

WATER QUALITY FEES BOARD

MINUTES

April 13, 2023

Regular Meeting

1. **SWEARING-IN OF BOARD MEMBER** – This item was postponed to the July 20, 2023, WQFB meeting.
2. **CALL TO ORDER** – George Woolwine called the April 13th Meeting of the Water Quality Fees Board (WQFB) to order at 9:03 a.m.

Water Quality Fees Board Members in Attendance: Harry Clarke, Donna Fogle (departed at 9:40 am), David Lowe, and George Woolwine. Aaron Vaught was absent.

Staff Members in Attendance: Charles Martin, P.E., Director, DWQ; Lindsie Nicholas, P.E., DWQ; Frank Mabson, DWQ; Denice Bullock, DWQ; Erik Merlino, P.E. DWQ; Craig Morgan, P.E., DWQ; and Evan P Thompson, Department of Law.

Guests in Attendance: Joe Elder, Thoroughbred Engineer; and Richard Walker, Tetra Tech.

3. **APPROVAL OF MINUTES** - Mr. Woolwine asked the WQFB to review the minutes of February 16, 2023, Water Quality Fees Board Meeting.

Mr. Clarke moved to accept the minutes as written. The motion was seconded by Ms. Fogle, and the motion passed unanimously. Mr. Vaught was absent.

4. **CHANGE ORDER REQUEST – FY22 COLT ENGINEERING (DBA THOROUGHbred ENGINEERING)**

Joe Elder, Thoroughbred Engineer, directed the Boards attention to the overhead and briefly explained why they are requesting additional funds for the FY22 grant.

The PowerPoint presentation touched on the following:

Existing Property Issues:

- 1) Asphalt parking lot needing repair
- 2) Stormwater ponding in the parking lot and landscape strips
- 3) Unnecessarily wide drive aisles creating unutilized impervious surface

Proposed Property Solutions:

- 1) Resurface parking lot area with permeable pavers
- 2) Install a rain garden to treat stormwater runoff
- 3) Educational benefits for employees, clients, and community

Mr. Elder oriented the Board to the subject property and explained that the property is situated on N. Broadway where access is provided to the rear of the property. He reviewed the site plan and drainage map, noting that the Stormwater Best Management Practices will include:

- 1) Rain garden/dry creek bed
- 2) Pave Drain system
- 3) Educational signage

Mr. Elder continued the PowerPoint presentation by speaking to the following:

Areas of Concern for Additional Funding:

- 1) Construction & Site Demolition
- 2) Rain Garden & Landscaping
- 3) Proposed Pavements

- Proposed rain garden increase in size due to increase in runoff volume;
- Amount of excavation needed for permeable paver subbase increased;
- Due to projected runoff volume, it was recommended to include under drainage/perforated piping;

- Recommended by PaveDrainRep to include concrete header curb around the edge of pavers for structural integrity along with the longevity of pavers;
- The Unit Cost of Demolition has increased from the following:
 - 804 SY @ \$15.00 ---to ---816 SY at \$83.23;
 - An increase of \$68.23 SY;

Mr. Elder indicated that the final site design will include permeable pavers; educational signage along N. Broadway; a rain garden; and ADA parking.

Mr. Elder said that since 2020, the Construction Analytics & Building Cost Indices show a 25% building cost increase and the residential construction inflation shows a 38% increase. He explained that the cost of this grant has increased from \$223,343.75 to \$362,446.00, a difference of \$111,281.80.

Type of Expense	Original Grant	Updated w/Actual Bid Cost	Difference	Notes
Design	\$25,000.00	\$25,000.00	0.00	
Project Management	\$10,500.00	\$10,500.00	0.00	
Construction & Site Demolition	\$49,298.00	\$95,627.00	\$46,329.00	Increase in unit cost, underdrain system, and depth of excavation work
Proposed Pavement	\$96,740.00	\$197,557.00	\$100,817.00	Increase in unit cost, amount of aggregate base, and addition of header curb around the Pavedrain System
Site Features	\$12,250.00	\$9,847.00	(\$2,403.00)	Remove rain barrels
Proposed Rain Garden & Landscaping	\$10,181.50	\$23,915.00	\$13,733.50	Increase the size of the rain garden for treatment and increase in planting material unit prices
Other (Miscellaneous) Cost	\$19,374.25	0.00	(\$19,374.25)	Remove contingency
	\$223,343.75	\$362,446.00		
	Grant	\$289,956.80		
	Match	\$72,489.20		
Change Order Total		\$111,281.80		

Board comments and questions: Mr. Woolwine asked if the increase in the demolition cost could be expanded upon and does that cost included the redesign of the underdrain system. Mr. Elder replied yes, and explained that the cost included the increased depth of the underdrain system.

Mr. Woolwine asked if the reason behind the redesign of the underdrain system was due to more water than anticipated. Mr. Elder agreed.

Mr. Clarke understood the cost increase in materials, labor, and so forth, but he did not understand how a budget was given to the Board that did not reflect the actual cost. The Change Order request shows a 62 percent increase, which is an exceptional amount. Mr. Elder explained that during the conceptual planning of this design, they did not anticipate the depth of the underdrain system increasing or the amount of debris that needed to be hauled off and disposed of until they dove into the construction documents and the analyst completed the review.

Staff presentation: Frank Mabson said that in the fall of 2021, Colt Engineering, Inc. (dba Thoroughbred Engineering) was awarded a \$178,675.00 grant to retrofit the parking area at its historical location at 239 N Broadway. At that time, the total project cost was estimated to be \$223,343.75 which included the organization's cost share of \$44,668.75. Since being awarded, the organization has received bids in excess of \$360,000.00.

Thoroughbred has competitively bid on the project resulting in the new total project cost estimate of \$362,446.00. The organization wishes to proceed with the project but cannot without additional funding. They are requesting that their existing grant award be amended allowing them to access change order funds while not exceeding the maximum allowable grant award for Class B

Infrastructure grants.

Table 1	
*Maximum LFUCG Award for Any Project	\$360,000
Design Fee plus Grant Administration (no change)	\$ 35,500.00
Bid Amount for grant project elements	\$326,946.00
Total Project Cost w/ Bid	\$362,446.00
less LFUCG Round 1 grant award	-\$178,675.00
less Thoroughbred Round 1 grant match	-\$ 44,668.75
Project Funding Gap	\$139,103.00
*Additional Funds - LFUCG	\$111,281.80
(Not to exceed \$360,000 when added to the Round 1 award)	
Additional Funds – Thoroughbred Engineering	\$27,820.45

The Division of Water Quality recommends that the board consider approval of the Change Order request of \$111,281.80 based on the following:

1. The project construction cost increase is validated by the competitive bids received by the applicant.
2. The board previously awarded a change order to the University of Kentucky Research Foundation (UKRF) to provide additional funding for its Rainwater Harvesting Project. Since then, the Board has approved to pilot a Change Order Program which currently has a total of \$157,908 available.
3. Approval of the amended grant award, as summarized in Table 2, still keeps the organization's total grant award (\$289,956.80) within the Program's maximum amount allowable for Class B Infrastructure grants which currently is \$360,000.
4. Applicant has agreed to provide an additional match to meet the contracted percentage (add. \$27,820.45)
5. The project site is located at 239 N Broadway, an urban setting with high levels of impervious surfaces, in the impaired Town Branch Watershed.

Table 2	
Total Project Cost w/ Bid	\$362,446.00
LFUCG Share (80% of total)	\$289,956.80
Thoroughbred Engineering Share (20% of total)	\$72,489.20

Board comments and questions: Mr. Woolwine confirmed that the amount of \$289,956.80 was through adding the original grant of \$178,675.00 to the additional request of \$111,281.80. Mr. Mabson agreed.

Mr. Woolwine understood the material cost increase but the request shows a cost for redesigning the project. With that being said had this budget been submitted with the original application more than likely the grant would be approved.

Mr. Clarke said that when the Board was discussing how the costs were increasing on the projects there was an agreement that additional funds may need to be granted for a project. This request has a substantial increase, but he is trusting the staff and if they are comfortable with granting the additional funding then he is satisfied.

Mr. Clarke moved to approve the Change Order Request for FY22 Colt Engineering (dba Thoroughbred Engineering), as recommended by the staff; seconded by Mr. Lowe. The motion passed unanimously. Ms. Fogle was absent.

5. **INCENTIVE GRANT STATUS UPDATE** - Mr. Mabson briefly provided an update on the Incentive Grants from FY 2016 to FY 2023; commenting on a few select projects.

6. **OTHER MATTERS**

FORENSIC ANALYSIS OF STORMWATER INFRASTRUCTURE IN WALNUT-HILL AT CHILESBURG AND ELLERSLIE/DELONG DEVELOPMENT PROJECTS

Richard Walker, P.E., Tetra Tech, directed the Board's attention to the overhead and briefly explained why the forensic analysis was done on the Walnut-Hill at Chilesburg and Ellerslie/Delong Development Stormwater Infrastructure Projects.

The Purpose of the Analysis

1. Identify possible causes of yard flooding and channel erosion identified in the grant applications:
 - Were the storm sewers and open channels designed in accordance with the Stormwater Manual?
 - Were the storm sewers and open channels constructed in accordance with the plans?
 - Does the Stormwater Manual contain adequate design standards?
 - Does the Procedures Manual contain adequate procedures?
2. Based on the above, should changes be made to the Stormwater Manual or Procedures Manual?

Note: Ms. Fogle departed at this time.

The Summary of Findings

- Engineer's Design Plans
 - Storm sewers were designed in accordance with the Stormwater Manual.
 - Gabion mattresses were proposed where velocities were high as required by the manual.
 - In one case, channel lining should have been proposed for an open channel to prevent erosion.
- Construction
 - Gabion mattresses were not installed as shown on the Engineer's drawings to prevent erosion.

Board comments and questions: Mr. Woolwine asked if the Gabion mattresses were not installed according to the drawings or not installed at all. Mr. Walker replied there is no evidence that the Gabion mattresses were there at all.

Mr. Walker continued by speaking about whether or not Stormwater Manual or Procedures Manual needs to be changed.

- Design standards in the Stormwater Manual are adequate.
- Plan review/construction procedures in the Procedures Manual are adequate.
 - DOE conducts a final inspection before the Developer's bond is released to ensure that all stormwater infrastructure has been constructed.
 - DWQ & DOE conduct a final inspection of detention basins and stormwater controls.

The Analysis Process includes the following:

1. Obtained design plans and drainage studies from the Division of Engineering.
2. Reviewed the grant application documents.
3. Conducted field inspections.
4. Identified potential causes of erosion and/or flooding issues listed in the grant application.
5. Compared design plans to the requirements in the Stormwater Manual and identified deficiencies, if any.
6. Conducted additional hydraulic analyses, where necessary.

Mr. Walker presented a series of photographs and gave a brief explanation of each:

- aerial photograph of the Ellerslie/Delong showing the three (3) HOA areas and the reservoir
- Ellerslie/Delong Conceptual Plan (from the grant application)
- Storm sewer outlet at Branhan Park open space (note: the design plans indicated gabion mattresses – none were evident)
- Storm sewer outlet at Ellerslie Park Boulevard
- Outlet of the culvert on Ellerslie Park Boulevard (no erosion evident)

Questions and comments: Mr. Martin said the storm sewer pipe stops at the property line so the erosion that is seen could be on the adjacent property. Mr. Walker replied affirmatively. Mr. Martin indicated that the erosion on the adjacent property is not part of the equation to begin with. Mr. Walker indicated his agreement.

Mr. Woolwine asked if the picture depicts property that is part of the HOA. Mr. Walker indicated yes.

Mr. Walker continued by speaking about the Ellerslie Grant Application stormwater problems and the probable causes.

Stormwater Problem	Probable Cause
Erosion at the outlet of the storm sewer on Branham Park	High exit velocity from the pipe and lack of outlet protection.
Erosion at the outlet of the storm sewer from Ellerslie Park Boulevard	High exit velocity from the pipe and lack of outlet protection.
Erosion at the outlet of the culvert under Ellerslie Park Boulevard	No significant erosion was evident at the outlet of the culvert even though the full flow velocity is very high at 16.8 fps.
Yard flooding in the backyards of the homes on Ellerslie Park Boulevard	The swale in the backyard appears to be functioning properly.
Eroding channel on the HOA property adjacent to the backyards of Ellerslie Park Boulevard	It is possible that regrading during construction diverted more flow to the open channel than was anticipated during the design phase. This would have created a deeper flow depth and a higher tractive force that exceeded the permissible shear stress of the grass.
Bank erosion in the stream that parallels Somersly Place	Stream bank erosion is common in urban channels and did not appear excessive.

Mr. Walker presented three (3) photographs of an open channel on the HOA property and briefly explained each.

He touched the Analysis of Open Channels that is Eroding.

Item	Denton Farms Improvement Plans (2005)	Stormwater Manual Requirement (2001)
Design Flow	Not available	Design the channel for the 100-year peak flow.
Bottom Width	3 feet	No specific requirement for the channel width. The channel must be designed for the 100-year storm.
Channel Slope	2.5%	The manual does not stipulate a minimum or maximum channel slope.
Side Slopes	3:1 H:V	Maximum side slopes 3:1 H:V
Manning's "n"	Not specified	$n = 0.045$ for grass channel lining
Design Flow Depth	Not available	Using Manning's "n" of 0.045 per the manual, flow depth = 7.3 inches.
Channel Lining	Not specified	Tractive force = $62.4(S)(d) = (62.4)(0.025)(7.3/12) = 0.9 \text{ lbs/sf}$, which is slightly below the allowable shear stress of 1.0 lbs for grass in Tale 8-3 of the Stormwater Manual.

Questions and comments: Ms. Nicholas asked if the Stormwater Manual suggests what the property line is. A property line can be outside the development or associated with the homeowner's lot. Mr. Walker said that there was a common problem for the storm sewer to terminate in the back of homeowners' yards so in 2001 when the Stormwater Manuals were being adopted, the decision was made to extend the storm sewer to the edge or beyond the property line.

Mr. Woolwine said that since there is no evidence of Gabion Mattresses being used, this grant is dealing with issues that should have been addressed when the area was being developed. Mr. Martin replied that when the Stormwater Quality Projects Incentive

Grant Program was developed, it was geared toward the older neighborhoods that were not built to current standards dealing with stormwater problems. Now, the grants are for current developments so it does not seem that the stormwater problems have been solved. He asked what was missed. Was it because the Stormwater Manual is not strict enough or because the field inspections are not verifying what is supposed to be built is not strong enough.

Mr. Martin said that the staff wanted the Board to recognize that there are some things that can be done to tackle this problem. He agreed, in the past the problem was worse because there was flooding in people's backyards where small kids played. Now the Division of Water Quality is receiving complaints about flooding from the adjacent properties from current developments.

Mr. Martin believes that the Stormwater Quality Projects Incentive Grant Program should continue to focus on areas inside New Circle Road and help areas such as the FY22 Colt Engineering grant versus the Ellerslie/Delong developments. Mr. Thompson said that the positive of Ellerslie/Delong development is it's being managed by the HOA where there are some areas with a maintenance agreement attached to a grant where there is no longer an HOA to maintain the area.

Mr. Lowe appreciated the presentation and said that it was concerning that there were some elements that were not installed by the developer and asked what can be done. Mr. Martin said that this presentation is so that the decisions being made are better moving forward. He said that at the beginning of the grant program, it was proposed to randomly select plans for frequent forensic analyses to be completed. The Division of Engineering has a limited staff to review plans and those staff members cannot monitor developments all the time. If plans were picked at random then the developers, engineers, and so forth would be more conscious of what needs to be installed.

Mr. Burton, Division of Engineering, said that there are roughly 600 permits issued per year and only a limited number of inspectors. Is there is an opportunity for something to be missed. It's entirely possible. The Division of Engineering has a better inspection program and follow-up procedures than what was done in the past. The due diligence is placed on the property owner/developer to make sure everything is in compliance.

Mr. Clarke asked if there are penalties imposed. Mr. Burton replied that errors would need to be caught during the site inspection because once the Land Disturbance Permit is accepted and closed nothing can be done. He explained that the inspectors perform site visits every 30 days and if needed the staff will let the developer know what needs to be done to maintain compliance. Also, before releasing a Performance/Warranty Surety the developer would need to take care of any items that are non-compliant.

Mr. Walker then spoke on the Walnut Hill–Chilesburg Grant Application and the Issues and Causes.

Mr. Walker continued by presenting an aerial photograph of the Walnut-Hill at Chilesburg area, photographs from the grant application and photographs from Tetra Tech of different areas throughout the neighborhood and gave a brief description of each.

Walnut Hill–Chilesburg Grant Application

Item	Gess Improvement Plans (2004)	Stormwater Manual Requirement (2001)
Design Flow	Drainage Area = 20.6 acres Rainfall Intensity = 8.1 iph Runoff C = 0.7 Peak Flow = 116.8 cfs	Design Storm = 100-year intensity = 8.1 iph The runoff coefficient "C" is based on the amount of impervious area. A C value of 0.7 is reasonable for the watershed.
Bottom Width	4 feet	No specific requirement for the channel width. The channel must be designed for the 100-year storm.
Channel Slope	1%	The manual does not stipulate a minimum or maximum channel slope.
Side Slopes	4:1 H:V	Maximum side slopes 3:1 H:V
Manning's "n"	Not specified	n = 0.045 for grass channel lining
Design Flow Depth	22.7 inches	Using a Manning's "n" of 0.045 per the manual, flow depth = 27.2 inches.

Channel Lining	Not specified	A turf reinforcement mat would have been necessary to meet the shear stress requirements based on the flow depth of 22.7 inches calculated by the Engineer: $\text{Tractive force} = 62.4(S)(d) = (62.4)(0.01)(22.7/12) = 1.2 \text{ lbs/sf, which exceeds the allowable shear stress of 1.0 lbs/sf for grass in Table 8-3 of the Stormwater Manual.}$ Note: The channel appears to be stable, so it is likely the grass provides a shear stress greater than 1.0 lbs/sf.
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Walnut Hill–Chilesburg Grant Application Issues and Causes

Concern	Probable Cause
Partially clogged culvert under Chilesburg Road, a buildup of silt and debris at the outlet, and the lack of a defined channel at the outlet	Lack of maintenance.
Erosion downstream of Chilesburg Road	Lack of energy protection at the outlet of the culvert. The Chilesburg Road culvert was installed many years before the Walnut Hill-Chilesburg development project. It was not part of the Developer's/ Engineer's design plans.
High water levels during heavy rainfall between Chilesburg Road and the pedestrian bridge	Culvert under the access road is not large enough. The access road and culvert were not part of the Developer's/Engineer's design plans.
Channel scour at the outlet of the metal culvert under the access road	Lack of energy protection at the culvert outlet. The access road and culvert were not part of the Developer's/Engineer's design plans.
Erosion in the channel from the access road to the retention pond at the end of Lorenzo Place	The channel was constructed without channel lining in the bottom of the channel, but in general, was stable with minor erosion observed in the channel bottom.

Mr. Walker briefly outlined and spoke to
The Stormwater Manual:

- Adopted in 2001, updated in 2005, 2009, 2016 and 2020
- Contains design and construction standards for stormwater infrastructure

The Procedures Manual for Infrastructure Development:

- Adopted in 2001, updated in 2016
- Contains the procedures and responsibilities of the developer, consulting engineer, and LFUCG divisions (Planning, Engineering, Water Quality, and Environmental services)

Mr. Walker illustrated the Infrastructure Development Process and said that at the end of construction, the developer must submit the following to the Division of Engineering:

- Letter of substantial completion and punch list
- Test results and inspection reports
- Record drawings
- Engineer's certification of sediment removal & design volume
- Commercial Agreement to Maintain Stormwater Controls
- Video of the storm sewers, sanitary sewers and table of laterals⁸
- Performance/Warranty Surety with cost estimate

Mr. Burton noted that every three (3) years the Performance/Warranty Surety is updated to the current unit prices.

Mr. Walker said that before a Building Permit and Certificate of Occupancy are issued, the following must happen.

- For projects that involve recording a plat, the Division of Engineering will sign the plat only after receiving the above information. Building Inspection will issue building permits once the plat is signed.
- For projects that do not involve a plat, Building Inspection will issue a Certificate of Occupancy only after the Division of Engineering receives the above information.

Questions and comments: Mr. Woolwine asked if the developer would put pressure on the staff to have the surety released. Mr. Burton said that the developer will inform the Inspectors then they will confirm whether or not the developer completed what is needed to be done before the surety is released. Once the Land Disturbance Permit is released then the city has no regulatory authority anymore.

Mr. Clarke asked if the permit is still released when the system had not been tested due to lack of rain. Mr. Burton replied there have been situations where the permit is issued because the system was built as designed so it should work. Mr. Clarke replied engineering is not perfect. Mr. Burton responded no.

Mr. Walker pointed out Chapter References and how they related to the Design Criteria from the Stormwater Manual.

Chapter Reference	Design Criteria
1.7.6 Outfall Velocity Criteria	Storm sewer and culvert outfalls shall be designed with energy dissipaters where necessary to prevent downstream erosion.
6.1.4 – Storm Sewers	Size the pipes to flow under gravity for the 10-year storm. Outfalls shall be extended to the rear property in residential developments where possible. Where this is not possible, a constructed channel shall be designed to carry the flow to the receiving stream or detention basin. The outfall elevation of the storm sewer shall be higher than the 10-year 6-hour water surface elevation in the receiving stream or detention basin. Construct storm sewers of reinforced concrete pipe or corrugated plastic pipe.
7.2.8 – Culvert Outlet Protection	The outlet of culverts shall be protected with gabion mattresses or impact stilling basins in accordance with Chapter 11.
8.2 Permanent Constructed Channels	Side slopes shall be 3:1 or flatter for vegetation. Constructed channels in residential areas that receive runoff from a storm sewer or culvert shall be designed with a low flow channel of turf reinforcement, permeable pavers, or articulated blocks to prevent erosion. Concrete low flow channels may only be used if the above methods are not sufficient to prevent erosion. The low flow channel shall be designed to carry 25% of the 10-year storm. Use channel protection to stabilize the slopes and bottoms of constructed channels. Evaluate vegetative lining first. If a vegetated channel is not stable, other alternatives shall be considered in the order shown below: • Vegetative with a turf reinforced mat (TRM) • Permeable pavers or articulated blocks • Concrete Manning's n for grass channels = 0.045 Select the channel lining based on the tractive force equation: $\tau_d \text{ (lbs/ft}^2\text{)} = 62.4yS$, where y = flow depth (ft), S = slope (ft/ft). Maximum τ_d for grass is 1.0 lbs/ft

11.2.3 Structural Practices for Soil Stabilization	Gabion Mattress and Other Armoring Gabion mattresses shall be used at the outlets of all culverts and storm drains with an exit velocity greater than 5 feet per second when flowing full, except where there are paved ditches. Gabion mattresses shall also be used at the outlet of impact stilling basins. Where product specifications permit, outlet protection pads may consist of stone, turf reinforcement mat over seed, open-celled vegetated plastic or concrete matrix products, or other velocity dissipation aprons. Rock or other berms at outlet locations are not suitable for outlet protection unless they are part of a down gradient sediment trap (see Section 11.5.2) or one in a series of temporary ditch/channel check dams (see Section 11.5.1). Channel lining may be installed in accordance with Section 8.2. Impact Stilling Basin Impact stilling basins shall be used at the outlet of culverts and stormwater pipes with calculated exit velocities greater than 15 feet per second when flowing full.
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Mr. Walker said that the overall conclusion is the 2020 Stormwater Manual contains adequate requirements to prevent erosion at the outlet of storm sewers and culverts. However, we recommend evaluating the need for more prescriptive requirements for preventing erosion at the outlet of storm sewers. This could include measures such as evaluating channels to the point of discharge to the stream or installing slope breaks on steep slopes. The 2016 Procedures Manual contains the responsibilities of the Division of Engineering and Division of Water Quality regarding plan review and acceptance, sureties, final inspection, and warranties of the stormwater infrastructure; no changes are proposed.

Comments: Ms. Nicholas said that the tour today will be visiting both of these sites. There are portions of Ellerslie/Delong completed and Walnut Hill is fully completed. The hope is for the Board to join the staff and design engineers at each of these sites.

Mr. Lubeck said that when erosion issues happen the Division of Water Quality is contacted to see what can be done. There is no program for funding to help residents other than letting them know about what options there are through the grant program.

Mr. Mabson said that if there is no structural damage to the house then the stormwater section cannot help. If there is water damage to the interior of the house then the grant program is suggested through their Neighborhood Association.

Mr. Lubeck said that there is no program through the Division of Water Quality to deal with flooding issues on private property. That is not the focus of the grant program.

Mr. Woolwine didn't recall seeing a large number of projects asking to provide funding in this manner.

Mr. Martin expressed that in his view the concern is toward the fairly recent developments. The intent of the Stormwater Quality Projects Incentive Grant Program was developed for older neighborhoods within New Circle Road, not newer developed areas. This presentation was to make the Board aware of the issue and offer discussion on the subject. Property owners need to understand that neighborhoods are developed to hold water in certain areas. He asked if the government is doing enough to prevent erosion in new development.

Mr. Woolwine said that there is a synergy among the LFUCG divisions coming together to compare notes. Mr. Martin indicated that the city government is better now than it was in 1999 and the evolution of the Stormwater Manual has had an impact on development.

7. **ADJOURNMENT** - The meeting was adjourned at 10:25 a.m. Upon adjournment, those who were available met at Walnut-Hill at Chilesburg and Ellerslie/Delong to tour the Stormwater Quality Project Incentive Grant Projects.