**CHAPTER XXXX  
EROSION AND SEDIMENT CONTROL**

**XXXX.01 PURPOSE AND SCOPE**

- (a) The purpose of this regulation is to establish technically feasible and economically reasonable standards to achieve a level of erosion and sediment control that will minimize damage to property and degradation of water resources ~~and wetlands~~, and will promote and maintain the health and safety of the citizens of *[community]*:
- (b) This regulation will:
  - (1) Allow development while minimizing increases in erosion and sedimentation.
  - (2) Reduce water quality impacts to receiving water resources ~~and wetlands~~ that may be caused by new development or redevelopment activities.
- (c) This regulation applies to all parcels used or being developed, either wholly or partially, for new or relocated projects involving highways, underground cables, or pipelines; subdivisions or larger common plans of development; industrial, commercial, institutional, or residential projects; building activities on farms; redevelopment



activities; general clearing; and all other uses that are not specifically exempted in Section XXXX.01 (d).

- (d) This regulation does not apply to activities regulated by, and in compliance with, the Ohio Agricultural Sediment Pollution Abatement Rules.

**XXXX.02 DEFINITIONS**

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

- (a) ABBREVIATED STORMWATER POLLUTION PREVENTION PLAN (ABBREVIATED SWP3): The written document that sets forth the plans and practices to be used to meet the requirements of this regulation. *[Lake County Communities – replace Stormwater Pollution Prevention Plan with Erosion and Sediment Control Plan]*
- (b) ACRE: A measurement of area equaling 43,560 square feet.
- (c) ADMINISTRATOR: The person or entity having the responsibility and duty of administering and ensuring compliance with this regulation.
- (d) BEST MANAGEMENT PRACTICES (BMPs): Also STORMWATER CONTROL MEASURE (SCM). Schedule of activities, prohibitions of practices, maintenance procedures, and other management practices (both structural and non-structural) to prevent or reduce the pollution of water resources and wetlands. BMPs also include treatment requirements, operating procedures, and practices to control facility and/or construction site runoff, spillage or leaks, sludge or waste disposal; or drainage from raw material storage.
- (e) COMMENCEMENT OF CONSTRUCTION: The initial disturbance of soils associated with clearing, grubbing, grading, placement of fill, or excavating activities or other construction activities.
- (f) COMMUNITY: Throughout this regulation, this shall refer to *[community]*, its designated representatives, boards, or commissions.
- (g) CONCENTRATED STORMWATER RUNOFF: Any stormwater runoff that flows through a drainage pipe, ditch, diversion, or other discrete conveyance channel.
- (h) CONSTRUCTION ENTRANCE: The permitted points of ingress and egress to development areas regulated under this regulation.
- (i) *[Lake County Communities]* CRITICAL AREA: Any area the disturbance of which would cause soil erosion and sediment runoff and damage to private properties, water courses, storm sewers or public lands due to topography, soil type, hydrology, or proximity to a water course. These areas include, but are not limited to, riparian areas, wetlands, and highly erodible soils.
- (j) 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.
- (k) DEWATERING VOLUME: See current *Ohio Rainwater and Land Development Manual*.



- (l) DISCHARGE: The addition of any pollutant to surface waters of the state from a point source.
- (m) DISTURBANCE: Any clearing, grading, excavating, filling, or other alteration of land surface where natural or man-made cover is destroyed in a manner that exposes the underlying soils.
- (n) DISTURBED AREA: An area of land subject to erosion due to the removal of vegetative cover and/or soil disturbing activities such as grading, excavating, or filling.
- (o) DRAINAGE: (1) The area of land contributing surface water to a specific point. (2) The removal of excess surface water or groundwater from land by surface or subsurface drains.
- (p) DRAINAGE WATERSHED: ~~(1) The area of land contributing surface water to a specific point or BMP. This includes any off-site drainage.~~ (2) ~~The removal of excess surface water or groundwater from land by surface or subsurface drains.~~ For the purpose of this regulation the total contributing drainage area to a BMP, i.e., the “watershed” directed to the practice. This includes offsite contributing drainage.
- (q) DRAINAGE WAY: A natural or manmade channel, ditch, or waterway that conveys surface water in a concentrated manner by gravity.
- (r) 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.
- (s) EROSION AND SEDIMENT CONTROL: The control of soil, both mineral and organic, to minimize the removal of soil from the land surface and to prevent its transport from a disturbed area by means of wind, water, ice, gravity, or any combination of those forces.
- (t) **[Lake County Communities]:** EROSION AND SEDIMENT CONTROL PLAN: The written document meeting the requirements of this regulation which sets forth the plans and practices to be used to minimize soil erosion and prevent off-site disposal of soil sediment by containing sediment on-site or bypassing sediment-laden runoff through a sediment control measure during and after land development.
- (u) 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 measures, such as the use of mulches or geotextiles, have been employed. In addition, all temporary erosion and sediment control practices are removed and disposed of and all trapped sediment is permanently stabilized to prevent further erosion. Final stabilization also requires the installation of permanent (post-construction) stormwater control measures (SCMs).
- (v) GRADING: The excavating, filling, or stockpiling of earth material, or any combination thereof, including the land in its excavated or filled condition.
- (w) GRUBBING: removing or grinding of roots, stumps and other unwanted material below existing grade.
- (x) IMPERVIOUS: That which does not allow infiltration.



- (y) **LANDSCAPE ARCHITECT**: A Professional Landscape Architect registered in the State of Ohio.
- (z) **LARGER COMMON PLAN OF DEVELOPMENT OR SALE**: A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.
- (aa) **MAXIMUM EXTENT PRACTICABLE (MEP)**: ~~The level of pollutant reduction that site owners of small municipal separate storm sewer systems regulated under 40 C.F.R. Parts 9, 122, 123, and 124, referred to as NPDES Stormwater Phase II, must meet.~~ The technology-based discharge standard for Municipal Separate Storm Sewer Systems to reduce pollutants in storm water discharges that was established by the Clean Water Act §402(p). A discussion of MEP as it applies to small MS4s is found in 40 CFR 122.34.
- (bb) **MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)**: A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are:
- Owned or operated by the federal government, state, municipality, township, county, district, or other public body (created by or pursuant to state or federal law) including a special district under state law such as a sewer district, flood control district or drainage districts, or similar entity, or a designated and approved management agency under Section 208 of the Federal Water Pollution Control Act that discharges into surface waters of the state; and
  - Designed or used for collecting or conveying solely stormwater,
  - Which is not a combined sewer, and
  - Which is not a part of a publicly owned treatment works.
- (cc) ~~NPDES: NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES): 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.~~ The national program for issuing, modifying, revoking and reissuing, termination, monitoring and enforcing permits and enforcing pretreatment requirements, under sections 307, 402, 318, 405 under the Clean Water Act.
- (dd) **OPERATOR**: Any party associated with a construction project that meets either of the following two criteria:
- The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
  - The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with A Stormwater Pollution Prevention Plan (SWP3) for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions.
- (ee) ~~SITE OWNER OR OPERATOR~~: The owner or operator of any “facility or activity” subject to regulation under the NPDES program.
- (ff) **SUBDIVISIONS, MAJOR AND MINOR**: See Ohio Administrative Code 711.001 for definition.
- (gg) **PARCEL**: Means a tract of land occupied or intended to be occupied by a use, building or group of buildings and their accessory uses and buildings as a unit, together with such open spaces and driveways as are provided and required. A parcel may contain more than one contiguous lot



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individually identified by a 'Permanent Parcel Number' assigned by the [county] County Auditor's Office.

- (hh) **PERCENT IMPERVIOUSNESS:** The impervious area created divided by the total area of the project site.
- (ii) **PERMANENT STABILIZATION:** Establishment of permanent vegetation, decorative landscape mulching, matting, sod, rip rap, and landscaping techniques to provide permanent erosion control on areas where construction operations are complete or where no further disturbance is expected for at least one year.
- (jj) **PERSON:** 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.
- (kk) **PHASING:** Clearing a parcel of land in distinct sections, with the stabilization of each section before the clearing of the next.
- (ll) **POINT SOURCE:** Any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or the floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.
- (mm) **PRE-CONSTRUCTION MEETING:** A meeting between the [community] and all principle parties, prior to the start of any construction, at a site that requires a Stormwater Pollution Prevention Plan [Lake County Communities: Erosion and Sediment Control Plan].
- (nn) **PRE-WINTER STABILIZATION MEETING:** A meeting between the [community] and all principal parties, prior to October 1, in order to plan winter erosion and sediment controls for a site that requires a Stormwater Pollution Prevention Plan [Lake County Communities: Erosion and Sediment Control Plan].
- (oo) **PROFESSIONAL ENGINEER:** A Professional Engineer registered in the State of Ohio.
- (pp) **QUALIFIED INSPECTION PERSONNEL:** A person knowledgeable in the principles and practice of erosion and sediment controls, who possess the skills to assess all conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measure selected to control the quality of stormwater discharges from the construction activity.
- (qq) **RAINWATER AND LAND DEVELOPMENT:** Ohio's standards for stormwater management, land development, and urban stream protection. The most current edition of these standards shall be used with this regulation.
- (rr) **RIPARIAN AREA:** The transition area between flowing water and terrestrial (land) ecosystems composed of trees, shrubs and surrounding vegetation which serve to stabilize erodible soil, improve both surface and ground water quality, increase stream shading and enhance wildlife habitat.



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- (ss) RUNOFF: The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and is eventually conveyed to water resources or wetlands.
- (tt) RUNOFF COEFFICIENT: The fraction of rainfall that will appear at the conveyance as runoff.
- (uu) SEDIMENT: The soils or other surface materials that are transported or deposited by the action of wind, water, ice, gravity, or any combination of those forces, as a product of erosion.
- (vv) SEDIMENTATION: The deposition or settling of sediment.
- (ww) SEDIMENT SETTLING POND: A sediment trap, sediment basin or permanent basin that has been temporarily modified for sediment control, as described in the latest edition of *Rainwater and Land Development*.
- (xx) SEDIMENT STORAGE VOLUME: See current edition of *Rainwater and Land Development*.
- (yy) SETBACK: A designated transition area around water resources ~~and wetlands~~ that is left in a natural, usually vegetated, state to protect the water resources ~~and wetlands~~ from runoff pollution. Soil disturbing activities in this area are restricted by this regulation.
- (zz) SOIL DISTURBING ACTIVITY: Clearing, grading, excavating, filling, grubbing or stump removal that occurs during clearing or timber activities, 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, erosion and sediment pollution.
- (aaa) SOIL & 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). Hereafter referred to as [county] SWCD.
- (bbb) STABILIZATION: The use of BMPs, such as seeding and mulching, that reduce or prevent soil erosion by water, wind, ice, gravity, or a combination of those forces.
- (ccc) STEEP SLOPES: Slopes that are 15 percent or greater in grade. NOTE: If otherwise defined in community zoning, use community definition.
- (ddd) STORMWATER POLLUTION PREVENTION PLAN (SWP3): The written document that sets forth the plans and practices to be used to meet the requirements of this regulation. [Lake County Communities: This typically contains the erosion and sediment control plan for the site.]
- (eee) STORMWATER: Stormwater runoff, snow melt and surface runoff and drainage.
- (fff) SURFACE OUTLET: A dewatering device that only draws water from the surface of the water.
- (ggg) SURFACE WATERS OF THE STATE: Also Water Resource or Water Body. Any streams, lakes, reservoirs, pond, 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.



- (hhh) TEMPORARY STABILIZATION: The establishment of temporary vegetation, mulching, geotextiles, sod, preservation of existing vegetation, and other techniques capable of quickly establishing cover over disturbed areas to provide erosion control between construction operations.
- (iii) TOPSOIL: The upper layer of the soil that is usually darker in color and richer in organic matter and nutrients than subsoil.
- (jjj) 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 resource or wetland, or water resource or wetland segment. A TMDL sets and allocates the maximum amount of a pollutant that may be introduced into the water and still ensure attainment and maintenance of water quality standard.
- (kkk) UNSTABLE SOILS: A portion of land that is identified by the [community] Engineer as prone to slipping, sloughing, or landslides, or is identified by the U.S. Department of Agriculture Natural Resource Conservation Service methodology as having a low soil strength.
- (lll) Water Quality Volume (WQv): The volume of stormwater runoff which must be captured and treated prior to discharge from the developed site after construction is complete. WQv is based on the expected runoff generated by the mean storm precipitation volume from post-construction site conditions at which rapidly diminishing returns in the number of runoff events captured begins to occur.
- (mmm) WATER RESOURCE Also SURFACE WATER OF THE STATE: ~~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.~~ Any stream, lake, reservoir, pond, marsh, wetland, or waterway 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. ~~WATER RESOURCE: Any public or private body of water including lakes and ponds, as well as any brook, creek, river, or stream having banks, a defined bed, and a definite direction of flow, either continuously or intermittently flowing.~~
- (nnn) WATERSHED: The total drainage area contributing runoff to a single point.
- (ooo) 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**

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 for the benefit of any particular parcel of property.



**XXXX.04 CONFLICTS, SEVERABILITY, NUISANCES AND RESPONSIBILITY**

- (a) Where this regulation is in conflict with other provisions of law or ordinance, the most restrictive provisions 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 private or public 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 STORMWATER POLLUTION PREVENTION PLANS**

- (a) This regulation requires that a Stormwater Pollution Prevention Plan (SWP3) be developed and implemented for all commercial and industrial site development and all development projects ~~parcels~~ disturbing one (1) acre or more and on which any regulated activity of Section XXXX.01(c) is proposed. *The [community engineer] has the discretion to require a SWP3 for projects on sites of any size.*
- (b) The following activities shall submit an Abbreviated SWP3 ~~Stormwater Pollution Prevention Plan~~:
  - (1) New single-family residential construction ~~regardless of parcel size~~. If such activities disturb one (1) acre or more, or are part of a larger common plan of development or sale disturbing one (1) acre or more, ~~an Ohio EPA Construction Site General Permit and a full SWP3 Stormwater Pollution Prevention Plan and compliance with the~~ Ohio EPA Construction General Permit ~~are may be~~ required.
  - (2) Additions or accessory buildings for single-family residential construction ~~regardless of parcel size~~. If such activities disturb one (1) acre or more, or are part of a larger common plan of development or sale disturbing one (1) acre or more, a ~~full SWP3 Stormwater Pollution Prevention Plan and compliance with the~~ Ohio EPA Construction Site General Permit ~~and a Stormwater Pollution Prevention Plan may be~~ are required.
  - (3) ~~All non-residential construction on parcels of less than one (1) acre. [Delete if community requires a full SWP3 for non-residential construction less than (1) acre.]~~
  - (4) General clearing activities not related to construction ~~and regardless of parcel size~~. If such activities disturb one (1) acre or more, or are part of a larger common plan of development or sale disturbing one (1) acre or more, ~~compliance~~



with the Ohio EPA Construction Site General Permit and a full SWP3 Stormwater Pollution Prevention Plan may be are required.

- (c) Activities disturbing 1/10<sup>th</sup> (one tenth) or less of an acre are not required to submit a SWP3 Stormwater Pollution Prevention Plan or an Abbreviated SWP3 Stormwater Pollution Prevention Plan, unless required by the [community] Engineer. These activities must comply with all other provisions of this regulation.

**XXXX.06 APPLICATION PROCEDURES**

- (a) SOIL DISTURBING ACTIVITIES SUBMITTING A STORMWATER POLLUTION PREVENTION PLAN (SWP3): The applicant shall submit two (2) sets of the SWP3 and the applicable fees to the [community] and two (2) sets of the SWP3 and the applicable fees to the [county] SWCD as follows:
  - (1) For subdivisions: After the approval of the preliminary plans and with submittal of the improvement plans.
  - (2) For other construction projects: Before issuance of a zoning permit by the Zoning Inspector.
  - (3) For general clearing projects: Prior to issuance of a zoning permit by the Zoning Inspector.
- (b) SOIL DISTURBING ACTIVITIES SUBMITTING AN ABBREVIATED STORMWATER POLLUTION PREVENTION PLAN (SWP3): The applicant shall submit two (2) sets of the Abbreviated SWP3 and the applicable fees to the [community] and two (2) sets of the Abbreviated SWP3 and the applicable fees to the [county] SWCD as follows:
  - (1) For single-family home construction: Before issuance of a zoning permit by the Zoning Inspector.
  - (2) For other construction projects: Before issuance of a zoning permit by the Zoning Inspector.
  - (3) For general clearing projects: Prior to issuance of a zoning permit by the Zoning Inspector.
- (c) The [community engineer] and the [county] SWCD shall review the plans submitted under XXXX.06 (a) or (b) for conformance with this regulation and approve, or return for revisions with comments and recommendations for revisions. A plan rejected because of deficiencies shall receive a narrative report stating specific problems and the procedures for filing a revised plan.
- (d) Soil disturbing activities shall not begin and zoning permits shall not be issued without an approved SWP3 or Abbreviated SWP3 and installation of erosion and sediment controls.
- (e) SWP3 for individual sublots in a subdivision will not be approved unless the larger common plan of development or sale containing the subplot is in compliance with this



- (f) The developer, engineer and contractor, and other principal parties, shall meet with the [community engineer] for a Pre-Construction Meeting no less than seven (7) days prior to soil-disturbing activity at the site to ensure that erosion and sediment control devices are properly installed, limits of disturbance and buffer areas are properly delineated and construction personnel are aware of such devices and areas. Pre-Construction Meetings for Abbreviated SWP3s may be waived at the discretion of the [community engineer].
- (g) Approvals issued in accordance with this regulation shall remain valid for one (1) year 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 the Ohio EPA, the US Army Corps of Engineers, and other federal, state, and/or county agencies. If requirements vary, the most restrictive requirement shall prevail. These permits may include, but are not limited to, those listed below. All submittals required to show proof of compliance with these state and federal regulations shall be submitted with SWP3s or Abbreviated SWP3s.

- (a) Ohio EPA NPDES Permits authorizing stormwater 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 an application is made under 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 an application is made under 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:



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

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- A. A letter from the site owner certifying that a qualified professional has surveyed evaluated the site and determined that Section 404 of the Clean Water Act is not applicable, and provide documentation.
- B. 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 an application is made under 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 STORMWATER POLLUTION PREVENTION PLAN (SWP3)**

- (a) In order to control sediment pollution of water resources and wetlands, the applicant shall submit a SWP3 in accordance with the requirements of this regulation.
- (b) Best Management Practices (BMPs) and Stormwater Control Measures (SCMs) thes adequate to prevent pollution of public waters by soil sediment from accelerated storm water runoff from development areas.
- (c) The SWP3 shall be certified by a professional engineer, a registered surveyor, certified professional erosion and sediment control specialist, or a registered landscape architect.
- (d) The SWP3 shall be amended whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the state or if the SWP3 proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity.
- (e) The SWP3 shall incorporate measures as recommended by the most current online edition of *Rainwater and Land Development* as published by the Ohio Department of Natural Resources Ohio Environmental Protection Agency and shall include the following information:
  - (1) A cover page or title identifying the name and location of the site, the name and contact information of all construction site operators, the name and contact information for the person responsible for authorizing and amending the SWP3, preparation date, and the estimated start and completion dates for construction.
  - (2) A copy of the permit requirements (attaching a copy of the current Ohio EPA NPDES Construction General Permit is acceptable).
  - (3) Site description: The SWP3 shall provide:
    - 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. An estimate of the impervious area and percent of imperviousness created by the ~~soil-disturbing land disturbance activity~~.
- D. A calculation of the run-off coefficients for both the pre-construction and post-construction site conditions.
- E. Existing data describing the soil and, 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.
- F. A description of prior land uses at the site.
- G. An implementation schedule which describes the sequence of major soil-disturbing operations (i.e., grubbing, excavating, grading, utilities and infrastructure installation) and the implementation of erosion and sediment controls to be employed during each operation of the sequence.
- H. The location and name of the immediate receiving stream or surface water(s) and the first subsequent receiving water(s) and the aerial extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from undisturbed areas of the project. For discharges to a municipal separate storm sewer system (MS4), the point of discharge to the MS4 and the location where the MS4 ultimately discharges to a water resource shall be indicated.
- I. List TMDLs applicable for the site and demonstrate that appropriate BMPs or stormwater control measures (SCMs) have been selected to address these TMDLs. [A TMDL identifier table for Northeast Ohio communities is available at <http://www.neohiostormwater.com/>]
- ~~J. The aerial (plan view) extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project.~~
- ~~K. If applicable, identify the point of discharge to a municipal separate storm sewer system and the location where that municipal separate storm sewer system ultimately discharges to a stream, lake, or wetland.~~
- J. For subdivided developments ~~where the SWP3 does not call for a centralized sediment control capable of controlling multiple individual lots~~, a detail drawing of a typical individual lot showing standard individual lot erosion and sediment control practices. This does not remove the responsibility to designate specific erosion and sediment control practices in the SWP3 for areas such as steep slopes, stream



banks, drainage ways, and riparian zones.

- K. Location and description of any stormwater discharges associated with dedicated asphalt and dedicated concrete plants associated with the development area and the best management practices to address pollutants in these stormwater discharges.
- L. A log documenting grading and stabilization activities as well as amendments to the SWP3, which occur after construction activities commence.
- M. Each temporary and permanent stormwater practice shall be designated with an individual identification number.
- N. Site map showing:
  - i. Limits of soil-disturbing activity of the site, including off site spoil and borrow areas.
  - ii. Soils types should be depicted for all areas of the site, including locations of unstable or highly erodible soils.
  - iii. Existing and proposed one-foot (1') contours. This must include a delineation of drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed in acres.
  - iv. Surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site, including the boundaries of wetlands or stream channels 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.
  - v. Existing and planned locations of buildings, roads, parking facilities, and utilities.
  - vi. The location of all erosion and sediment control practices, including the location of areas likely to require temporary stabilization during the course of site development.
  - vii. Sediment and stormwater management basins including their sediment settling volume and the maximum expected disturbed area that will be directed to the sediment pond during construction. The plan should include a summary of the following:
    - i. The required sediment storage and dewatering volumes
    - ii. The provided sediment storage and dewatering volumes



- iii. The weir length or skimmer size, as applicable
- iv. The weir length or skimmer size provided
  
- viii. Data sheets for all sediment traps, sediment basins, and SCMs that identify contributing drainage area, disturbed area, water quality volume, sedimentation volume, dewatering volume, practice surface area, facility discharge and dewatering time, outlet type and dimensions, and any other relevant parameters for each practice.
  
- ix. A separate plan and profile view of each individual sediment settling pond and its outlet structure. Detail drawings of the outlet structure shall indicate the following elevations:
  - a) Pond bottom
  - b) Elevation required to store the required sediment storage volume
  - c) For sediment basins, the elevation at which the skimmer is attached
  - d) For sediment traps, the top and bottom of the stone outlet section
  - e) Elevation required to store the dewatering volume, exclusive of the sediment storage volume
  - f) Elevation of the top of embankment
  - g) Crest of the emergency spillway
  
- x. Where used as a sediment-settling pond during construction, the plan shall include a detail drawing of the temporary outlet configuration of the permanent storm water basin with the following information specified:
  - a) Storage volume provided below the elevation at which the skimmer or other surface dewatering device is attached
  - b) Elevation at which the skimmer or other surface dewatering device is attached
  - c) Elevation at which the full dewatering zone is stored above the skimmer invert
  - d) Any temporary modification to permanent outlet orifices or weirs required to ensure no discharge below the skimmer invert and only the skimmer controls the discharge up to the top of the dewatering volume.
  - e) Calculations of the sediment storage volume, dewatering volume and skimmer drawdown time shall also be provided
  
- xi. The location of permanent SCMs to be used to control pollutants in stormwater after construction operations have been completed.
  
- xii. Areas designated for the storage or disposal of solid, sanitary and toxic wastes, including ~~Dumpster~~ dumpster areas, areas designated for cement truck washout, and vehicle fueling.



- xiii. Methods to minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, and sanitary waste to precipitation, stormwater runoff, and snow melt.
  - xiv. Measures to prevent and respond to chemical spills and leaks. Applicants may also reference the existence of other plans (i.e., Spill Prevention Control and Countermeasure (SPCC) plans, spill control programs, Safety Response Plans, etc.) provided that such plan addresses this requirement and a copy of such plan is maintained on site.
  - xv. Methods to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. No detergents may be used to wash vehicles. Wash waters shall be treated in a sediment basin or alternative control that provides equivalent treatment prior to discharge.
  - xvi. The location of designated stoned construction entrances where the vehicles will ingress and egress the construction site.
  - xvii. The location of any in-stream activities including stream crossings.
- (4) A soils engineering report. The *[community engineer]* may require the SWP3 to include a Soils Engineering Report based upon his/her determination that the conditions of the soils are unknown or unclear to the extent that additional information is required to protect against erosion or other hazards. This report shall be based on adequate and necessary test borings, and shall contain all the information listed below. Recommendations included in the report and approved by the *[community engineer]* shall be incorporated in the grading plans and/or other specifications for site development.
- A. Data regarding the nature, distribution, strength, and erodibility of existing soils.
  - B. If applicable, data regarding the nature, distribution, strength, and erodibility of the soil to be placed on the site.
  - C. Conclusions and recommendations for grading procedures.
  - D. Conclusions and recommended designs for interim soil stabilization devices and measures, and for permanent soil stabilization after construction is completed.
  - E. Design criteria for corrective measures when necessary.
  - F. Opinions and recommendations covering the stability of the site.



## XXXX.09 PERFORMANCE STANDARDS

The SWP3 must contain a description of the controls appropriate for each construction operation and the applicant must implement such controls. The SWP3 must clearly describe for each major construction activity the appropriate control measures; the general sequence during the construction process under which the measures will be implemented; and the contractor responsible for implementation (e.g., contractor A will clear land and install perimeter controls and contractor B will maintain perimeter controls until final stabilization).

The approved SWP3, and the sediment and erosion controls, and non-sediment pollution controls contained therein, shall be implemented upon the commencement of construction. Perimeter controls must be installed two working days prior to commencement of construction. The approved plan must be implemented until the site reaches final stabilization. All properties adjacent to the site of soil-disturbing activity shall be protected from soil erosion and sediment run-off and damage, including, but not limited to, private properties, natural and artificial waterways, wetlands, storm sewers and public lands.

It is the owner's responsibility to maintain current records of contractor(s) responsible for implementation the SWP3 and providing that information to *[community engineer or administrator of code]*. The SWP3 shall identify all subcontractors engaged in activities that could impact stormwater runoff. The SWP3 shall contain signatures from all of the identified subcontractors indicating that they have been informed and understand their roles and responsibilities in complying with the SWP3. The applicant shall review the SWP3 with the primary contractor prior to commencement of construction activities and keep a SWP3 training log to demonstrate that this review had occurred.

Erosion and sediment controls shall be designed, installed and maintained effectively to minimize the discharge of pollutants during the course of earth disturbing activities. The controls shall include the following minimum components:

- a) **NON-STRUCTURAL PRESERVATION MEASURES:** The SWP3 must make use of practices that preserve the existing natural condition to the maximum extent practicable. Such practices may include preserving riparian areas, preserving existing vegetation and vegetative buffer strips, phasing of construction operations in order to minimize the amount of disturbed land at any one time, minimizing disturbance of steep slopes, and designation of tree preservation areas or other protective clearing or grubbing practices. Soil compaction shall be minimized and, unless infeasible, topsoil shall be preserved. Provide and maintain a 50-foot buffer of undisturbed natural vegetation around surface waters of the state, or riparian or wetland setbacks, if applicable, whichever is greater, unless maintaining this buffer is infeasible, e.g. stream crossings for roads or utilities, or for channel and floodplain rehabilitation and restoration. Direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration. *[Communities with riparian and/or wetland setbacks include the following language: If the riparian setback is greater than 50 feet, no disturbance of natural vegetation shall occur within the riparian or wetland setback unless a variance of the riparian or wetland setback regulation has been granted.]*
- b) **EROSION CONTROL PRACTICES:** The SWP3 must make use of erosion controls that are capable of providing cover over disturbed soils. The amount of soil exposed during construction activity shall be minimized. A description of control practices designed to restabilize disturbed areas after grading or construction shall be included in the SWP3. The SWP3 must provide



specifications for stabilization of all disturbed areas of the site and provide guidance as to which method of stabilization will be employed for any time of the year. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, the use of construction entrances, and the use of alternative ground cover.

Erosion control practices must meet the following requirements:

- (1) Stabilization. Disturbed areas must be stabilized as specified in Tables 1 and 2 below.

**Table 1: Permanent Stabilization**

Area requiring permanent stabilization	Time frame to apply erosion controls
Any area that will lie dormant for one year or more.	Within 7 days of the most recent disturbance.
Any area within 50 feet of a <del>stream</del> surface water of the state and at final grade.	Within 2 days of reaching final grade.
Any other areas at final grade.	Within 7 days of reaching final grade within that area.

**Table 2: Temporary Stabilization**

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed area within 50 feet of a <del>stream</del> surface water of the state and not at final grade.	Within 2 days of the most recent disturbance if that area will remain idle for more than <del>21</del> 14 days.
For all construction activities, any disturbed area, including soil stockpiles that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the state <del>stream</del> .	Within 7 days of the most recent disturbance within the area.  For residential subdivisions, disturbed areas must be stabilized at least 7 days prior to transfer of ownership or operational responsibility.
Disturbed areas that will be idle over winter.	Prior to November 1 or the onset of winter weather, whichever occurs first.
<b>Note:</b> Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed. <del>These techniques may include mulching or erosion matting.</del>	

- (2) Permanent stabilization of conveyance channels. Applicants shall undertake special measures to stabilize channels and outfalls and prevent erosive flows. Measures may include seeding, dormant seeding, mulching, erosion control matting, sodding, riprap, natural channel design with bioengineering techniques, or rock check dams, all as defined in the most recent edition of *Rainwater and Land Development* or the Field Office Technical Guide available at [www.nrcs.usda.gov/technical/efotg/](http://www.nrcs.usda.gov/technical/efotg/).

- (c) **RUNOFF CONTROL PRACTICES.** The SWP3 shall incorporate measures that control the flow volume and velocity of stormwater runoff within the site ~~from disturbed areas so as~~ to prevent erosion. Peak flow rates and total stormwater volume shall be controlled to minimize erosion and outlets, downstream channel and streambank erosion. Such practices may include rock check dams, pipe slope drains, diversions to direct flow away from exposed soils and protective grading practices. These practices shall divert runoff



away from disturbed areas and steep slopes where practicable. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

- (d) SEDIMENT CONTROL PRACTICES. The SWP3 shall include a description of, and detailed drawings for, all structural practices that shall store runoff, allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas to minimize sediment discharges from the site. Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days. Such practices may include, among others: sediment settling ponds, silt fences, storm drain inlet protection, and earth diversion dikes or channels which direct runoff to a sediment settling pond. The design, installation and maintenance of erosion and sediment controls shall address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.
- (e) All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless used in conjunction with a sediment settling pond.

Sediment control practices must meet the following requirements:

- (1) Timing. Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven (7) days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls must be constructed or existing controls altered to address the changing drainage patterns.
- (2) Sediment settling ponds. A sediment settling pond, or equivalent best management practice upon approval from the [community] Engineer and/or the [county] SWCD, is required for any one of the following conditions, as determined in Table 3 below:
  - A. Concentrated stormwater runoff.
  - B. Runoff from drainage areas which exceeds the design capacity of silt fence (see Table 3)- inlet protection, or other sediment barriers;
  - C. Runoff from common drainage locations with 10 or more acres of disturbed land within a common drainage area.

Sediment settling ponds shall be provided in the form of a sediment trap or sediment basin as defined in the latest edition of *Rainwater and Land Development*. The maximum allowable contributing drainage area to a sediment trap shall be limited to less than 5 acres. Contributing-drainage areas of 5 acres or more shall be treated with a sediment basin. An equivalent best-management



practice may be utilized upon approval from the [community].

The sediment-settling pond shall provide both a sediment storage zone and a dewatering zone. The volume of the dewatering zone shall be at least 1,800 cubic feet of storage per acre of total contributing drainage area. The dewatering structure of sediment basins shall be designed to have a minimum 48-hour drain time for sediment basins serving a drainage area over 5 acres, and, unless infeasible, be designed to always withdraw runoff from the surface of the pond throughout the storm cycle. As such, a skimmer discharge device consistent with *Rainwater and Land Development* shall be provided to dewater sediment basins. Sediment traps shall also provide both a sediment storage zone and dewatering zone, but the outlet structure shall be constructed consistent with the specifications contained in the latest edition of *Rainwater and Land Development*.

When post-construction detention/water quality ponds are to be used as temporary sediment trapping BMPs, a skimmer discharge device consistent with the ~~Ohio~~ *Rainwater and Land Development Manual* shall be utilized during construction phase and until the site is deemed permanently stabilized by the [community].

The skimmer shall be designed per the equivalent requirements of sediment basins and the operator must ensure that the outlet structure of the pond provides an equivalent or better sediment storage zone and dewatering zone. As such, temporarily while the site is under construction, there shall be no discharge of runoff below the elevation required for the sediment storage zone and the discharge of stormwater within the dewatering zone shall only occur through the skimmer.

The volume of the sediment storage zone shall be calculated by one of the following methods:

**Method 1:** The volume of the sediment storage zone shall be 1000ft<sup>3</sup> per disturbed acre within the watershed of the basin.

**Method 2:** The volume of the sediment storage zone shall be the volume necessary to store the sediment as calculated with rUSLE or other generally accepted erosion prediction model.

When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included unless runoff from these areas is diverted away from the sediment settling pond and is not commingled with sediment-laden runoff. The depth of the dewatering zone must be less than or equal to five (5) feet. The configuration between the inlets and the outlet of the sediment-settling pond basin must provide at least two [or four] units of length for each one unit of width  $\geq 2:1$  length-to-width ratio ( ~~$\geq 2:1$  length:width ratio~~); however, a length to width ration of  $\geq 4:1$  is recommended. Sediment must be removed from the sediment-settling pond when the design capacity of the sediment storage zone has been completely filled by sediment accumulations ~~has been reduced by 40 percent~~. This limit is typically reached



when sediment occupies one-half of the basin depth. When designing sediment settling ponds, the applicant must consider public safety, especially as it relates to children, as a design factor for the sediment basin and alternative sediment controls must be used where site limitations would preclude a safe design. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal is encouraged.

- (3) Silt fence and diversions. Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. Where intended to provide sediment control, silt fence shall be placed on a level contour and shall be capable of temporarily ponding runoff. The relationship between the maximum drainage area to silt fence for a particular slope range is shown in Table 3 below. Placing silt fence in a parallel series does not extend the size of the permissible drainage area. ~~Stormwater diversion practices shall be used to keep runoff away from disturbed areas and steep slopes. Such devices, which include swales, dikes or berms, may receive stormwater runoff from areas up to 10 acres.~~

**Table 3: Maximum Drainage Area to Silt Fence Based on Slope**

Maximum Drainage Area (acres) to 100 linear feet of silt fence	Range of slope for a drainage area (%)
0.5	<2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

- (4) Alternative perimeter controls for sheet flow discharges may be considered by the [community], but their use shall not exceed the limitations indicated in Table 3 above. Detail drawings and plan notes shall specify the diameter of filter socks, compost berms and other such alternative perimeter controls if used instead of silt fence.
- (5) Stormwater diversion practices shall be used to keep runoff away from disturbed areas and steep slopes. Such devices, which include swales, dikes or berms, may receive storm water runoff from areas up to 10 acres.
- (6) Inlet protection. Erosion and sediment control practices, such as boxed inlet protection, shall be installed to minimize sediment-laden water entering active storm drain systems. All inlets receiving runoff from drainage areas of one or more acres will require a sediment settling pond. Straw or hay bales and filter socks around catch basins are not acceptable forms of inlet protection.
- (7) Off-site tracking of sediment and dust control. Best management practices must be implemented to ensure sediment is not tracked off-site and that dust is controlled. These best management practices must include, but are not limited to, the following:

- A. Construction entrances shall be built and shall serve as the only



permitted points of ingress and egress to the development area. These entrances shall be built of a stabilized pad of aggregate stone or recycled concrete or cement sized greater than 2" in diameter, placed over a geotextile fabric, and constructed in conformance with specifications in the most recent edition of *Rainwater and Land Development*.

- B. Streets and catch basins adjacent to construction entrances shall be kept free of sediment tracked off site. Streets directly adjacent to construction entrances and receiving traffic from the development area, shall be cleaned daily to remove sediment tracked off-site. If applicable, the catch basins on these streets nearest to the construction entrances shall also be cleaned weekly and protected from sediment-laden runoff, if feasible without posing a public safety hazard.

Based on site conditions, [community] Engineer and/or the [county] SWCD may require additional best management practices to control off site tracking and dust. These additional BMPs may include:

- C. Fencing shall be installed around the perimeter of the development area to ensure that all vehicle traffic adheres to designated construction entrances.
- D. Designated vehicle and wheel-washing areas. Wash water from these areas must be directed to a designated sediment trap, the sediment-settling pond, or to a sump pump for dewatering in conformance with Section XXXX.09 (g) of this regulation. No surfactants or detergents may be used to wash vehicles.
- E. Applicants shall take all necessary measures to comply with applicable regulations regarding fugitive dust emissions, including obtaining necessary permits for such emissions. The [community] Engineer and/or the [county] SWCD may require dust controls including the use of water trucks to wet disturbed areas, tarping stockpiles, temporary stabilization of disturbed areas, and regulation of the speed of vehicles on the site.

- (3) Surface Waters of the State protection. Construction vehicles shall avoid water resources and wetlands. A 50 foot undisturbed natural buffer shall be provided around surface waters of the state unless infeasible. If it is infeasible to provide and maintain an undisturbed 50-foot natural buffer, the SWP3 shall comply with the stabilization requirements in XXXX.09.B.1 for areas within 50 feet of a surface water or riparian or wetland setbacks if applicable, whichever is greater; and minimize soil compaction and, unless infeasible, preserve topsoil. If the applicant is permitted to disturb areas within 50 feet of a water resources and wetlands, the following conditions shall be addressed in the SWP3:

- A. All BMPs and stream crossings shall be designed as specified in the most recent edition of ~~the~~ *Rainwater and Land Development Manual*.
- B. Structural practices shall be designated and implemented on site to protect water resources or wetlands from the impacts of sediment runoff.



- C. No structural sediment controls (e.g., the installation of silt fence or a sediment settling pond in-stream) shall be used in ~~a~~ water resources or wetlands.
  - D. Where stream crossings for roads or utilities are necessary and permitted, the project shall be designed such that the number of stream crossings and the width of the disturbance are minimized.
  - E. Temporary stream crossings shall be constructed if water resources or wetlands will be crossed by construction vehicles during construction.
  - F. Construction of bridges, culverts, or sediment control structures shall not place soil, debris, or other particulate material into or close to the water resources or wetlands in such a manner that it may slough, slip, or erode.
  - G. Concentrated stormwater runoff from BMPs to natural wetlands shall be converted to diffuse flow through the use of level spreaders or other such appropriate measure before the runoff enters the wetlands. The flow should be released such that no erosion occurs downslope. Level spreaders may need to be placed in series to ensure non-erosive velocities.
  - H. Protected areas or critical areas, including wetlands and riparian areas shall be physically marked in the field prior to earth disturbing activities.
  - I. Concentrated stormwater runoff from BMPs to natural wetlands shall be converted to diffuse flow through the use of level spreaders or other such appropriate measures before the runoff enters the wetlands. The flow should be released such that no erosion occurs downslope. Level spreaders may need to be placed in series to ensure non-erosive velocities.
- (4) Modifying controls. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the applicant shall replace or modify the control for site conditions.

NON-SEDIMENT POLLUTANT CONTROLS: No solid or liquid waste, including building materials, shall be discharged in stormwater runoff. The applicant must implement site best management practices to prevent ~~the discharge of~~ toxic materials, hazardous materials, or other debris from entering water resources, wetlands or the MS4. These practices shall include but are not limited to the following:

- A. Waste Materials: A covered ~~Dumpster~~ dumpster shall be made available for the proper disposal of garbage, plaster, drywall, grout, gypsum, and other waste materials.
- B. Concrete Truck Wash Out: The washing of concrete material into a street, catch basin, ~~or~~ other public facility, ~~or~~ natural resource or water of the state is prohibited. A designated area for concrete washout shall be made available.



- C. Disposal of Other Wastewaters: The discharge of washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials to a street, catch basin, other public facility, natural resource or waters of the state is prohibited. The discharge of soaps or solvents used in vehicle and equipment washing is also prohibited. If generated, these wastewaters must be collected and disposed of properly.
- D. Fuel/Liquid Tank Storage: All fuel/liquid tanks and drums shall be stored in a marked storage area. A dike shall be constructed around this storage area with a minimum capacity equal to 110% of the volume of ~~all~~ the largest containers in the storage area and/or a spill kit shall be provided to clean up spills. The ESC Plan shall contain spill prevention and response procedures and these procedures shall be discussed at the pre-construction meeting.
- E. Toxic or Hazardous Waste Disposal: Any toxic or hazardous waste shall be disposed of properly. The discharge of fuels, oils, and other pollutants used in vehicle and equipment operation and maintenance is prohibited.
- F. Contaminated Soils Disposal and Runoff: **Discovery of previously unknown contaminated soils onsite shall be self-reported to Ohio EPA and local authorities.** Contaminated soils from redevelopment sites shall be disposed of properly. Runoff from contaminated soils shall not be discharged from the site. Proper permits shall be obtained for development projects on solid waste landfill sites or redevelopment sites. Where construction activities are to occur on sites with contamination from previous activities, operators shall be aware that concentrations of materials that meet other criteria (i.e. not considered a Hazardous Waste, meeting Voluntary Action Program (VAP standards)) may still result in stormwater discharges in excess of Ohio Water Quality Standards. Such discharges are not authorized by this code. Control measures which may be utilized to meet this requirement include, but are not limited to:
- i. Use berms, trenches, pits or tanks to collect contaminated runoff and prevent discharge.
  - ii. Pump runoff from contaminated soils to the sanitary sewer with the prior approval of the sanitary sewer system operator, or pump into a container for transport to an appropriate treatment or disposal facility; and
  - iii. Cover areas of contamination with tarps, daily cover or other such methods to prevent storm water from coming into contact with contaminated materials.

The SWP3 must include methods to minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, and sanitary waste to precipitation, stormwater runoff, and snow melt. The SWP3 shall include measures to prevent and respond to chemical spills and leaks. Applicants may also reference the existence of other plans (i.e., Spill Prevention Control and Countermeasure (SPCC) plans, spill control programs, Safety Response Plans, etc.) provided that such plan addresses this requirement and a copy of such plan is maintained on site.



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- (f) COMPLIANCE WITH OTHER REQUIREMENTS. The SWP3 shall be consistent with applicable State and/or local waste disposal, sanitary sewer, or septic system regulations, including provisions prohibiting waste disposal by open burning, and shall provide for the proper disposal of contaminated soils located within the development area.
- (g) TRENCH AND GROUND WATER CONTROL. There shall be no sediment-laden or turbid discharges to water resources or wetlands resulting from dewatering activities. If trench or ground water contains sediment, it must pass through a sediment-settling pond or other equally effective sediment control device, prior to being discharged from the construction site. Alternatively, sediment may be removed by settling in place or by dewatering into a sump pit, filter bag or comparable practice. Ground water dewatering which does not contain sediment or other pollutants is not required to be treated prior to discharge. However, care must be taken when discharging ground water to ensure that it does not become pollutant-laden by traversing over disturbed soils or other pollutant sources.
- (h) INTERNAL INSPECTIONS. All controls on the site shall be inspected at least once every seven calendar days and within 24 hours after any storm event greater than one-half inch of rain per 24 hour period. The inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized or runoff is unlikely due to weather conditions (e.g., site is covered with snow, ice, or the ground is frozen). A waiver of inspection requirements is available until one month before thawing conditions are expected to result in a discharge if prior written approval has been attained from the [community] Engineer and/or the [county] SWCD and all of the following conditions are met:
- A. The project is located in an area where frozen conditions are anticipated to continue for extended periods of time (i.e. more than one (1) month).
  - B. Land disturbance activities have been suspended, and temporary stabilization is achieved.
  - C. The beginning date and ending dates of the waiver period are documented in the SWP3.
  - D. For sites that will not be completed by October 1, a Pre-Winter Stabilization Meeting shall be held by the landowner and the developer, engineer and contractor of the project and the [community] prior to October 1, in order to plan and approve winter erosion and sediment controls as defined in the most current online edition of *Rainwater and Land Development*.

**Note: Please review the above requirements for Inspection procedures to ensure they are acceptable to your community.**

The applicant shall assign qualified inspection personnel to conduct these inspections to ensure that the control practices are functional and to evaluate whether the SWP3 is adequate, or whether additional control measures are required. Qualified inspection personnel are individuals with knowledge and experience in the installation and maintenance of sediment and erosion controls. Certified inspection reports shall be



submitted to the *[community engineer]* within seven (7) working days from the inspection and retained at the development site.

These inspections shall meet the following requirements:

- (1) Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for, pollutants entering the drainage system.
- (2) Erosion and sediment control measures identified in the SWP3 shall be observed to ensure that they are operating correctly. The applicant shall utilize an inspection form provided by the *[community]* or an alternate form acceptable to the *[Community]* Engineer. The inspection form shall include:
  - A. The inspection date.
  - B. Names, titles and qualifications of personnel making the inspection.
  - C. Weather information for the period since the last inspection, including a best estimate of the beginning of each storm event, duration of each storm event and approximate amount of rainfall for each storm event in inches, and whether any discharges occurred.
  - D. Weather information and a description of any discharges occurring at the time of inspection.
  - E. Locations of:
    1. Discharges of sediment or other pollutants from site.
    2. BMPs that need to be maintained.
    3. BMPs that failed to operate as designed or proved inadequate for a particular location.
    4. Where additional BMPs are needed that did not exist at the time of inspection.
  - F. Corrective action required including any necessary changes to the SWP3 and implementation dates.
- (3) Discharge locations shall be inspected to determine whether erosion and sediment control measures are effective in preventing significant impacts to the receiving water resource or wetlands.
- (4) Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking.
- (5) The applicant shall maintain for three (3) years following final stabilization the results of these inspections, the names and qualifications of personnel making the



inspections, the dates of inspections, major observations relating to the implementation of the SWP3, a certification as to whether the facility is in compliance with the SWP3, and information on any incidents of non-compliance determined by these inspections.

- (i) MAINTENANCE. The SWP3 shall be designed to minimize maintenance requirements. All ~~control practices~~ BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function until final stabilization. All sediment control practices must be maintained in a functional condition until all up slope areas they control reach final stabilization. The applicant shall provide a description of maintenance procedures needed to ensure the continued performance of control practices and shall ensure a responsible party and adequate funding to conduct this maintenance, all as determined by the [community] Engineer.

When inspections reveal the need for repair, replacement, or installation of erosion and sediment control BMPs, the following procedures shall be followed:

- (1) When ~~practices~~ BMPs require repair or maintenance. If an internal inspection reveals that a ~~control practice~~ BMP is in need of repair or maintenance, with the exception of a sediment-settling pond, it must be repaired or maintained within three (3) days of the inspection. Sediment settling ponds must be repaired or maintained within ten (10) days of the inspection.
  - (2) When ~~practices~~ BMPs fail to provide their intended function. If an internal inspection reveals that a ~~control practice~~ BMP fails to perform its intended function as detailed in the SWP3 and that another, more appropriate control practice is required, the SWP3 must be amended and the new control practice must be installed within three (3) to ten (10) days of the inspection as determined by the community engineer or site inspector.
  - (3) When ~~practices~~ BMPs depicted on the SWP3 are not installed. If an internal inspection reveals that a ~~control practice~~ BMP has not been implemented in accordance with the schedule, the control practice must be implemented within ten (10) days from the date of the inspection. If the internal inspection reveals that the planned control practice is not needed, the record must contain a statement of explanation as to why the control practice is not needed.
- (j) FINAL STABILIZATION. Final stabilization shall be determined by the [community] Engineer. Once a definable area has achieved final stabilization, the applicant may note this on the SWP3 and no further inspection requirement applies to that portion of the site. Final stabilization also requires the installation of permanent (post-construction) stormwater control measures (SCMs). Obligations under this ordinance shall not be completed until installation of post-construction BMPs is verified.

**XXXX.10** ABBREVIATED STORMWATER POLLUTION PREVENTION PLAN (SWP3).

- (a) In order to control sediment pollution of water resources ~~and wetlands~~, the applicant shall submit an Abbreviated SWP3 in accordance with the requirements of this regulation.



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- (b) The Abbreviated SWP3 shall be certified by a professional engineer, a registered surveyor, certified professional erosion and sediment control specialist, or a registered landscape architect.
- (c) The Abbreviated SWP3 shall include a minimum of the following BMPs. *[community]* may require other BMPs as site conditions warrant.
  - (1) Construction Entrances: Construction entrances shall be built and shall serve as the only permitted points of ingress and egress to the development area. These entrances shall be built of a stabilized pad of aggregate stone or recycled concrete or cement sized greater than 2" in diameter, placed over a geotextile fabric, and constructed in conformance with specifications in the most recent edition of ~~the~~ *Rainwater and Land Development Manual*.
  - (2) Concrete Truck Wash Out: The washing of concrete material into a street, catch basin, or other public facility or natural resource is prohibited. A designated area for concrete washout shall be ~~made~~ indicated on the plan ~~available~~. Use for other waste and wastewater is prohibited.
  - (3) Street Sweeping: Streets directly adjacent to construction entrances and receiving traffic from the development area, shall be cleaned daily to remove sediment tracked off-site. If applicable, the catch basins on these streets nearest to the construction entrances shall be cleaned weekly.
  - (4) Stabilization. The development area shall be stabilized as detailed in Table 4.

**Table 4: Stabilization**

Area requiring stabilization	Time frame to apply erosion controls
Any disturbed area within 50 feet of a <del>surface</del> <del>water of the state stream</del> and not at final grade.	Within 2 days of the most recent disturbance if that area will remain idle for more than <del>2+</del> 14 days
For all construction activities, any disturbed area, including soil stockpiles, that will be dormant for more than <del>2+</del> 14 days but less than one year, and not within 50 feet of a stream.	Within 7 days of the most recent disturbance within the area
Disturbed areas that will be idle over winter	Prior to November 1
<b>Note:</b> Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed. These techniques may include mulching or erosion matting.	



- (5) Inlet Protection. Erosion and sediment control practices, such as boxed inlet protection, shall be installed to minimize sediment-laden water entering active storm drain systems, including rear yard inlets. Straw, hay bales, and filter socks ~~or hay bales~~ are not acceptable forms of inlet protection.
  
- (6) Silt Fence and Other Perimeter Controls. Silt fence and other perimeter controls approved by the [community] shall be used to protect adjacent properties and water resources from sediment discharged via sheet (diffused) flow. Silt fence shall be placed along level contours and the permissible drainage area is limited to those indicated in Table 3 in XXXX.09 of these regulations.
  
- (7) Internal Inspection and Maintenance. All controls on the development area shall be inspected at least once every seven calendar days and within 24 hours after any storm event greater than one-half inch of rain per 24 hour period. Maintenance shall occur as detailed below:
  - A. When ~~practices~~ BMPs require repair or maintenance. If the internal inspection reveals that a ~~control-practice~~ BMP is in need of repair or maintenance, with the exception of a sediment-settling pond, it must be repaired or maintained within three (3) days of the inspection. Sediment settling ponds must be repaired or maintained within ten (10) days of the inspection.
  - B. When ~~practices~~ BMPs fail to provide their intended function. If the internal inspection reveals that a ~~control-practice~~ BMP fails to perform its intended function and that another, more appropriate control practice is required, the Abbreviated SWP3 must be amended and the new control practice must be installed within ten (10) days of the inspection.
  - C. When ~~practices~~ BMPs depicted on the Abbreviated SWP3 are not installed. If the internal inspection reveals that a ~~control-practice~~ BMP has not been implemented in accordance with the schedule, the control practice must be implemented within ten (10) days from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record must contain a statement of explanation as to why the control practice is not needed.
  
- (8) Final Stabilization: Final stabilization shall be determined by the [community] Engineer.

#### XXXX.11 FEES

The SWP3 Stormwater Pollution Prevention Plan and Abbreviated SWP3 Stormwater Pollution Prevention Plan review, filing, and inspection fee is part of a complete submittal and is required to be submitted to the [community] and the [county] SWCD before the review process begins. Please consult with [community] Engineer for current fee schedule.



**XXXX.12 BOND**

- (a) If a **SWP3 Stormwater Pollution Prevention Plan** or **SWP3 Stormwater Pollution Prevention Plan** is required by this regulation, soil disturbing activities shall not be permitted until a cash bond **or deposit** has been deposited with the *[community]* Finance Department. The **bond** amount shall be a **[\$1,500]** minimum, and an additional **[\$1,500]** paid for each subsequent acre or fraction thereof or **the cost of stabilizing disturbed areas based on a fee schedule established by the [community]**. The bond will be used 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 cash bond shall be returned, less *[community]* administrative fees as detailed in Chapter **XXXX** of the *[community]* Codified Ordinances, after all work required by this regulation has been completed and final stabilization has been reached, all as determined by the *[community]* Engineer.
- (b) No project subject to this regulation shall commence without a SWP3 or Abbreviated SWP3 approved by the *[community]* Engineer.

**XXXX.13 ENFORCEMENT**

- (a) If the *[community]* or its duly authorized representative determines that a violation of the rules adopted under this code exist, the *[community]* or representative may issue an immediate stop work order if the violator failed to obtain any federal, state, or local permit necessary for sediment and erosion control, earth movement, clearing, or cut and fill activity.
- (b) All development areas may be subject to external inspections by *[community engineer]* and/or the *[county]* SWCD to ensure compliance with the approved SWP3 or Abbreviated SWP3.
- (c) After each external inspection, *[community engineer]* and/or the *[county]* SWCD shall prepare and distribute a status report to the applicant.
- (d) If an external inspection determines that operations are being conducted in violation of the approved SWP3 or Abbreviated SWP3 *[community engineer]* and/or the *[county]* SWCD may take action as detailed in Section **XXXX.14** of this regulation.
- (e) **Failure to maintain and repair erosion and sediment controls per the approved SWP3 plan may result in the following escalation:**
  - i. **First Violation:** The *[community engineer]* will issue a Notice of Deficiency to the owner or operator. All controls are to be repaired or maintained per the SWP3 plan within three (3) days of the notification. If controls have not been corrected after this time, the *[community engineer]* may issue a Stop Work Order for all activities until corrections have been made.
  - ii. **Second Violation:** The *[community engineer]* may issue a formal Notice of Violation which includes a \$250 administrative fee against the SWP3 Bond or site plan deposit. All controls are to be repaired or maintained per the approved SWP3 plan within three (3) days of the Notice of Violation. If controls have not been corrected after



- this time, the *[community engineer]* may issue a Stop Work Order for all activities until corrections have been made.
- iii. Third and subsequent violations: The *[community engineer]* may issue a Stop Work Order for all construction activities and charge a \$250 administrative fee against the SWP3 bond or site plan deposit. The Stop Work Order will be lifted once all controls are in compliance with the approved SWP3 plan.
- (f) The *[community engineer]* shall have the authority to make immediate on-site adjustments to the ESC Plan in order to achieve compliance with these Rules.
- (g) A final inspection will be made to determine if the criteria of this code has been satisfied and a report will be presented to the *[Community]* on the site's compliance status.
- (h) The *[community engineer]* will monitor soil-disturbing activities for non-farm residential, commercial, industrial, or other non-farm purposes on land of less than one contiguous acre to ensure compliance required by these Rules.
- (i) The *[community engineer]* shall notify the U.S. Army Corps of Engineers when a violation on a development project covered by an Individual or Nationwide Permit is identified. The *[community engineer]* shall notify the Ohio Environmental Protection Agency when a violation on a development project covered by a Section 401 Water Quality Certification and/or Isolated Wetland Permit is identified.
- (j) The *[Community]* shall not issue building permits for projects regulated under this code that have not received approval for an SWP3 for said project(s).

#### **XXXX.14 VIOLATIONS**

- (a) 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.
- (b) Upon notice, the *Mayor* and/or designee *[assign authority as consistent with City chapter]* may suspend any active soil disturbing activity for a period not to exceed ninety (90) days, and may require immediate erosion and sediment control measures whenever he or she determines that such activity is not meeting the intent of this regulation. Such notice shall be in writing, shall be given to the applicant, and shall state the conditions under which work may be resumed. In instances, however, where the *Mayor* and/or designee finds that immediate action is necessary for public safety or the public interest, he or she may require that work be stopped upon verbal order pending issuance of the written notice.

#### **XXXX.15 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



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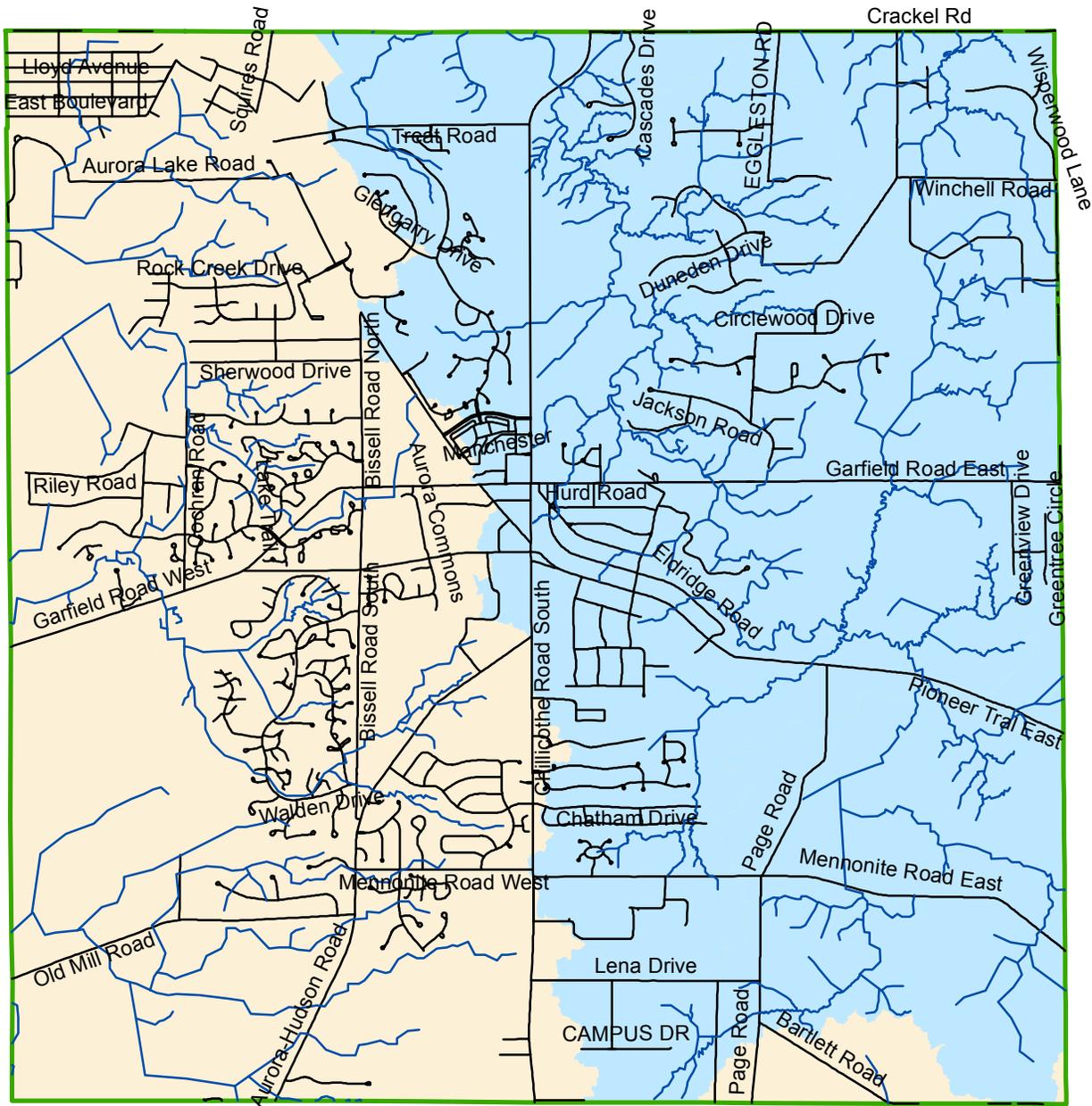
be made in conformity with *[insert appropriate Ohio Revised Code sections]*. Written notice of appeal shall be served on the *[community]* and a copy shall be provided to the *[county]* SWCD.

**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]*.

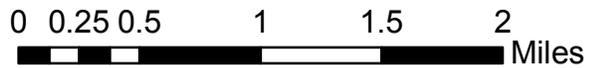
# Appendix E

# Coldwater Habitat Watersheds in Aurora



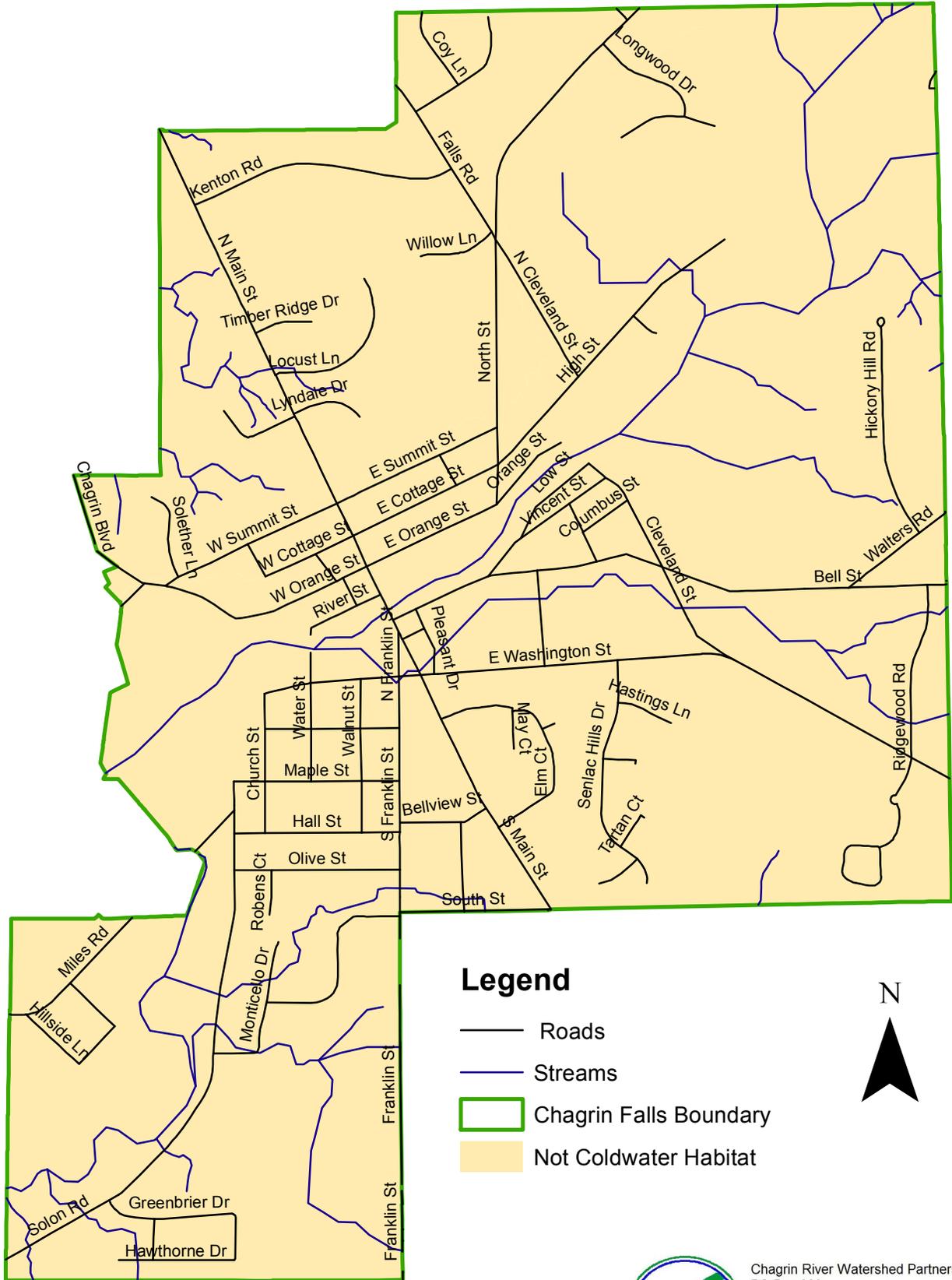
## Legend

-  Streams
-  Roads
-  Aurora Boundary
-  Coldwater Habitat
-  Not Coldwater Habitat



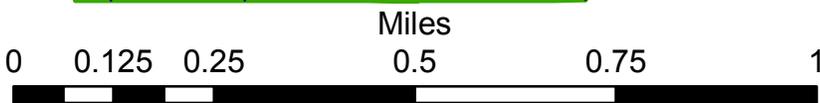
Chagrin River Watershed Partners, Inc.  
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 Willoughby, OH 44096  
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[www.crwpp.org](http://www.crwpp.org)

# Coldwater Habitat Watersheds in Chagrin Falls Village



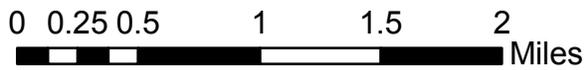
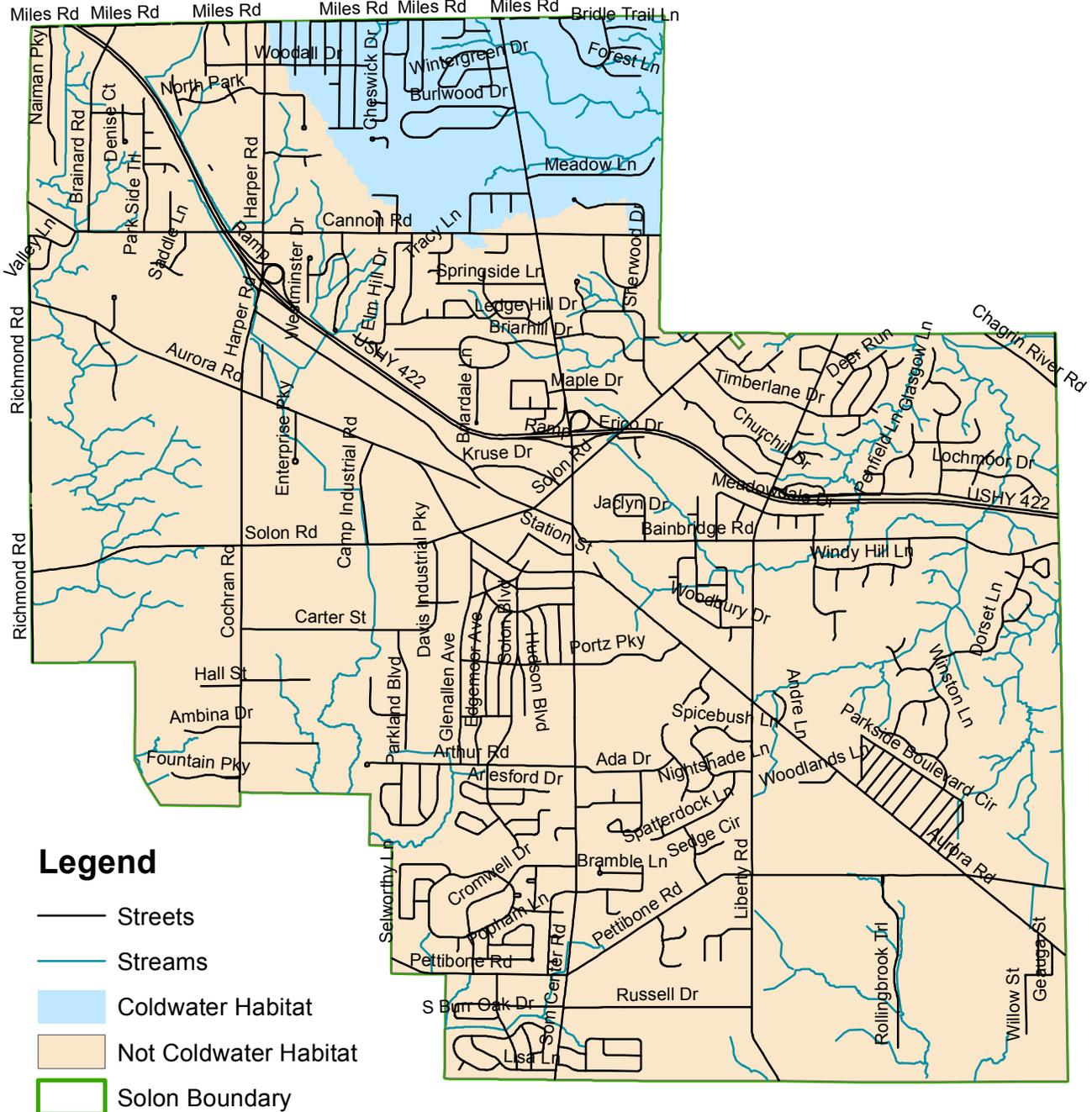
## Legend

-  Roads
-  Streams
-  Chagrin Falls Boundary
-  Not Coldwater Habitat



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# Coldwater Habitat Watersheds in Solon



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