

# **PRELIMINARY REPORT**

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# **DEGRYSE**

# **DITCH**

# **#20-01**

**Washington Township**  
**Defiance County**

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**May 2020**

**PRELIMINARY REPORT  
DEGRYSE DITCH #20-01**  
**WASHINGTON TOWNSHIP, SECTIONS 5 & 6 DEFIANCE COUNTY, OHIO**

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This Preliminary Report on drainage improvements for the **DEGRYSE DITCH #20-01** is submitted for your consideration in accordance with a request received at the *Defiance Soil and Water Conservation District*. The Natural Resources Conservation Service and the Defiance Soil and Water Conservation District have investigated the area and the problems. This report presents the information and data we have at the present time, together with our recommendations for a solution to the drainage problems. Keep in mind that this is only a Preliminary Report and not a final engineering plan. This report is based on preliminary field surveys and is not meant to be inclusive, but to serve only as a basis for the landowners in the **DeGryse Ditch** watershed area to make a decision on whether or not to proceed with the project. The main objective of this project is to provide an adequate and stable outlet for surface and sub-surface drainage from the watershed area of approximately 140 acres.

**ENVIRONMENTAL SETTING**

**Soils and Topography**

The soils in the watershed are of a type that require surface drainage for efficient agricultural production and to help prevent soil erosion in the watershed area as well as help reduce potential flooding of roads and homes. The topography of the area is nearly level. Elevation drop from the top of the watershed to the outlet of the problem area is about 8 feet. Annual rainfall for the area is about 33.5 inches.

**Land Use**

The watershed is predominantly agriculture with about 82 percent in cultivated crops and 18 percent in woods, house lots, roads, and other uses. Some minor land use changes are possible with the construction of individual homes or farm buildings. This would represent only a small portion of the watershed area. Home construction in the watershed would depend upon individual type sanitary disposal facilities. It is quite important that these facilities not be tied into any subsurface drainage facility unless the County Health Department approves it.

**Fish and Wildlife Resources**

Wildlife consists of upland game and non-game species. No fish species would be affected by this project.

**Recreational Resources**

Recreation would be limited to the individual family size holdings.

## **EXISTING CONDITIONS**

This existing ditch from the head at the NE corner of the intersection of US 127 and Scott Road and running along the north side of Scott Road to where it outlets into Lick Creek is a very small road ditch. Currently it is not nearly large enough or adequate to carry the runoff from the surrounding watershed area. Also, drive pipes that are in the ditch are undersized and inadequate to handle the runoff that is entering the ditch.

## **RECOMMENDATIONS**

Construct a new, larger ditch to replace the existing road side-ditch. Also replace the small drive pipes with larger pipes that will adequately handle the runoff from the watershed area. This new ditch would be set off of the road for better safety by constructing an 8' road side berm from the edge of pavement to the top of the ditch bank. A 3:1 side slope will be constructed on the road side of the ditch and a 2:1 side slope on the field side of the ditch. This new ditch will have a 3' bottom width. All drive pipes will be replaced with new 36" diameter pipes. Once construction is completed, all disturbed ditch banks and berms will be reseeded, fertilized, and mulched. Soil removed for the ditch construction will be spread to a thickness of 8-10 inches in the area directly adjacent to the ditch on the north side of the ditch. A 4-foot filter strip will be seeded as part of this project on the north side of the ditch. We would encourage landowners to sign up under one of the government programs to establish a wider filter strip on their property in place of the one being established as part of this project. If there are existing filter strips along the ditch, the spoil in those areas will be worked up and reseeded and fertilized to re-establish this existing filter strip. Mini Rock Chutes will be installed every 500 feet as erosion control structures to allow surface water to enter the ditch and help prevent future sedimentation of the ditch.

## **ENVIRONMENTAL IMPACT**

Existing vegetation within the road-side ditch will be destroyed during construction, but will be re-seeded upon completion of the project. Because of this, there will be no significant environmental impact on the project area once it is completed.

## **COST ESTIMATE – 3,870 ft. (0.73 miles)**

<b><u>Items</u></b>	<b><u>Estimated Cost</u></b>
Excavation	\$ 12,000.00
Seed/Fertilize/Mulch	\$ 6,000.00
Drive Pipe Replacement	\$ 25,000.00
Mini Rock Chutes	\$ 3,500.00
Damages	\$ 7,500.00
Interest/Legal/Administrative Cost	\$ 10,120.00
Contingency	\$ 4,650.00
NW Electric-Power Line Replacement	\$ 26,427.00
<b>Total Ditch Cost Estimate</b>	<b>\$ 95,197.00</b>

## **BOARD OF SUPERVISORS PROJECT REVIEW**

Having reviewed/inspected the project at the View conducted on March 19, 2020, in conjunction with the findings contained in this report, the Defiance SWCD Board of Supervisors has provided the following comments in regards to feasibility, favorable and unfavorable factors, and whether benefits exceed the estimated costs for this project.

### **Feasibility**

This project has been deemed feasible. Factors contributing to this decision include:

1. This project is easily accessed from local roads.
2. Excavation can be performed with standard excavating equipment.
3. Sufficient ditch flow line grades can be excavated to facilitate drainage.

### **Favorable Factors**

Favorable factors of this project include:

1. Improved drainage of ditch, and field surface water out letting into ditch.
2. Eroding areas controlled or eliminated.
3. Uniform method of sharing cost of project.
4. Project will be permanently maintained under the County Maintenance program.

### **Unfavorable Factors**

Unfavorable factors of this project include:

1. Potential damages to crops and lawns.

### **Benefits / Cost**

Given the preliminary cost estimates and the calculated benefits within the cost benefit analysis (contained within this preliminary report), it is the Defiance SWCD Board of Supervisors' opinion that the benefits derived from this project are likely to exceed the estimated costs.

### **Alternate Proposals**

There are no other cost-effective methods of ditch cleaning that result in the construction of the improvement meeting the standards and specifications nor the capacities the ditch is required to carry. Therefore, there are no alternate proposals for the ditch reconstruction recommended by the Board of Supervisors.

### **LANDOWNERS**

<b><u>Parcel Number</u></b>	<b><u>Name</u></b>	<b><u>Acres Owned</u></b>	<b><u>Acres Drained</u></b>
L15-0006-0-006-00	Russell Zeedyk	158.347	60.0
L15-0005-0-014-01	Darcy A. Adams	1.0	1.0
L15-0005-0-015-00	Bonnie L. DeGryse	2.779	2.779
L15-0005-0-014-05	Ryan J. & Heather R. Smith	1.0	1.0
L15-0005-0-014-00	Ryan J. & Heather R. Smith	44.873	43.0
L15-0005-0-014-04	Audra Collette Ricica	5.174	5.174
L15-0005-0-014-03	Corey Lee DeGryse	5.174	5.174
L15-0005-0-016-00	Sean F. & Jennifer D. Bergman	20.0	10.0
L15-0005-0-008-03	Aaron T. Herman	51.184	6.0
L15-0005-0-008-01	K & P Wood	6.587	0.5
Scott Road	Washington Twp.		2.0
State Route 127	Ohio Dept. of Transportation		<u>2.75</u>
			<b>Total = 139.377</b>

## **ASSESSMENTS**

Landowner assessments are calculated using a formula which takes into account factors such as: acres drained, land use, soil type, tile drainage, topography and percent of usage of the ditch. The following is a description of each of these factors:

*Acres Drained* – Only the physical acreage of each landowner's property within the actual watershed boundary is considered in determining assessments. This includes farmland, woods, pastures, house lots, parking lots, roads, etc.

*Land Use* – Each tract of land contributing runoff water to the proposed improvement is assessed according to the amount of water that is actually being generated from that tract of land. High runoff areas such as roads, parking lots, residential areas, etc., are assessed at a higher rate than lower runoff areas such as farm ground and woodland regions, due to the fact that more runoff water is being produced from the more impervious areas.

*Soil Type* – The soil type of the land draining into the project is determined using the Defiance County Soil Survey and is used to account for the amount of infiltration or runoff.

*Tile Drainage* – This takes into account whether the land in the watershed area is tiled and whether or not the tile drains to or away from the open ditch project.

*Topography/Remoteness* – The actual distance runoff water must first travel before even reaching the ditch improvement is a determining factor on how land is assessed. The longer the distance it takes for the water to reach the ditch improvement, the lower that ground is assessed.

*Use of the Ditch Improvement* – You only help share the cost of the ditch improvement that your runoff water travels through. You will have no responsibility to help share the cost of construction upstream from where your water enters the project.

## **WATERSHED BENEFITS**

Benefits are defined in the drainage improvement sections of the Ohio Revised Code as advantages to land and owners, public corporations and to the state resulting from drainage, conservation, control and management of water and from environmental, wildlife, and recreational improvements.

According to the Code, factors relevant to whether a property will benefit from an improvement include:

1. *Area of land affected by the improvement;*
2. *The volume of water draining into the improvement and the amount of water contributed by each owner;*
3. *The use to be made of the improvement;*

Benefits may also include the following factors:

1. *Elimination or reduction of damage from flooding;*
2. *Removal of water conditions which jeopardize public health, safety or welfare;*
3. *Increased land value resulting from the improvement;*
4. *Use of water for irrigation, storage, regulation of stream flow, soil conservation, water supply, or any other incidental purpose;*
5. *Providing an outlet for the accelerated runoff from artificial drainage whenever a stream, watercourse, channel or ditch under improvement is called upon to discharge functions for which it was not designed by nature; it being the legislative intent that upland property that has been removed from its natural state by deforestation, cultivation, artificial drainage, urban development, or other human methods shall be considered as benefited by an improvement requirement to dispose of the accelerated flow of water from upland property.*

Benefits can be divided into two types. Obligation benefits are the first type and are based upon the need for an outlet for drainage resulting from deforestation, artificial drainage and urban development. Upper owners have a right to improve their drainage outlets, thus accelerating their drainage runoff. However, they are responsible or obligated to share in the cost of an outlet downstream that is adequately sized to handle their accelerated runoff.

Accelerated runoff is the difference in runoff under present conditions and what it would have been under natural vegetative conditions before being cleared and cultivated / developed.

The second benefit is from a decrease in flood potential of land along the improvement area. By decreasing this flood potential, land will be able to be farmed better and will produce higher yields while residential areas will also benefit from this reduced flooding potential.

Other benefits that will be gained from this project are:

1. Ditch reconstruction will increase overall capacity in the ditch and result in a corresponding lower water surface elevation for storm flow;
2. Decreased localized flooding;
3. The stream will recede faster after flood stage;
4. Decrease in severity and duration of public road flooding;

## **COST / BENEFIT ANALYSIS**

The Cost / Benefit Analysis for this project was calculated by looking at the potential increase in crop yields in the areas that currently are experiencing flooding / saturated conditions due to the restrictions vs. once the reconstruction is completed. Also, we looked at the potential increase in property value that should occur by this improved drainage.

**Yield Increase Benefit** – It is estimated that there would be at least 116 acres directly affected by decreased yields due to flooding. Crops in the area would be estimated at 20% wheat, 40% corn, and 40% soybeans, with a very conservative yield increase due to improved drainage of 5 bushels per acre for wheat, 10 bushels per acre for corn, and 5 bushels per acre for soybeans. Using these yield increases at current grain prices this would mean an annual increase of \$3,840.00. This breaks down as follows:

24 acres of Wheat @ 5 bu. /ac. X \$4.77/bu. = \$572.40

46 acres of Corn @ 10 bu. /ac. X \$2.93/bu. = \$1,347.80

46 acres of Soy Beans @ 5 bu. /ac. X \$8.17/bu. = \$1,879.10

This annual increase of \$3,799.30 over a projected 10-year lifespan of the project amounts to a total benefit of \$37,993.00

**Property Value Benefit** – Rural residential and agricultural properties will benefit from improved drainage by increasing or maintaining their property values. According to local real estate sources, as a general rule, properties suffering from standing water over a large area are often judged to be devalued as much as 20% to 30%. Properties with some standing water could be devalued as much as 10% to 20%. Areas that suffer even the stigma of standing water could be devalued by 5% to 10%. According to information from the County Auditor, the market value of all property within the watershed, both residential and agricultural, is approximately \$1,371,700.00. Again, using a very conservative value increase of 10%, this would mean an immediate potential increase in property values of \$137,170.00.

**Benefit Summary** – Therefore, combining both the yield increase and property value increase, a total of \$175,163.00 worth in benefits can be realized over the projected lifespan of the project. This compared to an estimated project cost of \$95,197.00 gives this project a favorable cost / benefit ratio.

## **COST / BENEFIT CONCLUSIONS**

Each property owner in the watershed (agricultural land, urban areas, rural housing, retail business, streets, and roads) has in some way or another increased the natural flow of water to DeGryse Ditch. While each will see a different need, the fact exists that all in the watershed use the ditch to carry water discharged from their properties, faster than it was 20, 50, or 100 years ago.

A few landowners along the ditch have done some work on their own to help improve drainage through the ditch; unfortunately, this work has had very little impact on improving the overall drainage of the ditch to keep up with the demands that are placed on it. Anyone with water draining from his yard, or has a blacktop driveway, or has a roof somewhere has increased the flow rate and has put increased demands on the drainage way. The same is true for agricultural land, as wood lots were cleared, fencerows removed, and field tile installed, thus increasing the flow in the channel.

Therefore, it is the opinion of the Defiance SWCD Board of Supervisors that this proposal is the best and most cost-effective method to address the demanding drainage needs of this channel and the benefits of this project are likely to exceed the costs of this project as shown above.

## DITCH MAINTENANCE

After construction is complete on the project, it will be necessary according to state law to have the project put on the "County Maintenance Program". As prescribed by law, every landowner involved will be subject to permanent maintenance. Maintenance assessments are collected as a special assessment on real estate taxes and will be collected usually at the rate of 10 percent of a landowner's construction assessment for the first two-years after the project is completed to establish the fund. After the first two-year collections, landowners are only assessed as needed when maintenance work is done. This means that maintenance assessments may or may not be collected each year after the first two-years and the amount collected may vary depending upon the needs of the improvement but will never carry more than 20 percent in the maintenance fund for this project.

## CONCLUSION

To continue this process, sufficient interest in constructing the project must be expressed by the landowners involved. Once this is done, *Natural Resources Conservation Service*, along with the *Defiance Soil and Water Conservation District*, shall complete the engineering plans. The County Engineer, prior to bidding and construction, must approve the plans. *Invitation to Bid* notices will be sent out to contractors and a successful bidder will be hired. The *Soil and Water Conservation District* and the *Natural Resources Conservation Service* office will supervise construction and certify completion of this project.

Prepared By:

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Signature

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# DEGRYSE DITCH #20-01

