Final Report
Ribov #620
Drainage Petition per O.R.C. 6131
February 14, 2020
Amended November 30, 2020

This report has been prepared for the final hearing on a drainage improvement petition filed by Stephen L. Sheets and others on September 17, 2014. The petition has been signed by representatives of 7 of the 34 parcels in the watershed.

The general location and course of the requested improvements are quoted from the petition as follows:

> *"In Delaware County, Kingston Township within the Ribov #620 watershed and generally following, but not limited to the course and termini of the existing improvements."*

The following is the nature of the work petitioned:

> *"To generally improve the drainage, both surface and subsurface, to a good and sufficient outlet, by replacing, repairing, or altering the existing improvements as required and /or creating new surface and subsurface drainage mains or laterals as requested by this petition."*

The petition was amended based on a request by Kingston Township received and approved by the Commissioners on March 9, 2015. The amendment specifically requested *"to have the East Lateral of Main "A" included in the Ribov #620 drainage project now under consideration by the Delaware County Board of Commissioners. The Trustees make this amendment request to provide a good and sufficient drainage outlet for the Todd Street Road culvert located within said East Lateral of Main "A". The Trustee's (SIC) believe this inclusion would assist in reducing or eliminating seasonal flooding and in the removal of water conditions that could jeopardize public health, safety and welfare."*

The Ribov #620 watershed is approximately 357 acres. Collectively, the watershed is 52% agricultural, 32% woodlands, 15% rural residential, and 1% road right-of-way. Additionally, there are approximately 57 acres of the Kingston #2017-2 watershed which are currently draining into the Ribov #620 watershed via the road ditch on the north side of Todd Street Road. These acres will be addressed by a culvert installation by Kingston Township and will no longer drain into the Ribov #620 watershed.

Petition Process

This petition has been submitted according to Ohio Revised Code Section 6131 which authorizes the Board of County Commissioners to act on behalf of benefited property owners to make drainage improvements. If the Commissioners decide to proceed with a project, the costs related to the improvements are collected via special assessment to the landowners in the watershed according to the benefit received. The construction assessments would be placed on the property tax bills of the benefited landowners, and can be spread over a maximum of 15 years with 30 semi-annual installments. Additionally, the improvements will be placed on the county drainage maintenance program per Ohio Revised Code Section 6137 with maintenance funds being collected semiannually similar to the original construction costs. These annual maintenance assessments are generally 3 to 5 percent of the construction assessment.

It should be noted that property owners are only assessed for those improvements that are located downstream from their properties. No property is assessed for improvements located "upstream" of a given parcel. In addition, units of government that hold rights-of-way for public roads are assessed for both construction and maintenance costs in the same manner as private property owners.

The decision to approve a petition is a 3-step process involving a view, an initial, or first, hearing, and a second, or final, hearing. A view of the proposed improvements was initially conducted on December 15, 2014 by the Commissioners to familiarize themselves with the location and condition of the existing improvements. A second view was conducted on April 13, 2015 to examine the amendment requested by Kingston Township. Next, the first hearing was opened on March 9, 2015 and continued to April 30, 2015. At the first hearing, the Commissioners found in favor of the petition. They requested the Delaware County Engineer and the Delaware Soil and Water Conservation District to proceed in the development of engineering plans and specifications and the schedule of assessments. It is this information that is before the Board of Commissioners for consideration at this second and final hearing.

Project Scope

The proposed project has been divided into three distinct areas of work to better reflect the scope of the proposed work and associated costs. These areas are Main, Lateral #1, and Lateral #3.

The Main will commence at the right-of-way on the south side of Todd Street Road and extend approximately 3,810 feet downstream to the south to the junction of the Ribov #620 open channel with Little Walnut Creek. The primary items of work will include open channel construction and reconstruction, the construction of grade stabilization structures, the installation of a private drive culvert, placement of erosion control measures, removal of brush and vegetation, and seeding and mulching of disturbed areas. Additionally, a drainage

maintenance easement will be placed over the area identified on the engineering drawings as Lateral #2. No work will be performed on Lateral #2.

Lateral #1 will commence at the right-of-way on the south side of Todd Street Road approximately 400 feet east of the Main and extend downstream to the south approximately 600 feet to the junction with the Main open channel. The primary items of work will be subsurface drain installation, the placement of erosion control measures, removal of brush and vegetation, and seeding and mulching of disturbed areas.

Lateral #3 will commence on the Kistner property, 8721 Kilbourne Road, and extend downstream approximately 2,800 feet to the junction with the Main open channel. The primary items of work will include surface grading, subsurface drain installation, the placement of erosion control measures, removal of brush and vegetation, and seeding and mulching of disturbed areas.

Project Estimate – Main

Construction	$ 67,790.00
Administration, Planning and Inspection	$ 25,795.18
Drainage Maintenance Pay-in	$ 4,629.26
Contingency	$ 13,887.78
TOTAL ESTIMATED COST:	**$112,102.22**

Project Estimate – Lateral #1

Construction	$ 10,799.00
Administration, Planning and Inspection	$ 500.00
Drainage Maintenance Startup	$ 564.95
Contingency	$ 1,694.85
TOTAL ESTIMATED COST:	**$ 13,558.80**

NOTE:

- **The total estimated cost for Lateral #1 includes $7,607 of estimated construction costs that would be direct assessed to Kingston Township for portions of the improvement directly benefiting the road right-of-way.**

Project Estimate – Lateral #3

Construction	$ 50,915.00
Administration, Planning and Inspection	$ 2,500.00
Drainage Maintenance Startup	$ 2,670.75
Contingency	$ 8,012.25
TOTAL ESTIMATED COST:	**$ 64,098.00**

TOTAL ESTIMATED PROJECT COST: $189,759.02

Calculation of Assessments

The Ohio Revised Code instructs the County Engineer to calculate the assessments to individual property owners based on the benefits received from the improvements for the various properties in the watershed. The ORC further defines benefited land as:

> *"Lands that have been removed from their natural state by deforestation, cultivation, artificial drainage, urban development, or other manmade causes shall be considered as benefited by an improvement required to dispose of the accelerated flow of water from the uplands."*

Assessments to individual parcels have been calculated using the following formula, a rationale that is widely used throughout the state of Ohio.
(Acres Benefited) **X** (Land Use Factor) **X** (Percent of Improvement Used) **X** (Remote Factor) = (Individual Parcel Assessment Factor)

Each parcel's assessment is then determined by:
(Individual Parcel Assessment Factor) **/** (Total of all Individual Assessment Factors) **X** (Total Construction Cost) = (Parcel Assessment)

Explanation of Factors:

- **Acres Benefited**
  Total number of acres within a given parcel that contribute drainage to the improvement.
- **Land Use Factor**
  The relative benefit to parcels of drainage based on the amount of increased storm water runoff resulting from the land use of the parcel.
- **Percent of Improvement used**
  The point at which drainage from a given parcel enters the improvement. Parcels are only assessed for the portion of the improvement that lies downstream of the parcel.
- **Remote Factor**
  The remote factor is based upon a parcel's distance from the improved section of the drainage course, and is typically established in ½ mile increments. Parcels that are most "remote" from the actual improvement receive the greatest reduction on their assessment. No remote factor has been applied for this project.

Benefits versus Cost

One of the primary factors set forth for consideration in the approval or dismissal of a petition request is the actual benefit of the proposed improvements to the watershed in question. The following analysis examines this factor from the standpoint of land productivity for the agricultural acres as well as the value of drainage to residential parcels.

A publication by The Ohio State University Extension titled "Returns to Farm Drainage" details several studies, conducted by Ohio State researchers, on the effects of drainage on crop yields. The studies show that fields with good drainage will produce higher yields than fields that have poor drainage. A recently completed 25-year study showed that subsurface drainage increased corn yields by 24%-39%, and increased soybean yields by 13%-46%. This produces average yield increases of 31% and 29% respectively. The benefits of drainage will thus equal this increased yield multiplied by the market price.

Approximately 52% or 187 acres of the 357-acre watershed is agricultural land. The 2017 through 2013 average market price for corn and soybeans in Ohio, as reported by the USDA National Agricultural Statistics Service is $3.71 per bushel for corn and $9.50 per bushel for soybeans. The average estimated yield increases for the soil types present in the watershed, given appropriate drainage improvements are in place, equal 46 bushels per acre for corn and 14 bushels per acre for soybeans.

Crop Production Benefit examples:

- Corn
  (46 Bushel per acre increase in yield) **X** ($3.71 per bushel) **X** (187 acres) = $31,913.42 increase annually.

- Soybeans
  (14 Bushel per acre increase in yield) **X** ($9.50 per Bushel) **X** (187 acres) = $24,871.00 increase annually.

For this example, we will assume that cropland acres are distributed equally between corn and soybeans, for a potential average annual increase of $28,392.21. If this potential annual return is multiplied over a 20-year period, the benefit equals $567,844.20.

While this example does not take into consideration individual farm management practices, it does illustrate the fact that good agricultural drainage is a key factor in farm profitability and would reflect positively when considering a cost/benefit analysis for this project.

The increased value or benefit for residential parcels is typically found in two ways: the increased marketability of the home and functionality of the home sewage treatment system and associated drainage needs. An inadequate subsurface drainage outlet can dramatically

deteriorate the condition of household sewage treatment systems potentially limiting the value of the home for resale. Locally, the cost to construct an alternate sewage treatment system, should the existing system fail, ranges from $15,000 to $25,000 on average. Other benefits that are commonly perceived as a result of suburban drainage improvements focus on quality of life and positive neighborhood perception. Watersheds that have planned and maintained drainage infrastructures generally have higher resale values than those communities that are known to have a history of drainage problems. Approximately 86 acres, or 20%, of the land use in the watershed is residential in nature. When evaluating the cost of providing adequate drainage outlets for residential properties, we find that for new construction, developers or homebuilders spend between $1,000 and $3,000 per lot to attain adequate drainage infrastructure within a development. With 20 residential parcels in the watershed, the potential average benefit is between $20,000 and $60,000 at minimum. While this analysis does not consider many potential variables, it could aid in the decision-making process

The benefits to this proposed project will be realized well beyond the construction repayment term. As previously stated, the construction assessments would be placed on the property tax bills of the benefited landowners, and can be spread over a maximum of 8 years depending on the method of payment chosen by the Commissioners. Alternatively, assessments can be paid in full within 30 days after the close of the final hearing without paying interest. The long-term benefits will be realized by virtue of this project being placed on the County Drainage Maintenance Program in perpetuity per Ohio Revised Code Section 6137. O.R.C. 6137 requires maintenance funds to be collected semi-annually similar to the construction costs. These maintenance funds are applied to the annual inspection and maintenance of this specific project.

Recommendations

Based on all of the information gathered and generated, I believe this project as proposed is technically feasible and would serve as an adequate outlet for the drainage needs of the watershed. Furthermore, the parcel assessments for this project are within the range of assessments that can be expected for a project of this scope. The testimony brought to the Board of Commissioners by the landowners as to whether the benefits of this project exceed the costs, should be given significant consideration in the decision to move forward with this project.

A decision to move forward with the Main section of the project may be made independent of a decision on either of the Laterals. If the Main is approved, the Laterals may be considered independently of each other. Approval of one lateral is not contingent upon approval of the other or vice-versa. Both Laterals, however, are contingent upon the Main. If the Main is denied, both Laterals must be denied.

A resolution affirming the order to proceed detailing the approved areas of work, confirming the schedule of assessments, and ordering the project to be advertised for competitive bid, per Section 6131 of the O.R.C., will be necessary. The resolution by the Board of Commissioners shall

also determine how long a period of time, in semi-annual installments, as taxes are paid, shall be given the owners of land benefited to pay the construction assessments.

If the Board of Commissioners chooses to dismiss the Petition in whole or in any part, I would recommend a resolution reflecting that decision, and that the costs for the proceedings, including the costs incurred by the Board of Commissioners, the County Engineer and the Delaware Soil and Water Conservation District in making surveys, plans, reports and schedules be distributed to the benefiting landowners in the same ratio as determined in the final estimated assessments presented at this hearing. This amount is estimated to be $9,500 for the Main, $2,500 for Lateral #1, and $7,800 for Lateral #3.

Prepared by,

Bret Bacon
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Delaware Soil and Water Conservation District

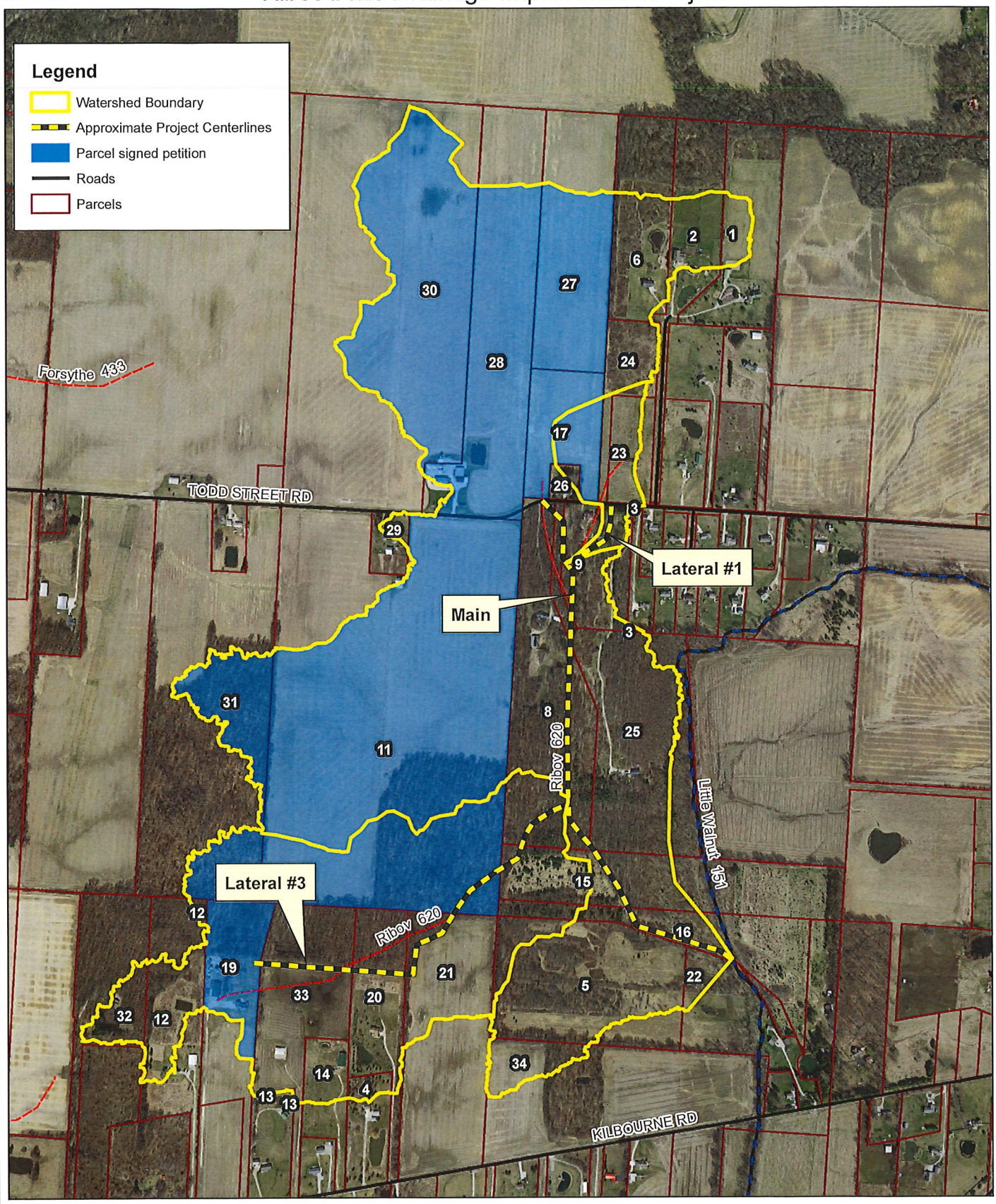
Approved by,

Chris Bauserman P.E., P.S.
Delaware County Engineer

2/7/2020

Ribov #620 Drainage Improvement Project

Photo: 2018 Delaware



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