

Appendix 9-3

208 Plan Prescriptions for

Water Quality Protection
within the Big Darby Creek Watershed

applicable to portions of:

Champaign County

Franklin County

Logan County

Madison County

Pickaway County

Union County

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Attachment A

A listing of the criteria that form the special prescriptions to protect water quality and aquatic life in the Big Darby Creek watershed.

Attachment B

Stream Restoration Option under Darby SW Permit

Introduction and Summary of Special Prescriptions for the Big Darby Watershed

Background

The Big Darby Creek watershed is an important water resource in central Ohio and the entire Midwest. Natural resource professionals from private, public and academic institutions are unanimous in citing the major streams in this watershed as among the most biologically diverse streams of their size in the Midwest. Big and Little Darby creeks have been designated as State and National Scenic Rivers, and the watershed is known to provide habitat for several state and federally listed endangered species. Protecting this resource will require innovation and special consideration or requirements.

In the 2002 update of the Water Quality Management Plan for the Scioto River and Blacklick Creek (Central Scioto Plan Update; CSPU), section 5.02.02.03 described a special prescription for an area delineated as the Environmentally Sensitive Development Area (ESDA) which encompasses parts of the Hellbranch Run and Big Darby Creek watersheds in western Franklin County. The prescription read in part:

“Unplanned and uncontrolled growth poses a threat to the Darby Creek watershed and the unique biodiversity of its aquatic and prairie land ecosystem. It is recognized that some future development of this area will occur. While the City of Columbus will ultimately provide centralized service within a portion of it, as described in Section 5, **no service whatsoever shall be provided within the ESDA until the following conditions are met** for the area to be served: 1) riparian buffer restrictions are in place; 2) comprehensive storm water management planning has occurred; 3) conservation development restrictions are in place which involve the concept of clustering development to preserve tracts of open space, including farmland; and 4) adequate public facilities, including roadways, exist or are planned to support any proposed development.”

From the CSPU State WQM Plan update, 2002 (emphasis added)

The 2002 CSPU required that an external advisory group (EAG) be formed to make recommendations concerning water quality in the ESDA. The 2002 CSPU also charged the Director of Ohio EPA with the task of determining if the EAG recommendations protect water quality, and to update the CSPU with a set of criteria for riparian buffers, storm water, open space conservation and development. **The prohibition on allowing new centralized sewer service imposed by Ohio EPA through the CSPU and the Agency's authority to issue permits for new sewer lines and wastewater treatment remains in effect until a revised State Water Quality Management (WQM) Plan is certified by the State and approved by U.S. EPA.** The Agency anticipates that the approval will occur by September or October 2006.

Ohio EPA's Total Maximum Daily Load (TMDL) report for the Big Darby watershed and the development of the Darby Storm Water (SW) permit¹ were important exercises that were used to gage the sufficiency of the EAG recommendations to protect water quality. The Big Darby Creek TMDL report was completed and approved by U.S. EPA on March 31, 2006. Approved TMDLs are part of the State's WQM Plan (see Chapter 2). The Darby SW permit was finalized in 2006. The process of drafting these documents, reviewing public comments, and finalizing these documents provided additional context for the Agency to consider the EAG recommendations and to prepare the final special prescriptions found in this appendix of the State's 208 Plan.

Big Darby Accord Watershed Master Plan

Ten local jurisdictions in western Franklin County have collaborated and, through the services of EDAW Inc. and other professionals, prepared a general land use plan capable of guiding development within the watershed in a manner that protects Big Darby Creek. Just completed in July 2006, much of the source data, analysis and conclusions regarding the protection of water quality and aquatic life came from the same studies and reports relied upon by Ohio EPA. The Big Darby Accord Watershed Master Plan (or Big Darby Accord for short) recognizes and implements the stream setback provisions and land use restrictions called for in the TMDL report, the EAG report and the Darby SW permit. Much work remains to be done, however, to fully implement the Big Darby Accord, presuming it is accepted by the jurisdictions involved. The State's 208 Plan for Franklin County, the special prescriptions for the protection of Big Darby Creek, and the Big Darby Accord should complement each other. We have reviewed the State's materials and made revisions and clarifications in an attempt to foster a cooperative process as local communities and Ohio EPA move from the various moratoriums and bans on new sewers and development to the careful review of well planned development within the watershed.

¹ Throughout this appendix the short hand phrase "Darby SW permit" refers to the *General Permit for Storm Water Associated with Construction Activity Located within the Big Darby Creek Watershed* (OHC100001) issued by Ohio EPA in 2006.

Summary

The special prescriptions for the protection of water quality in the Big Darby Creek watershed are presented in this appendix. They are necessary to protect the unique water quality and resource value of the Big Darby Creek in the face of anticipated rapid development of the landscape.

A summary of the criteria to protect water quality in the Big Darby Creek watershed is shown in Attachment A. Additional details are found in the remainder of this appendix. To a large extent the criteria presented here follow the consensus recommendations made by the EAG. Three consensus recommendations were not carried forward². While each recommendation is well conceived and should be considered by local jurisdictions, the Agency did not find a sufficient connection to water quality to warrant their inclusion in the State's 208 Plan.

Implementation of some criteria are addressed in the Ohio EPA Darby SW permit, and these are so indicated in Attachment A. A number of significant changes were made in response to comments on the Darby SW permit. The required stream setback distances are still protective of water quality and aquatic life, but are now more uniform throughout the watershed. Two additional features were included to address land owner and land development concerns without compromising environmental protection goals. First, a provision was added for applicants to delineate site specific stream setbacks using the same science-based principles. Second, an option was added to allow applicants to develop within the 100 year flood plain if the area is adjacent to entrenched drainage ditches and stream restoration and a 100 foot setback is implemented as part of the development project. Ground water infiltration design standards were also revised based upon comments.

There is an important difference between the work of the EAG and the State's 208 Plan regarding the areal coverage where the recommendations of the EAG apply. The discussions and recommendations made by the EAG were limited to the ESDA because of the specific charge given to the group. The ESDA is an area entirely within Franklin County, but does not include the very eastern edge of the Big Darby Creek Watershed. The State 208 Plan expands the EAG recommendations to cover all of the Big Darby Creek watershed in Franklin County. Other special water quality prescriptions derived from the TMDL report are applicable in the remaining area of the Big Darby Creek watershed.

² The following EAG consensus recommendations have been dropped:

Conservation subdivisions should be a by-right form of development and conventional subdivisions should be a conditional use that must go through a special approval process that ensures equal or greater water quality protection.

The group recommends that local communities must demonstrate to the Ohio EPA that they have enforcement mechanisms in place that have a short-term impact, including the authority to stop work. In terms of inspection frequency, the EAG recommends requiring periodic inspections.

Riparian Corridor Ownership - The EAG recommends that the text of Option 3 be used as the model for ownership, provided that there is appropriate enforcement.

Areal Extent and Definition of Big Darby Creek Watershed

The Big Darby Creek watershed covers 555 square miles of central Ohio just west of the Columbus metropolitan area (see Figure 1). Big Darby Creek originates in Logan County and flows more than 80 miles before joining the Scioto River near Circleville, Ohio. Portions of the following counties lie within the watershed: Champaign, Franklin, Logan, Madison, Pickaway and Union.

The Agency has decided to include the full extent of the Big Darby Creek watershed under the special 208 Plan prescriptions that are either applicable to all the counties listed above, or to just the Franklin County portion of the watershed. Note that in 2002 the ESDA boundary line was drawn to exclude a small portion of the Big Darby Creek watershed along its eastern edge from the sewer line moratorium imposed by the State's 208 plan (a.k.a., the CSPU). The reason this was done involved the existence of a number of pre-annexation agreements and pending developments that posed potential claims of unfair takings if the area was subject to the sewer extension moratorium as it was set out in the CSPU. Because the State's 208 Plan now provides criteria for new development in lieu of a sewer moratorium that prevents development there is no longer a reason to retain the old ESDA boundary.

The areal extent or definition of the Big Darby Creek watershed for the purposes of this 208 Plan shall be the area designated by the United States Geological Survey as hydrologic unit codes (HUCs) 05060001-190, 05060001-200, 05060001-210 and 05060001-220 (see Figure 1), except within Franklin County. A more detailed map depicting the eastern boundary of the Big Darby Creek watershed within Franklin County has been prepared using two-foot contour elevation data and water course and sub-surface tile line mapping provided by the County drainage engineer's office. A comparison of the re-defined boundary with an older rendition of the watershed's eastern boundary is shown in Figure 2. In most areas the drainage boundary is not significantly altered, but in two areas (the very northern end and an area near Bolton Field) a difference of several thousand linear feet excludes or includes areas of approximately 300-600 acres.

The Big Darby Creek watershed boundaries shown in Figures 1 and 2 are the best approximations that can be given with readily available information and will serve as the benchmark for an initial determination as to whether or not a particular parcel of land is subject to the special water quality prescriptions in this appendix. Ohio EPA, an applicant for a permit, or a third party may present additional elevation data to prove that surface or subsurface drainage from an area is either within or outside the Big Darby Creek watershed.

Fig. 1. A map of the 4 USGS hydrologic unit codes that compromise the Big Darby Creek watershed.

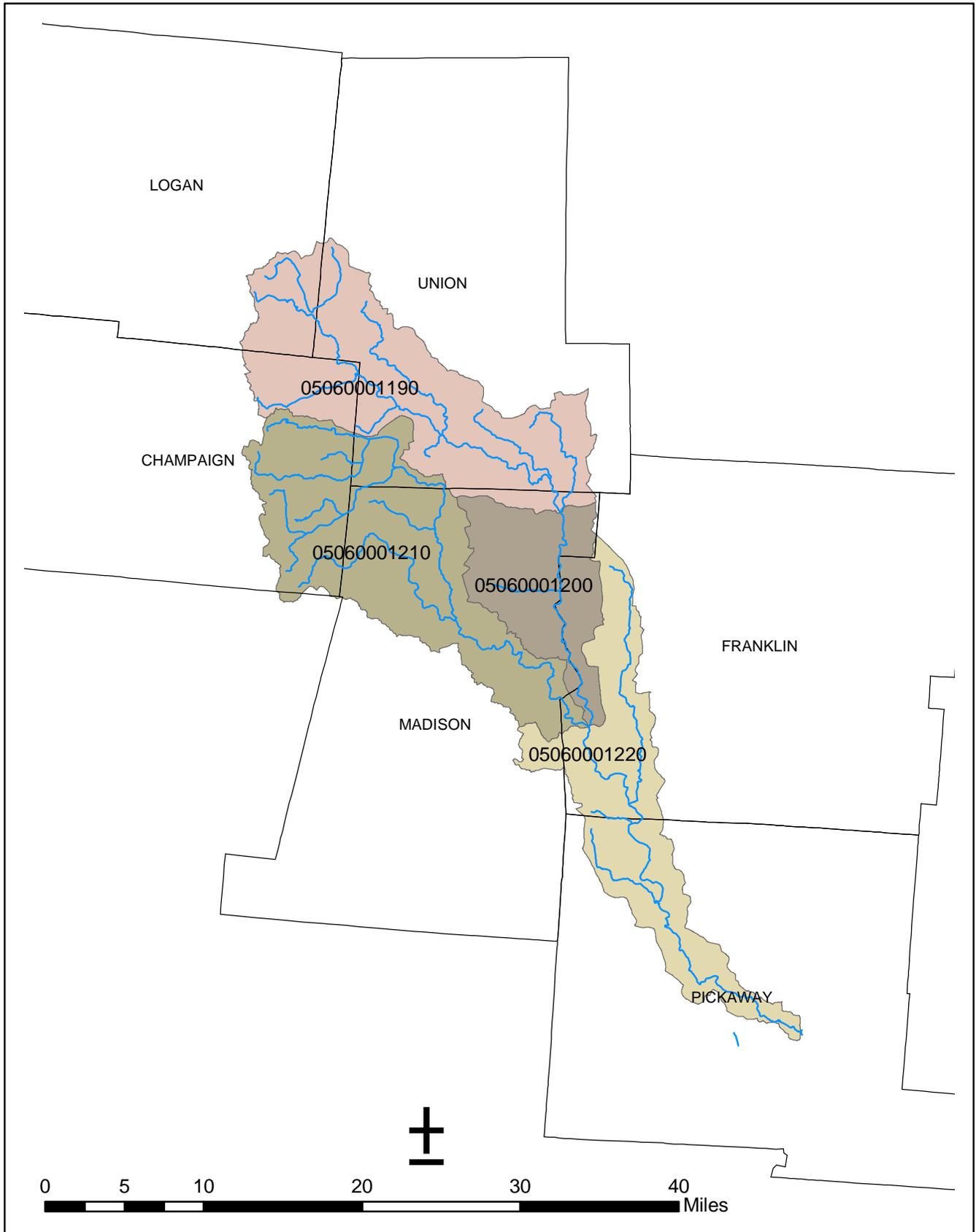
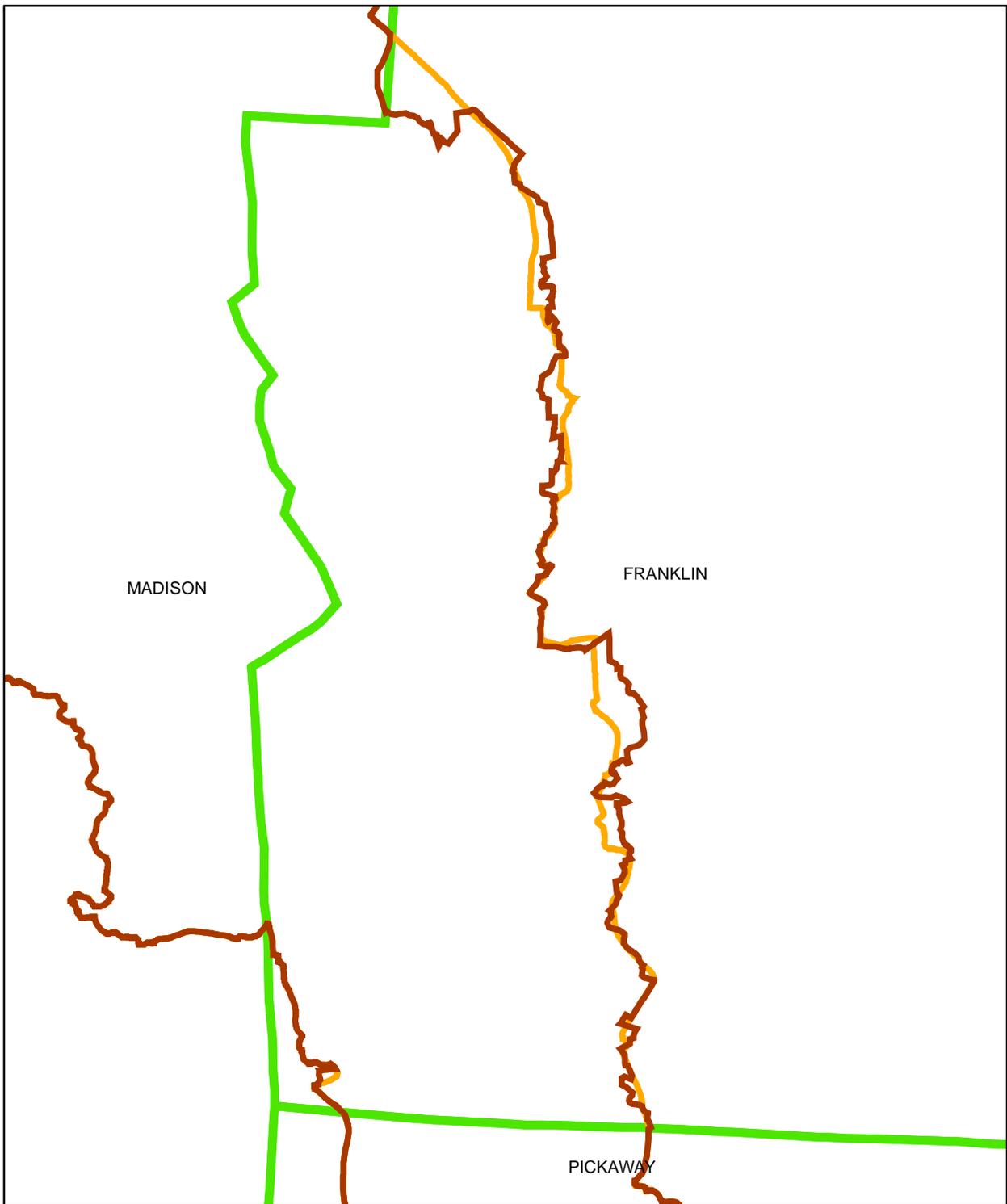
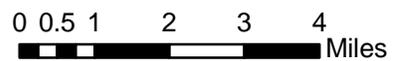


Fig. 2. Map showing original USGS watershed boundary for Big Darby Creek and a corrected boundary developed for Franklin County.



Legend

-  Corrected Watershed Boundary
-  USGS Big Darby Watershed Boundary
-  county



Criteria 0 - Review of Central Sewer Line Projects

(Applies only within Franklin County portion of Big Darby watershed)

An important objective of the State's update of the 208 Plan for Franklin County is to establish a clear set of environmental protection measures that should be in place to protect water quality and aquatic life in the Big Darby Creek watershed. Following the approval of this plan Ohio EPA will review and act upon Permit to Install applications for central sewer line projects within the Franklin County portion of the watershed using the criteria in this document (Appendix 9-3). These same criteria would apply for a wastewater discharge permit application.

Preferred option - Protection of water quality as land is developed requires a combination of local and State implementation of technical design standards and site management standards. A significant portion of the technical design standards regarding pre and post development storm water controls is contained in the Ohio EPA Darby SW permit (see criteria 4). Development projects of 1 acre or more anywhere within the Big Darby Creek watershed, whether on central sewer or not, will be regulated through this permit.

Additional site management standards to manage land use within stream setback areas and the open space set aside in conservation subdivisions are also necessary to protect the rapidly developing area of the watershed within Franklin County. Local jurisdictions are expected to adopt the institutional control mechanisms described in criteria 1 to meet and implement the more specific site management criteria listed in criteria 2 and 3. Communities may choose to pursue "as protective as" site management standards. See criterion 5a regarding options on developing "as protective as" local regulations.

Central sewer line projects within the Franklin County portion of the Big Darby Creek watershed will be reviewed and acted upon provided the Darby SW permit is in effect and the local government jurisdiction(s) that will be served by the sewer line project have adopted the site recommended management criteria (see criteria 2 and 3), or alternative criteria that Ohio EPA considers to be "as protective as". Once the existence of acceptable locally adopted implementation mechanisms are confirmed the Ohio EPA will approve central sewer line projects provided all engineering aspects of the project meet specifications and the land development project or projects associated with the sewer line extension have obtained coverage under the new Darby SW permit.

Alternative option - See criteria 5b, 6a and 6b regarding options in the absence of acceptable locally implemented regulations, or as an alternative to the technical design standards contained in the Darby SW permit. Central sewer line projects may be approved if the applicant makes acceptable provisions to put in place site management standards and technical design standards. An individual NPDES permit for discharge from construction activities is necessary to implement this option.

Criteria 1 - Adoption of Institutional Mechanisms

(Required within Franklin County portion of the Big Darby Creek watershed, recommended for rest of watershed)

Within the Franklin County portion of the Big Darby Creek watershed the EAG process and continued governmental cooperation on land use planning has fostered a good understanding among political leaders that local governmental jurisdictions should carefully plan for growth in western Franklin County. Many local officials are also aware of the value and importance of adopting local regulations to protect water quality.

Based on the unique water quality of the Big Darby Creek watershed and development pressure within Franklin County the State 208 Plan calls upon all local political jurisdictions in this area to adopt the appropriate institutional mechanisms in their communities to comply with criteria 1a, 1b and 1c.

1a A political jurisdiction shall adopt at least one of the following institutional mechanisms as a means to implement stream setback requirements and open space preservation requirements within the Big Darby Creek watershed in western Franklin County prior to the extension of centralized sanitary sewer service:

1. watershed based zoning;
2. subdivision zoning; storm water and/or flood plain regulations; flood plain regulations;
3. council resolution; and/or
4. ordinances.

1b All political jurisdictions in the Big Darby Creek watershed in western Franklin County are strongly encouraged to have, to update and to use comprehensive land use planning to support zoning and other local regulations.

1c Institutional controls for riparian corridor protection should include a purpose statement with the following three elements:

1. maintain and improve biological diversity and aquatic life use designations;
2. achieve sediment, pollutant and nutrient removal; and
3. maintain stream functionality.

Recommended language for the purpose statement is as follows:

It is the goal of the control to establish riparian buffer restrictions to maintain and improve biological diversity and aquatic life use designations, achieve sediment, pollutant, and nutrient removal, and maintain stream functionality.

Criteria 2 - Local Stream Setbacks and Associated Development Restrictions
(Required within Franklin County portion of Big Darby watershed,
recommended for rest of watershed)³

2a Applicable Streams - The local zoning regulation applicable in western Franklin County should, at a minimum, apply to the waters described here. Streams requiring protection under this section are defined as perennial, ephemeral, or intermittent streams with a defined bed, bank, or channel. National Resource Conservation Service (NRCS) soil survey maps should be used as one reference and the presence of a stream requiring protection should also be confirmed in the field. A drainage way constructed for road side drainage and generally parallel to a road shall not be considered a stream subject to these requirements unless the Director of Ohio EPA determines there are compelling reasons it should. Any other waters of the State that happen to generally parallel a road for any distance shall be considered a stream subject to these requirements.

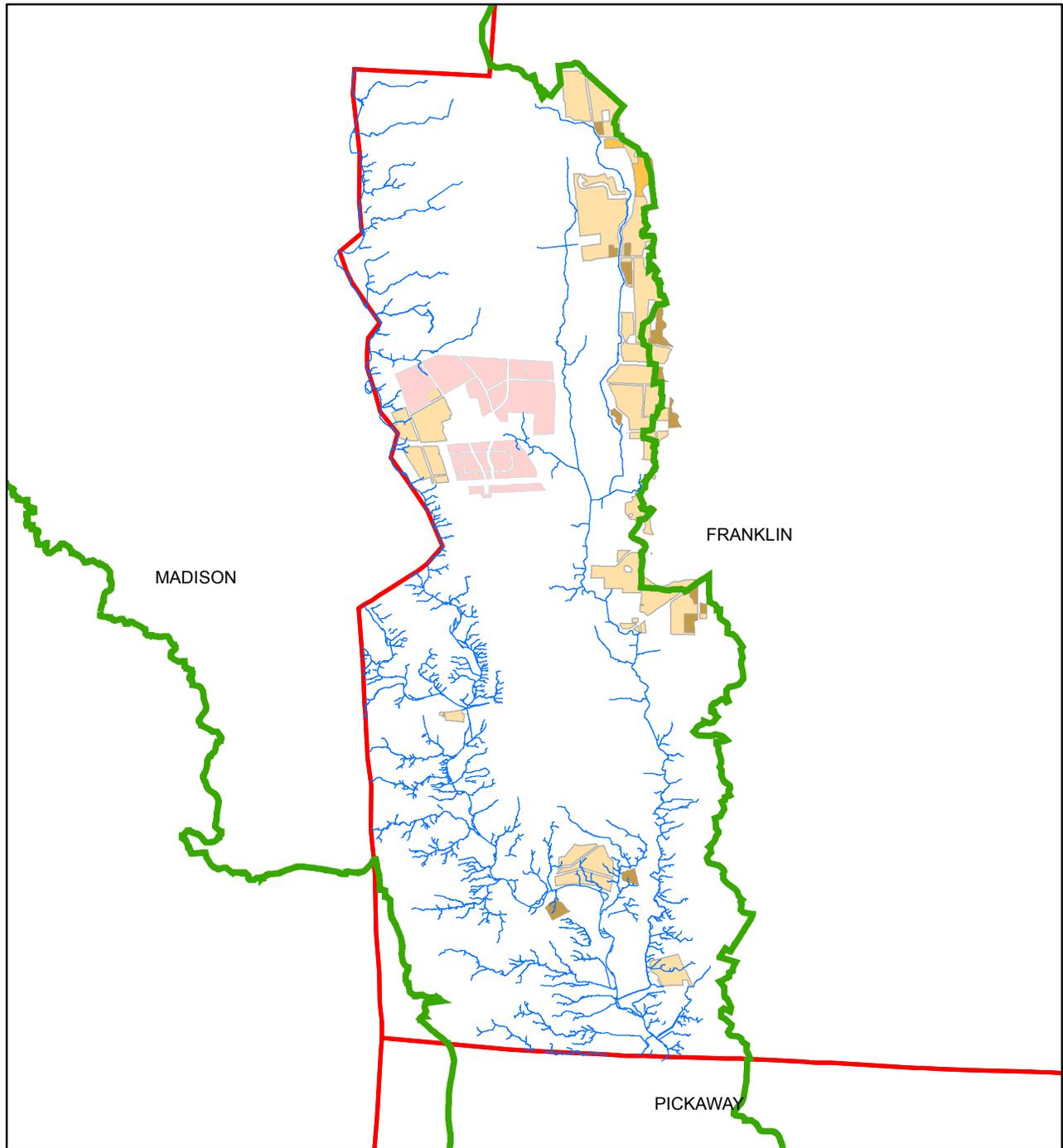
Ohio EPA prepared a map using a number of data sources including the NRCS soil mapping and Geographic Information Systems (GIS) files provided by the Franklin County Engineer's Office and the Franklin County Soil and Water Conservation District (SWCD) Office. This map was shared with and discussed by the EAG. However, the EAG did not endorse the map or reach consensus regarding how a pre-determined map would be applied by each jurisdiction.

Figure 3 is the best approximations that Ohio EPA can provide using readily available information of streams in Franklin County where the set backs apply. The stream layer was produced from a detailed GIS stream layer received from the Franklin County SWCD. The layer was modified to remove segments that provide road side drainage as defined above. Also removed were isolated stream segments that were not connected to the larger stream network, unless they entered a flood plain of a larger stream in which case they were kept. The resulting stream layer was spot-checked, and modified when needed with the use of recent high resolution color orthoimagery (Franklin Auditor's Office – 2004) and digital raster graphics (DRGs), which are scanned image of a U.S. Geological Survey (USGS) standard series topographic map georeferenced for use within a GIS environment.

Ohio EPA will apply Figure 3 as the benchmark for an initial determination of whether or not a land parcel within Franklin County contains a stream subject to these requirements. Ohio EPA, an applicant for a permit, or a third party may present additional information that may be considered in making a final conclusion on whether a stream as defined above exists on the property.

³ The context of presenting these criteria is with respect to local governments implementing stream set backs. The Darby SW permit issued by Ohio EPA requires stream setbacks and has other requirements that apply throughout the entire watershed.

Fig 3. Map showing the best approximation that Ohio EPA can provide of the streams in western Franklin County subject to setback requirements.



0 0.5 1 2 3 4 Miles

- | | |
|---|--|
|  Streams subject to setback requirements | Land Use Category |
|  Big Darby watershed boundary |  Town Center |
|  County boundaries |  Suburban High Density 3 - 5 DUs/ac |
| |  Urban Medium Density 5 - 8 DUs/ac |
| |  Urban High Density 8+ du/ac |

2b Size of the Setback Distance - The local zoning regulation applicable in western Franklin County should, at a minimum, delineate stream setback distance using one of the following three methods:

1. The setback distance from the centerline of the stream shall be sized as the greater of the following:
 - a. the regulatory 100 year flood plain (based on FEMA mapping);
 - b. a minimum of 100 feet (on each side); or
 - c. the distance calculated using the following equation:

$$W = 133DA^{0.43}$$

where:

DA = drainage area (mi²)

W = total width of buffer (ft)

W should be divided by two (2) in order to calculate the setback for each side of the stream.

2. Site Specific Riparian Setback Delineation. The setback area shall be centered over the meander pattern of the stream. If the land on one side (excluding levees) of the stream is more than 100% greater in bank height (measured from water surface to the top of bank during low flow and averaged over the length of the parcel), then the setback area location shall be adjusted so that the land area adjacent to the stream with the lowest elevation is included to the greatest extent possible while retaining the majority of stream area within the setback area. In cases where the stream extends to the edge or beyond the setback area, that area shall be extended a minimum of 100 feet beyond the top of the streambank.
3. Stream Restoration. Each stream segment within the proposed site boundaries can be assessed in accordance with Attachment B. In the event the stream segment is classified as a "Previously Modified Low Gradient Headwater Stream," the permittee has the option to restore the stream segment in accordance with Attachment B. If the stream restoration option is not utilized then the permittee shall delineate stream setback distances in accordance with 2b1 or 2b2. In the event the previously modified low gradient headwater stream exceeds the minimum criteria as stated in Attachment B, restoration in lieu of setbacks defined in 2b1 or 2b2 may be considered on a case by case basis to achieve the goals of Attachment B

2c Permitted Uses - The local zoning regulation applicable in western Franklin County should, at a minimum, specify the following permitted uses within the stream setback distance. Uses that are passive in character (including, but not limited to, passive recreational uses, as permitted by federal, state and local laws, such as hiking, fishing, hunting, picnicking and similar uses) shall be permitted in stream corridor

protection zones. Permitted uses are as follows:

1. Passive recreational activity. Unpaved public or private trails are included in this definition as a permitted use. Paved trails are a conditional use (see criteria 2d below). The following conditions apply to unpaved trails as a permitted use in the riparian buffer:
 - a. Trail Surface: unimproved/earthen
 - b. Trail Width: minimum 3 feet, maximum 5 feet
 - c. No clearing of woody vegetation shall be permitted
 - d. Distance from edge of stream, minimum 125 feet (except spurs for river access)
 - e. River access points may be developed.
2. Removal of damaged or diseased trees.
3. Revegetation or reforestation.
4. Provided that disturbances due to construction are minimized and mitigated per the requirements in the Darby SW permit, arterial streets are classified as a permitted use.
5. Provided that disturbances due to construction are minimized and mitigated per the requirements in the Darby SW permit, installation and maintenance of public utilities is classified as a permitted use.
6. Disturbances of the riparian buffer zone necessary to accomplish the uses described in paragraphs 2c1 to 2c5 are also authorized. However, all such disturbances shall be minimized and any necessary disturbances shall be mitigated.

2d Conditional Uses - The local zoning regulation applicable in western Franklin County should, at a minimum, specify the following conditional uses within the stream setback distance. Conditional uses are activities that local zoning or other ordinances may permit after undergoing a review process that evaluates the extent of damage to the buffer that the use may cause if the activity is permitted, and that provides for mitigation of that damage. The review process should also detail conditions under which a conditional use application will be denied. Conditional uses are as follows.

1. Streambank stabilization/erosion control work and/or large scale stream channel and riparian buffer restoration work, that are ecologically compatible and substantially use natural materials and native plant species where practical and available, is an approvable conditional use of the riparian buffer. Providing that separate authority exists, such streambank stabilization erosion control, and stream channel restoration work shall be approved by the local jurisdiction, the Director of Public Utilities of City of Columbus or the Director

- of Ohio EPA. All streambank stabilization plans should provide long-term streambank protection. In reviewing this plan, the local jurisdiction or the Director of Ohio EPA may consult with representatives of the Ohio Department of Natural Resources, Division of Natural Areas and Preserves (ODNR DNAP); the Ohio EPA, Division of Surface Water; the Franklin County Soil and Water Conservation District; or other technical experts as necessary. The local jurisdiction should provide language stating that erosion control measures be limited to the purposes of water quality protection, the prevention of flooding, or the protection of existing structures.
2. Construction of paved trails in the riparian buffer to further passive recreation uses shall be an approvable conditional use. However, trails that become damaged due to natural erosion shall not be repaired but shall be moved upland or removed altogether. The following conditions shall apply to paved trails in the buffer:
 - trail surface: (hard) asphalt or concrete
 - trail width: minimum 10 feet, maximum 12 feet
 - clearing width: maximum 20 feet (clearing not included as part of overall buffer width)
 - distance from edge of stream: minimum 300 feet
 - river access points may be developed but must be unpaved
 - private trails should not have stream crossings, and crossings on public trails are a conditional use and will be permitted only if they are part of a comprehensive trail plan.
 3. Unpaved trails as a component of a paved trail system may be necessary for Americans with Disabilities Act compliance. For an approvable conditional use in the riparian buffer, those trails should have the following conditions:
 - Trail surface: (soft) compacted gravel
 - Trail width: minimum 5 feet, maximum 12 feet
 - Clearing width: maximum 20 feet (clearing not included as part of overall buffer width)
 - Distance from edge of stream: minimum 200 feet, unless developed as a river access point under 2c1e above.
 4. A driveway or non-arterial roadway may be an approvable conditional use. A new crossing or new roadway for a street other than an arterial may be permitted to cross the stream corridor protection zone only in those circumstances when the parcel has no other existing access, when such crossing is necessary for public health or safety, or when the applicant can demonstrate that important ecological protection and ecological benefits are realized (such as saving a mature wood lot). In addition, the applicant must demonstrate that the new crossing or new roadway in the buffer is necessary to achieve important ecological protection, or maximizes ecological benefit. Such activity shall minimize disturbance to the riparian buffer and shall

mitigate any disturbances.

2e Prohibited Uses - The local zoning regulation applicable in western Franklin County should, at a minimum, specify the following prohibited uses within the stream setback distance.

1. Construction within the riparian buffer zone is a prohibited use. This restriction applies to new construction, and does not apply to existing residential structures and associated appurtenances.
2. Dredging and filling is a prohibited use in the riparian buffer zone.
3. Motorized vehicles shall be a prohibited use, with the exception of emergency vehicles when necessary for public health and safety.
4. There shall be no disturbance of natural vegetation in the riparian buffer zone at any time during development on the remainder of the site, except for: 1) such conservation maintenance that the landowner deems necessary to control noxious weeds (as defined by ODNR, DNAP); 2) such plantings as are consistent with these regulations; 3) the passive enjoyment, access and maintenance of lawns and landscaping on existing parcels; and 4) such plantings as are necessary to implement a properly designed and permitted stream restoration project. If natural vegetation does not exist, replanting is required with native vegetation in accordance with a plan approved by the local jurisdiction.
5. Parking lots in the riparian buffer are a prohibited use. There shall be no parking lots or other human made impervious cover. Exceptions may be appropriate for trails approved under the conditional use provision (2d2).
6. The riparian buffer shall not be used for the application and/or spraying of wastewater treatment plant residuals.

2f Delineation of the Riparian Buffer - The boundary of the buffer is required to be clearly delineated on plans and prominently displayed in the field prior to development. No later than the end of construction, the applicant shall permanently delineate the stream corridor protection zone in an aesthetically harmonious manner, approved by *[insert the appropriate position for the individual jurisdiction]* such that the location of the zone is apparent to the casual observer and that permits access to the zone.

2g Replacement of Damaged Trails - Trails located within the stream setback distance that are damaged shall not be rebuilt, but shall be removed or moved upland.

Ohio EPA believes the intent of criteria 2g should be to move trail segments damaged by water erosion to a more suitable location. As with trails installed under the

conditional use provision, any necessary and appropriate changes to the specific trail design and trail replacement specifications should be debated and adopted by local jurisdictions.

2h Inspection of the Riparian Buffer - Periodic inspections of riparian buffers are required of the local jurisdiction. Each jurisdiction should define how often such inspections will be conducted.

Criteria 3 - Local Preservation of Open Space through Conservation Subdivisions
(Required within Franklin County portion of Big Darby watershed,
recommended for rest of watershed)

Primary conservation areas are defined as areas that must be conserved. Secondary conservation areas are defined as those areas that should be conserved to the extent feasible. The recommended categories for primary and secondary conservation areas are listed below along with the preferred set of permitted, conditional and prohibited uses. If circumstances within specific local communities are such that these conservation areas and uses prove unworkable as efforts are made to promote conservation subdivisions, then the jurisdiction may submit alternative proposals under the "as protective as" criteria (5a).

The recommendations provided below were made by the EAG and when enacted through local government actions will provide strong environmental protections. However, the Agency can foresee possible scenarios where an overall environmental benefit on a regional or watershed basis might be possible through the mitigation work done pursuant to Section 404/401 permits for land with small, isolated pockets of low quality wetlands or marginal habitat for threatened and endangered species. Similarly, the land application of treated wastewater on some categories of open space could be appropriate in some locations if there are sufficient regulations, modern design techniques, and operational safeguards in place. Local communities are best suited to make decisions on whether some flexibility is appropriate on open space development.

3a Acceptable Open Space: Primary Conservation Areas - The following elements should be considered as primary conservation areas and should be included in the open space:

1. All land area within the setback distance from streams defined by criteria numbers 2a and 2b;
2. Slopes which include NRCS designated Highly Erodible Land (HEL) plus a 50 foot setback from the top of the slope;
3. Wetlands as defined by the Army Corps of Engineers or the EPA;
4. Populations of endangered or threatened species as defined by either the

state or federal government; and

5. Healthy forests of at least one contiguous acre.

3b Acceptable Open Space: Secondary Conservation Areas - The following elements should be considered as secondary conservation areas:

1. Existing healthy forests less than one contiguous acre;
2. Other significant natural features and scenic viewsheds; and
3. Prime agricultural lands of at least five contiguous acres.

3c Open Space Requirements for Infiltration - The Big Darby Creek watershed TMDL report provides for the management of storm water such that a shallow ground water recharge rate target is maintained in the Hellbranch Run watershed (HUC 220-010). Open space in conservation subdivisions shall be managed such that this recharge rate is maintained or improved. If onsite infiltration is infeasible, or if open space is inadequate to maintain this infiltration rate, mitigation with off site infiltration will be required. See the Darby SW permit for specific requirements.

3d Permitted Uses - The local zoning regulation applicable in western Franklin County should, at a minimum, specify the following permitted uses within the open space in a conservation development subdivision:

1. Passive recreation;
2. Removal of damaged or diseased trees;
3. Revegetation and reforestation;
4. New arterial streets (provided that disturbances due to construction of arterial streets are minimized and mitigated); and
5. Disturbances of the open space necessary to accomplish the permitted uses described in this criteria. However, all such disturbances shall be minimized and mitigated.

3e Conditional Uses - The local zoning regulation applicable in western Franklin County should, at a minimum, specify the following conditional uses within the open space in a conservation development subdivision. Conditional uses are activities that local zoning or other ordinances may permit after undergoing a review process that evaluates the extent of damage to the open space that the use may cause if the activity is permitted, and that provides for mitigation of that damage. The review process should also detail conditions under which a conditional use application will be denied.

Conditional uses include:

- Streambank stabilization (includes the conditions listed under criteria 2d1);
- Erosion control measures (includes the conditions of criteria 2d1);
- Paved trails (includes the conditions of section criteria 2d2); and
- Storm water best management practices.

3f Prohibited Uses - The local zoning regulation applicable in western Franklin County should, at a minimum, specify the following prohibited uses within the open space in a conservation development subdivision:

1. Construction of structures;
2. Dredging and filling;
3. Motorized vehicles;
4. Disturbance of natural vegetation;
5. Parking lots; and
6. Application or spraying of wastewater treatment plant residuals.

3g Ownership - Development plans should indicate which of the following are planned to be utilized to protect the open space. The following are acceptable owners of the open space:

1. Homeowners associations/condominium associations;
2. Political jurisdictions; and
3. Third party land trusts.

3h Permanent Protection - Conservation easements are an acceptable form of permanent protection if enforcement of the easement is undertaken by one of the ownership options listed in criteria 3g.

3i Contiguity - At least 75% of the open space shall be a contiguous tract. The open space shall adjoin any neighboring areas of open space, other protected areas, and non-protected natural areas that would be candidates for inclusion as part of a future area of protected open space. The contiguity requirement may be waived if the use of the open space in another fashion is necessary to achieve important ecological protection or to maximize ecological benefit.

3j Design and Review of Open Space - The following principles should be

specifically included in zoning or other ordinances used by the local jurisdiction to control conservation development. While the four principles must be included, use of the principles in the order presented is strongly encouraged, but not mandatory:

1. Identify areas to be conserved;
2. Identify areas for location of homes;
3. Placement of roads and other infrastructure; and
4. Drawing of lot lines.

3k Management - The applicant for development shall submit a plan for management of open space and common facilities that maximizes ecological function of the open space, has been prepared by a qualified person or entity, and provides at a minimum the following:

1. Allocates responsibility and guidelines for the maintenance and operation of the open space and any facilities located thereon, including provisions for ongoing maintenance and for long-term capital improvements;
2. Estimates the costs and staff requirements needed for maintenance and operation of, and insurance for, the open space and outlines a means by which such funding will be obtained or provided;
3. Provides for any changes to the plan to be approved by the local governing body; and
4. Provides for enhancement of the plan.

In the event the party responsible for maintenance of the open space fails to maintain all or any portion in reasonable order and condition, the appropriate governing body may pursue responsibility for its maintenance through whatever legal means are at its disposal.

Criteria 4 - Issue and Comply with Storm Water Permit for Construction Activity (Applies within entire Big Darby watershed)

The EAG considered the need for comprehensive storm water management in western Franklin County and recommended that Ohio EPA develop the appropriate means to manage and control storm water runoff to the degree necessary to ensure that the health of the Big Darby Creek watershed is improved and maintained. The findings of the Big Darby Creek watershed TMDL report provide the foundation to accomplish this task.

The requirements of the Darby SW permit will include these general requirements.

4a Sediment Controls During Construction - In order to reduce current sediment loading to the Big Darby Creek watershed in accordance with the Big Darby Creek TMDL report, additional controls during construction are necessary. The following provisions have been incorporated into the Darby SW permit:

1. Timing of controls - at the beginning of site development, storm water controls must be installed first, prior to grading. (See OHC100001 Part III.G.2.h.i)
2. Stream setbacks - For the purposes of protecting important stream habitat and functions critical to the health of the Big Darby Creek watershed including providing additional filtering capacity, and to provide for a margin of safety during construction, the permittee shall adhere to the stream setbacks outlined in criteria 2b. (See OHC100001 Part III.G.2.b) No construction activity is allowed within the setback unless the work is associated with stream restoration, or has been mitigated for in accordance with the terms of the permit. (See OHC100001 Part III.G.2.c)
3. Sediment Storage Volume - Sediment settling ponds shall be sized to provide a minimum sediment storage volume of 134 cubic yards of effective sediment storage per acre of drainage and maintain a target discharge performance standard of 45 mg/l total suspended solids (TSS) up to a 0.75 inch rainfall event within a 24 hour period. (See OHC100001 Part III.G.2.h.ii)
4. Monitoring of storm water - Sampling of discharges from storm water controls shall occur sufficient to demonstrate the effectiveness of the controls. Monitoring during the construction phase shall be for TSS, and all monitoring results shall be maintained at the construction site and available for inspection during the course of the development. (See OHC100001 Part III.G.2.h.ii)
5. Alternate Control Measures - If storm water effluent quality exceeds 45 mg/l TSS, the permittee shall implement alternate control measures to ensure that storm water does not exceed the target. Initial alternate control measures may include increasing storage volume in affected detention basins such that the effluent will no longer exceed 45 mg/l TSS. Any other alternate control measures deemed necessary by the permittee to control storm water quality shall be promptly installed. (See OHC100001 Part III.G.2.h.ii)

4b Post Construction Controls - Post construction controls shall be established sufficient to protect or improve long-term water quality in the Big Darby Creek watershed. The following post construction issues have been addressed in Darby SW permit:

1. Minimization of Peak Flow Impacts to Hydrology and Channel Form - Storm water retention and release controls at the development site (or mitigated off site) must improve, or minimally result in no further negative impacts, upon the channel forming hydrology. (See OHC100001 Part III.G.2.i)
2. Infiltration/Groundwater Recharge Requirements - In order to ensure appropriate base flows in the watershed, the development plan shall ensure that the ground water recharge rate within the watershed does not fall below the target range established in the Big Darby Creek TMDL report. Off site mitigation may occur if within the small watershed (14 digit HUC). (See OHC100001 Part III.G.2.d and Part III.G.2.e)

Criteria 5 - Options for “as protective as” Local Regulations and Individual Projects

(Applies only within Franklin County portion of Big Darby watershed)

5a Alternative Local Regulations - The water quality protection criteria listed under criteria 2 and 3 provide local communities and developers a consistent set of guidelines upon which to adopt local community development and building standards in the Big Darby Creek watershed that are protective of water quality. Some communities may adopt the criteria exactly as recommended by the EAG and reported here. However, we recognize that local jurisdictions may develop slightly different standards that are just as protective as the ones listed here. Therefore, any jurisdiction in western Franklin County may ask the Director of Ohio EPA to consider a deviation from adopting these exact criteria. Such requests must provide sufficient evidence regarding it's ability to be “as protective as” what is listed here. Furthermore, before submitting the request to the Director, the local jurisdiction must provide public notification and public involvement in developing the proposal.

5b Alternative Performance Criteria for Individual Projects - It is the Agency's intention that the water quality protection criteria listed under criteria 2 and 3, and the requirements included in the Darby SW permit, will apply to the majority of permitting situations in western Franklin County and the remainder of the watershed. However, we recognize there may be situations where the specific requirements are not well suited to a particular development site. In such situations the permit applicant may elect to develop a project proposal designed to be “as protective as” the criteria set forth here.

The mechanism to pursue this option is to apply for an *individual NPDES storm water construction permit*. The applicant must submit an Environmental Site Management Plan (ESMP) as part of the Storm Water Pollution Prevention Plan. The ESMP must describe riparian corridor preservation and mitigation activities, describe the water quality performance targets, describe the methods that will be employed to measure site performance and resulting water quality, and describe the steps to be taken, if

necessary, to modify the site design and or practices to attain the performance targets.

The ESMP must include an acceptable mitigation plan if there must be deviation from stream setback distances (criteria 2b), open space conservation (criteria 3a, 3b), infiltration and groundwater recharge requirements (criteria 3c, 4b2), or the loading targets for phosphorus and total suspended solids found in the Big Darby Creek TMDL report. The benchmark for achieving the “as protective as” status for individual projects is demanding because of the unique resource and the uncertainty about how the system will respond. Therefore, the default benchmark for “as protective as” is a 3 to 1 ratio of land conserved as stream setbacks or open space for each linear foot or acre of land removed from the stream setback or open space conservation, respectively. This mitigation must occur within the Franklin County portion of the Big Darby Creek watershed.

As an alternative to the default approach, an applicant may submit a site specific “as protective as” demonstration as part of the ESMP. Any such plan submitted to Ohio EPA will be judged using these performance criteria:

1. Setbacks - Post development land use shall be protective of the flood plain. Where necessary to intrude into the flood plain to achieve the purposes of the project, off site mitigation may be included in the plan at a rate substantially greater than the level of intrusion into the flood plain, if it is within the same 14 digit HUC.
2. The post development storm hydrograph shall be the same or improved (reduced peak flows) compared to the pre-development hydrograph of runoff from the site.
3. Post development infiltration shall equal or exceed pre-development infiltration.
4. Post development pollutant loadings for total phosphorus and TSS shall be minimized to the greatest extent feasible. The overall design and post development management plan for the site shall achieve the most restrictive of the following pollutants loadings targets:
 - a. For un-managed lands (forest, brush, or farm land that has been fallow for 5 or more years), post-development pollutant loadings shall be no more than pre-development pollutant loadings;
 - b. Total phosphorus loading rate less than or equal to 0.1 kg/acre/year; and
 - c. TSS loading rate less than or equal to 6 kg/acre/year.

The values listed in b and c are derived from the Hellbranch Run allocations found in the Big Darby Creek TMDL report. These values may be revised with Ohio EPA approval if the Agency updates TMDL loading calculations and allocated loads for Hellbranch Run or other subwatersheds. The ESMP must include a monitoring program to document attainment of these targets.

Criteria 6 - Options for Projects when Local Regulations are Absent

(Applies only within Franklin County portion of Big Darby watershed)

The Agency recognizes that there may be situations where local zoning may not be in place, or that local jurisdictions may potentially lack legal authority to implement the necessary protections. In some cases, it may therefore be appropriate to grant approval to an applicant in the absence of locally adopted stream setback and open space development requirements. This section describes the conditions under which an applicant may request approval for development using central sewers in western Franklin County in the absence of appropriate requirements adopted at the local level.

Private developers seeking approval to install central sewers in a community that has not adopted development standards sufficient to protect water quality in the Big Darby Creek watershed may submit site development plans to Ohio EPA for review and approval pursuant to criteria 6a and 6b.

6a All Permits Must be Approved Before Commencing Construction - All necessary permits must be approved before commencing earth disturbing activity. These permits include, but are not limited to:

1. coverage under the Darby SW permit;
2. permit to Install (PTI) for sewer installation;
3. 401 water quality certification, if applicable;
4. NPDES direct discharge permit, if applicable; and
5. approval from ODNR, DNAP, if applicable.

6b Environmental Site Management Plan - The Storm Water Pollution Prevention Plan (SWP3) required under the Darby SW permit shall be expanded to be an ESMP. This plan should include all the requirements from the storm water permit plus the ESMP must provide information that explains and demonstrates how the project will comply with criteria 2a through 2h and 3a through 3k in the absence of locally enacted regulations. The applicant may choose to prepare an ESMP following criteria 5b in lieu of meeting some or all of the requirements found in criteria 2 and 3. The targeted Agency review time for reviewing the expanded SWP3/ESMP submitted by the applicant will be 45 days, the same as in the general permit.

Criteria 7 - Recommended Riparian Land Use Practices for Agricultural and Undeveloped Land

(Applies within entire Big Darby watershed)

Undeveloped land within the Big Darby Creek watershed is primarily row crop agriculture with some forested and open brush land. A healthy riparian corridor exists along some segments of Big and Little Darby creeks and their larger tributaries. Retention and expansion of these corridors, along with improved land management, is essential to the health of the watershed. A naturally vegetated buffer system along all

perennial streams should include the 100 year flood plain, steep slopes, and nearby wetlands.

Where agricultural practices occur in proximity to streams (i.e., the distances set forth in criteria 2b), land owners and local policy makers should focus on a long term decision making process to move intensive agricultural production activity away from the stream where feasible. Landowner conservation plans should be prepared or updated with the assistance of local NRCS and Soil and Water Conservation District offices to account for the specific needs of the producer. A few top priority agricultural land use practices are:

- limit livestock access to streams;
- place grass buffer strips in upland areas (drainage areas less than 5 sq. mi.); and
- keep or plant wooded buffer strips along larger streams.

Criteria 8 - Installing Clay Check Dams along Sewer Trenches

(Applies within entire Big Darby watershed)

A cut off dam of native clay or impervious soil shall be placed across and along the sanitary sewer trench as necessary to retard and resist the movement of ground water through the trench granular bedding or backfill material. The dams shall be carefully compacted and shall be 6 feet in thickness as measured along the service center line and shall be constructed against the undisturbed trench sides from the sub-grade or bottom of the stone foundation, whichever is lower, to the limit of 36 inches over the top of the pipe. Dams shall be placed where storm sewers or water lines cross sanitary sewers, and upstream from the main line sewer connection.

Attachment A. A listing of the criteria that form the special prescriptions to protect water quality and aquatic life in the Big Darby Creek watershed. Certain criteria are to be in place prior to the approval of new central sewer line projects within the Franklin County portion of the watershed. Other criteria are recommendations. See the text of Appendix 9-3 for additional information about each of the numbered criteria. ¹ (page 1 of 5)

General Category	Purpose and Benefit	<i>Criteria (Number & Short Title) /</i> Brief Explanation	<i>Method of Implementation /</i> Required for:	Where it applies ²
Review of central sewer line projects	To ensure that development projects on central sewers have appropriate measures in place to protect the Big Darby Creek watershed	<i>0 - Review of central sewer line projects /</i> Replace sewer line moratorium put in place in the last 208 Plan with the following set of review criteria: • 1, 2a - 2h, and 3a -3k; or • 1 and 5b; or • 6a and 6b	<i>Ohio EPA action on Permit to Install (PTI) applications /</i> Construction of new sewers, including small cluster or community systems with land application of wastewater; does <u>not</u> cover individual Home Sewage Treatment Systems.	LD within Franklin County portion of Big Darby watershed
Local government adoption of institutional mechanisms	To achieve institutional acceptance and implementation mechanisms at the local governmental level	<i>1 - Adoption of Institutional Mechanisms /</i> Use zoning, storm water and/or flood plain regulations, council resolutions, and/or ordinances as the means to enforce provisions covered in criteria 2 and 3, or alternatively “as protective as” measures pursuant to criteria 5a	<i>Local government action /</i> Development projects on central sewers authorized with PTI and having coverage under the general Darby SW permit (see criteria 5 and 6 for alternatives)	LD within Franklin County portion of Big Darby watershed
			<hr style="border-top: 1px dashed black;"/> <i>Implementation optional /</i> Local government action recommended but not required	LD within other counties in watershed

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General Category	Purpose and Benefit	<i>Criteria (Number & Short Title) /</i> Brief Explanation	<i>Method of Implementation /</i> Required for:	Where it applies ²
Setback distances from streams	To establish minimum required setback distances from streams to limit development in this sensitive zone and protect water quality by providing, among other things the following water quality benefits: <ul style="list-style-type: none"> • active flood plain to provide for sediment export • infiltration of surface runoff to support stream base flows • filtration of runoff and buffering the stream from runoff from upland uses • shading of the stream to help reduce stream temperatures and control algal growth 	<i>2 - Local Stream Setbacks and Associated Development Restrictions</i> <i>2a Applicable Streams</i> <i>2b Size of the Setback Distance</i> / Applies to all stream channels, but does not apply to channels built for roadway drainage Based on TMDL, EAG recommendations and final Darby Storm Water permit: <ul style="list-style-type: none"> • Default setback distances calculated with equations based upon the most up-to-date stream geomorphology research, with the added requirements of: <ul style="list-style-type: none"> • 100 foot per side minimum • the regulatory 100 year flood plain • Option to apply a site-specific determination • Option to build w/i 100 year flood plain of entrenched ditches if stream mitigation and 100 foot setback implemented 	<i>Ohio EPA Darby Storm Water permit</i> / All construction activity involving the disturbance of 1 acre or more of land. (Agricultural practices are exempt; construction associated with new drainage ditches or maintenance of existing ditches may be covered)	LD within entire Big Darby watershed
Development restrictions associated with stream setbacks	To ensure land within setback area is properly cared for and permanently protected from uses or activities that could compromise the water quality benefits conveyed by land in the setback zone	<i>2c Permitted Uses</i> <i>2d Conditional Uses</i> <i>2e Prohibited Uses</i> <i>2f Delineation of the Riparian Buffer</i> <i>2g Replacement of Damaged Trails</i> <i>2h Inspection of the Riparian Buffer /</i> EAG recommended provisions, similar to the City of Columbus Hellbranch Zoning Overlay	<i>Local government action /</i> see criteria 1	LD within Franklin County portion of Big Darby watershed
			<i>Implementation optional</i> / Local government action recommended but not required	LD within other counties in watershed

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General Category	Purpose and Benefit	<i>Criteria (Number & Short Title) /</i> Brief Explanation	<i>Method of Implementation /</i> Required for:	Where it applies ²
Provide open space preservation through conservation subdivisions or other means	To establish open space conservation area requirements to maintain a significant portion of the landscape in native vegetation	<p><i>3 - Local Preservation of Open Space through Conservation Subdivisions</i> <i>3a Acceptable Open Space: Primary Conservation Areas</i> <i>3b Acceptable Open Space: Secondary Conservation Areas</i> /</p>	<p><i>Local government action /</i> see criteria 1</p>	<p>LD within Franklin County portion of Big Darby watershed</p>
		<p>Plans for open space within an individual conservation subdivision, or contained in a comprehensive land use plan adopted by local government, shall consider 5 specific landscape elements as primary conservation areas that must be conserved, and 3 landscape elements as secondary conservation areas to be conserved where feasible</p>	<p><i>Implementation optional /</i> Local government action recommended but not required</p>	<p>LD within other counties in watershed</p>
Development restrictions associated with open space and management of infiltration on conserved open space	To ensure land within open space is properly cared for and permanently protected from unacceptable uses or activities; to ensure sound management practices that will minimize runoff and promote the infiltration of runoff and the recharge of shallow ground water aquifers that maintain stream flows	<p><i>3c Open Space Requirements for Infiltration</i> <i>3d Permitted Uses</i> <i>3e Conditional Uses</i> <i>3f Prohibited Uses</i> <i>3g Ownership</i> <i>3h Permanent Protection</i> <i>3i Contiguity</i></p>	<p><i>3c - Ohio EPA Darby Storm Water permit; others - Local government action /</i> see criteria 1</p>	<p>LD within Franklin County portion of Big Darby watershed</p>
		<p><i>3j Design and Review of Open Space</i> <i>3k Management /</i> EAG recommended provisions, based upon literature and experiences reported in other communities</p>	<p><i>Implementation optional /</i> Local government action recommended but not required</p>	<p>LD within other counties in watershed</p>

Attachment A. A listing of the criteria that form the special prescriptions to protect water quality and aquatic life in the Big Darby Creek watershed. Certain criteria are to be in place prior to the approval of new central sewer line projects within the Franklin County portion of the watershed. Other criteria are recommendations. See the text of Appendix 9-3 for additional information about each of the numbered criteria. ¹ (page 4 of 5)

General Category	Purpose and Benefit	<i>Criteria (Number & Short Title) /</i> Brief Explanation	<i>Method of Implementation /</i> Required for:	Where it applies ²
Increased controls on storm water runoff through issuance of an NPDES General Permit for Storm Water Associated with Construction Activity for the Big Darby Creek watershed	To establish stream setback distances, erosion control measures, sediment and nutrient reduction practices, water retention basins, and runoff infiltration strategies in an NPDES permit issued for construction activities	<p><i>4 - Issue and Comply with Storm Water Permit for Construction Activity</i> <i>4a Sediment Controls During Construction</i> <i>4b Post Construction Controls /</i></p> <ul style="list-style-type: none"> • Imposes required stream setback distances, see criteria 2b • Sediment controls during construction include larger sediment storage volumes, an effluent quality target of 45 mg/l TSS and monitoring • Post construction controls include added storm flow retention methods and ground water infiltration practices 	<p><i>Ohio EPA Darby Storm Water permit /</i> Any construction activity that disturbs 1 acre or more of land surface</p>	LD within entire Big Darby watershed
Alternative “as protective as” performance criteria adopted by local governments	To provide a mechanism to deviate from the requirements in criteria 2a through 2h and 3a through 3k while still protecting water quality	<p><i>5 - Options for “as protective as” Local Regulations and Individual Projects</i> <i>5a Alternative Local Regulations /</i></p> <p>In lieu of following criteria 2 and 3, local jurisdictions may choose to develop “as protective as” criteria in a public forum and request Ohio EPA to approve their use for projects within that jurisdiction</p>	<p><i>Local government action /</i> Optional</p>	LD within Franklin County portion of Big Darby watershed
Alternative “as protective as” performance criteria for individual projects	To provide a mechanism to deviate from the requirements in criteria 2a through 2h and 3a through 3k while still protecting water quality	<p><i>5b Alternative Performance Criteria for Individual Projects /</i></p> <ul style="list-style-type: none"> • Permit applicant develops a project proposal designed to be “as protective as” and achieving the performance criteria • Applicant submits proposal in Environmental Site Management Plan with permit application 	<p><i>Individual NPDES permit application for storm water associated with construction activity /</i> Optional</p>	LD within Franklin County portion of Big Darby watershed

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General Category	Purpose and Benefit	Criteria (Number & Short Title) / Brief Explanation	Method of Implementation / Required for:	Where it applies ²
Project reviews in the absence of locally adopted regulations	To address how development projects with central sewers may be reviewed by Ohio EPA in situations where local communities have not adopted local regulations addressing criteria 1 through 3 (any or all of the criteria in these categories)	<i>6 - Options for Projects when Local Regulations are Absent</i> <i>6a All Permits Approved Before Commencing Construction</i> <i>6b Environmental Site Management Plan /</i> • Permit applicant develops a project proposal designed to meet the criteria set forth • Project plan submitted to Ohio EPA for approval as part of an expanded storm water pollution prevention plan	<i>Individual NPDES permit application and approval for storm water associated with construction activity</i> / Required for approval of Permit To Install for any central sewer line project within a community in the Franklin County portion of the Darby watershed that has not adopted the necessary institutional mechanisms called for in criteria 1	LD within Franklin County portion of Big Darby watershed
Riparian land use practices for agricultural and undeveloped land	To promote appropriate land use practices on agricultural land within the riparian zone to improve water quality	<i>7 - Recommended Riparian Land Use Practices for Agricultural and Undeveloped Land /</i> Education and outreach aimed at landowners and farmers with voluntary acceptance of appropriate land use practices within riparian zone	<i>State and local resource agencies</i> / Not required; voluntary adoption of best management practices	UDL within entire Big Darby watershed
Sewer trench specifications	To reduce “export” of ground water from the immediate watershed by limiting movement through the gravel sewer trench beds, thereby increasing shallow ground water recharge of streams	<i>8 - Installing Clay Dams along Sewer Trenches /</i> All sanitary sewer lines shall be installed with clay dams at specified intervals, as well as where the sanitary sewer crosses storm sewers and water lines	<i>Ohio EPA review of Permit To Install applications</i> / Approval of central sewer line projects	LD within entire Big Darby watershed

¹ The expectation that local governments in Franklin County adopt the various requirements listed here stems from local government participation on the External Advisory Group (EAG) that developed recommendations to protect the water quality within the Darby watershed, as well as their involvement with the Darby Accord planning work. Ohio EPA encourages local governments throughout the entire watershed to implement the requirements listed here, but, unless otherwise noted, the criteria are mandatory only within the Franklin County portion of the Big Darby Creek watershed.

² Most of these criteria apply when the property or land in question is developed (LD = land development). At this time Ohio EPA is not requiring that the criteria be applied to land that has already been developed for housing, commercial or industrial uses, except in situations where Ohio EPA believes an existing site needs regulation under an individual NPDES storm water permit. One criteria (7) applies to undeveloped land (UDL). Some criteria apply only to portions of the watershed located within Franklin County, and others apply to the entire watershed.

Attachment B – Stream Restoration Option under Darby SW Permit

Part 1 Stream Assessment

This assessment will determine if a stream is considered a channelized, low-gradient headwater stream (drainage ditches) which would be applicable for stream restoration.

In the event the assessment of the stream, meets all the criteria listed below, restoration as depicted in Part 2 of this attachment, could be performed.

Previously channelized low-gradient headwater streams (drainage ditches) shall for the purposes of this permit be defined as having all of the following characteristics:

- Less than 10 square miles of drainage area
- Low gradient and low stream power such that in spite of their straightened and entrenched condition incision (down-cutting) is not evident
- Entrenched, entrenchment ratio < 2.2
- Straight, sinuosity of the bankfull channel < 1.02

Part 2 Restoration

Restoration shall be accomplished by any natural channel design approach that will lead to a self-maintaining reach able to provide both local habitat and watershed services (e.g. self-purification and valley floodwater storage).

- a. Construction of a floodplain, channel and habitat
- b. Over-wide channel design by excavation down to the elevation of the stream bed uniformly across the entire frequently flooded width (Figure 1)
- c. Floodplain excavation necessary to promote interaction between stream and self-forming floodplain
- d. Include a water quality setback of 100 feet from centerline of stream on each side.

The primary target regardless of design approach shall be the frequently flooded width, which shall be maximized, at 10 times the channel's self-forming width. Five times the self-forming channel width may still be acceptable particularly on portions of the site if greater widths are achieved elsewhere.

Figure 1

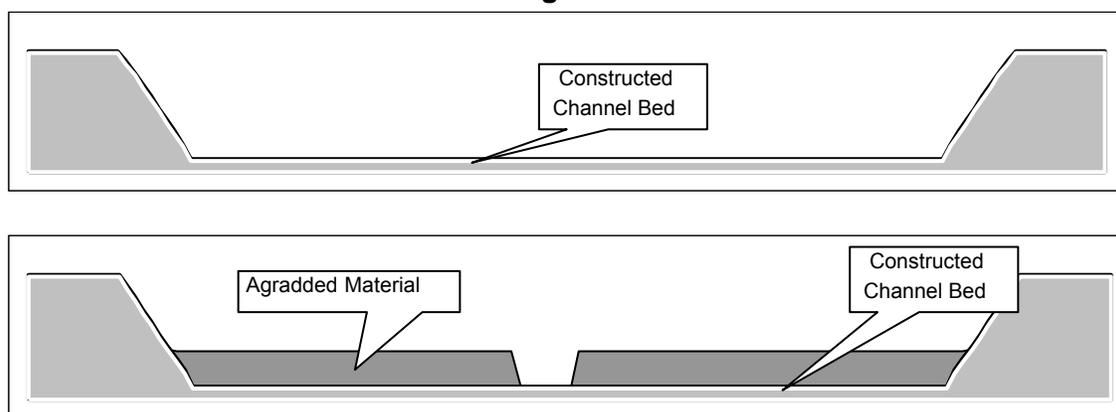


Figure 1: Typical cross-section of an over-wide channel. The darkly shaded areas are the floodplain bars that will form through aggradation along the constructed channel bed, while the lightly shaded area is the constructed channel.