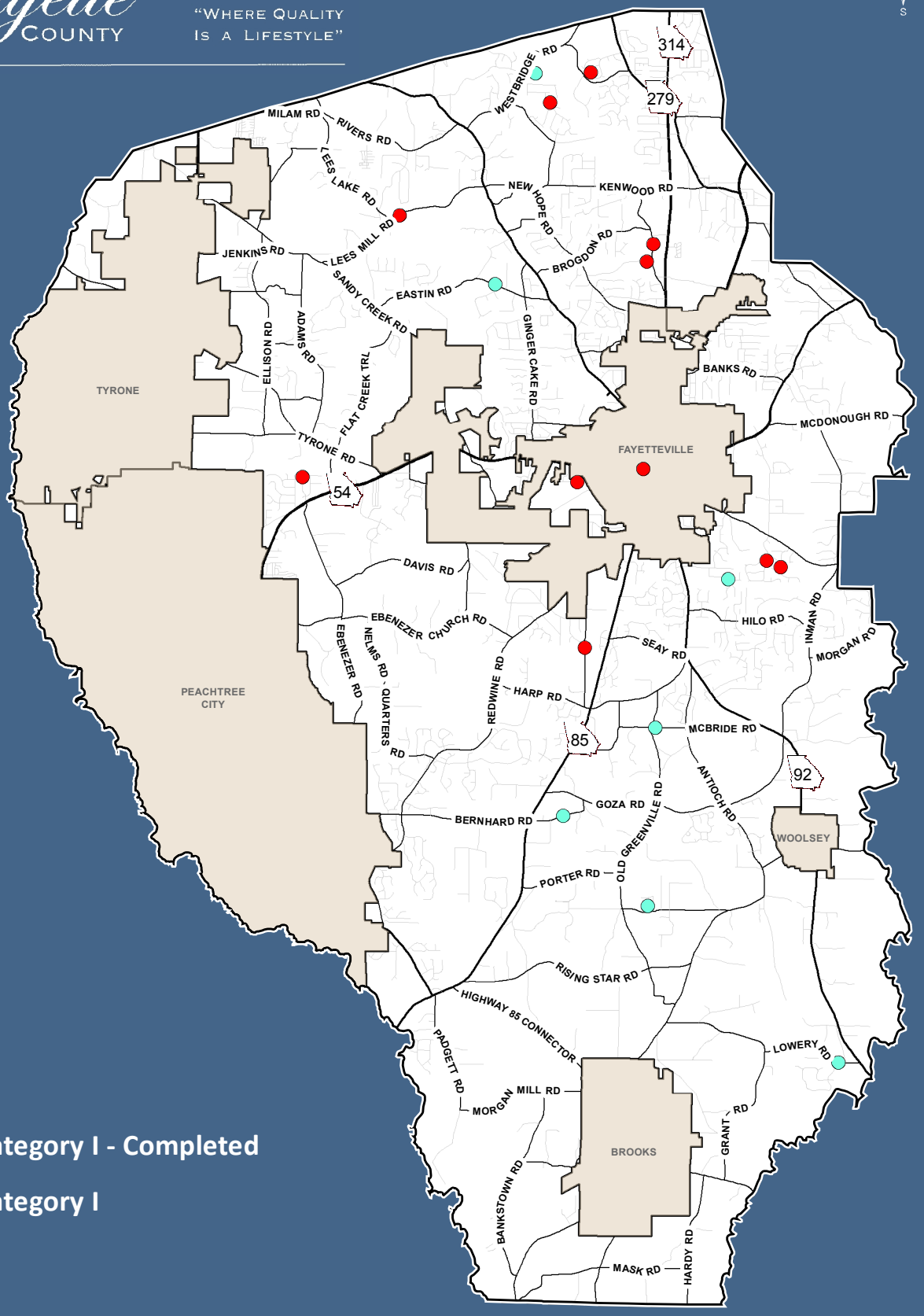
Fayette County

"Where Quality Is a Lifestyle"



SPLOST 2017 Stormwater Improvements Draft for Public Comment

CATEGORY I

PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED COST
210 Antebellum Way	Antebellum Way is a one-way in and out street. Excessive pipe damage, due to Christmas Flood event severely impaired stream flow and caused upstream flooding. Double 84 in.-diameter corrugated metal pipes are bent, restricting flow and are washing out around the inlets. This project includes design and construction to replace with a larger system, possibly box culverts.	$481,581
104 Broom Blvd	This project will replace an existing 36-inch corrugated metal pipe with double 8' x 5' concrete box culverts. The system and road were damaged during the December 2015 floods. Temporary repairs were made to keep the road open but pipe replacement is needed for structural and capacity issues. Broom Blvd. is the sole access for 13 homes.	$387,880
Emerald Lake Dam	Emerald Lake Dam is a Georgia Safe Dams Program Category II structure located predominantly within Fayette County Right-of-Way. Work is needed to address flow capacity and structural integrity issues. The project includes design, permitting, and construction of a new labyrinth spillway and associated roadwork. As of January 2016, design work is 80% complete. New cost estimate of $2,064,000 is based on 20% increase of Engineer's Order of Magnitude estimate. Price increase is due to identification of poor subsoils, which require more excavation and a more complicated traffic management plan.	$2,064,000
287 Graves Road	Road and shoulder washed out around a 60 in. diameter corrugated metal pipe during the 2015 Christmas floods. The proposed design to address capacity problems is to replace the metal pipe with a 10 ft. X 5 ft. reinforced concrete box culvert.	$293,538
Heritage Park Way	Heritage Park Way is the only road owned by Fayette County that is located in Fayetteville city limits. This project will replace a failing 60-in diameter corregated metal pipe that connects to stormwater pipe under State Route 85 and a failing 18-in diameter cross pipe that is also part of the system. The proposed design will address flooding issues that routinely occur on Heritage Park Way.	$98,397
Kozisek Dam	Kozisek Dam is a Safe Dams Program Category I structure adjacent to and possibly partially within the County Right-of-Way for Neely Road. The project includes evaluation, design, permitting, and construction of necessary improvements and changes to Neely Road to ensure it safely passes design flows and to remove any County liability/ownership that may be associated with Kozisek Dam.	$250,000
413 Lees Mill Rd	During the 2015 Christmas flood event Tar Creek came above and covered three, 72-inch diameter pipes causing excessive damage. This project will consist of evaluation, design and construction to upsize the drainage capacity to allow passage of the 100 year storm event. This project is located in FEMA Zone AE and a large water main is located near the pipes as well.	$511,849

CATEGORY I

PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED COST
Longview Dam	Longview Dam (AKA Margaret Phillips Lake Dam) is a Safe Dams Program Category I structure located within the Fayette County Right-of-Way of Longview Road. The project consists of performing the necessary evaluation, design, permitting, and construction to bring the structure into compliance with the Georgia Safe Dams Act of 1978. There are two options to do so: upgrade the dam or breach the dam. A 2013 Order of Magnitue cost estimate to upgrade the dam is provided. The preferred option of breaching the dam would be less. However, it is unknown at this time which option will be instituted, a estimate of half the cost to upgrade the dam is listed.	$704,907
330 Oak St	Located in the County portion of Deep Forest subdivision. This project includes performing design, permitting and construction of upgrades to an Oak Street cross-drain to reduce the risk of flooding.	$78,506
Old Senoia Rd	Three 96 in. diameter corrugated metal pipes draining Perry Creek. Pipe bottoms have failed and washout underneath the road occurred during the Christmas Flooding event. Temporary corrections made to allow both lanes to function. Project includes evaluation, design, environmental permitting and construction of replacement. Evaluation will include possible bridge design. Estimate based on 2013 possible bridge design adding 15 percent for increased costs and flood repair costs incurred by the county.	$668,572
121 Rising Star Rd	During the December 2015 floods, these two, 72-inch diameter corrugated metal pipes located near the intersection with Brooks-Woolsey Road, were damaged, jeopardizing the integrity of the road and utilities. Temporary measures were taken to reopen the road but pipe replacement is required. This project consists of evaluation, design and construction of an upsized system. The design is complicated by backwater conditions caused by the drainage system under Brooks Woolsey Road.	$449,143

CATEGORY I

PROJECT NAME	COMPLETED PROJECT DESCRIPTION	Cost
228 Bernhard Rd	Washout around an undersized 36 in. diameter corrugated metal pipe inlet caused shoulder and pipe failure. Temporary repairs measures allows for continued road use but pipe replacement is needed. This projects consists of replacing the current pipe with a42 in. reinforced concrete pipe and headwalls.	$44,947
Brittany Way	Project completed in 2014. Work included installation of a new 6'x4' box culvert.	$67,432
105 Canterbury Ln	On Christmas Eve 2015, approximately 60 homes within the Chanticleer Subdivision were without water and had no access to and from their homes when a 72-inch diameter corrugated metal pipe failed, collapsing the road. Emergency pipe replacement was complicated by needing equipment to install a large pipe and the emergency occurring over a holiday weekend. The work is complete.	$101,636
110 Lawson Ln	Undersized pipes in Northridge Subdivision resulted in flooding of road, lots and several homes along Lawson Lane. This project, completed early 2015, replaced existing pipe and added additional drainage structures.	$94,509
144 Lowery Rd	Washout around the 54 in. diameter corrugated metal pipe caused shoulder and pipe failure. Temporary measures installed allows for road use. This projects consists of replacing the current pipe with a 60 in. reinforced concrete pipe and headwalls.	$44,523
456 McBride Rd	Washout around the 54 in. diameter corrugated metal pipe caused complete road failure on McBride Road west of Old Greenville Road. Temporary measures installed allows for road use. This projects consisted of installing a 54 in. reinforced concrete pipe and headwalls.	$41,820
155 Westbridge Cir	Westbridge Circle is an internal local road within Westbridge Acres subdivision. A tributary to Morning Creek runs through the subdivision and under Westbridge Circle. During the 2015 Christmas and New Years flooding events two-36 in. diameter corrugated metal pipes failed causing immanent road failure. Emergency pipe replacement was required to maintain access to homes located "upstream" of the pipe crossing with no means of ingress or egress other than Westbridge Circle.	$68,419
	CATEGORY I TOTAL	**$6,451,659**

General Information	
Project ID	
Street Name	**210 Antebellum Way**
Site Visit Date	6/9/16
Road Classification	Internal Local

Project Notes
SubdivisionTypical Section;

Field Notes	
Design (Existing Site Features)	
Existing Road Laneage	2-12'
Existing Shld Width (paved and grass) (feet)	6' Grass
Existing Side Slopes	2:1
Existing Guardrail	None
Depth fm Pavement to Top of Culvert (ft):	3
Pipe Type and Size	2 - 84" CMP
Pipe Condition (1-5) (1 is new)	4
Condition Notes:	
Pavement Type/Condition	Asphalt/Good

Environmental Features	
Wetlands	No
Ditches	No

Utilities (Visual Inspection)	
Electric	Underground
Cable	Underground
Phone	Underground
Gas	Underground
Water	Underground
Sewer	None
Other	

Map

Stage Construction Options	
Close Location to Traffic	
Maintain One Lane - No Temp Pavement	
Maintain One Lane - Temp Pavement	
Stage Construction Notes:	

Proposed Design	
Roadway Section	
Proposed Design	Double 8' x 12' box culverts
Utility Relocations	Electric, phone, water, cable, gas
Guardrail Replacement	
Miscellaneous Features	Catch Basins

Planning Cost Estimate		
Type	**Notes**	**Total**
Design	Actual Cost including Environmental Permitting	$61,805
Right of Way Cost		$12,000
Utility Relocation Cost	Utility poles and aerial phone wires	$26,070
Construction Cost	1/2 acre clearing and grubbing, Guardrails	$381,706
	Total Planning Estimate	**$481,581**

Photo 1:

Photo 2:

Fayette County
Where Quality Is a Lifestyle

Antebellum Way

Photo Date:
1/05/2016
Taken By:
Tony Hicks
Page:
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Roadway Construction, Utility Relocation and ROW Quantity Calculations

Roadway Construction	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Pavement (SF)	$ 0.73	$ 4.87	1,536.00	$ 8,609.79
Curb and Gutter (LF)	$ 28.56	$ 30.60	40.00	$ 2,366.40
Drain Inlet (EA)		$ 3,000.00	2.00	$ 6,000.00
4" Sidewalk (SY)	$ 13.56	$ 36.90	40.00	$ 2,018.40
Guardrail (LF)	$ 4.88	$ 49.09	0.00	$ -
End Anchorage (EA)		$ 1,380.00	0.00	$ -
Subtotal				$ 18,994.59
Grading Complete (5% of Rwy Items & Drng Total $)				$ 11,456.45
County Temporary Emergency Work				$ 19.00
Roadway Total				**$ 30,470.04**

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Trench Excavation (CY)		$ 10.38	586.67	$ 6,089.60
84" CMP (LF)	$ 63.00		120.00	$ 22,680.00
96" RCP		$ 455.00	0.00	$ -
Class A Conc (CY)		$ 892.19	166.90	$ 148,904.39
Box Culvert Wingwalls, Parapetes (CY)		$ 892.19	92.80	$ 82,795.05
Steel (lb)		$ 1.42	16,626.20	$ 23,542.70
Pipe Bedding (CY)		$ 48.60	41.50	$ 2,016.90
Trench Backfill (CY)		$ 2.99	521.17	$ 1,557.25
Trench Compaction (CY)		$ 6.36	416.93	$ 2,651.70
Drainage Total				$ 290,237.58

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (LF)	$ 0.71	0.00	$ -
Signing and Marking Total			$ -

Staging	Installation Unit Cost	Amount	Total Cost
Clearing and Grubbing (Acre)	$ 10,260.00	0.50	$ 5,130.00
Temporary Pavement			$ -
Temporary Drainage (Stream Diversion)	$ 4,428.00	3.00	$ 13,284.00
Staging Total			$ 18,414.00

Erosion Control	Installation Unit Cost	Amount	Total Cost
Fine Grading and Seeding (SY)	$ 4.39	36.00	$ 140.54
Temporary Grassing (AC)	$ 855.60	0.00	$ -
Type C Silt Fence (LF)	$ 4.24	660.00	$ 2,795.76
Check Dam Type C Silt Fence (LF)	$ 6.79	660.00	$ 4,482.72
Erosion Control Mats (SY)	$ 1.87	220.00	$ 411.84
Landscape Mulch (SY)	$ 3.58	220.00	$ 786.72
Perm Grassing (AC)	$ 1,402.20	0.00	$ -
Rip Rap Type 3 12" (SY)	$ 60.98	85.33	$ 5,203.97
Plastic Filter Fabric (SY)	$ 5.72	85.33	$ 488.45
4" Ditch Paving (SY)	$ 54.65	0.00	$ -
Erosion Control Total			**$ 14,310.00**
Construction Cost Total			**$ 353,431.62**
Traffic Control (8% of Construction Total $)			**$ 28,274.53**
Construction Cost Grand Total			**$ 381,706.15**

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00	0.00	$ -
Buried	$ 16.50	$ 82.50	60.00	$ 5,940.00
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Phone				
Aerial	$ 11.00	$ 27.50	0.00	$ -
Buried	$ 16.50	$ 55.00	60.00	$ 4,290.00
Wooden Pole	$ 82.50	$ 605.00		$ -
Cable				
Aerial	$ 11.00	$ 27.50		$ -
Buried	$ 16.50	$ 55.00	60.00	$ 4,290.00
Wooden Pole	$ 82.50	$ 605.00		$ -
Gas				
4" main	$ 16.50	$ 66.00	60.00	$ 4,950.00
Water				
8" main	$ 16.50	$ 93.50	60.00	$ 6,600.00
Relocate Fire Hydrant (EA)		$ 2,609.22		$ -
Sewer			0.00	
12" main	$ 16.50	$ 82.50	0.00	$ -
Utility Relocation Total				$ 26,070.00

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 4.00	3,000.00	$ 12,000.00
ROW Total			**$ 12,000.00**

General Information	
Project ID	
Street Name	**Broome Blvd.**
Site Visit Date	5/21/13
Road Classification	Minor road

Project Notes

Rural Typical Section

Field Notes

Design (Existing Site Features)	
Existing Road Laneage	2 - 12'
Existing Shld Width (paved and grass) (feet)	2
Existing Side Slopes	flat
Existing Guardrail	None
Depth fm Pavement to Top of Culvert (ft):	4
Pipe Type and Size	3.5x2.5 egg CMP
Pipe Condition (1-5) (1 is new)	5

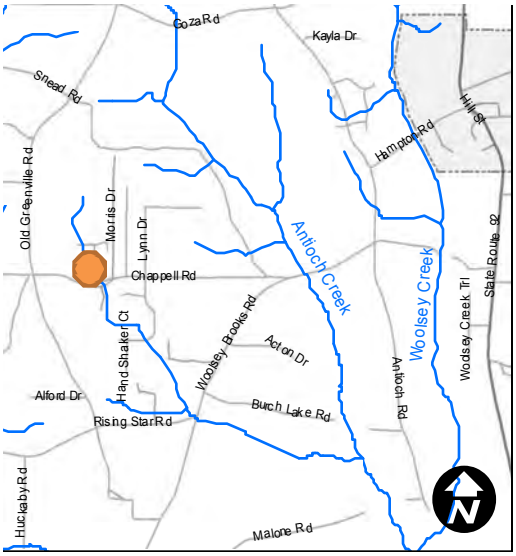
Condition Notes: crushed headwall and pipe entrance

Pavement Type/Condition	Asphalt/Poor

Environmental Features	
Wetlands	
Ditches	

Utilities (Visual Inspection)	
Electric	Aerial
Cable	Aerial
Phone	Aerial
Gas	
Water	Buried
Sewer	
Other	

Map



Stage Construction Options	
Close Location to Traffic	
Maintain One Lane - No Temp Pavement	
Maintain One Lane - Temp Road	X

Stage Construction Notes:

Proposed Design

Roadway Section	Typical. For costing purposes, temporary road consists of 8" gravel fill
Culvert Size & Material	dbl 8' x 5' box, concrete, 70' length. Cost of removing 2.5' x 2.5' eliptical CMP assumed equal to 36" round CMP. Cost of removing headwalls eassumed equal to removal of entire length of pipe.
Utility Relocations	Cable, telephone, water
Guardrail Replacement	
Miscellaneous Features	Upstream bend in stream adjacent to roadway may need additional bank stabilization

Planning Cost Estimate

Type	Notes	Total
Design	Includes 10% Construction Cost and surveying needs	$38,940
Right of Way Cost	Assuming project extends 12,000 sf beyond ROW	$48,000
Utility Relocation Cost	Buried and aerial utilities	$25,300
Construction Cost	5 acre clearing and grubbing, additional stabilzation/diversi	$264,404
Environmental Permits and Engineer of Record Admin	Assuming minimal environmental permitting required	$11,236
	Total Planning Estimate	**$387,880**

Photo 1:

Photo 2:

Fayette County
Where Quality Is a Lifestyle

Broome Blvd

Photo Date:
1/05/2016
Taken By:
Public Works
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Roadway Construction, Utility Relocation and ROW Quantity Calculations

Roadway Construction	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Pavement (SF)	$ 0.73	$ 4.87	432.00	$ 2,421.50
Curb and Gutter (LF)	$ 28.56	$ 30.60	0.00	$ -
Drain Inlet (EA)		$ 3,000.00	0.00	$ -
4" Sidewalk (SY)	$ 13.56	$ 36.90	0.00	$ -
Guardrail (LF)	$ 4.88	$ 49.09	625.00	$ 33,735.00
End Anchorage (EA)		$ 1,380.00	2.00	$ 2,760.00
Subtotal				$ 38,916.50
Grading Complete (5% of Rwy Items & Drng Total $)				$ 9,676.63
Roadway Total				**$ 49,963.13**

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Trench Excavation (CY)		$ 10.38	373.33	$ 3,875.20
36" CMP (LF)	$ 19.62		140.00	$ 8,240.40
36" RCP		$ 134.40	0.00	$ -
Class A Conc (CY)		$ 892.19	132.51	$ 118,223.83
Steel (lb)		$ 1.42	13,383.00	$ 18,950.33
Pipe Bedding (CY)		$ 48.60	48.00	$ 2,332.80
Trench Backfill (CY)		$ 2.99	370.67	$ 1,107.55
Trench Compaction (CY)		$ 6.36	296.53	$ 1,885.95
Drainage Total				$154,616.06

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (LF)	$ 0.71	72.00	$ 50.98
Signing and Marking Total			$ 50.98

Staging	Installation Unit Cost	Amount	Total Cost
Clearing and Grubbing (Acre)	$ 10,260.00	0.20	$ 2,052.00
Temporary Gravel Road (SY)	$ 15.42	977.78	$ 15,077.33
Temporary Drainage (Stream Diversion)	$ 4,428.00	2.00	$ 8,856.00
Staging Total			$ 26,087.29

Erosion Control	Installation Unit Cost	Amount	Total Cost
Fine Grading and Seeding (SY)	$ 4.39	92.00	$ 404.06
Temporary Grassing (AC)	$ 855.60	0.00	$ -
Type C Silt Fence (LF)	$ 4.24	560.00	$ 2,372.16
Check Dam Type C Silt Fence (LF)	$ 6.79	560.00	$ 3,803.52
Erosion Control Mats (SY)	$ 1.87	560.00	$ 1,048.32
Landscape Mulch (SY)	$ 3.58	560.00	$ 2,002.56
Perm Grassing (AC)	$ 1,402.20	0.00	$ -
Rip Rap Type 3 12" (SY)	$ 60.98	48.00	$ 2,927.23
Plastic Filter Fabric (SY)	$ 5.72	48.00	$ 274.75
4" Ditch Paving (SY)	$ 54.65	0.00	$ -
Erosion Control Total			**$ 12,832.61**
Construction Cost Total			**$243,550.07**
Traffic Control (8% of Construction Total $)			**$ 19,484.01**
County Emergency Roadway Work			$ 1,370.00
Construction Cost Grand Total			**$264,404.07**

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00		$ -
Buried	$ 16.50	$ 82.50	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00		$ -
Phone				
Aerial	$ 11.00	$ 27.50		$ -
Buried	$ 16.50	$ 55.00	100.00	$ 7,150.00
Wooden Pole	$ 82.50	$ 605.00		$ -
Cable				
Aerial	$ 11.00	$ 27.50		$ -
Buried	$ 16.50	$ 55.00	100.00	$ 7,150.00
Wooden Pole	$ 82.50	$ 605.00		$ -
Gas				
4" main	$ 16.50	$ 66.00		$ -
Water				
8" main	$ 16.50	$ 93.50	100.00	$ 11,000.00
Relocate Fire Hydrant (EA)		$ 2,609.22		$ -
Sewer			0.00	
12" main	$ 16.50	$ 82.50	0.00	$ -
Utility Relocation Total				$ 25,300.00

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 4.00	12,000.00	$ 48,000.00
ROW Total			**$ 48,000.00**

WALDEN, ASHWORTH & ASSOCIATES, INC.

CONSULTING ENGINEERS

EMERALD LAKE DAM

ORDER OF MAGNITUDE
OPINION OF CONSTRUCTION COST
40 FT. LABYRINTH & RAISE DAM

Description	Quantity	Units	Unit Price	Cost
40 FT. LABYRINTH & RAISE DAM				
Mobilization	1	LS	$25,000.00	$25,000
Erosion Control	1	LS	$20,000.00	$20,000
Clearing & Grubbing	1.5	AC	$5,000.00	$7,500
Demolition of Roadway, Curbing, Flumes.etc.	1.0	LS	$25,000.00	$25,000
Control of Water	1	LS	$30,000.00	$30,000
Demolition of Riser, Control Box & Culverts	1	LS	$20,000.00	$20,000
Demolish Riprap & Misc, Concrete	1	LS	$10,000.00	$10,000
Slipline 30" CMP	140	LF	$100.00	$14,000
Pressure Grouting Annulus	140	LF	$190.00	$26,600
New Gate Structure	1	EA	$15,000.00	$15,000
Under Drain Sand	40	TN	$50.00	$2,000
Under Drain # 89 Stone	40	TN	$39.50	$1,580
Under Drain # 57 Stone	90	TN	$39.50	$3,555
Under Drain Pipe	400	LF	$20.00	$8,000
Concrete	485	CY	$1,000.00	$485,000
Earthwork	8,000	CY	$10.00	$80,000
Grassing	8,300	SY	$2.50	$20,750
Rip Rap	560	TN	$80.00	$44,800
Blanket / Chimney Drain	1,750	TN	$50.00	$87,500
Toe Drain	620	LF	$80.00	$49,600
Toe Drain Outlets / Clean Outs	5	EA	$2,500.00	$12,500
Roadway Construction (5" A + 8" G)	2,550	SY	$27.00	$68,850
Bridge	1,764	SF	$200.00	$352,800
SUBTOTAL				**$1,410,035**
GENERAL CONDITIONS (7%)				$98,702
OVERHEAD & PROFIT (15%)				$211,505
SUBTOTAL				**$310,208**
Total Estimated Construction Cost Budget				**$1,720,243**

The American Association of Cost Engineers recommends dividing engineering construction cost estimates into three basic categories: Order-of-Magnitude, Budget and Definitive Estimates. The Order of Magnitude Estimate is defined as follows:

This is an estimate made without detailed engineering data. Examples are estimate from cost-capacity curves, an estimate using scale-up or scale-down factors and an approximate ratio estimate. This type of estimate would be accurate within +50 percent to -30 percent.

COST ESTIMATE REVISION BY FAYETTE COUNTY

Order-of-Magnitude Construction Estimate from Walden, Ashworth and Associates Inc. $1,720,243
Further excavation and more complicated traffic management - (+20%) $343,757

TOTAL $2,064,000

Fayette County GEORGIA

Where Quality Is A Lifestyle

TO: Steve Rapson, County Administrator

FROM: Phil Mallon, Public Works

DATE: July 18, 2016

RE: Emerald Lake Dam – Options for Repair Update

Background

Emerald Lake Dam in the Woodlands Subdivision is classified by the Georgia Safe Dams Program as a Category 2 structure. It is approximately 600 feet long and impounds a 20-acre lake. Emerald Lake Drive is located on top of the dam and is the only means of ingress and egress for the 90+ homes within the subdivision. Fayette County owns and operates the dam.

Significant work is needed on the dam in a timely manner. The most pressing issue is active and on-going seepage erosion around the dam's principal spillway. Repair work is needed on these pipes immediately. Other maintenance and repair items include, but are not limited to: removal of vegetation, control of seepage, outlet stabilization, repair of riser pipe, and extension of the dam's back slope.

A long-term consideration is the future classification of the dam by the Georgia Safe Dams Program. County staff, third-party engineers, and the Safe Dams Program all believe a reclassification to Category 1 standards is likely. If this occurs, Fayette County would have to:

- Upgrade the dam;
- Breach the dam;
- Modify the dam to remove the downstream flood risk; or
- Remove or modify the downstream structures at risk.

Fayette County authorized Walden, Ashworth & Associates to serve as the "Engineer of Record" for this project and develop options for County review. Their findings are summarized below.

Findings

Walden collected field data from the dam and surrounding land, including a geotechnical investigation. They also reviewed the project's records and ran hydrology and hydraulic models for the watershed and outlet controls. Their work confirmed that the existing structure is

designed to pass flows associated with the 24-hour, 10-year storm event. Larger storms will result in the dam being overtopped. That is, during any year, there is less than a 10 percent chance that the road will be overtopped and access limited (or prohibited) into and out of the subdivision.

Ultimately, four options were identified and an Order-of-Magnitude estimate was developed for each. Staff reviewed these options and narrowed the list to two alternatives.

Slip-line Existing Pipes & Install a Seepage Drain – This option addresses the immediate repair and maintenance needs of the dam. It includes clearing and grubbing, draining the lake, water control, slip-lining the five 80-ft long corrugated metal pipes (48" diameter each), pressure grouting around the pipes, installation of a new riser pipe, installation of comprehensive drain system, and stabilization. The estimated construction cost for this work is $694,000.

Advantages of this option include a substantially lower cost, resolution of immediate structural issues, and minimal impacts to traffic during construction. This option, however, does not improve the hydraulic capacity of the dam; so the probability of the road being overtopped remains as it currently is. Furthermore, the work associated with slip-lining the pipes (approximately 25% of the total project cost) plus some of the grading, stabilization and other tasks would have to be modified or replaced if the dam is classified as a Category 1 structure in the future.

40-ft Labyrinth Weir & Raise Dam – This option also addresses the immediate repair and maintenance needs of the dam plus substantially increases the hydraulic capacity of the structure. Work items include: clearing & grubbing; draining the lake; water control; demolition of roadway, pipes, and concrete weir; construction of 40-ft labyrinth weir; placement of bridge over weir; roadway reconstruction; installation of a new riser pipe; installation of comprehensive drain system; and stabilization.
This option address immediate structural issues and substantially increases flow capacity of the dam. The new outlet control would be designed to meet Category 1 standards so no re-work of the outlet control and spillway is anticipated. This option also reduces the chance of road overtopping to less than 1 percent per year.

The original estimated construction cost for this work was $1,720,000. The weir, bridge and road reconstruction account for over $900,000. Further engineering design work has identified poor subsoils which will result in more excavation and a more complicated traffic management plan. Because of these issues a new estimate based on a 20 percent increase of the Engineer's Order of Magnitude estimate is advised. <u>This increases the estimated cost from $1,720,243 to an estimated $2,064,000.</u>

Recommendation
Staff recommends the 40-ft labyrinth weir option. Although nearly 2.5 times the cost this options provides the triple benefit of 1) repairing immediate needs; 2) reducing the probability of stranding homeowners during flood events; and 3) meeting Category 1 standards should they become applicable.

General Information	
Project ID	
Street Name	**287 Graves Road**
Site Visit Date	1/05/16
Road Classification	Minor arterial

Project Notes

Rural Typical Section

Field Notes

Design (Existing Site Features)	
Existing Road Laneage	2-12'
Existing Shld Width (paved and grass) (feet)	2'
Existing Side Slopes	2:1 - 4:1
Existing Guardrail	None
Depth fm Pavement to Top of Culvert (ft):	6
Pipe Type and Size	60" CMP
Pipe Condition (1-5) (1 is new)	5

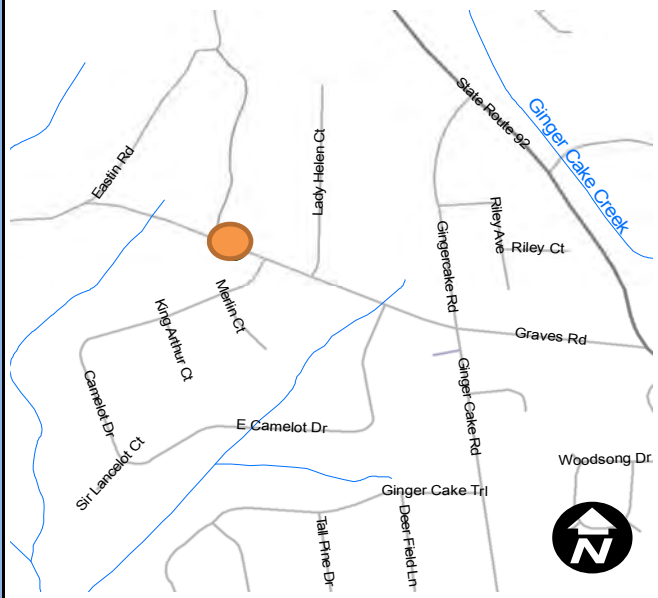
Condition Notes: No headwall; debris US, signs of rusting, DS bottom of pipe damaged, no significant structural loss

Pavement Type/Condition	Asphalt/Good

Environmental Features	
Wetlands	None
Ditches	Noted

Utilities (Visual Inspection)	
Electric	Aerial
Cable	Aerial
Phone	Aerial
Gas	
Water	Buried
Sewer	
Other	

Map



Stage Construction Options	
Close Location to Traffic	X
Maintain One Lane - No Temp Pavement	
Maintain One Lane - Temp Pavement	

Stage Construction Notes: If cannot close then have one lane open; two driveways near culvert

Proposed Design

Roadway Section	Typical
Culvert Size & Material	10' x 5' box, concrete, 70' length
Utility Relocations	Electric, cable, phone, water
Guardrail Replacement	
Miscellaneous Features	

Planning Cost Estimate

Type	Notes	Total
Design	Includes 10% Construction Cost and surveying needs	$28,319
Right of Way Cost	Assuming project extends 2,000 sf beyond ROW	$8,000
Utility Relocation Cost	Aerial and buried tilities	$14,025
Construction Cost	Assuming 1/10 acre clearing and grubbing	$233,193
Environmental Permits	Assuming minimal environmental permitting required	$10,000
	Total Planning Estimate	**$293,538**

Fayette County

Photo 1:

Photo 2:

Fayette County
Where Quality Is a Lifestyle

287 Graves Road

Photo Date:
12/29/2015
Taken By:
V.T. Birrell
Page:
1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

Roadway Construction	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Pavement (SF)	$ 0.73	$ 4.87	288.00	$ 1,614.34
Curb and Gutter (LF)	$ 28.56	$ 30.60	0.00	$ -
Drain Inlet (EA)		$ 3,000.00	0.00	$ -
4" Sidewalk (SY)	$ 13.56	$ 36.90	0.00	$ -
Guardrail (LF)	$ 4.88	$ 49.09	0.00	$ -
End Anchorage (EA)		$ 1,380.00	0.00	$ -
Subtotal				$ 1,614.34
Grading Complete (5% of Rwy Items & Drng Total $)				$ 9,731.59
Roadway Total				$ 11,345.93

Drainage	$ 5.00	Installation Unit Cost	Amount	Total Cost
Trench Excavation (CY)		$ 10.38	373.33	$ 3,875.20
60" CMP (LF)	$ 24.60		70.00	$ 5,166.00
60" RCP (LF)		$ 259.20	0.00	$ -
Class A Conc (CY)		$ 892.19	172.26	$ 153,688.30
Steel (lb)		$ 1.42	17,995.00	$ 25,480.92
Pipe Bedding (CY)		$ 48.60	32.00	$ 1,555.20
Trench Backfill (CY)		$ 2.99	402.67	$ 1,203.17
Trench Compaction (CY)		$ 6.36	322.13	$ 2,048.77
Drainage Total				$ 193,017.56

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (LF)	$ 0.71	48.00	$ 33.98
Signing and Marking Total			$ 33.98

Staging	Installation Unit Cost	Amount	Total Cost
Clearing and Grubbing (Acre)	$ 10,260.00	0.10	$ 1,026.00
Temporary Pavement			$ -
Temporary Drainage (Stream Diversion)	$ 4,428.00	1.00	$ 4,428.00
Staging Total			$ 5,521.97

Erosion Control	Installation Unit Cost	Amount	Total Cost
Fine Grading and Seeding (SY)	$ 4.39	61.33	$ 269.38
Temporary Grassing (AC)	$ 855.60	0.00	$ -
Type C Silt Fence (LF)	$ 4.24	280.00	$ 1,186.08
Check Dam Type C Silt Fence (LF)	$ 6.79	280.00	$ 1,901.76
Erosion Control Mats (SY)	$ 1.87	93.33	$ 174.72
Landscape Mulch (SY)	$ 3.58	93.33	$ 333.76
Perm Grassing (AC)	$ 1,402.20	0.00	$ -
Rip Rap Type 3 12" (SY)	$ 60.98	32.00	$ 1,951.49
Plastic Filter Fabric (SY)	$ 5.72	32.00	$ 183.17
4" Ditch Paving (SY)	$ 54.65	0.00	$ -
Erosion Control Total			**$ 6,000.35**
Construction Cost Total			**$ 215,919.80**
Traffic Control (8% of Construction Total $)			**$ 17,273.58**
Construction Cost Grand Total			**$ 233,193.38**

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00	50.00	$ 3,300.00
Buried	$ 16.50	$ 82.50	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00	2.00	$ 1,375.00
Phone				
Aerial	$ 11.00	$ 27.50	50.00	$ 1,925.00
Buried	$ 16.50	$ 55.00	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00		$ -
Cable				
Aerial	$ 11.00	$ 27.50	50.00	$ 1,925.00
Buried	$ 16.50	$ 55.00	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00		$ -
Gas				
4" main	$ 16.50	$ 66.00		$ -
Water				
8" main	$ 16.50	$ 93.50	50.00	$ 5,500.00
Relocate Fire Hydrant (EA)		$ 2,609.22		$ -
Sewer			0.00	
12" main	$ 16.50	$ 82.50	0.00	$ -
Utility Relocation Total				$ 14,025.00

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 4.00	2,000.00	$ 8,000.00
ROW Total			**$ 8,000.00**

General Information	
Project ID	
Street Name	**Heritage Park Way**
Site Visit Date	6/9/2016
Road Classification	Street

Project Notes

Heritage Park Way is the only county-owned road in the City of Fayetteville and therefore, maintained by the County.

Field Notes

Design (Existing Site Features)	
Existing Road Laneage	2-8'
Existing Shld Width (paved and grass) (feet)	16'
Existing Side Slopes	
Existing Guardrail	None
Depth fm Pavement to Top of Culvert (ft):	4'
Pipe Type and Size	60" CMP
Pipe Condition (1-5) (1 is new)	5

Pipe failure from junction box at S Glynn Street and Heritage Park Way. System ties into 18- in. diameter corregated metal cross pipe on Heritage, where flooding routinely occurs due insufficient pipe

Pavement Type/Condition	Asphalt/Concrete

Environmental Features	
Wetlands	no
Ditches	no
State Waters	no

Utilities (Visual Inspection)	
Electric	Unknown
Cable	Unknown
Phone	Unknown
Gas	Unknown
Water	Unknown
Sewer	
Other	Curb and gutter

Map

Stage Construction Options	
Close Location to Traffic	
Maintain One Lane - No Temp Pavement	**X**
Maintain One Lane - Temp Pavement	

Stage Construction Notes:

Proposed Design	
Roadway Section	Street
Culvert Size & Material	60" RCP with junction box; 24" RCP with double-wing catch basins
Utility Relocations	Removal/replacement drain inlets, buried cable.
Guardrail Replacement	
Miscellaneous Features	tree removal

Planning Cost Estimate

Type	Notes	Total
Design	10% of Construction Cost and any surveying needed	$0
Right of Way Cost		$0
Utility Relocation Cost	It is assumed all utilites will be relocated	$41,899
Construction Cost		$56,498
Environmental Permits		$0
	Total Planning Estimate	**$98,397**

Roadway Construction, Utility Relocation and ROW Quantity Calculations

Roadway Construction	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Pavement (SF)	$ 0.73	$ 4.87	154.00	$ 863.22
Curb and Gutter (LF)	$ 28.56	$ 30.60	65.00	$ 3,845.40
DWCB		$ 1,520.00	2.00	$ 3,040.00
4" Sidewalk (SY)	$ 13.56	$ 36.90	0.00	0
Guardrail (LF)	$ 4.88	$ 49.09	0.00	0
End Anchorage (EA)		$ 1,380.00	0.00	0
Subtotal				$ 7,748.62
Grading Complete (5% of Rwy Items & Drng Total $)				$ 2,491.09
Roadway Total				**$ 10,239.71**

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Trench Excavation (CY)		$ 10.38	391.11	$ 4,059.73
60" CMP (LF)	$ 24.60		88.00	$ 2,164.80
60" RCP (LF)		$ 223.12	88.00	$ 19,634.56
24" RCP (LF)		$ 36.45	12.00	$ 437.44
Class A Conc (CY)		$ 892.19	0.00	$ -
Steel (lb)		$ 1.42	0.00	$ -
Pipe Bedding (CY)		$ 48.60	0.00	$ -
Trench Backfill (CY)		$ 2.99	5280.00	$ 15,776.64
Trench Compaction (CY)		$ 6.36	0.00	$ -
Drainage Total				**$ 42,073.17**

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (LF)	$ 0.71	0	$ -
Signing and Marking Total			**$ -**

Staging	Installation Unit Cost	Amount	Total Cost
Clearing and Grubbing (Acre)	$ 10,260.00		$ -
Temporary Pavement			0
Temporary Drainage (Stream Diversion)	$ 4,428.00		$ -
Staging Total			**$ -**

Erosion Control	Installation Unit Cost	Amount	Total Cost
Fine Grading and Seeding (SY)	$ 4.39	0.00	$ -
Temporary Grassing (AC)	$ 855.60	0.00	$ -
Type C Silt Fence (LF)	$ 4.24	0.00	$ -
Check Dam Type C Silt Fence (LF)	$ 6.79	0.00	$ -
Erosion Control Mats (SY)	$ 1.87	0.00	$ -
Landscape Mulch (SY)	$ 3.58	0.00	$ -
Perm Grassing (AC)	$ 1,402.20	0.00	$ -
Rip Rap Type 3 12" (SY)	$ 60.98	0.00	$ -
Plastic Filter Fabric (SY)	$ 5.72	0.00	$ -
4" Ditch Paving (SY)	$ 54.65	0.00	$ -
Erosion Control Total			**$ -**
Construction Cost Total			**$ 52,312.88**
Traffic Control (8% of Construction Total $)			**$ 4,185.03**
Construction Cost Grand Total			**$ 56,497.92**

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00	0.00	$ -
Buried	$ 16.50	$ 82.50	88.00	$ 8,712.00
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Phone				
Aerial	$ 11.00	$ 27.50	0.00	$ -
Buried	$ 16.50	$ 55.00	88.00	$ 6,292.00
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Cable				
Aerial	$ 11.00	$ 27.50	0.00	$ -
Buried	$ 16.50	$ 55.00	50.00	$ 3,575.00
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Gas				
4" main	$ 16.50	$ 66.00	80.00	$ 6,600.00
Water				
8" main	$ 16.50	$ 93.50	80.00	$ 8,800.00
Sewer				
12" main	$ 16.50	$ 82.50	80.00	$ 7,920.00
Utility Relocation Total				**$ 41,899.00**

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 4.00	$ -	$ -
ROW Total			**$ -**

Neely Road / Lake Kozisek Dam - Order of Magnitude Opinion of Cost

Kozisek Dam is a Safe Dams Program Category I structure adjacent to and possibly partially within Fayette County Right-of-Way for Neely Road. The project includes evaluation, design, permitting, and construction of necessary improvements and changes to Neely Road to ensure it safely passes design flows and to remove any County liability/ownership that may be associated with Kozisek Dam.

This is an Order of Magnitude Opinion of Cost and based solely on a visual inspection of the dam. No survey measurements, geotechnical evaluations, hydrologic or hydraulic analyses, material testing or other calculations were made in support of the Opinion of Cost other than the assumptions identified below.

A third-party Engineer was hired to develop the Opinion of Cost for the other two Dam projects included in the SPLOST list. The estimate for the Neely Road / Lake Kozisek Dam work was developed by County staff because of the greater uncertainty associated with the scope of this project. Several options are available for bringing this structure into compliance and the County's degree of involvement may change depending upon the final option selected.

The Kozisek Lake Dam is approximately 1,004 feet long, 26 feet in height and has a crest width of 12 feet. The drainage area to the dam is 430 acres (+/-).

Neely Road / Lake Kozisek Dam - Order of Magnitude Opinion of Cost

Description	Quantity	Units	Unit Price	Cost
Professional Services				
Surveying for Design				$8,000
Geotechnical Exploration				$5,000
Design and Preparation of Construction Documents				$30,000
Preconstruction Notification (PCN) to USACOE				$3,000
State Waters Buffer Encroachment Variance Application				$1,000
Construction Administration Services[1]				$7,000
Geotechnical Construction Monitoring[1]				$10,000
1. Assumes two month construction monitoring				
Subtotal				**$64,000**
Construction Activities				
Mobilization	1	LS	$10,000	$10,000
Traffic Control	1	LS	$7,500	$7,500
Erosion Control / Pollution Prevention	1	LS	$8,000	$8,000
Clearing & Grubbing	0.8	AC	$5,000	$4,000
Control of Water	1	LS	$2,000	$2,000
Concrete cross-drains under Neely Road	80	LF	$315	$25,200
Concrete Headwalls	2	EA	$2,500	$5,000
Earthwork	588	CY	$15	$8,820
Grassing	3872	SY	$3	$9,680
Rip Rap	250	TN	$80	$20,000
Paving	830	SY	$60	$49,800
Subtotal				**$150,000**
General Conditions (7%)				$10,500
Overhead & Profit (7%)				$10,500
(Overhead & Profit reduced from 15% since County expected to perform substantial amount of work in right-of-way)				
Contingency (10%)				$15,000
Subtotal				**$36,000**
Total Project Cost				**$250,000**

Assumptions:

1. Clearing limits based on 60-ft road right-of-way, less existing asphalt.
2. Cross-drain costs based on twin 6' x 6' box culverts. Actual size to be determined.
3. Earthwork assumes average depth of 2 feet, with 4:1 side slopes.
4. "Paving" include demolition, base preparation, GAB, hauling and asphalt placement, etc.

General Information	
Project ID	
Street Name	**Lees Mill Rd**
Site Visit Date	1/20/2016
Road Classification	Rural

Project Notes

Culvert replacement alternatives to provide flow capacity for the 100 year storm peak runoff.

Field Notes

Design (Existing Site Features)	
Existing Road Laneage	2-12'
Existing Shld Width (paved and grass) (feet)	
Existing Side Slopes	
Existing Guardrail	No
Depth fm Pavement to Top of Culvert (ft):	(+/-) 5.2'
Pipe Type and Size	3 - 72" CMP
Pipe Condition (1-5) (1 is new)	5

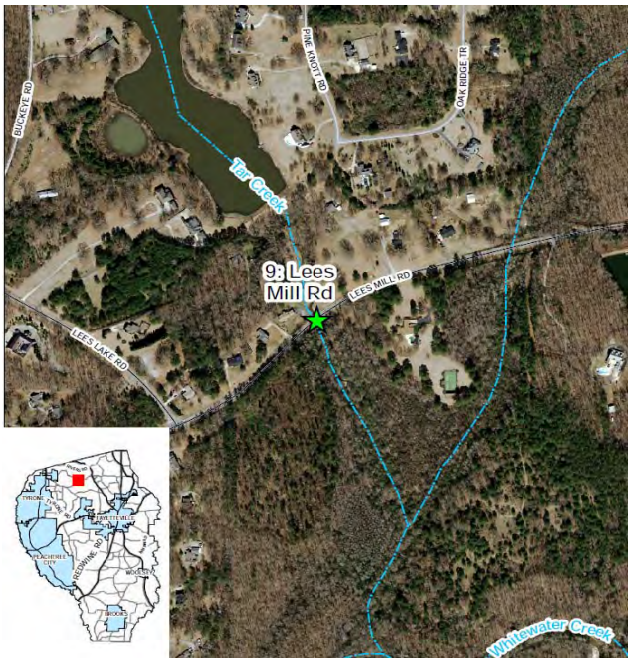
Condition Notes: Existing culverts do not provide service for the 100 yr storm event.

Pavement Type/Condition	Asphalt/Good

Environmental Features	
Wetlands	TBD
Ditches	YES
State Waters	YES

Utilities (Visual Inspection)	
Electric	Aerial
Cable	Unknown
Phone	Unknown
Gas	Underground
Water	Underground
Sewer	Underground
Other	

Map



Stage Construction Options	
Close Location to Traffic	**X**
Maintain One Lane - No Temp Pavement	
Maintain One Lane - Temp Pavement	

Stage Construction Notes:
Assumed road closure

Proposed Design	
Roadway Section	Typical
Culvert Size & Material	2-8'X7' Concrete Box Culvert with associated wing walls and rip-rap.
Utility Relocations	16" Waterline
Guardrail Replacement	
Miscellaneous Features	

Planning Cost Estimate

Type	Notes	Total
Design	Actual Cost including Environmental Permitting and Eng of Record Administrative Fee	$51,470
Right of Way Cost	Assuming UPS/DWS ends extends past ROW 1/20 acre	$17,424
Utility Relocation Cost		$132,521
Construction Cost	Includes 1/8 acre clearing and grubbing, guardrail installation	$310,434
	Total Planning Estimate	**$511,849**

Fayette County

Photo 1:

Photo 2:

Lees Mill Road

Photo Date:
1/05/2016
Taken By:
Tony Hicks
Page:
1

Photo 3:

Photo 4:

Lees Mill Road

Photo Date:
12/24/2015
Taken By:
Homeowner
Page:
2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

Roadway Construction	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Pavement (SF)	$ 0.73	$ 4.87	1200.00	$ 6,726.40
Curb and Gutter (LF)	$ -	$ 18.42	0.00	$ -
4" Sidewalk (SY)	$ -	$ 36.90	0.00	0
Guardrail (LF)	$ -	$ 49.09	110.00	5400.12
End Anchorage (EA)		$ 1,380.00	4.00	5520
Subtotal				$ 17,646.52
Grading Complete (5% of Rwy Items & Drng Total $)				$ 10,792.91
Roadway Total				$ 28,439.43

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Trench Excavation (CY)		$ 10.38	554.65	$ 5,757.30
72" CMP (LF)	$ 54.00		180.00	$ 9,720.00
2-8'X7' Box Culvert (CY)		$ 892.19	154.98	$ 138,271.61
Box Culvert Wingwalls, Parapetes (CY)		$ 892.19	20.82	$ 18,575.40
Steel (lb)		$ 1.42	15023.40	$ 21,333.23
Culvert Bedding (CY)		$ 48.60	32.60	$ 1,584.36
Trench Backfill (CY)		$ 2.99	367.73	$ 1,098.77
Trench Compaction (CY)		$ 6.36	294.18	$ 1,870.99
Drainage Total				$ 198,211.64

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (LF)	$ 0.71	50	$ 35.40
Signing and Marking Total			**$ 35.40**

Staging	Installation Unit Cost	Amount	Total Cost
Clearing and Grubbing (Acre)	$ 10,260.00	0.13	$ 1,282.50
Temporary Pavement		0.00	0
Temporary Drainage (Stream Pump Around)	$ 30,000.00	1.00	$ 30,000.00
Staging Total			$ 31,317.90

Erosion Control	Installation Unit Cost	Amount	Total Cost
Fine Grading and Seeding (SY)	$ 4.39	100.00	$ 439.20
Temporary Grassing (AC)	$ 855.60	0.00	$ -
Type C Silt Fence (LF)	$ 4.24	168.00	$ 711.65
Check Dam Type C Silt Fence (LF)	$ 6.79	0.00	$ -
Erosion Control Mats (SY)	$ 1.87	0.00	$ -
Landscape Mulch (SY)	$ 3.58	0.00	$ -
Perm Grassing (AC)	$ 1,402.20	0.00	$ -
Rip Rap Type 3 12" (SY)	$ 60.98	340.00	$ 20,734.56
Plastic Filter Fabric (SY)	$ 5.72	340.00	$ 1,946.16
4" Ditch Paving (SY)	$ 54.65	0.00	$ -
Ditch Adjustment/Grading (LS)	$ 5,000.00	1.00	$ 5,000.00
Erosion Control Total			**$ 28,831.57**
Construction Cost Total			**$ 286,835.94**
Traffic Control (8% of Construction Total $)			**$ 22,946.88**
Public Works Costs			651
Construction Cost Grand Total			**$ 310,433.81**

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00	0.00	$ -
Buried	$ 16.50	$ 82.50	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Phone				
Aerial	$ 11.00	$ 27.50	0.00	$ -
Buried	$ 16.50	$ 55.00	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Cable				
Aerial	$ 11.00	$ 27.50	0.00	$ -
Buried	$ 16.50	$ 55.00	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Gas				
4" main	$ 16.50	$ 66.00	0.00	$ -
Water				
Cap and Remove (EA)		$ 3,045.00	1.00	$ 3,045.00
16" Watermain (LF)		$ 203.73	200.00	$ 40,746.00
16" Gate Valve (EA)		$ 7,885.00	2.00	$ 15,770.00
20" Steel Casing (LF)		$ 162.00	120.00	$ 19,440.00
16" Jack and Bore (EA)		$ 396.00	120.00	$ 47,520.00
16" 45 degree MJ Bend (EA)		$ 1,500.00	4.00	$ 6,000.00
Utility Relocation Total				**$ 132,521.00**

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 4.00	4356.00	**$ 17,424.00**
ROW Total			**$ 17,424.00**

TO: Steve Rapson, County Administrator

FROM: Phil Mallon, Public Works

DATE: July 28, 2016

RE: Longview Dam (a.k.a. Margaret Phillips Lake Dam) Update

Background

Longview Dam (a.k.a. Margaret Phillips Lake Dam) is classified by the Georgia Safe Dams Program as a Category 1 structure. Under the authority of the Safe Dam Act, the Georgia Safe Dams Program maintains an inventory and classification system of all the dams in the state. They also establish minimum design and maintenance standards for Category I (high hazard) structures through inspection and permitting.

This dam is approximately 16-feet high, 670 feet long, has a top width of 20 feet, and impounds a 16-acre lake. Longview Road runs across the top of the dam. Fayette County owns and operates the dam. In order to meet Georgia Safe Dams Program requirements, Fayette County shall either:

- Upgrade the dam;
- Breach the dam;
- Modify the dam to remove the downstream flood risk; or
- Remove or modify the downstream structures at risk.

Of these four options, upgrading the dam and breaching the dam are the most practical options.

Fayette County authorized Walden, Ashworth & Associates to serve as the "Engineer of Record" for this project to develop upgrade and dam breach options for County review (attached). A summary follows.

Option I - Dam Upgrade

Walden reviewed all the Safe Dams Programs files on Longview Dam and performed a field inspection. They did not perform a detailed hydrological and hydraulic evaluation because of cost constraints. The inspection confirmed that significant work is needed to bring this dam up to Category I standards. Noted concerns include: slope stability since the toe of the dam is chronically wet, the presence of longitudinal cracks along the road, and severe erosion around the main drain pipe. Maintenance and repair work includes: removing vegetation, flattening slopes to a 3:1 (or flatter); and installing a seepage collection and removal system.

Based on previous experience and taking into consideration both the drainage basin and lake size, Walden assumed that a 20-foot wide labyrinth weir would be required for outlet control of the improved dam. An outlet structure of this size requires a bridge for the road and underground utilities would have to be relocated.

The Consultant's order-of-magnitude cost estimate for the Dam Upgrade option is $1,409,815. This includes design and construction but excludes acquisition costs for approximately 40,000 square feet of new right-of-way and easements.

Option 2 - Dam Breach

The dam breach option returns the watershed to free-flow (i.e., natural) conditions by draining the lake and cutting out a portion of the dam. The Option also calls for Longview Road to be permanently cut/broken, thereby avoiding the cost of a new culvert or bridge. Instead, cul-de-sacs will be provided on either side of the breach location to provide turn-around points for Longview Road. Work to breach Longview Dam includes:

- Environmental permitting;
- Acquiring proposed right-of-way and easements for the project.
- Draining the lake;
- Breaching the dam with a 20-ft cut and 4:1 side slopes;
- Breaking of Longview Road and installation of two cul-de-sacs;
- Installation of guard rail; and
- Installation of a drain pipe and concrete weir wall for control of peak flows.

Breaching the dam removes the dam from any further operations and maintenance requirements by the Georgia Safe Dams Act. For a conceptual cost estimate, County staff assumed the Dam Breach option would be $704, 907, one-half the estimated amount to upgrade the dam. Similar to Option 1, this excludes right-of-way and easement costs.

Recommendation

Staff recommends Option 2, Dam Breach. This option provides the double benefit of 1) meeting the required Ga Safe Dams Act Category I standards and 2) removing the structure from future State operation and maintenance requirements. Although Longview Road is a Collector, it lends itself to be changed from a thru road to a dead-end road since there are alternate roads (i.e., SR 314) providing the same connectivity.

Direction is needed from the Board of Commissioners regarding which option to pursue. Further design and permitting is on hold until guidance is provided.

COST ESTIMATES FOR LONGVIEW DAM TO MEET GEORGIA SAFE DAMS CATEGORY 1 REQUIREMENTS

Option 1 – Dam Upgrade: $1,409,815

Option 2 – Dam Breach *(preferred)*: $704,907

ORDER OF MAGNITUDE OPINION OF COST
FOR THE REHABILITATION
OF MARGARET PHILLIPS LAKE DAM
FOR

FAYETTE COUNTY BOARD OF COMMISSIONERS

STEVE BROWN, CHAIRMAN
CHARLES ODDO, VICE CHAIRMAN
DAVID BARLOW
RANDY OGNIO
ALLEN McCARTY

Margaret Phillips Lake Primary Spillway

August 5, 2013

WALDEN, ASHWORTH & ASSOCIATES, INC.
Consulting Engineers

MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE
OPINION OF COST

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS

August 5, 2013
WA&A J.O. 3301700

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462 • MARIETTA, GEORGIA 30065 • 770/956-7879

August 5, 2013

Mr. Phil Mallon, P.E.
Fayette County Engineer
115 McDonough Rd
Fayetteville, Georgia 30215

RE: MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE - OPINION OF COST
WA&A J.O. 3301700

Dear Mr. Mallon:

We have completed our Order of Magnitude Opinion of Cost for the Margaret Phillips Lake Dam and are pleased to present the results in the attached report. We appreciate the opportunity to assist Fayette County on this project.

If you have any questions, please do not hesitate to call.

Very truly yours,

WALDEN, ASHWORTH & ASSOCIATES, INC.

Martin L. Walden, P.E.
President

MLW/jcw

Attachment

MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE COST ESTIMATE

INTRODUCTION

This report, which was authorized through an agreement with the Fayette County Board of Commissioners, provides an Order of Magnitude Opinion of Cost for the rehabilitation of the Margaret Phillips Lake Dam and includes a summary of the assumptions and procedures used to develop that Opinion of Cost.

SCOPE

Our Order of Magnitude Opinion of Cost to rehabilitate the Margaret Phillips Lake Dam and bring it into compliance with current requirements for Category I, high hazard dams is based on a brief visual inspection of the dam, a review of available data and our experience with similar dams. The visual inspection was made without the benefit of surveying equipment and no measurements were taken. The scope of the site visit was limited to visible elements only and excluded covered, buried, or hidden conditions. The scope of work did not include any calculations, special investigations, equipment testing, field or laboratory testing, geotechnical investigations or material testing.

DATA SEARCH - GEORGIA SAFE DAMS PROGRAM FILES

The purpose of the Georgia Safe Dams Act, 1977, is to protect the health, safety and welfare of all citizens of the state by reducing the risk of dam failure, thus reducing the risk of death and injury. Under the authority of the Safe Dam Act, the Georgia Safe Dams Program maintains an inventory and classification system of all the dams in the state, an inspection and permitting system, and sets certain minimum design standards for those dams that are considered to be Category I (high hazard) structures.

The Safe Dams Program maintains a file of all known data, inspection reports, correspondence and permitted improvements to all Category I dams. Because the Margaret Phillips Dam is classified as a Category I structure, the Safe Dams Program maintains such a file for it. As part of the scope of work, we reviewed the file for the dam at the office of the Safe Dams Program.

DESCRIPTION OF DAM

The Margaret Phillips Lake Dam is an estimated 670 feet long and has a top width of 20 feet. The dam is approximately 16 feet high and impounds a lake having a surface of approximately 16 acres at normal pool with a drainage basin of approximately 860 acres (1.3 sq. mi.). The normal pool elevation of the lake is controlled by a Corrugated Metal Pipe (CMP) riser located near the center of the dam. The secondary spillway consists of two 24 inch diameter reinforced concrete culverts under the road on top of the dam.

ASSUMPTIONS USED IN OPINION OF COST

Our Opinion of Cost assumes that all of the deficiencies noted by the Georgia Safe Dams Program and our brief inspection will be addressed in the renovation of the dam and will include such items as removal of inappropriate vegetation on both the upstream and downstream slopes; flattening of both slopes to a 3:1 slope; installation of a seepage collection and removal system including a full height chimney/blanket drain and toe drain and additional spillway capacity.

It is not possible to determine the adequacy of the capacity of the spillways without a detailed hydrological and hydraulic evaluation. Such an evaluation is beyond the scope of this Order of Magnitude estimate. Therefore, based on the size of the lake and its drainage basin, we have assumed that a 20 foot wide labyrinth weir type structure will be required. It is important to understand that a more detailed engineering evaluation will be required before a more refined opinion of cost can be developed.

The construction of the labyrinth weir spillway will require the excavation of a section completely through the dam. The rectangular concrete spillway structure will be constructed along with the appropriate seepage control drains in this excavated notch in the dam and select fill will be backfilled against the structure. In order to maintain the roadway, a bridge spanning across the spillway structure will be required. The water line will be suspended under the bridge.

Using criteria established by the Georgia Safe Dams Program, the structure will have a design storm of 25% of the Probable Maxim Precipitation (PMP) based on Antecedent Moisture Condition III (AMC III) which reflects a saturated watershed from antecedent rains. This condition results in the highest runoff potential.

EASEMENTS

The work required to rehabilitate the Margaret Phillips Lake Dam will include construction of a seepage control system and flattening of the downstream slope. To accomplish this work will require construction that will be outside of the right of way and, therefore, on property owned by others. Before this work can be done, property and/or easements must be obtained from the individual property owners affected. It is important to note that the final amount of property owned by others that will be impacted cannot be determined until the final design has been completed. The cost for obtaining this property and/or easements has not been included in the Order of Magnitude Opinion of Cost.

Based on our very preliminary evaluation, the following parcels will be impacted by the areas indicated.

PARCELS IMPACTED

PARCEL NO.	AREA IMPACTED (SQ FT)
0544-037	16,000
0544-121	17,000
0544-0008a	8,700

APPENDIX

A copy of the letter from the Georgia Safe Dams Program outlining the items they have identified that must be addressed to bring the dam into compliance with Category I standards can be found in the appendix of this report.

MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE
OPINION OF COST

Our Opinion of Cost is based on limited data and does not have the benefit of detailed design and/or drawings. We have made assumptions based on our observations, available data and our experience with similar dams. A more definitive cost estimate cannot be prepared without detailed design.

The American Association of Cost Engineers recommends dividing engineering construction cost estimates into three basic categories as follows:

Order of Magnitude Estimate
This is an estimate made without detailed engineering data. Some examples would be an estimate from cost-capacity curves, an estimate using scale-up or scale-down factors and an approximate ratio estimate.

Budget Estimate
Budget in this case applies to the owner's budget and not to the budget as a project control document. A budget estimate is prepared using flow-sheets, layouts and equipment details.

Definitive Estimate
As the name implies, this is an estimate prepared from very defined engineering data. As a minimum, the data must include fairly complete plans and elevations, piping and instrumentation diagrams, one-line electrical diagrams, equipment data sheets and quotations, structural sketches, soil data and sketches of major foundations, building sketches and a complete set of specifications. The "maximum" definitive estimate would be made from "Approved for Construction" drawings and specifications.

The construction cost estimate for the rehabilitation of this dam is an Order of Magnitude estimate.

The following is a breakdown of the expected cost for the rehabilitation of the Margaret Phillips Lake Dam. The Opinion of Cost presented here is an Order of Magnitude estimate based on a Category I classification of the dam by the Georgia Department of Natural Resources, Safe Dams Program. On the following page is a breakdown of the Order of Magnitude Opinion of Construction Cost.

PROFESSIONAL SERVICES

Surveying for Design	$ 9,000
Geotechnical Exploration	$ 20,000
Design and Preparation of Construction Documents	$ 45,000
Preconstruction Notification (PCN) to USACOE	$ 3,000
State Waters Buffer Encroachment Variance Application	$ 1,000
*Construction Administration Services	$ 15,000
*Geotechnical Construction Monitoring	$ 100,000

* Assumes 3 month construction monitoring

CONSTRUCTION

Opinion of Construction Cost	$ 1,216,815

TOTAL REHABILITATION COST **$ 1,409,815**

Total Rehabilitation Cost does not include any cost for land or easement acquisition that may be required.

WALDEN, ASHWORTH & ASSOCIATES, INC.

CONSULTING ENGINEERS

MARGARET PHILLIPS LAKE DAM
ORDER OF MAGNITUDE
OPINION OF CONSTRUCTION COST

Description	Quantity	Units	Unit Price	Cost
Mobilization	1	LS	$25,000.00	$25,000
Erosion Control	1	LS	$20,000.00	$20,000
Clearing & Grubbing	1.5	AC	$5,000.00	$7,500
Control of Water	1	LS	$30,000.00	$30,000
Under Drain Sand	25	TN	$50.00	$1,250
Under Drain # 89 Stone	20	TN	$39.50	$790
Under Drain # 57 Stone	50	TN	$39.50	$1,975
Under Drain Pipe	385	LF	$20.00	$7,700
Concrete	400	CY	$1,000.00	$400,000
Earthwork	5,000	CY	$15.00	$75,000
Grassing	5,725	SY	$2.50	$14,313
Rip Rap	1,220	TN	$80.00	$97,600
Blanket / Chimney Drain	770	TN	$50.00	$38,500
Toe Drain	500	LF	$80.00	$40,000
Toe Drain Outlets / Clean Outs	2	EA	$2,500.00	$5,000
Water Line	100	LF	$30.00	$3,000
Paving	320	SY	$60.00	$19,200
Bridge	675	SF	$200.00	$135,000
SUBTOTAL				**$921,828**
GENERAL CONDITIONS (7%)				$64,531
OVERHEAD & PROFIT (15%)				$138,274
CONTINGENCY (10%)				$92,183
SUBTOTAL				**$294,988**
Total Estimated Construction Cost Budget				**$1,216,815**

The American Association of Cost Engineers recommends dividing engineering construction cost estimates into three basic categories: Order-of-Magnitude, Budget and Definitive Estimates. The Order of Magnitude Estimate is defined as follows:

This is an Estimate is made without detailed engineering data. Some examples would be an estimate from cost-capacity curves, an estimate using scale-up or scale-down factors and an approximate ratio estimate.

APPENDIX

Georgia Departn_ıt of Natural Resources
Environmental Protection Division
Safe Dams Program
4244 International Parkway, Suite 110
Atlanta, Georgia 30354
Linda MacGregor, P.E., Branch Chief
(404) 362-2678

November 5, 2012

FILE COPY

The Honorable Herb Frady, Chairman
Fayette County Board of Commissioners
140 Stonewall Avenue West
Suite 100
Fayetteville, Georgia 30214

SUBJECT: Margaret Phillips Lake Dam
Fayette County

Dear Chairman Frady:

As we previously informed Fayette County by letter dated May 13, 2009, the subject dam has been determined to be within the jurisdiction of the 1978 Georgia Safe Dams Act (Act) by virtue of its hazard classification. A detailed visual inspection of the dam, as is also provided for by the Act, has now been performed by the Environmental Protection Division (Division). Copies of the Visual Inspection Report are enclosed. The inspection revealed that the dam does not comply with certain paragraphs of the Rules for Dam Safety (Rules), specifically the following items from Section 391-3-8-.09:

1. Paragraph (3)(a) Stability – "The design and/or evaluation of new and existing dams shall conform to accepted practices of engineering profession and dam safety industry." Based on standard engineering practice, the downstream slope of the dam is steep and the toe of the dam is wet, which may affect the stability of the dam. There are longitudinal cracks along the road on the crest of the dam with slight displacement towards the downstream edge of the pavement. This may be a stability concern and needs investigation.

2. Paragraph (3) (d) – The dam shall have a means of draining the reservoir to a safe level. It is unknown whether there is a low-level outlet and if it is functional.

3. Paragraph (3) (e) – "All earthen embankments shall be protected from surface erosion by appropriate vegetation, or some other type of protective surface such as riprap, and shall be maintained in a safe condition." The slopes of the dam have trees/brush that need to be removed and replaced with a low growing grass. There is severe erosion in the plunge pool where the principal spillway pipe outlets. There needs to be erosion protection around the plunge pool area and along the waterline.

4. Paragraph (3) (f) – "Each dam shall be capable of safely passing the fraction of flood developed from the PMP hydrograph depending on the sub classification of the dam." The spillway system has to be evaluated for adequacy of the system to be able to pass the required storm event.

5. Paragraph (3) (g) – There is seepage/wet area at the toe of the dam that needs further investigation.

6. Paragraph (3) (j) – "appropriate freeboard for wave action shall be considered…" The spillway system needs to be evaluated for compliance with this standard.

7. Paragraph (4) – "Other design standards may be imposed as deemed appropriate…" The condition of the CMP through the dam is unknown and should be taken out of service.

The Rules require that you, an owner/operator of the dam, retain an experienced professional engineer recognized as an "Engineer of Record" to assist you with bringing the dam into compliance with the Act. Approved Engineer of Record lists are enclosed for your information. The dam may be brought into compliance by either addressing the noted deficiencies or by addressing the downstream hazard potential. The options are as follows:

- **Upgrade the dam:** Your Engineer of Record must perform a detailed investigation of the noted deficiencies and design remedial measures as necessary. After review and approval of the detailed investigation report, construction plans and specifications, and the schedule for any necessary improvements, we will recommend that the Director of the Division (Director) issue a Construction and Operation Permit for the dam. Once the remedial measures have been implemented, the dam will remain a permitted Category I structure and will be inspected on a regular basis to ensure that it is being maintained properly and remains in compliance. You will be required to perform your own routine inspections, maintain the dam and address any future deficiencies if they arise.

- **Breach the dam:** You will be required to fill out a breach application, and your Engineer of Record will be required to submit design plans for safely breaching the dam, such that it can no longer retain water. Once the breach plans have been approved and the dam has been breached, you will have no further responsibilities related to the Act and Rules.

- **Modify the dam to remove the downstream flood risk:** Your Engineer of Record must perform an extended dam failure flood study to identify all potential structures at risk downstream, such as homes, businesses, churches, etc., and submit design plans for the necessary modifications to the dam that would prevent flooding at these structures in the event of a dam failure. It should be noted that for classification purposes the Division typically only identifies one structure at risk. There may be additional structures in the dam failure flood zone. Once the flood study and design plans have been approved and the modifications implemented, the dam may be reclassified either Category II (low hazard) or exempt at the Director's discretion. A permit from the Division will no longer be required for operation of the dam. The classification may change if future development occurs in the dam failure flood zone.

- **Remove or modify the downstream structure(s) at risk:** Your Engineer of Record must perform an extended dam failure flood study to identify all potential structures at risk. All identified structures will have to be permanently removed from the dam failure flood zone or in some cases may be flood-proofed (design plans for flood-proofing will have to be reviewed and approved). Once the structures have been removed or adequately flood-proofed, the dam may be reclassified Category II at the Director's discretion, and a permit from the Division will no longer be required for operation of the dam. You should be aware that the classification may change if future development occurs in the dam failure flood zone.

Your engineer should be able to provide you with the feasibility of each option. All options require that your engineer inspect any necessary work as it is being performed. After the work is completed, your engineer must certify in writing that the work was performed in accordance with any approved plans and specifications. It is important that you do not attempt to modify the dam yourself. Often an improper repair attempt can do more harm than good, and the law requires that modifications to Category I dams be developed by an engineer and receive prior approval from the Division.

Please inform the Division's Safe Dams Program in writing at 4244 International Parkway, Suite 110, Atlanta, Georgia, 30354 before **January 15, 2013** with the name of the engineer you have retained to assist you with bringing the dam into compliance. It would be our recommendation that partial owners of the same dam work together to retain a common engineer. An engineering report must be submitted no later than **April 15, 2013.**

The files of all dams, which are regulated by the Division, are public information. Representatives of engineering firms interested in remedial dam design work may see a copy of this letter in our files and contact you offering a proposal for the design work. The Division does not recommend any engineering firm to a dam owner. We suggest that you solicit proposals from several firms (a minimum of three) and then compare the experience and prices in making your selection.

If you have any questions about the contents of the enclosed report or your responsibilities with regard to the Act and Rules, please contact the Safe Dams Program at 404/362-2678, or write us and we will be glad to address your questions.

Sincerely,

Dallon Thomas Woosley

Dallon Thomas Woosley, P.E.
Program Manager
Safe Dams Program

DTW:ks
Enclosures
cc: Thomas Concrete of Georgia, Inc.

General Information	
Project ID	
Street Name	**330 Oak Street**
Site Visit Date	5/21/13
Road Classification	Internal Local

Project Notes

Rural Typical Section

Field Notes

Design (Existing Site Features)	
Existing Road Laneage	2
Existing Shld Width (paved and grass) (feet)	1 - 2' Grass
Existing Side Slopes	2:1
Existing Guardrail	None
Depth fm Pavement to Top of Culvert (ft):	5'
Pipe Type and Size	15" RCP
Pipe Condition (1-5) (1 is new)	5 (Installation)

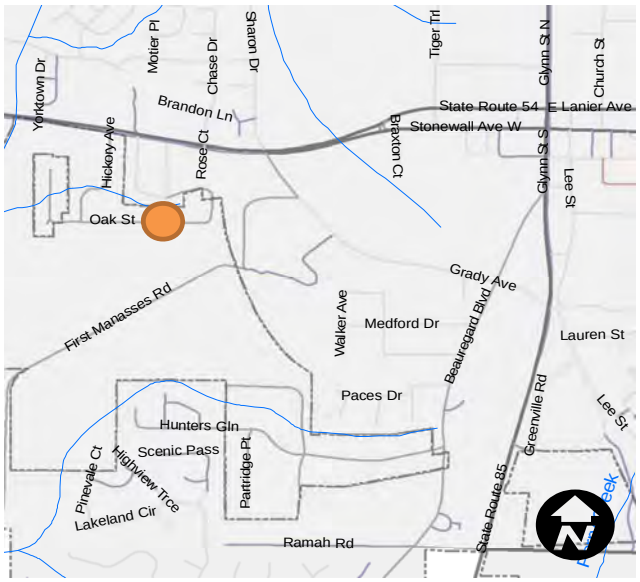
Condition Notes:

Pavement Type/Condition	Asphalt/Good

Environmental Features	
Wetlands	None
Ditches	Along South Side

Utilities (Visual Inspection)	
Electric	Aerial
Cable	Aerial
Phone	Aerial
Gas	
Water	Buried
Sewer	
Other	

Map



Stage Construction Options	
Close Location to Traffic	**X**
Maintain One Lane - No Temp Pavement	
Maintain One Lane - Temp Pavement	

Stage Construction Notes:

Proposed Design

Roadway Section	
Culvert Size & Material	3' x 2' box, concrete, 80' length
Utility Relocations	Water
Guardrail Replacement	
Miscellaneous Features	~ 200' drainage ditch or additional piping needs to be installed for downstream property. Receiving stream could use ~500' of stream restoration

Planning Cost Estimate

Type	Notes	Total
Design		$15,000
Right of Way Cost		$4,000
Utility Relocation Cost		$5,500
Construction Cost		$44,006
Environmental Permits		$10,000
	Total Planning Estimate	**$78,506**

Fayette County

JACOBS

Photo 1:

Photo 2:

Oak Street

Photo Date:
5/21/2013
Taken By:
David King
Page:
1

Photo 3:

Photo 4:

Oak Street

Photo Date:
5/21/2013
Taken By:
David King
Page:
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Roadway Construction, Utility Relocation and ROW Quantity Calculations

Roadway Construction	Installation Unit Cost	Amount	Total Cost
Pavement			$ 3,618.39
Curb and Gutter (LF)	$ 27.50		
4" Sidewalk (SY)	$ 49.50		
Guardrail (LF)	$ 57.20		
End Anchorage (EA)	$ 2,530.00		
Subtotal			$ 3,618.39
Grading Complete (5% of Rwy Items & Drng Total $)			$ 1,317.52
Roadway Total			**$ 4,935.91**

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Class A Conc (cy)		$ 698.50	26	$ 18,293.72
Steel (lb)		$ 1.38	2559	$ 3,518.63
Type 2 Back Fill (cy)		$ 60.50	15.2	$ 919.60
Drainage Total				**$ 22,731.94**

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (mile)			$ -
Signing and Marking Total			**$ -**

Staging	Installation	Amount	Total Cost
Temporary Pavement			$ -
Temporary Drainage (Stream Diversion)	$ 10,000.00	1	$ 10,000.00
Staging Total			$ 10,000.00

Erosion Control	Installation Unit Cost	Amount	Total Cost
Temporary Grassing (AC)	$ 418.00	0.1	$ 41.80
Silt Fence (LF)	$ 5.50	200	$ 1,100.00
Check Dam Type C Silt Fence (LF)	$ 4.40	100	$ 440.00
Erosion Control Mats (SY)	$ 2.75	150	$ 412.50
Mulch (TN)	$ 286.00	1.4	$ 400.40
Perm Grassing (ac)	$ 9.90	0.1	$ 0.99
Rip Rap (SY)	$ 66.00	20	$ 1,320.00
Plastic Filter Fabric (SY)	$ 6.60	20	$ 132.00
4" Ditch Paving (SY)	$ 33.00	0	$ -
Erosion Control Total			**$ 3,847.69**
Construction Cost Total			**$ 41,515.54**
Traffic Control (6% of Construction Total $)			**$ 2,490.93**
Construction Cost Grand Total			**$ 44,006.47**

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00		$ -
Buried	$ 16.50	$ 82.50	0	$ -
Wooden Pole	$ 82.50	$ 605.00		$ -
Phone				
Aerial	$ 11.00	$ 27.50		$ -
Buried	$ 16.50	$ 55.00	0	$ -
Wooden Pole	$ 82.50	$ 605.00		$ -
Cable				
Aerial	$ 11.00	$ 27.50		$ -
Buried	$ 16.50	$ 55.00	0	$ -
Wooden Pole	$ 82.50	$ 605.00		$ -
Gas				
4" main	$ 16.50	$ 66.00		$ -
Water				
8" main	$ 16.50	$ 93.50	50	$ 5,500.00
Sewer				
12" main	$ 16.50	$ 82.50	0	$ -
Utility Relocation Total				**$ 5,500.00**

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 2.00	2000	$ 4,000.00
ROW Total			**$ 4,000.00**

General Information	
Project ID	
Street Name	**Old Senoia Road**
Site Visit Date	5/21/13
Road Classification	Collector

Project Notes

Rural Typical Section

Field Notes

Design (Existing Site Features)	
Existing Road Laneage	2 - 12'
Existing Shld Width (paved and grass) (feet)	8' (G)
Existing Side Slopes	2:1 to 10:1
Existing Guardrail	None
Depth fm Pavement to Top of Culvert (ft):	3'
Pipe Type and Size	3 - 96" CMP
Pipe Condition (1-5) (1 is new)	3

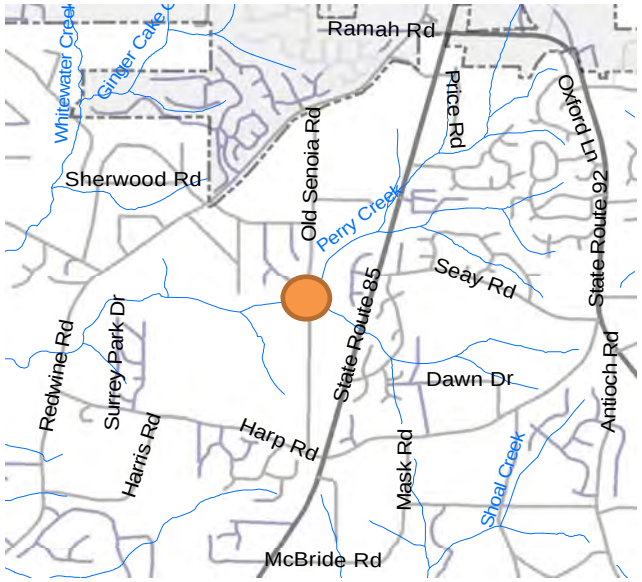
Condition Notes: Lining deteriorated, but pipes fully functioning; DS drop

Pavement Type/Condition	Asphalt/New

Environmental Features	
Wetlands	None identified
Ditches	None

Utilities (Visual Inspection)	
Electric	Aerial
Cable	
Phone	Aerial and Buried
Gas	
Water	Buried
Sewer	
Other	

Map



Stage Construction Options	
Close Location to Traffic	X
Maintain One Lane - No Temp Pavement	
Maintain One Lane - Temp Pavement	

Stage Construction Notes:
Close Road - access from the South & North

Proposed Design

Roadway Section	
Proposed Design	100' prestressed concrete beam bridge, three spans, 43' wide
Utility Relocations	Buried Phone, Watermain
Guardrail Replacement	Proposed Guardrail Installation due to proposed culvert(s) and side slopes
Miscellaneous Features	Zone AE with Floodway, Floodplain Analysis Required

Planning Cost Estimate

Type	Description	Total
Design	bridge design and geotech (BFI) included	$140,949.73
Right of Way Cost		$12,000.00
Utility Relocation Cost		$26,125.00
Construction Cost		$459,497.27
Environmental Permits	environmental(bridge), floodplain analysis	$30,000.00
	Total Planning Estimate	**$668,572.00**

Fayette County

JACOBS

Photo 1:

Photo 2:

Old Senoia Road

Photo Date:
5/21/2013
Taken By:
David King
Page:
1 of 2

Photo 1

Photo 2

Old Senoia Road

Photo Date:
12/28/2015
Taken By:
Public Works
Page
2 of 2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

Roadway Construction	Installation Unit Cost	Amount	Total Cost
Pavement			$ 6,522.69
Curb and Gutter (LF)	$ 27.50		$ -
4" Sidewalk (SY)	$ 49.50		$ -
Guardrail (LF)	$ 57.20	650	$ 37,180.00
End Anchorage (EA)	$ 2,530.00	2	$ 5,060.00
Subtotal			$ 48,762.69
Grading Complete (5% of Rwy Items & Drng Total $)			$ 22,863.13
Roadway Total			**$ 71,625.83**

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Class A Conc (cy)		$ 698.50	0	$ -
Steel (lb)		$ 1.38	0	$ -
Type 2 Back Fill (cy)		$ 60.50	0	$ -
Bridge Cost (total)				$ 408,500.00
Drainage Total				**$ 408,500.00**

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping			$ 500.00
Signing and Marking Total			**$ 500.00**

Staging	Aerial	Installation Unit Cost	Amount	Total Cost
Temporary Pavement				$0
Temporary Drainage (Stream Diversi	Aerial and Buried	$ 10,000.00	1	$ 10,000.00
Staging Total	**Buried**			**$10,000**

Erosion Control		Installation Unit Cost	Amount	Total Cost
Temporary Grassing (AC)		$ 418.00	0.15	$ 62.70
Silt Fence (LF)	100' prestressed co	$ 5.50	250	$ 1,375.00
Check Dam Type C Silt Fence (LF)		$ 4.40	200	$ 880.00
Erosion Control Mats (SY)		$ 2.75	225	$ 618.75
Mulch (TN)		$ 286.00	1.5	$ 429.00
Perm Grassing (ac)		$ 9.90	0.1	$ 0.99
Rip Rap (SY)		$ 66.00	50	$ 3,300.00
Plastic Filter Fabric (SY)		$ 6.60	50	$ 330.00
4" Ditch Paving (SY)		$ 33.00		$ -
				$ -
Erosion Control Total				**$ 6,996.44**

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00	100	$ 6,600.00
Buried	$ 16.50	$ 82.50	0	$ -
Wooden Pole	$ 82.50	$ 605.00	2	$ 1,375.00
Phone	$ -			
Aerial	$ 11.00	$ 27.50	0	$ -
Buried	$ 16.50	$ 55.00	100	$ 7,150.00
Wooden Pole	$ 82.50	$ 605.00		$ -
Cable	$ -			
Aerial	$ 11.00	$ 27.50		$ -
Buried	$ 16.50	$ 55.00	0	$ -
Wooden Pole	$ 82.50	$ 605.00		$ -
Gas	$ -			
4" main	$ 16.50	$ 66.00		$ -
Water	$ -			
8" main	$ 16.50	$ 93.50	100	$ 11,000.00
Sewer	$ -			
12" main	$ 16.50	$ 82.50	0	$ -
Utility Relocation Total				**$ 26,125.00**

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 2.00	6000	**$ 12,000.00**

Construction Cost Total	**$ 497,622.27**
Traffic Control (6% of Construction Total $)	**$ 29,857.34**
Construction Cost Grand Total	**$ 527,479.61**

General Information	
Project ID	
Street Name	**Rising Star Rd**
Site Visit Date	
Road Classification	Rural

Project Notes

Culvert replacement alternatives to provide flow capacity for the 100 year storm peak runoff.

Field Notes

Design (Existing Site Features)	
Existing Road Laneage	2-12'
Existing Shld Width (paved and grass) (feet)	
Existing Side Slopes	
Existing Guardrail	No
Depth fm Pavement to Top of Culvert (ft):	(+/-) 3.5'
Pipe Type and Size	2- 72" CMP
Pipe Condition (1-5) (1 is new)	3-4

Condition Notes: Two 72" culverts – left one collapsed, right one has approx. 6" dip in last joint.

Pavement Type/Condition	Asphalt/Good

Environmental Features	
Wetlands	TBD
Ditches	YES
State Waters	YES (ASSUMED)

Utilities (Visual Inspection)	
Electric	Aerial
Cable	Unknown
Phone	Unknown
Gas	Unknown
Water	Underground
Sewer	Underground
Other	

Map

Stage Construction Options	
Close Location to Traffic	**X**
Maintain One Lane - No Temp Pavement	
Maintain One Lane - Temp Pavement	

Stage Construction Notes:
Assumed road closure

Proposed Design	
Roadway Section	Typical
Culvert Size & Material	2 - 84" round RCP with end treatment
Utility Relocations	To be verify, (20" DIP or PVC mains)
Guardrail Replacement	
Miscellaneous Features	

Planning Cost Estimate

Type	Notes	Total
Design	Actual Cost including Environmental Permitting and Engineer of Record Administrative Fee	$54,005
Right of Way Cost	Assuming UPS/DWS ends extends past ROW 1/20 acre	$17,424
Utility Relocation Cost	Assuming no relocation	$212,535
Construction Cost	Includes 1/8 acre clearing and grubbing	$165,180
	Total Planning Estimate	**$449,143**

Fayette County

Photo 1:

Photo 2:

Rising Star Road

Photo Date:
4/14/2016
Taken By:
Tony Hicks
Page:
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2-84" Culvert Construction and ROW Quantity Calculations

Roadway Construction	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Pavement (SF)	$ 0.73	$ 4.87	1200.00	$ 6,726.40
Curb and Gutter (LF)	$ -	$ 18.42	0.00	$ -
4" Sidewalk (SY)	$ -	$ 36.90	0.00	0
Guardrail (LF)	$ -	$ 49.09	0.00	0
End Anchorage (EA)		$ 1,380.00	0.00	0
Subtotal				$ 6,726.40
Grading Complete (5% of Rwy Items & Drng Total $)				$ 5,352.94
Roadway Total				$ 12,079.34

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Trench Excavation (CY)		$ 10.38	523.72	$ 5,436.20
72" CMP (LF)	$ 54.00		116.00	$ 6,264.00
84" RCP (LF)		$ 350.00	116.00	$ 40,600.00
Class A Conc (CY)		$ 892.19	48.37	$ 43,155.13
Steel (lb)		$ 1.42	0.00	$ -
Pipe Bedding (CY)		$ 48.60	49.41	$ 2,401.20
Trench Backfill (CY)		$ 2.99	306.57	$ 916.02
Trench Compaction (CY)		$ 6.36	245.25	$ 1,559.81
Drainage Total				$ 100,332.36

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (LF)	$ 0.71	50	$ 35.40
Signing and Marking Total			$ 35.40

Staging	Installation Unit Cost	Amount	Total Cost
Clearing and Grubbing (Acre)	$ 10,260.00	0.13	$ 1,282.50
Temporary Pavement		0.00	0
Temporary Drainage (Stream Pump Around)	$ 30,000.00	1.00	$ 30,000.00
Staging Total			$ 31,317.90

Erosion Control	Installation Unit Cost	Amount	Total Cost
Fine Grading and Seeding (SY)	$ 4.39	188.89	$ 829.60
Temporary Grassing (AC)	$ 855.60	0.00	$ -
Type C Silt Fence (LF)	$ 4.24	232.00	$ 982.75
Check Dam Type C Silt Fence (LF)	$ 6.79	0.00	$ -
Erosion Control Mats (SY)	$ 1.87	0.00	$ -
Landscape Mulch (SY)	$ 3.58	0.00	$ -
Perm Grassing (AC)	$ 1,402.20	0.00	$ -
Rip Rap Type 3 12" (SY)	$ 60.98	66.67	$ 4,065.60
Plastic Filter Fabric (SY)	$ 5.72	66.67	$ 381.60
4" Ditch Paving (SY)	$ 54.65	0.00	$ -
Erosion Control Total			**$ 6,259.55**
Construction Cost Total			**$ 150,024.55**
Traffic Control (8% of Construction Total $)			**$ 12,001.96**
Construction Cost Grand Total			**$ 162,026.52**
Public Works			3,153

Utility Relocation	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Electric				
Aerial	$ 11.00	$ 55.00	0.00	$ -
Buried	$ 16.50	$ 82.50	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Phone				
Aerial	$ 11.00	$ 27.50	0.00	$ -
Buried	$ 16.50	$ 55.00	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Cable				
Aerial	$ 11.00	$ 27.50	0.00	$ -
Buried	$ 16.50	$ 55.00	0.00	$ -
Wooden Pole	$ 82.50	$ 605.00	0.00	$ -
Gas				
4" main	$ 16.50	$ 66.00	0.00	$ -
Water				
Cap and Remove (EA)		$ 3,780.00	1.00	$ 3,780.00
24" Watermain (LF)		$ 296.00	150.00	$ 44,400.00
24" Gate Valve (EA)		$ 15,120.00	2.00	$ 30,240.00
36" Steel Casing (LF)		$ 185.00	100.00	$ 18,500.00
36" Jack and Bore (LF)		$ 396.00	100.00	$ 39,600.00
24" 45 degree MJ Bend (EA)		$ 2,779.00	4.00	$ 11,116.00
10" Watermain (EA)		$ 53.00	150.00	$ 7,950.00
10" Gate Valve (EA)		$ 2,430.79	2.00	$ 4,861.58
10" Steel Casing (LF)		$ 97.83	100.00	$ 9,783.00
10" Jack and Bore (LF)		$ 396.00	100.00	$ 39,600.00
10" 45 degree MJ Bend (EA)		$ 676.00	4.00	$ 2,704.00
Utility Relocation Total				**$ 212,534.58**

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	$ 4.00	$ 4,356.00	**$ 17,424.00**
ROW Total			**$ 17,424.00**

228 Bernhard Rd

Date Updated:	7/12/2016
Cost Estimate:	$5,520.98
Est. Project Length:	1 Week
Construction:	Compete
Property Access:	
Utilities:	
Preliminary Eng:	
Right Of Way:	
Construction:	Compete
Contractor:	McCoy Grading
Const Start Date:	3/7/2016
Completion Date:	3/14/2016
Problem:	Washout around an undersized 36 in. diameter corrugated metal pipe inlet caused shoulder and pipe failure.
Propsed Solution:	Replace the current pipe with a 42 in. reinforced concrete pipe and headwalls.
Percent Complete:	100
Current Status:	Complete
Total Cost:	**$46,257**

Pre-construction Photo

Construction Photo

Post Construction Photo

Brittany Way

Date Updated:	7/13/2016
Cost Estimate:	$75,000.00
Est. Project Length:	3 Weeks
Construction:	In-House
Property Access:	Complete
Utilities:	Complete
Preliminary Eng:	Complete
Right Of Way:	
Construction:	In-House
Contractor:	Fayette County
Const Start Date:	5/27/2014
Completion Date:	9/14/2014
Problem:	Road floods during the 2-year storm event.
Propsed Solution:	Install a 3'x6' concrete box culvert 60' long under Brittany Way.
Percent Complete:	100
Current Status:	Complete
Total Cost:	**$67,432**

Pre-construction Photo

Construction Photo

Post Construction Photo

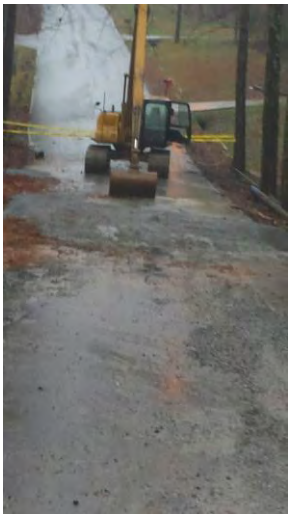
105 Canterbury Ln

Date Updated:	7/11/2016
Cost Estimate:	$24,671.06
Est. Project Length:	1 Week
Construction:	Complete
Property Access:	
Utilities:	
Preliminary Eng:	
Right Of Way:	
Construction:	Complete
Contractor:	Brent Scarbrough and Company
Const Start Date:	12/24/2015
Completion Date:	12/31/2015
Problem:	On 12/24/15, approximately 60 homes within the Chanticleer Subdivision were without water and had no access to and from their homes when a 72-inch diameter corrugated metal pipe failed, collapsing the road.
Propsed Solution:	1 - 72-inch RCP pipe with headwall
Percent Complete:	100
Current Status:	Completed
Total Cost:	**$101, 636**

Pre-construction Photo

Construction Photo

Post Construction Photo



110 Lawson Ln

Date Updated:	7/12/2016
Cost Estimate:	$65,000.00
Est. Project Length:	3 Weeks
Construction:	Complete
Property Access:	Complete
Utilities:	Complete
Preliminary Eng:	Complete
Right Of Way:	
Construction:	Complete
Contractor:	Fayette County
Const Start Date:	7/1/2015
Completion Date:	8/15/2015
Problem:	Undersized pipes in Northridge Subdivision results in flooding of road, lots and several homes along Lawson Lane. Project would replace existing pipe and add additional drainage structures.
Propsed Solution:	Replace existing pipe and add additional drainage structures.
Percent Complete:	100
Current Status:	Completed
Total Cost:	**$94,509**

Pre-construction Photo

Construction Photo

Post Construction Photo

144 Lowery Rd

Date Updated:	7/11/2016
Cost Estimate:	$23,543.16
Est. Project Length:	1 Week
Construction:	Complete
Property Access:	Complete
Utilities:	Complete
Preliminary Eng:	Complete
Right Of Way:	
Construction:	Complete
Contractor:	McCoy Grading
Const Start Date:	3/12/2016
Completion Date:	3/18/2016
Problem:	Washout around the 54 in. diameter corrugated metal pipe caused shoulder and pipe failure.
Propsed Solution:	Replaced the current pipe with a 60 in. reinforced concrete pipe and headwalls.
Percent Complete:	100
Current Status:	Complete
Total Cost:	**$44,523**

Pre-construction Photo

Construction Photo

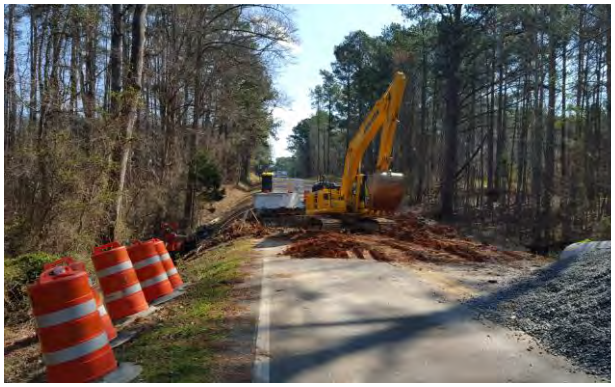
Post Construction Photo

456 Mcbride Rd

Date Updated:	7/12/2016
Cost Estimate:	$6,127.50
Est. Project Length:	1 week
Construction:	Complete
Property Access:	
Utilities:	
Preliminary Eng:	
Right Of Way:	
Construction:	Complete
Contractor:	McCoy Grading
Const Start Date:	3/1/2016
Completion Date:	3/4/2016
Problem:	Washout around the 54 in. diameter corrugated metal pipe caused complete road failure.
Propsed Solution:	Install a 54 in. reinforced concrete pipe and headwalls.
Percent Complete:	100
Current Status:	Completed
Total Cost:	**$41,820**

Pre-construction Photo

Construction Photo



Post Construction Photo

155 Westbridge Cir

Date Updated:	7/13/2016
Cost Estimate:	$3,846.48
Est. Project Length:	1 week
Construction:	Complete
Property Access:	
Utilities:	
Preliminary Eng:	
Right Of Way:	
Construction:	Complete
Contractor:	Brent Scarbrough and Company
Const Start Date:	1/12/2016
Completion Date:	1/14/2016
Problem:	During the 2015 Christmas and New Years flooding events two-36 in. diameter corrugated metal pipes failed causing immanent road failure.
Propsed Solution:	Replace with two-36 in. diameter reinforced concrete pipes and headwalls.
Percent Complete:	100
Current Status:	Completed
Total Cost:	**$68,419**

Pre-construction Photo

Construction Photo

Post Construction Photo