

# **Montgomery Soil & Water Conservation District Drainage Project Education Packet**

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# Montgomery Soil & Water Conservation District

## Drainage Project Fact Sheet

### *Background: Ohio's Natural Resources and Drainage Systems*

With annual rainfall between 30 and 40 inches per year, Ohio doesn't have water shortage problems like those of western regions of the United States. Combine this fact with Ohio's typical clay-laden soils and flat topography, and it isn't hard to understand that most of the state's glaciated regions were wetlands prior to European settlement.

Agriculture in this part of the state would not be possible without lowering the natural water table through surface and subsurface structures. Drainage structures such as tile or open ditches are often referred to as *the improvement*. Tiles and ditches were built across much of the state's agricultural areas during the period from the late 1800s to the early 1900s. Like any man-made system, it requires maintenance. Because of changes in land ownership however, there are many rural areas where drainage systems were not maintained and are therefore in need of reconstruction.

### *The Importance of Drainage*

Farmers are well acquainted with the need for drainage. However, for new homeowners in rural areas this important fact of life in Ohio is often difficult to appreciate or understand. Inadequate drainage can lead to basement flooding, wood rot, ponding on lawns, septic system malfunction, and /or flooded driveways and roads. There is considerable cost in building and maintaining drainage systems in rural areas, not unlike the costs for city residents who rely on storm sewers.

### *Who is Responsible?*

Historically, farmers would construct and maintain their own drainage systems either as individuals or in neighborhood groups. In group situations, they would reach agreement among themselves about distribution of construction and maintenance costs. Unfortunately, this early spirit of cooperation did not become the norm as farm ownership changed hands and land was converted to non-agricultural uses. **In Montgomery County, costs for rural drainage system construction and maintenance remain a shared responsibility among private landowners.**

A group drainage project involves all the landowners in a watershed. A watershed refers to the area of land that drains to a centrally located lower-lying area, which may be an open ditch, or tile main. In nature, this is usually a stream or river. Not all parcels in the watershed will have water problems. That is, the higher your elevation in the watershed, the less likely you are to have drainage problems. However, parcels in low-lying areas are receiving water runoff from higher elevations.

Landowners may petition Montgomery Soil & Water Conservation District (SWCD) for technical assistance with drainage projects. See the section of this document called *Drainage Project Protocol Overview*. The Montgomery County Engineer is not responsible for maintenance of drainage ditches on private property, only those associated with roadways and bridges.

Another important aspect of responsibility involves existing drainage structures on private property. These drainage structures cannot be closed, obstructed or altered in any way, which would reduce the capacity for conveying storm water across private property. **Any landowner can be held liable for upstream or downstream property damage for failure to properly maintain storm drainage facilities across her or his own property.**

### *Financing and Procedures*

There are two basic procedures for financing group drainage projects. One is referred to as a volunteer project; the other is under Ohio Revised Code (ORC) Chapter 1515. A volunteer project involves agreement among landowners as to how the costs of construction will be distributed among group members. Monies must be collected before construction starts. An ORC Chapter 1515 process involves the project being financed through the County Commissioners, with the landowner having the option to pay their construction assessment in a lump sum or in installments over a maximum of fifteen years. To initiate a group drainage project, a neighborhood group representative must file a request with Montgomery SWCD. This initiates a procedure that is outlined in the section of this document called *Drainage Project Protocol Overview*. It is important for new rural residents to realize that the benefits of maintained drainage far outweigh the cost of the assessment. If the project is not approved, landowners have to resort to civil legal action to resolve drainage problems. Of course the best option is for neighbors to reach a friendly agreement rather than resort to litigation.

### *Easements and Assessments*

Much like your house, drainage systems require periodic maintenance and repairs because of exposure to the elements and other natural decay processes. Ohio drainage law provides legal mechanisms necessary for access to private property in order for Montgomery SWCD to conduct maintenance and repair activities. Easements are recorded in County property records (see attached easement form). When construction is completed under ORC Chapter 1515, construction assessments are levied and the project is put on maintenance. Maintenance assessments are in proportion to construction assessments. Volunteer projects may be put on maintenance if a petition is filed with the County Engineer.

It is important for homeowners in rural areas to remember that their property may contain drainage easements, which may be found at the County Recorder's office. Objects such as sheds, fencing and trees should not be placed in the easement area and can be removed at the landowner's cost.

Ohio's drainage laws are complex; the Reasonable-Use Rule allows landowners to alter surface drainage on their land only if it causes "reasonable" damage to upstream or downstream neighbors. However, **landowners can be required to pay for damages if a court deems their actions to be unreasonable**. Cutting a drainage tile, filling a ditch and doing new construction can all impact the flow of surface water and be found to be unreasonable.

### *Water Quality Concerns*

Nonpoint source (NPS) pollution refers to that which comes from many diffuse sources, being washed over the land's surface (runoff) when carried by rainfall or melting snow. Farm and lawn runoff into ditches, streams or lakes is a serious problem for water quality. Livestock feedlots, failing home septic systems, and improper use or disposal of fertilizers, pesticides or other household hazardous wastes are major contributors to NPS pollution. Contact Montgomery SWCD for more information about how homeowners and farmers can improve our water quality.

## PERPETUAL EASEMENT FOR DRAINAGE PURPOSES

KNOW ALL MEN BY THESE PRESENTS that James M. Waitman, Jr.<sup>1</sup>, unmarried/<sup>2</sup>, the Grantor(s), for and in consideration of the sum of \_\_\_\_\_one and no/100\_\_\_\_\_ Dollars (\$1.00), and for other good and valuable considerations to Grantor(s) paid by the Board of County Commissioners for Montgomery County, Ohio, the Grantee, the receipt of which is hereby acknowledged, do(es) hereby grant, bargain, sell, convey and release to the said Grantee, its successors and assigns forever, a perpetual easement and right of way in, upon and over the property hereinafter described for the \_\_\_\_\_Waitman Group Drainage\_\_\_\_\_ Project for the construction, maintenance and repair of a watercourse, ditch, channel, or other drainage facility.

The rights herein granted to the Grantee include, without limitation as to the generality thereof, the right of the Grantee or its agents or assigns to enter upon the said watercourse, ditch, channel or other drainage facility at this time or at any time in the future, with all necessary men, vehicles, and equipment for the purpose of removing debris, cutting or removing trees, shrubs, vines or such like growth within the watercourse, ditch, channel or other drainage facility, and of constructing, maintaining, repairing, retrenching, dredging, and/or replacing the existing watercourse, ditch, channel or other drainage facility, and the Grantor(s) and the heirs, successors and assigns of Grantor(s) shall have no further right to compensation. The easement described herein is contingent upon the certification of the \_\_\_\_\_Waitman\_\_\_\_\_ Project, by the Supervisors of the Montgomery County Soil & Water Conservancy District, pursuant to Ohio Revised Code Section 1515.20, and is also contingent upon the approval of said Project by the Board of County Commissioners of Montgomery County, Ohio, pursuant to Ohio Revised Code Section 1515.21. Failure of certification or approval of the \_\_\_\_\_Waitman\_\_\_\_\_ Project, as described above, will render this easement null and void.

The Grantor(s) shall have the full right to use the land within the said right of way and easement for any purpose consistent with the rights herein granted to the Grantee, its successors and assigns, provided, however, that no buildings or other structures shall be erected within the limits of said right of way and easement by the Grantor(s) or any other party claiming title or possession under or through said Grantor(s), said limits being bounded and described on Exhibit "A", attached hereto and incorporated herein.

Prior Deed Reference:<sup>3</sup> \_\_\_\_\_75-436A01\_\_\_\_\_ of the  
Deed Records of Montgomery County, Ohio.

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<sup>1</sup> Show name(s) of owner(s) as prior deed reflects. If there has been a name change, indicate that as an "aka" or "nka".

<sup>2</sup> Indicate marital status of owner(s) by crossing out the inapplicable.

<sup>3</sup> Indicate the deed book and page and/or microfiche location of the instrument(s) by which the owner(s) took title. There may be more than one instrument.

To have and to hold said easement and right of way unto the Grantee, its successors and assigns forever.

And the said Grantor(s) for himself and \_\_his\_\_ heirs, executors, administrators, successors and/or assigns do(es) hereby covenant with said Grantee, its successors and assigns, that the Grantor(s) is/are the true and lawful owner(s) of the said premises, and has/have full power to grant, bargain, sell, convey and release the same in the manner aforesaid, and that the same are free and clear from all liens and encumbrances whatsoever, and that the Grantor(s) will warrant and defend the same against all claims of all persons whomsoever.

DOWER RELEASE:<sup>4</sup> For the consideration aforesaid, \_\_\_\_\_, spouse of the Grantor, hereby relinquishes to the Grantee, its successors and assigns, all right and expectancy of dower in the above described premises.

IN WITNESS WHEREOF, the said Grantor(s) has/have hereunto set \_\_\_\_\_ hand(s) this \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_.

Signed and Acknowledged  
in the Presence of:

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Owner/Grantor  
Name: \_\_\_\_\_

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Owner/Grantor/Owner's Spouse  
Name: \_\_\_\_\_

STATE OF OHIO, COUNTY OF MONTGOMERY, SS:

BE IT REMEMBERED that on \_\_\_\_\_, 200\_\_, before me the subscriber, a Notary Public in and for said county and state, personally came the above-identified Grantor(s) and acknowledged the signing hereof to be \_\_\_\_\_ voluntary act and deed. In testimony whereof, I have hereunto subscribed my name and affixed my official seal on the day and year last aforesaid.

\_\_\_\_\_  
NOTARY PUBLIC

THIS INSTRUMENT PREPARED BY:  
VICTORIA WIENCKOSKI  
Asst. Montgomery Co. Prosecuting Atty.  
301 W. 3<sup>rd</sup> St., P.O. Box 972  
Dayton, Ohio 45422

<sup>4</sup> Dower Release to be completed if property is owned by only one of a married couple. The spouse of the owner must release dower. Fill in his/her name in this section and have him/her sign on the signature page. If there is no spouse of the owner, cross out the provision.

# **Montgomery Soil and Water Conservation District Drainage Project Protocol Overview**

## **I. PHASE I - EVALUATION**

- A. The Request for Assistance
- B. The Petition for Assistance and deposit

## **II. PHASE II - APPROVAL**

- A. The View Notification
- B. The Field View
- C. The Public Hearing Notification
- D. The Public Hearing
- E. The Field Survey
- F. The Engineering Design
- G. The Project Certification and Approval

## **III. PHASE III - CONSTRUCTION**

- A. The Project Easements
- B. The Construction Bid and Award
- C. The Project Construction

## **IV. PHASE IV - POST CONSTRUCTION**

- A. The Project Assessments
- B. The Project maintenance

# Montgomery Soil and Water Conservation District Group Drainage Project Cost / Benefit Analysis

## *Project Costs*

The basic construction costs for a typical group drainage project usually involves grading, trenching, and tile materials for subsurface design. Clearing and excavation labor costs are involved with surface water designs. Sometimes outlets and / or inlets are needed depending on the design.

Other costs are for crop damage (if construction is during the growing season) and legally required administrative procedures - e.g. certified mailings. A 10% contingency is added for unanticipated situations that may add to labor or material costs. Engineering services are provided by Montgomery Soil & Water Conservation District as a public service at no cost to landowners.

As mentioned in the Fact Sheet, construction and maintenance easements are required by Montgomery County on ORC Chapter 1515 projects. The Montgomery Soil & Water Conservation District is required by Ohio law to obtain easements by grant, purchase, or appropriation. In most cases, landowners help reduce overall project costs by granting easements. Easements acquired by purchase or appropriation adds to the project costs.

## *Project Benefits*

Project benefits are to the land itself and/or to man-made structures (improvements).

## *Improvement Benefits*

The following summary of the residential benefits is based upon data provided by the Montgomery County Auditor, local appraisers, contractors, and sanitary engineers. These benefits are determined by how adequate drainage increases the value of living space (basements), sanitation systems (home sewage treatment) and roads protected from flooding.

Living space benefit refers to the protection from basement flooding by the effects of the seasonal high water table. Most basements are designed with floor and perimeter drains routed to a sump pump that discharges water to an outside outlet. Therefore, an adequate external drainage system (the outlet) protects the livability of basement spaces. The added value that appraisers assign to houses containing basements is used as a measure of these residential benefits. In order to assign a dollar value of the drainage project benefit to the basement, the following formula is used: Construction cost of basement (in excess of crawl space cost) per square foot multiplied by the number of square feet. For a more conservative estimate, the resulting value is divided by two.

Sanitation benefits refer to home septic systems in areas of the county without access to sanitary sewer lines. The typical home system for disposal of sewage and wastewater involves a series of perforated pipes called a leach field. This allows wastewater to percolate through the soil, breaking down otherwise harmful bacteria. Leach fields usually last twenty years with proper maintenance. However, premature failure is generally due to flow restrictions that result from a system overload when soils are over saturated (seasonal high water table). During this period, the soil's ability to soak up the additional volume from leach fields is greatly reduced. It can cause backup of wastewater in the house, and also possible pooling of raw sewage on the land surface, which is a health hazard.

When a curtain drain with an adequate outlet (to an external drainage system) is placed around the perimeter of the leach field, the water table is lowered, eliminating these seasonal flow restrictions. In this way, the life of the leach field is extended. Conservatively, the dollar value of the drainage project benefit assigned to sanitation is one half of the leach field replacement cost.

Public benefit is defined as that accruing to the protection of public roads from flooding. This is based on the fact that the deterioration of a road and its berms is hastened by the freezing and thawing cycle of water left standing in the road ditches. The Montgomery County Engineer's road maintenance department has advised that this condition can decrease a road's effective life by 50%. Thus a public benefit was determined as a cost savings of not replacing affected road sections within a 10-year period.

### *Land Benefits*

The following summary of the land benefits is based upon data provided by the U.S. Department of Agriculture, the Ohio Department of Agriculture, the Montgomery County Extension Agent, and the Montgomery County Auditor. These benefits are determined by how adequate drainage increases the value of agricultural and horticultural productivity.

Crop yields are increased by adequate subsurface drainage that overcomes the naturally poorly drained soils common in this region. Surface drainage through open ditches, buffers, and waterways also provides filtration functions that protect water quality. The dollar value of drainage project benefits to crop yields is based on several factors including crop production and price averages.

Property enhancement benefits refer to soils that are suitable for growing landscape vegetation (horticulture). This includes not only required nutrients but also some mitigation of the seasonal high water table. Therefore, the provision of an adequate drainage outlet enables homeowners to properly drain areas around the home site. The Ohio Nursery and Landscape Association has recently quantified their findings that the enhancement of a property's grounds with lawns, shrubs, trees, etc. adds an incremental value of 5% to the selling price of a residential parcel.

# Montgomery Soil & Water Conservation District Group Drainage Projects Assessment Procedures

As mentioned in the fact sheet, it is the responsibility of landowners in the watershed to pay for construction and maintenance of group drainage projects. Montgomery Soil & Water Conservation District has developed a system of allocating costs to landowners that will be explained here. This method does not apply to volunteer projects, only group projects conducted under ORC Chapter 1515 procedures.

Six factors are examined for each land parcel in order to calculate how much its' assessment will be. A computer program called Ditchworks performs the calculations based on the overall project cost and the following six factors.

## 1. Benefited acres

The number of acres of the parcel contained within the project watershed. Parcels near the perimeter of the project's watershed may not be entirely contained within it.

## 2. Reach Factor

Each benefited parcel connects to the improvement (main tile or open ditch) via a lateral tile or other structure. A value is assigned to the point at which the lateral connects along the length of the main tile.

## 3. Volume of Runoff

Each parcel has a characteristic amount of water runoff depending on how much hard surface it has, known as the degree of imperviousness. Values are assigned to a parcel depending on this degree of land use intensity.

## 4. Remoteness

A parcel's distance from the tile main affects how far the landowner would have to extend a lateral tile to connect to the tile improvement. A parcel that is farther away from the improvement would have a smaller assessment than one that is closer.

## 5. Soil Drainage Factor

Each parcel will be assigned a value depending on the relative permeability of its' soil type.

## 6. Flood Protection / Property Enhancement

A value is assigned to the combination of slope and land use intensity.