





# CATEGORY I

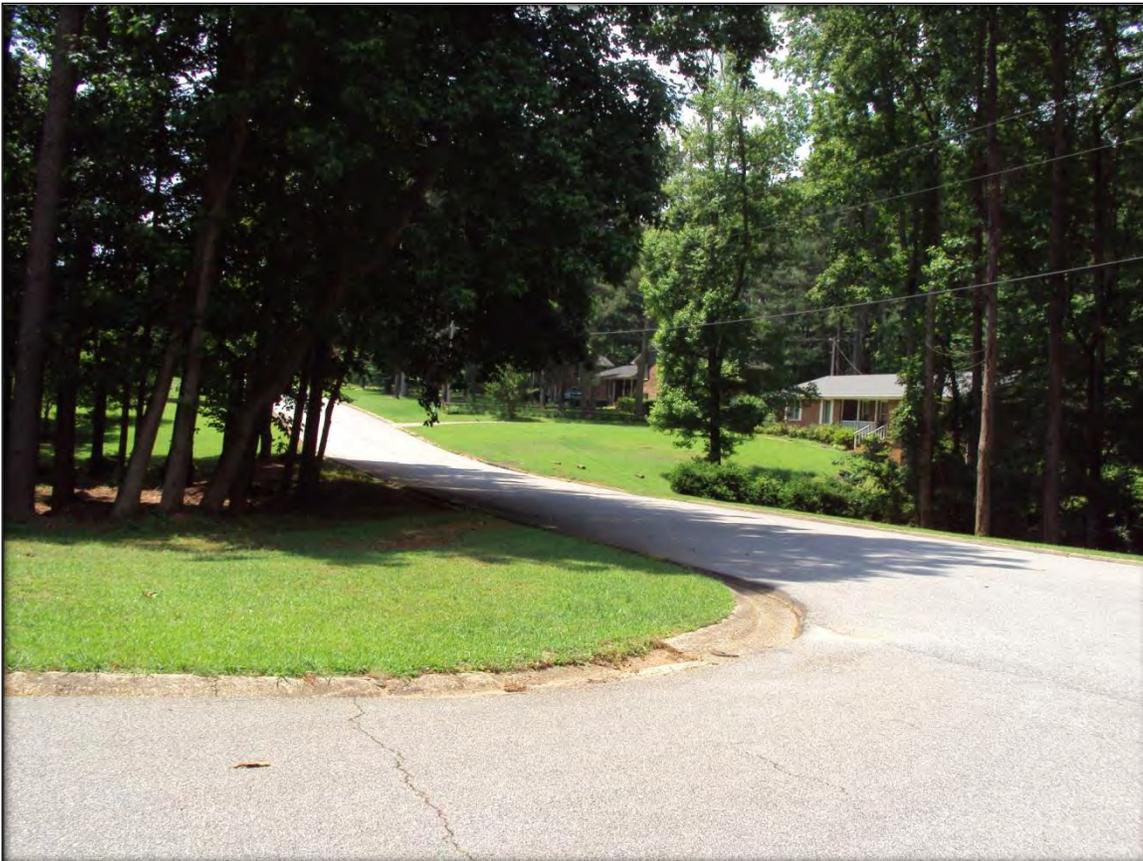
Project ID	Project Name	Project Description	Cost
	Brittany Way	6'x4' RBC, 60', system evaluation	\$57,424.08
	Covered Bridge Trl	Ditch rehab/plunge pool armoring; pipe upsizing	\$25,000.00
	Emerald Lake Dam	Emerald Lake Dam is a Safe Dams Program Category II structure located predominantly within Fayette County Right-of-Way. The project includes evaluation, design, permitting, and construction of various operational and maintenance improvements. Minimum field activities shall include: clearing of vegetation, build-out of slopes, installation of seepage drains, and rehabilitation of spillway outlet pipes.	\$911,482.00
	Kozisek Dam <sup>1</sup>	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.	\$250,000.00
	Lawson Ln	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.	\$51,661.00
	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. The cost estimate is based on the preferred dam upgrade option.	\$1,409,815.00
	Merrydale Dr	500' stream restoration, floodplain storage	\$125,000.00
	Oak St	3'x2' RBC, 80'	\$78,506.47
<b>TOTAL :</b>			<b>\$2,908,888.55</b>



General Information		Map	
<b>Project ID</b>			
<b>Street Name</b>	<b>Brittany Way</b>		
<b>Site Visit Date</b>	6/11/2013		
<b>Road Classification</b>	Internal Local		
<b>Project Notes</b>			
Neighborhood drainage system evaluation and replacement. Rural typical section			
<b>Field Notes</b>			
<b>Design (Existing Site Features)</b>			
<b>Existing Road Laneage</b>	2 - 12'		
<b>Existing Shld Width (paved and grass) (feet)</b>	4' (Grass)		
<b>Existing Side Slopes</b>	flat		
<b>Existing Guardrail</b>	None		
<b>Depth fm Pavement to Top of Culvert (ft):</b>	4		
<b>Pipe Type and Size</b>	30", 150'		
<b>Pipe Condition (1-5) (1 is new)</b>	4 (Installation)		
Condition Notes: Downstream pipe is too long to collect area drainage creating wet conditions between headwall and road			
<b>Pavement Type/Condition</b>	Asphalt/Good		
<b>Environmental Features</b>		<b>Stage Construction Options</b>	
<b>Wetlands</b>	None	<b>Close Location to Traffic</b>	X
<b>Ditches</b>	X	<b>Maintain One Lane - No Temp Pavement</b>	
		<b>Maintain One Lane - Temp Pavement</b>	
		Stage Construction Notes:	
<b>Utilities (Visual Inspection)</b>			
<b>Electric</b>	Aerial		
<b>Cable</b>	Aerial		
<b>Phone</b>	Aerial		
<b>Gas</b>	None		
<b>Water</b>	X		
<b>Sewer</b>	None		
<b>Other</b>			
<b>Proposed Design</b>			
<b>Roadway Section</b>			
<b>Culvert Size &amp; Material</b>	6' x 4' box, concrete, 60' length		
<b>Utility Relocations</b>	Water		
<b>Guardrail Replacement</b>			
<b>Miscellaneous Features</b>	Daylighting ~ 90' stream upstream of road to allow local drainage to enter culvert.		
	Assumed hydraulic analysis of existing system		
<b>Planning Cost Estimate</b>			
<b>Type</b>	<b>Notes</b>	<b>Total</b>	
<b>System Evaluation</b>		\$5,000.00	
<b>Design</b>		\$2,993.10	
<b>Right of Way Cost</b>		\$4,000.00	
<b>Utility Relocation Cost</b>		\$5,500.00	
<b>Construction Cost</b>		\$29,930.98	
<b>Environmental Permits</b>		\$10,000.00	
<b>Total Planning Estimate</b>		<b>\$57,424.08</b>	



**Photo 1:**



**Photo 2:**

Brittany Way

**Photo Date:**

5/21/21013

**Taken By:**

David King

**Page:**

**1**

**Roadway Construction, Utility Relocation and ROW Quantity Calculations**

Roadway Construction	Installation Unit Cost	Amount	Total Cost
Pavement			\$ 1,809.19
Curb and Gutter (LF)	\$ 27.50		
4" Sidewalk (SY)	\$ 49.50		
Guardrail (LF)	\$ 57.20		
End Anchorage (EA)	\$ 2,530.00		
Subtotal			\$ 1,809.19
Grading Complete (5% of Rwy Items & Drng Total \$)			\$ 789.69
<b>Roadway Total</b>			<b>\$ 2,598.89</b>

Drainage	Removal Unit Cost	Installation Unit Cost	Amount	Total Cost
Class A Conc (cy)		\$ 698.50	17	\$ 11,933.87
Steel (lb)		\$ 1.38	1227.5	\$ 1,687.81
Type 2 Back Fill (cy)		\$ 60.50	6	\$ 363.00
<b>Drainage Total</b>				<b>\$ 13,984.69</b>

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (mile)			\$ -
<b>Signing and Marking Total</b>			<b>\$ -</b>

Staging	Installation Unit Cost	Amount	Total Cost
Temporary Pavement			\$ -
Temporary Drainage (Stream Diversion)	\$ 5,000.00	1	\$ 5,000.00
<b>Staging Total</b>			<b>\$ 5,000.00</b>

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	0	\$ -
Erosion Control Mats (SY)	\$ 2.75	50	\$ 137.50
Mulch (TN)	\$ 286.00	1.5	\$ 429.00
Sod (SY)	\$ 9.90	300	\$ 2,970.00
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	\$ -
<b>Erosion Control Total</b>			<b>\$ 6,130.30</b>

<b>Construction Cost Total</b>			<b>\$ 27,713.87</b>
<b>Traffic Control (8% of Construction Total \$)</b>			<b>\$ 2,217.11</b>
<b>Construction Cost Grand Total</b>			<b>\$ 29,930.98</b>

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

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	\$ 2.00	2000	\$ 4,000.00
<b>ROW Total</b>			<b>\$ 4,000.00</b>



General Information	
Project ID	
Location	Covered Bridge Trl
Site Visit Date	6/11/13
Project Notes	
Single Property	
Field Notes	
Outlet for neighborhood stormwater system has severely eroded drainage ditch to stream; headwall of outlet has fallen off and there is a 10'+ plunge	
Project Description	
Approximately 170 LF of drainage ditch rehab and plunge pool armoring; velocity dissipation or upsizing of pipe is necessary; elevation control and re-grading of ditch's profile	
Approximate Cost Summary	
<b>\$25,000</b>	

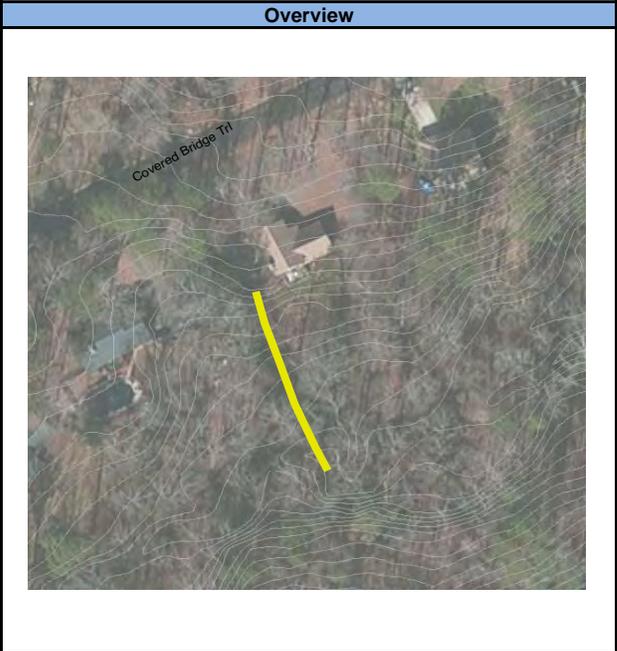
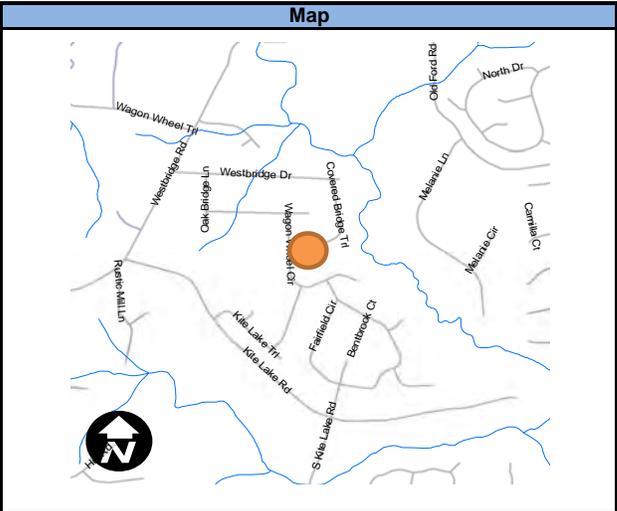


PHOTO:





**ORDER OF MAGNITUDE OPINION OF COST  
FOR THE REHABILITATION  
OF EMERALD LAKE DAM  
FOR**



**FAYETTE COUNTY BOARD OF COMMISSIONERS**  
**STEVE BROWN, CHAIRMAN**  
**CHARLES ODDO, VICE CHAIRMAN**  
**DAVID BARLOW**  
**RANDY OGNIO**  
**ALLEN McCARTY**



**August 5, 2013**



**WALDEN, ASHWORTH & ASSOCIATES, INC.**  
Consulting Engineers

**EMERALD LAKE DAM  
FAYETTE COUNTY, GEORGIA  
ORDER OF MAGNITUDE  
OPINION OF COST**

**WALDEN, ASHWORTH & ASSOCIATES, INC.  
CONSULTING ENGINEERS**

August 5, 2013  
WA&A J.O. 3301800





**EMERALD 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 Emerald 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 Emerald Lake Dam 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. Although the Emerald Dam is classified as a Category II structure, the Safe Dams Program does maintain a file with very limited data for it. As part of the scope of work, we reviewed the file for the dam at the offices of the Safe Dams Program.



### **DESCRIPTION OF DAM**

The Emerald Lake Dam is an estimated 600 feet long and has a top width of 30 feet. The dam is approximately 15 feet high and impounds a lake having a surface of approximately 18 acres at normal pool with a drainage basin of approximately 1,360 acres (2.1 sq. mi.).

The normal pool elevation of the lake is controlled by a Corrugated Metal Pipe (CMP), riser and low level discharge pipe, and a reinforced concrete weir box with 5 Corrugated Metal Pipe (CMP) outlets. No secondary spillway was observed.

### **ASSUMPTIONS USED IN OPINION OF COST**

Our Opinion of Cost is based on a classification of Category II by the Georgia Safe Dams Program. The rehabilitation is expected to 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. It does not include additional spillway capacity that might ultimately be required. We have, however, included the rehabilitation of the spillway outlet pipes.

It is not possible to determine the adequacy of the capacity of the spillway without a detailed hydrological and hydraulic evaluation. Such an evaluation is beyond the scope of this Order of Magnitude estimate. It is important to understand that a more detailed engineering evaluation will be required before a more refined opinion of cost can be developed.

We have also included the projected cost for a geotechnical evaluation of the dam, surveying and a preliminary hydrology and hydraulic evaluation to explore various options for bringing the structure into compliance with Category I standards.

### **EASEMENTS**

The work required to rehabilitate the Emerald 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**

<b>PARCEL NO.</b>	<b>AREA IMPACTED (SQ FT)</b>
051904034	7,500
051907008	10,150
051906008	1,000
051906007	25,300
051906006	6,750
051904053	27,500



**EMERALD LAKE DAM  
FAYETTE COUNTY, GEORGIA  
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 Emerald Lake Dam. The Opinion of Cost presented here is an Order of Magnitude estimate based on a Category II 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**

#### **SLIPLINE, SLOPE MODIFICATION AND SEEPAGE CONTROL**

Surveying for Design	\$ 10,000
Geotechnical Exploration	\$ 22,000
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	\$ 12,000
* Geotechnical Construction Monitoring	\$ 100,000

\* Assumes 3 month construction monitoring

#### **EVALUATION OF DAM FOR CATEGORY I STANDARDS**

Preliminary Evaluation Report	\$ 9,000
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### **CONSTRUCTION**

Opinion of Construction Cost	<u>\$ 724,482</u>
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**TOTAL REHABILITATION COST** **\$ 911,482**

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



## **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
<b>Professional Services</b>				
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 <sup>1</sup>				\$7,000
Geotechnical Construction Monitoring <sup>1</sup>				\$10,000
1. Assumes two month construction monitoring				
<b>Subtotal</b>				<b>\$64,000</b>
<b>Construction Activities</b>				
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
<b>Subtotal</b>				<b>\$150,000</b>
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
<b>Subtotal</b>				<b>\$36,000</b>
<b>Total Project Cost</b>				<b>\$250,000</b>

### 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		Map	
Project ID			
Street Name			
Site Visit Date			
Road Classification			
Project Notes			
Field Notes			
Design (Existing Site Features)			
Existing Road Laneage			
Existing Shld Width (paved and grass) (feet)			
Existing Side Slopes			
Existing Guardrail			
Depth fm Pavement to Top of Culvert (ft):			
Pipe Type and Size			
Pipe Condition (1-5) (1 is new)			
Condition Notes:			
Pavement Type/Condition			
Environmental Features		Stage Construction Options	
Wetlands		Close Location to Traffic	
Ditches		Maintain One Lane - No Temp Pavement	
		Maintain One Lane - Temp Pavement	
		Stage Construction Notes:	
Utilities (Visual Inspection)			
Electric			
Cable			
Phone			
Gas			
Water			
Sewer			
Other			
Proposed Design			
Roadway Section			
Culvert Size & Material			
Utility Relocations			
Guardrail Replacement			
Miscellaneous Features			
Planning Cost Estimate			
Type	Notes	Total	
Design			
Right of Way Cost			
Utility Relocation Cost			
Construction Cost			
Environmental Permits			
<b>Total Planning Estimate</b>			

Estimate Sheet

FAYETTE COUNTY ROAD DEPARTMENT

Lawson Lane - Northridge S/D

BY: PJM  
DATE: 7/2/13

Enhancement work based on previous staff investigation and July 2, 2013 field visit and discussion with property owners. Project includes:

- 100 Lawson Lane: replace existing 15-inch CMP with 30-inch pipe (200 ft) plus headwall
- 110 Lawson Lane: add 2 catch basins and 36-inch pipe, 230 ft plus headwall
- 125 Lawson Lane: add yard drain plus 36-inch pipe to new catch basins (150 ft)
- 105 Largo Lane: add flume to drain road to receiving water

ITEM	UNIT	QUAN	Infl	PROJ QUAN	MATERIAL COST	
					UNIT COST	TOTAL
Mobilization	lump	1	0%	1	0.00	0.00
Traffic Control	lump	1	0%	1	50.00	50.00
ESC	lump	1	0%	1	2500.00	2500.00
<b>Drainage Systems:</b>						
30" RCP	lf	200	0%	200	26.00	5200.00
30" HW	ea	1	0%	1	401.00	401.00
36" RCP	lf	380	0%	380	34.00	12920.00
36" Headwall	ea	1	0%	1	470.00	470.00
Catch Basin / Yard Drain	ea	3	0%	3	3000.00	9000.00
Foundation backfill	ton	398	0%	398	7.50	2985.00
Concrete Flume	ea	1	0%	1	3000.00	3000.00
<b>Repair Road:</b>						
Saw cut asphalt	lf	224	0%	224	0.50	112.00
Asphalt 9.5 mm Superpave 3.5"	ton	14	0%	14.0	47.00	658.00
GAB 12"	ton	28	0%	28	7.50	210.00
24" Rollback Curb	lf	20	0%	20	20.00	400.00
Grass / Landscaping (sod)	lump	1	0%	1	1500.00	1500.00
<b>Equipment:</b>						
Dump truck	hrs	40	0%	40	43.00	1720.00
Small Excavator	hrs	24	0%	24	40.00	960.00
Flat Bed truck	hrs	40	0%	40	28.00	1120.00
Crew cab pickup	hrs	40	0%	40	30.00	1200.00
Gradall	hrs	16	0%	16	39.00	624.00
Compactor plate	hrs	16	0%	16	6.75	108.00
Asphalt Spreader	hrs	8	0%	8	179.12	1432.96
Asphalt Roller (Lee Boy 400)	hrs	8	0%	8	12.50	100.00
<b>Labor:</b>						
4 man crew	hrs	48	0%	48	103.95	4989.60

\$51,661

**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





**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**

<b>PARCEL NO.</b>	<b>AREA IMPACTED (SQ FT)</b>
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	<u>\$ 1,216,815</u>
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**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



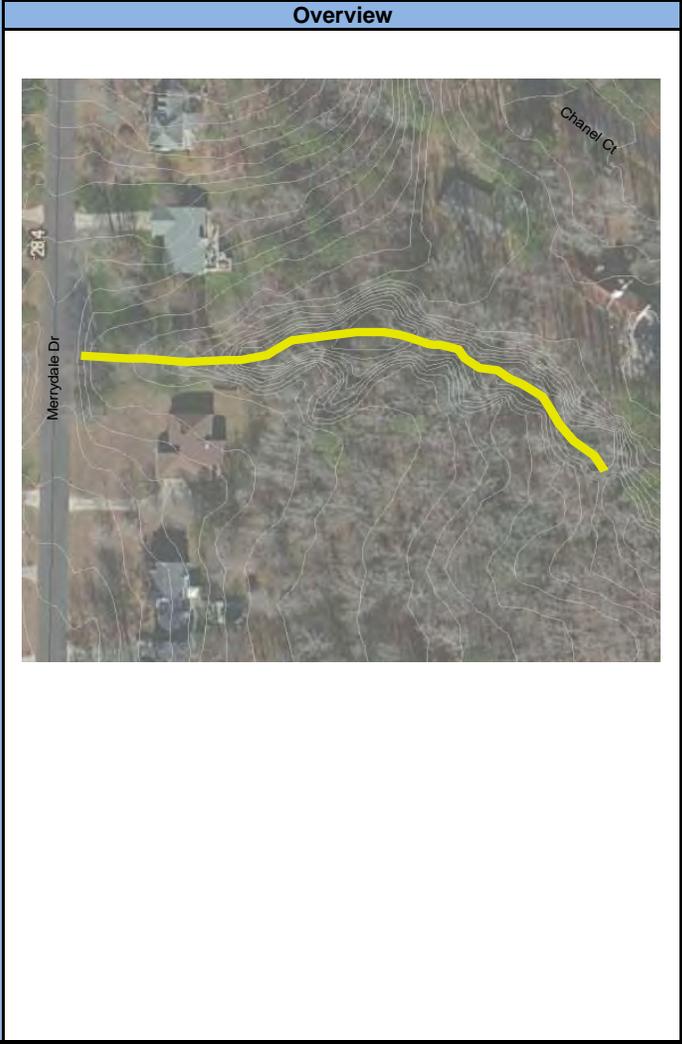
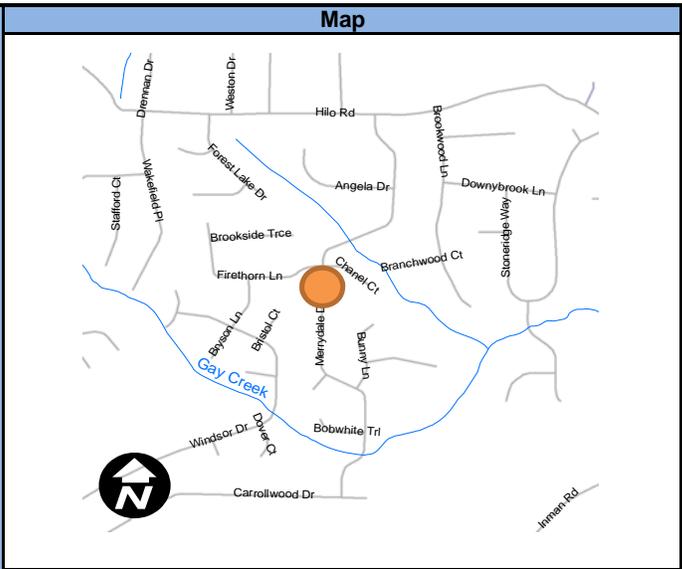
**MARGARET PHILLIPS LAKE DAM  
ORDER OF MAGNITUDE  
OPINION OF CONSTRUCTION COST**

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
<b>SUBTOTAL</b>				<b>\$921,828</b>
GENERAL CONDITIONS (7%)				\$64,531
OVERHEAD & PROFIT (15%)				\$138,274
CONTINGENCY (10%)				\$92,183
<b>SUBTOTAL</b>				<b>\$294,988</b>
<b>Total Estimated Construction Cost Budget</b>				<b>\$1,216,815</b>

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.

General Information	
<b>Project ID</b>	
<b>Location</b>	<b>Merrydale Dr</b>
<b>Site Visit Date</b>	6/11/13
Fayette County Notes	
According to County notes, developer filled in floodplain and needs mitigation	
Field Notes	
Private property issues with fences on both sides of stream downstream of Merrydale within buffer; approx. 150' downstream of Merrydale stream plunges 10+ ft with severe erosion	
Project Description	
Approximately 500 LF of stream restoration that includes re-grading stream profile with elevation controls and creating floodplain to reconnect overbank flow	
Existing Conditions Photo	
	



**Total Planning Estimate**

**\$125,000.00**



**Photo 1:**



**Photo 2:**

Merrydale Drive

**Photo Date:**

5/21/2013

**Taken By:**

David King

**Page:**

**1**



**Photo 3:**



**Photo 4:**

Merrydale Drive

**Photo Date:**

5/21/2013

**Taken By:**

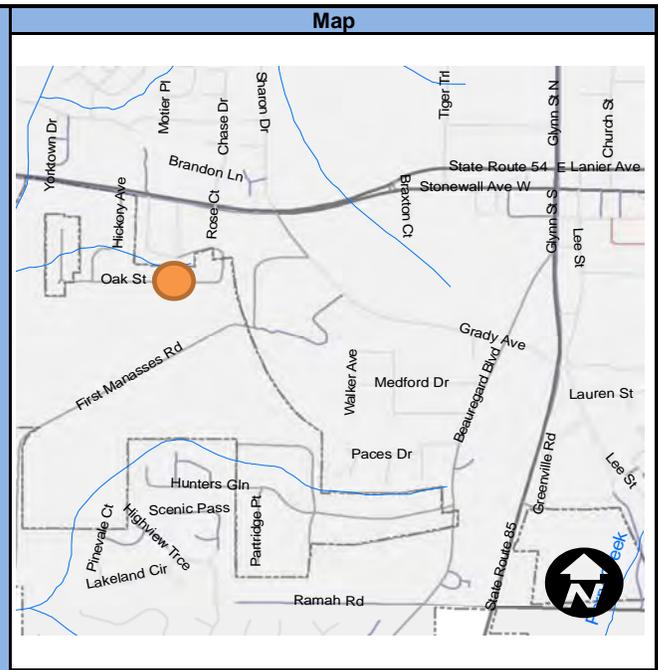
David King

**Page:**

**2**



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	



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		\$15,000.00
Right of Way Cost		\$4,000.00
Utility Relocation Cost		\$5,500.00
Construction Cost		\$44,006.47
Environmental Permits		\$10,000.00

<b>Total Planning Estimate</b>	<b>\$78,506.47</b>
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**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

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**2**

**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
<b>Roadway Total</b>			<b>\$ 4,935.91</b>

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
<b>Drainage Total</b>				<b>\$ 22,731.94</b>

Signing and Marking	Installation Unit Cost	Amount	Total Cost
Permanent Striping (mile)			\$ -
<b>Signing and Marking Total</b>			<b>\$ -</b>

Staging	Installation Unit Cost	Amount	Total Cost
Temporary Pavement			\$ -
Temporary Drainage (Stream Diversion)	\$ 10,000.00	1	\$ 10,000.00
<b>Staging Total</b>			<b>\$ 10,000.00</b>

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	\$ -
<b>Erosion Control Total</b>			<b>\$ 3,847.69</b>

<b>Construction Cost Total</b>			<b>\$ 41,515.54</b>
<b>Traffic Control (6% of Construction Total \$)</b>			<b>\$ 2,490.93</b>
<b>Construction Cost Grand Total</b>			<b>\$ 44,006.47</b>

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

Right of Way (Sq Ft)	Cost/ Sq Ft	Sq Ft	Total Cost
Permanent Easement	\$ 2.00	2000	\$ 4,000.00
<b>ROW Total</b>			<b>\$ 4,000.00</b>