DRAINAGE IMPACTS IN RURAL RESIDENTIAL HOUSING

LORAIN COUNTY, OHIO

A guide For Township and other Officials,

Prepared by the Lorain Soil and Water Conservation District,

January 2018

DRAINAGE BACKGROUND

Drainage (or lack thereof) is a common land management problem throughout Lorain County. Drainage problems are numerous and consist of issues such as standing water, soggy soils, ponding and flooding. This creates land use problems in both the rural and urban sectors of the county. The development of rural areas has created a whole new series of water management issues that did not exist when Lorain County was mostly agricultural. Local drainage infrastructure is often not of sufficient capacity to handle runoff and flooding in areas where new homes are built on former agricultural land (Figure 1). When farmed, these areas experienced varying degrees of wetness and standing water during the year. However with a shift from farming to housing these areas still experience the same (or worse) drainage issues. Needless to say standing water in a farm field is one problem; standing water surrounding a home is another matter. This is, of course, is compounded when multiple homes are built in the same area in close proximity.

Figure 1. Rural flooding due to overflowing ditch in Carlisle Township

The Lorain Soil and Water Conservation District (SWCD) has been dealing locally with natural resources management issues including water runoff and drainage since 1948. The need to address drainage and flooding has been one of its top conservation priorities since day one. This has been identified in its long range strategic plan and is the focus of many of its technical programs.

CAUSES OF STANDING WATER AND SATURATED SOILS

Land-users, farmers, and land managers in Lorain County are well aware of local land drainage and flooding issues that limit land use. This is evident during the spring and other times of year when excessive precipitation results in fields with standing water and saturated soils. Many ask the question, "why is our ground so wet?" The explanation is simply a combination of conditions that can be attributed to the physical environment and the influence of man and can be described as follows:

A) The existence of soils with a large percentage of clay and low permeability that are classified by USDA as "Poorly" or "Somewhat Poorly Drained". 85% of the land area of Lorain County is made up of these soils types. (Source: Soil Survey of Lorain County, 1971, USDA)

B) Flat topography and land depressions that do not allow rainfall to drain away (Figure 2).

Figure 2. Natural landscape depression with ponding water in Rochester Township.

C) Sluggish watercourses and drainage outlets that do not allow water to drain quickly or efficiently.

D) Thirty-six inches of annual precipitation that often fall in large quantities rather than the slow and steady soaking rains that farmers and gardeners love (Figure 3).

Figure 2. Storm water runoff resulting in downstream flooding

E) Land use conversion from farming to rural residences.

F) Manipulation of surface and subsurface land features that often interferes with the natural flow of runoff.

PRIMARY DRAINAGE COMPLAINTS

There are four primary drainage issues involving rural housing areas that the Lorain SWCD observes locally on a regular basis. These include (1) obstructed surface runoff, (2) obstructed or broken drainage tile, (3) insufficient drainage outlets, and (4) ditch maintenance. These four problem areas are described as follows:

1. *Obstructed Surface Runoff*

   Water runoff flowing across the surface of the land is classified as diffused runoff. This is runoff that does not flow in a ditch, swale, creek, or river. Diffused surface water can be disrupted as a result of a change in topography by a landowner, usually by a downstream property-owner. This happens when earth fill is placed perpendicular to the direction of surface flow by such activities as installing a driveway, spreading fill from an excavation or filling in low spots (Figure 4). As a result of this activity, surface water flow patterns are disrupted, changed or blocked and can result in standing water and or minor flooding to the upstream neighbor.

   Often, obstructed surface runoff is unintentional but there has been cases found to be intentional. Standing water will be worse the flatter the terrain and with poorly drained soils. Because of the flatness of the terrain in Lorain County, even a few inches of earth fill placed across the direction of diffused water flow can create a major drainage backup and create water problems.

Figure 3. Excavated soil material placed in the wrong area can cause disruption of drainage patterns that results in flooding and standing water.

2. *Obstructed drainage tile*

Figure 4. Damaged drainage tile can result in saturated soil and standing water upstream from the blockage.

Over the years, millions of feet of drainage tile have been installed on agricultural land in Lorain County for crop production purposes. Some of this land has been converted to rural housing. The existing drainage system, which is still functional, can lie underneath several sub-lots. Since the tile is still functional, many property owners will use it for enhanced drainage by attaching downspouts, yard drains, or catch basins. Undisturbed tile is not a problem when it crosses multiple properties until one landowner blocks or closes off the tile traveling through their property. This often happens during home construction when basements are dug or rural septic systems are installed. Disturbed tile are usually not routed around the excavation. As a result upstream property owners are impacted. This is like filling in a ditch without installing an underdrain. Drainage water will not continue to flow and result in standing water, flooding or backed up basements (Figure 5). Tiles are sometimes deliberately closed off as sort of a vendetta between landowners.

3. *Need for drainage outlet*

Artificial drainage practices such as ditches, tiling, and leveling are needed throughout Lorain County to remove standing water and lower the water table. These drainage practices need a free and clear drainage outlet to efficiently remove excess water. Common drainage outlets include tile, catch basins, storm sewers, ditches, ponds, lakes, natural watercourses (Figure 6). A drainage system is only as good as the outlet.

Often times a drainage outlet is not available on-site. In these cases it may be necessary to enter a neighbor's property to find an adequate outlet. To do this

permission is required. Depending on the relationship between neighbors this may or may not be granted. In another situation a drainage outlet may exist but needs to improve for optimum benefit.

For example, a ditch may need to be lowered for tile to drain adequately. These projects often require the cooperation of multiple landowners.

Figure 5. Swales and drainage tile flowing into a natural stream is often the best outlet for storm water.

4. *Existing Ditches in Need of Maintenance*

As detailed in the above section on drainage outlets, all ditches in Lorain County need periodic improvement and maintenance to allow for efficient flood control. All ditches eventually break down due to vegetation growth, erosion, sediment, and the accumulation of debris. A good maintenance program involves annual mowing and inspection.

Even with annual maintenance most ditches need some type of regular excavation to maintain bottom depth, grade and capacity. Unmaintained ditches will eventually revert back to a natural state which is not compatible with efficient drainage and flood control.

Figure 6. Ditches filled with trees, brush, sediment and other debris have limited capacity and require periodic maintenance (New Russia Township).

LEGAL ISSUES ASSOCIATED WITH WATER MANAGEMENT

The Lorain SWCD fields many complaints from residents regarding what a neighbor has done to negatively impact their drainage. They often express an opinion as to the legality of their action. A majority of the time there is no legal basis for these opinions. In addition, there are a lot of opinions regarding what the State of Ohio refers to as "drainage laws". In fact Ohio law is very vague when it comes to drainage. Most statutory rules are confined to allowing cities, villages, and townships to manage and improve drainage within a road right-of-way. Beyond that, most drainage issues are settled in a court of law. The following four legal issues touch on many of the drainage complaints and opinions often heard by the Lorain SWCD:

1. REASONABLE USE

Ohio Courts have applied the "reasonable use" standard in Ohio regarding water, drainage, and subsurface drainage disputes. (1) The reasonable use doctrine states that a landowner may make a reasonable use of his land, even though the flow of surface waters could be altered by that use and cause some harm to others, and has no liability for that harm unless his actions are determined "unreasonable". (2) "Reasonable" is a question of fact, determined by the court based upon the details of the situation.

In the past the "Common Enemy Rule" and "Civil Law Rule" have been used in both rural and urban areas to address drainage issues. The Reasonable Use doctrine has evolved as Ohio has undergone development and is the prevailing legal theory for resolving surface water drainage issues. There is no government agency that determines "Reasonable Use" in a drainage situation. This is determined by the courts.

2. PRESCRIPTIVE EASEMENT

Court decisions also come into the picture when subsurface drains that were constructed by mutual agreement need maintenance or reconstruction. The problem is illustrated by the case where an upper property owner wants to replace a 5 inch tile with a 6 inch tile. The 5 inch tile crossed 250 feet of a lower property owner's land. There was no recorded easement and the original line had been in place for over 50 years. The Ohio Court of Appeals refused to allow the tile to be enlarged because there was no evidence that the enlargement would be a public benefit. The upper landowner did have the right, however, to repair and maintain the present size (5 inch), at the location where it crossed the neighbor's property.

The courts also found that a Prescriptive Easement was created since the tile had been in place for over 21 years. A Prescriptive Easement is a right to use another's property which is not inconsistent with the owner's rights and which is acquired by a use that is

open, notorious, adverse, and continuous for a statutory period (21 years). The owner of the easement is not permitted to increase the usage of the easement.

3. TWO STATUTORY PROCCESS TO ASSIST LANDOWNERS WITH DRAINAGE IMPROVEMENTS

The state of Ohio has two statutory measures for landowners to initiate and solve common drainage problems. These are detailed in sections 6131 and 940 of Ohio Revised Code (ORC) also known as Ohio Drainage Laws. Both are similar in that they allow landowners to petition local government to provided technical and administrative assistance with solving water, drainage, and flooding issues involving tile, swales, ditches, and other waterways. Section 6131 ORC is administered through the County Engineer and the County Commissioners. Section 940 is administered through the local Soil and Water Conservation District and the County Commissioners. Bonds, hearings, benefits, and costs are all taken into consideration on both of the procedures. Plans are prepared by the local responsible agency. Once resolved construction can be completed on the planned drainage improvement, be it drainage ditch or tile (See Figure 8).

Figure 7. Newly constructed and seeded ditches, completed through ORC, will aid in storm water flow and improve property value (Elyria Township).

4. DITCH MAINTENCE

It is generally recommended that drainage projects completed under sections 940 or 6131 ORC, be placed on permanent maintenance though a property assessment. This is generally determined by benefit to impacted parcels and is collected semi-annually as a real estate tax. Funds are maintained by the county auditor to be used ONLY for the long term maintenance of the specific project. The County Engineer will inspect the completed project annually and determine needed repairs or maintenance to the project such as mowing, seeding or additional excavation. Maintenance is done in perpetuity. Currently there are less than 50 ditches in Lorain County that fall into this category.

SWCD DRAINAGE RECOMMENDATIONS

The Lorain Soil and Water Conservations (LSWCD) deals with drainage issues on a daily basis and has since its inception in 1948. Over this time we have provided technical assistance to hundreds of local residents (farmers, land-users, gardeners, homeowners, units of government, etc.) needing advice and guidance on correcting drainage and flooding issues. No two situations are the same and generally there is no "cookie cutter" answer for correcting issues on all properties. A site inspection and analysis is usually needed to determine cause and to provide solutions. Over the years we have determined there are some common themes in most drainage situations. These are detailed below.

1. COOPERATIVE DRAINAGE PROJECTS: Drainage issues generally extend across property lines. Therefore it is usually in the best interest of adjoining properties to work together to solve a common issue. This can be done through one of the Ohio Drainage Law procedures or by merely working together and sharing the cost of installing a common drain tile or cleaning a ditch.

2. DRAINAGE OUTLET: The lack of an effective drainage outlet is often the limiting factor in correcting a problem. If there is no place to take the excess storm water, it becomes trapped and only evaporation and time will ease the situation. Working with downstream property owners is essential.

3. LAST RESORT DRAINAGE OUTLET: If absolutely no drainage outlet is available, then possibly a sump, underground cistern, or dry well may be considered. These are far from perfect but fall under the "better than nothing" category. Many plans are available on the internet.

4. BLOCKAGE OF DIFFUSED FLOW: Do not add fill to your property to the extent it elevates your property above your upstream neighbor. There is no Ohio law that prohibits this but you may end up in a long, expensive lawsuit involving a "Reasonable Use" issue (see above). You may win or not. In either situation you and your neighbor will probably never get along again. If you want to add fill to your property then discuss with your neighbor and township officials ahead of time. Always allow a path for runoff to move across the site which does not result in standing water on your neighbor's property.

5. BLOCKAGE OF WATERCOURSES: Do not, under any circumstances, block a drainage course, ditch swale, creek etc. We have heard many property-owners state that they don't have to take everybody's water that flows in a ditch through their property. Ask yourself this: Where then do you expect it to go? All land that drains to a watercourse is part of a watershed. Watersheds only flow in one direction. And that is downhill.

6. MAINTAINING TILE DRAINS: Drainage tile is installed to lower the water table or to intercept water from a surface source such as a catch basin, gutter/downspout or other surface-type inlet. Existing tile often flows across more several properties and outlets to a ditch, pond, creek, river etc. Most drain tile has been installed to aide in farm crop production but others have been installed to help with urban drainage (Figure 9).

Figure 8. Installing drain tile in agriculture fields to aid in lowering water table. (Huntington Township).

If tile exists on your property or you encounter tile when doing excavation do NOT destroy the tile. Always allow tile to continue to flow if the tile is still active. Your upstream neighbor will be grateful.

7. RESTRICTION OF FLOW: Do not restrict flow based on low water conditions. Tile, pipes, culverts and ditches are sized based on storm flow. Look at upstream structures to determine size. A 24 inch culvert at the road means you will need at least a 24 inch culvert downstream or maybe larger.

8. GOOD WATER QUALITY ALTERNATIVES: Controlling runoff includes rain barrels, water gardens and small wetlands. These will only contain limited amounts of runoff. Eventually they will fill and overflow should be considered.

FINAL NOTES

- Technicians from the Lorain SWCD are available to consult on local drainage situations and offer advice on corrective actions.
- Advice provided by Lorain SWCD is only meant for voluntary compliance.
- Draining and filling of a wetland may be a violation of the Clean Water Act or USDA Farm Bill. Always inquiry prior to doing work in a wetland area. The Natural Resources Conservation Service is the responsible Agency for agricultural wetlands. The Army Corp of Engineers and the Ohio EPA are the responsible agencies for non-agricultural wetlands. Permits may be needed.
- There is no government agency in Ohio that has regulatory authority for determining right or wrong in drainage disputes between property owners. If these situations cannot be resolved locally then the only remaining option is to consult with an attorney.