PRELIMINARY ENGINEERING REPORT

WATER SYSTEM IMPROVEMENTS

TO SERVE SOUTHPOINT SUBDIVISION

KOONCE, NOBLE & ASSOCIATES, INC.

CONSULTING ENGINEERS

LUMBERTON, NORTH CAROLINA

JULY, 2008

REVISED OCTOBER, 2008

PRELIMINARY ENGINEERING REPORT

WATER SYSTEM IMPROVEMENTS

TO SERVE SOUTHPOINT SUBDIVISION

KOONCE, NOBLE & ASSOCIATES, INC.

CONSULTING ENGINEERS

LUMBERTON, NORTH CAROLINA

JULY, 2008

REVISED OCTOBER, 2008

INDEX

I. General: Benzene has been detected in a residential well in Southpoint Subdivision in Cumberland County. It is expected, with the increased development that is occurring in this area, the pollution will soon spread to other wells. The purpose of this report is to determine the best method of providing the area with a public water supply.

II. Project Planning Area:

A. **Location**: The project area is located in Southwest Cumberland County adjacent to Chickenfoot Road and is shown on the attached map 1. Southpoint Subdivision is approximately one mile east of Robeson County and 1.3 miles north of Bladen County.

B. **Environmental Resources Present**: Gallberry Swamp is approximately one mile west of the project area. Any water main extension from Robson County on Parkton Tobemory/Yarborough Road would have to cross Gallbery Swamp. A directional bore would be used to minimize any environmental impacts.

C. **Growth Areas and Population Trends**: The Office of State Management and Budget estimates the July 2006 population of Cumberland County to be 310,637 and projects the July 2026 population for Cumberland County to be 342,043. This is a growth rate of approximately 0.48 % per year. The planning area is rapidly growing and is expected to at least match the growth rate for the county.

III. Existing Facilities: A public water supply is not currently available in the project area. All residents receive their water supply from private wells.

There are two existing water systems in the vicinity of the project area: (1) The Robeson County County-Wide Water System and (2) The Bladen County Regional Water System. Maps in Appendix D show the possible connections to the two existing systems. Both systems have the capacity to serve the immediate water system demand for the project area, but Bladen County cannot provide water until filters are constructed for a well that has a high iron content. This construction

is expected to be completed by the end of the year. Although both systems can provide for the Southpoint Subdivision, they cannot currently provide sufficient water to meet the future growth demands of the area. It is expected that both systems could provide additional facilities to accommodate the potential growth, but that is outside the scope of this study.

The Robeson County County-wide Water System currently consists of approximately 1720 miles of water mains, 23,500 metered connections, 17 elevated water storage tanks, 1 ground storage tank, 14 well water treatment facilities and 31 production wells. The North Carolina Division of Health Services has approved three additional wells for construction. Total storage including the ground storage is 7.85 million gallons.

If Robeson County were to serve the project area, the water would be primarily produced by the Parkton, St. Pauls East, and Rocco Well Treatment Facilities depending on varying hydraulic conditions. Additional water storage would be provided by the Shaw Mill Elevated Water Storage Tanks and a proposed 200,000 gallon tank in the Greensprings area.

The Parkton Facility is located on US 301 East of Parkton and consists of a well, well pump, aeration basin, two high service pumps, chemical feed system (fluoride, caustic, polyphosphate and chlorination), two pressure filters, and a 100,000 gallon elevated water storage tank.

The St. Pauls Facility is located on NC 20 on the East side of St. Pauls and consists of a well, well pump, aeration basin, two high service pumps, chemical feed system (fluoride, caustic, polyphosphate and chlorination), two pressure filters, and a 200,000 gallon elevated water storage tank.

The Rocco Facility is located on NC 20 East of the St. Pauls Facility and across from the Prestage Turkey Plant. This facility consists of four wells, chemical feed system (fluoride, caustic, polyphosphate and chlorination), two high service pumps, a 2 MGD concrete treatment structure, infiltration backwash lagoon, a 750,000 gallon ground storage tank and a 500,000 gallon elevated

storage tank. The concrete treatment structure consists of an aeration basin, a gravity filter with four cells, and a clearwell.

The Shaw Mill elevated storage tank is a 500,000 gallon tank located off of Balance Farm Road approximately 2500 feet north of Shaw Mill Road.

The Southpoint Subdivision would be served from the two existing 8" diameter water mains that connect at the intersection of Parkton Tobemory Road and Balance Farm Road. Static pressures were recorded at this location from July 3, 2008 through July 13, 2008 and ranged from 45 to 70 psi. A flow test conducted on July 29, 2008 indicated a static of 52 psi and a residual of 39 psi at a flow of 866 gpm. Hydraulic calculations indicate that the available pressure is adequate to serve the Southpoint Subdivision.

Bladen County has existing water mains at the intersection of Shaw Mill Road and Chickenfoot Road.

IV. Need for the Project: Benzene, a known carcinogen has been detected in one of the wells in the Southpoint Subdivision. The primary concern is that, with the recent development in this area and the installation of numerous residential wells, the contamination will spread to the other residential wells in the subdivision.

V. Alternatives Considered: Four alternatives have been considered.

A. Alternative 1: No Action: Alternative 1 is not to take any action. This alternative is not acceptable because the residents would still be on private wells subject to contamination.

B. Alternative 2: Extend Potable Water Main From Robeson County County-Wide Water System.

1. **Description:** This alternative will extend potable water mains from Robeson County to Southpoint Subdivision. The proposed water main will connect to the existing water system at the intersection of Parkton Tobemory Road and extend an 8" water main along Parkton To-

bemory/Yarborough Road to the intersection of Chickenfoot Road in Cumberland County. The water main will then extend approximately 700 feet to the Southpoint Subdivision and 5600 feet to County Line Road. Approximately 16,700 feet of 8" and 6,600 feet of 6" diameter water main will be required. There are 59 existing residences along the route to Southpoint that could be served by the project and 54 existing residences in the Southpoint Area. The total demand created by 113 services for design purposes would be 45,200 gpd; and the peak residential flow would be 145 GPM. The demand used for cost analysis is based on 80% connections and a daily demand of 24,427 gpd.

2. **Design Criteria**: The project would comply with the requirements of the Division of Environmental Health, Public Water Supply Section.

3. **Environmental Impacts**: This alternative should not require an environmental impact study. The only major environmental issue is the crossing of Gallberry Swamp which will be accomplished by directional boring. Directional boring under a stream does not require a wetland permit.

4. **Land Requirements**: Additional land would not be required for this alternative. A right of way encroachment agreement would be required with the North Carolina Department of Transportation.

5. **Construction Problems**: The only major construction problem expected with this alternative is the crossing of Gallberry Swamp which, as discussed previously, will be accomplished by directional boring.

6. **Opinion of Probable Cost**: The opinion of probable cost for Alternative 2 is as follows:

Construction:	$530,000.00
Design:	$47,000.00
Construction Observation:	$18,300.00
Contingency:	$53,000.00
Total Project:	$648,300.00

A detailed breakdown is contained in Appendix A.

7. **Advantages**: The advantage of this alternative is that it will provide potable water to the 54 residences of Southpoint and 59 residences along the proposed route. This alternative has a higher project cost than Alternative 3, but also has more services and, therefore, will generate more revenue to offset the project cost.

C. Alternative 3:

1. **Description**: This alternative will extend potable water mains from Bladen County to Southpoint Subdivision. The proposed water main will connect to the existing water system at the intersection of Shaw Mill Road and Chickenfoot Road and extend an 8" water main along Chickenfoot Road to the Southpoint Subdivision. Approximately 9,000 feet of 8" and 6,600 feet of 6" diameter water main will be required. There are 31 existing residences along the route to Southpoint that could be served by the project and 54 existing residences in the Southpoint Area. The total demand for design purposes created by 85 services would be 34,000 gpd, and the peak residential flow would be 120 GPM. The demand used for cost analysis is based on 80% connections and a daily demand of 17,852 gpd.

2. **Design Criteria**: The project would comply with the requirements of the Division of Environmental Health, Public Water Supply Section.

3. **Environmental Impacts:** This alternative should not require an environmental impact study. This alternative will not require the crossing of a swamp.

4. **Land Requirements**: Additional land would not be required for this alternative. A right of way encroachment would be required with DOT.

5. **Construction Problems**: No major construction problems are expected with this alternative.

6. **Opinion of Probable Cost**: The opinion of probable cost is as follows:

Construction:	$315,000.00
Design:	$ 28,350.00
Construction Observation:	$ 11,025.00
Contingency:	$ 31,500.00
Total Project:	$385,875.00

A detailed breakdown is contained in Appendix A.

7. **Advantages**: Alternative 3 has a lower project cost than Alternative 2, but will also have fewer customers which results in lower income. Alternative 3 does not have to cross a swamp with the water main.

D. Alternative 4:

1. **Description**: This alternative would be to construct a Well Treatment Facility. Once a possible well site was found, a test well would need to be installed to determine if a production well on the site would be feasible. The system would need to be able to serve at least the 54 lots in the Southpoint Area. The facilities would need to include a production well, treatment, and storage. The treatment required cannot be determined until a test well is installed. It is also possible that the water quality in the production well could vary from the test well. This report is based on the assumption that filtration would be required for treatment.

Storage would also be required. This could be an elevated tank or a hydro-pneumatic tank. This report is based on a hydro-pneumatic tank.

2. **Design Criteria**: The project would comply with the requirements of the Division of Environmental Health, Public Water Supply Section.

3. **Environmental Impacts**: This alternative should not require an environmental impact study. This alternative will not require the crossing of a swamp.

4. **Land Requirements**: Additional land would be required for the well treatment facility. The production well would need to have a minimum of a 100 foot radius around the well. Approximately two acres of land would be needed.

5. **Construction Problems**: The major problem with this alternative is finding an available site that will yield a well with suitable water quality.

6. **Opinion of Probable Cost**: The opinion of probable cost is as follows:

Construction:	$669,950.00
Design:	$ 59,800.00
Testing	$ 5,000.00
Construction Observation:	$ 23,200.00
Land	$ 30,000.00
Contingency:	$ 67,100.00
Total Project:	$855,000.00

A detailed breakdown is contained in Appendix A.

VI. Selection of Alternative:

A. **Alternative 1 - No Action**: The no action alternative is not acceptable because it will not solve the problem with the contamination of the wells.

B. **Alternative 2:** This alternative, extend potable water mains from Robeson County, is the recommended alternative. It has a higher initial cost, but will serve more customers and, therefore, generate more income. This results in Alternative 2 having a lower present worth cost. The present worth for Alternative 2 is $325,508.22.

C. Alternative 3: This alternative, extend potable water main from Bladen County, was not the recommended alternative. The present worth cost was higher than Alternative 2 due to fewer customers and the fact that Bladen County cannot serve this project until filters are constructed for an existing well which could cause delays.

D. Alternative No. 4. – This alternative is to construct a well treatment facility to serve the area. There could be problems obtaining a suitable well and the present worth cost for this alternative is high.

VII. Proposed Project: Alternative 2, extending potable water main from Robeson County, is the recommended alternative. The proposed water main will connect to the existing water system at

the intersection of Parkton Tobemory Road and extend a 8" water main along Parkton Tobemory/Yarborough Road to the intersection of Chickenfoot Road in Cumberland County. The water main will then extend approximately 700 feet to the Southpoint Subdivision and 5600 feet to County Line Road. Approximately 16,700 feet of 8" and 6,600 feet of 6" diameter water main will be required. There are 59 existing residences along the route to Southpoint that could be served by the project and 54 existing residences in the Southpoint Area. The total demand created by 113 services would be 45,200 gpd and the peak residential flow would be 145 GPM. The opinion of probable project cost is as follows:

Total Construction:	$530,000.00
Design:	$ 47,000.00
Construction Observation:	$ 18,300.00
Contingency:	$ 53,000.00
Total Project:	$648,300.00

A detailed breakdown is contained in Appendix A.

VIII. **Conclusions and Recommendations:** This report recommends that Cumberland County pursue Alternative 2, extension of potable water mains from Robeson County. Robeson County should be contacted for discussion of possible contract arrangements. This report is based on Cumberland buying bulk water from Robeson County and maintaining the system. Options to discuss with Robeson County could include Robeson County owning and maintaining the system or Cumberland owning the system and contracting maintenance to Robson County.

Funding Agencies should also be contacted to obtain funding. This report could be used and modified as needed by the funding agencies.

APPENDIX A

OPINION OF PROBABLE COST

Alternative No. 2 Connection To Robeson County

8" PVC Water Main	16,710	l.f.	@	$13.00	=	$217,230.00
6" PVC Water Main	6,640	l.f.	@	$10.00	=	$66,400.00
10" HDPE	200	l.f.	@	$125.00	=	$25,000.00
16" Steel Casing Pipe	60	l.f.	@	$150.00	=	$9,000.00
8" X 8" Tapping Sleeve & Valve	1	Ea.	@	$2,500.00	=	$2,500.00
8" Gate Valve & Box	12	Ea.	@	$1,000.00	=	$12,000.00
6" Gate Valve & Box	27	Ea.	@	$750.00	=	$20,250.00
Fire Hydrants	17	Ea.	@	$2,600.00	=	$44,200.00
Ductile Iron Fittings	5,110	lbs.	@	$5.00	=	$25,550.00
Master Meter	1	Ea.	@	$30,000.00	=	$30,000.00
3/4" Short Residential Service	59	Ea.	@	$600.00	=	$35,400.00
3/4" Long Residential Service	54	Ea.	@	$700.00	=	$37,800.00
Concrete Blocking	16.4	C.Y.	@	$250.00	=	$4,100.00
Total Construction						$529,430.00
Total Construction						$530,000.00
Design						$47,000.00
Construction Observation						$18,300.00
Contingency						$53,000.00
Total Project Cost						$648,300.00

Alternative No. 3 Connection To Bladen County

8" PVC Water Main	8,960	l.f.	@	$13.00	=	$116,480.00
6" PVC Water Main	6,640	l.f.	@	$10.00	=	$66,400.00
16" Steel Casing Pipe	60	l.f.	@	$150.00	=	$9,000.00
12" Steel Casing Pipe	30	l.f.	@	$125.00	=	$3,750.00
8" X 8" Tapping Sleeve & Valve	1	Ea.	@	$2,500.00	=	$2,500.00
8" Gate Valve & Box	6	Ea.	@	$1,000.00	=	$6,000.00
6" Gate Valve & Box	21	Ea.	@	$750.00	=	$15,750.00
Fire Hydrants	12	Ea.	@	$2,600.00	=	$31,200.00
Ductile Iron Fittings	4,000	lbs.	@	$5.00	=	$20,000.00
Master Meter	1	Ea.	@	$30,000.00	=	$30,000.00
3/4" Short Residential Service	38	Ea.	@	$600.00	=	$22,800.00
3/4" Long Residential Service	45	Ea.	@	$700.00	=	$31,500.00
Concrete Blocking	12.0	C.Y.	@	$250.00	=	$3,000.00
Total Construction						$358,380.00
Total Construction						$359,000.00
Design						$32,000.00
Construction Observation						$12,600.00
Contingency						$35,900.00
Total Project Cost						$439,500.00

Cumberland County Well Treament Facility
Opinion of Probable Cost

Well Treatment	$334,100.00
Production Well	$83,000.00
Hydro Pneumantic Tank	$15,000.00
Distribution	$237,800.00
Total Consturction	$669,900.00
Design	$59,800.00
Testing	$5,000.00
Construction Observation	$23,200.00
Land	$30,000.00
Contingency	$67,100.00
Total Project	$855,000.00

Alternative No. 4 Distribution

6" PVC Water Main	13,275	l.f.	@	$10.00	=	$132,750.00
12" Steel Casing Pipe	30	l.f.	@	$125.00	=	$3,750.00
6" Gate Valve & Box	27	Ea.	@	$750.00	=	$20,250.00
Fire Hydrants	11	Ea.	@	$2,600.00	=	$28,600.00
Ductile Iron Fittings	2,750	lbs.	@	$5.00	=	$13,750.00
3/4" Short Residential Service	31	Ea.	@	$600.00	=	$18,600.00
3/4" Long Residential Service	25	Ea.	@	$700.00	=	$17,500.00
Concrete Blocking	10.3	C.Y.	@	$250.00	=	$2,575.00
Total Construction						$237,775.00

Alternative No. 4 Production Well

Test Well	$15,000.00
Production Well	$40,000.00
Pump	$18,000.00
Piping	$5,000.00
Slab	$5,000.00
Total Construction	$83,000.00

Alternative No. 4 Well Treatment Units

See attached sheet

Cumberland County Well Treatment Units
Opinion of Probable Cost

Building							
	Shell					$50,000.00	
	Electrical					$10,000.00	
	HVAC					$8,000.00	
	Piping					$6,000.00	
							$74,000.00
Filtration							
	Filters					60000	
	Piping					10000	
							$70,000.00
Aeration Basin							
	Concrete						
	Slab	8 CY	@	$500.00	$4,000.00		
	Walls	12 CY	@	$700.00	$8,400.00		
	Roof	3 CY	@	$900.00	$2,700.00		
						$15,100.00	
	Aerator					$16,000.00	
	Rails & Hatches					$6,000.00	
							$37,100.00
Booster Pumps							
	Pumps	2 Ea	@	$15,000.00	$30,000.00		
	Piping				$18,000.00		
	Conc. Slab				$5,000.00		
							$53,000.00
Chemical Feed							$25,000.00
Site Piping							$9,000.00
Site Work							$12,000.00
Fence							$8,000.00
Site Elect.							$16,000.00
Instrumentation							$12,000.00
Gravel Drive							$2,000.00
Misc							$16,000.00
Total Construction							$334,100.00

APPENDIX B
PRESENT WORTH ANALYSIS

Present Worth

	Alternative #2	Alternative #3	Alternative #4
Project Cost	$648,300.00	$439,500.00	$855,000.00
Annual Income	$40,828.50	$29,848.50	$20,587.50
Annual Cost	$31,819.80	$31,782.00	$38,000.00
Salvage Value	$324,150.00	$219,750.00	$427,500.00
Interest Rate	2.8	2.8	2.8
Life	30	30	30
Present Worth	$325,508.22	$382,426.34	$1,018,588.18

APPENDIX C

RATE SCHEDULE AND BUDGET

USDA/RD LOAN WITH NO GRANT

BUDGET FOR COMPLETED FACILITY

Alternative No. 2

	(FISCAL YEAR 2008-2009	Estimated (Completed Facility)
INCOME:		
Water Charges	$0.00	$40,828.50
Other: Service Charges, Tap-On Fees		$0.00
Sales and Investment Earnings		
Fund Balance Appropriation	$0.00	$0.00
Non-Operating Revenue		$0.00
TOTAL	$0.00	$40,828.50
EXPENSES:		
Salaries:		
Labor	$0.00	$0.00
Contracted Services	$0.00	$18,000.00
Office Exp. (Supplies, Postage, Heat, Electricity, Telephone, Equipment, etc.)	$0.00	$0.00
Bond & Insurance		
Audit		
Testing-St. Reg. Agy.		
Chemicals		
Transportation		
Electricity	$0.00	$0.00
Contribution to General Fund	$0.00	$0.00
Maintenance and Repairs	$0.00	$0.00
Misellaneous	$0.00	$0.00
Bulk Water Purchase	$0.00	$13,819.80
Transfer to other funds	$0.00	$0.00
Capital Outlay	$0.00	$0.00
Contract Capital Replacement	$0.00	$0.00
SUB-TOTAL	$0.00	$31,819.80
Debt Service:		
Proposed	$0.00	$32,226.44
TOTAL	$0.00	$64,046.24
BALANCE AVAILABLE	$0.00	-$23,217.74

10/15/08

Alternative No. 2

EXISTING RATE SCHEDULE

RESIDENTIAL

First	2,000	gallons @	$12.000	Minimum
Next	4,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	40,000	gallons @	$4.125	Per 1,000 gal.
Next	50,000	gallons @	$4.125	Per 1,000 gal.
All Over	100,000	gallons @	$4.125	Per 1,000 gal.

COMMERCIAL

User Fee			$31.50	
First	50,000	gallons @	$2.35	Per 1,000 gal.
Next	50,000	gallons @	$1.75	Per 1,000 gal.
Next	900,000	gallons @	$1.65	Per 1,000 gal.
All Over	1,000,000	gallons @	$1.55	Per 1,000 gal.

PROPOSED RATE SCHEDULE

RESIDENTIAL

First	2,000	gallons @	$12.000	Minimum
Next	4,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	40,000	gallons @	$4.125	Per 1,000 gal.
Next	50,000	gallons @	$4.125	Per 1,000 gal.
All Over	100,000	gallons @	$4.125	Per 1,000 gal.

COMMERCIAL

	User Fee			$31.50	
4.125	First	50,000	gallons @	$2.35	Per 1,000 gal.
	Next	50,000	gallons @	$1.75	Per 1,000 gal.
	Next	900,000	gallons @	$1.65	Per 1,000 gal.
	All Over	1,000,000	gallons @	$1.55	Per 1,000 gal.

USE AND INCOME ESTIMATES

(According to proposed rate schedule)

WATER

Benefited Users (All users with 3/4 x 5/8 meters)

	Existing		Additional				Total					
0-2000	0		17				17	users @	2,000	gal.	$204.00	34000
2001-6000	0		44				44	users @	6,000	gal.	$1,254.00	264000
6001-8000	0		11				11	users @	10,000	gal.	$495.00	110000
8001-10000	0		7				7	users @	15,000	gal.	$459.38	105000
10001-40000	0		10				10	users @	20,000	gal.	$862.50	200000
40001-100000	0		1				1	users @	30,000	gal.	$127.50	30000
Over 100000	0		0				0	users @	40,000	gal.	$0.00	0
TOTAL:	0	0	90	0			90	users			$3,402.38	743000

Non Benefited Users (All users with larger than 3/4 x 5/8 meters)

	Existing	New	Total				
	0		0	users @	50,000	gal.	$0.00
	0		0	users @	100,000	gal.	$0.00
	0		0	users @	1,000,000	gal.	$0.00
	0		0	users @	2,000,000	gal.	$0.00
Total:	$0.000	0	0	users			$0.00

TOTAL = $3,402.38 x 12 = $40,828.50 Annually

10/15/08

USDA/RD LOAN WITH NO GRANT

BUDGET FOR COMPLETED FACILITY
Alternative No. 3

	(FISCAL YEAR 2008-2009	Estimated (Completed Facility)
INCOME:		
Water Charges	$0.00	$29,848.50
Other: Service Charges, Tap-On Fees Sales and Investment Earnings		$0.00
Fund Balance Appropriation	$0.00	$0.00
Non-Operating Revenue		$0.00
TOTAL	$0.00	$29,848.50
EXPENSES:		
Salaries:		
Labor	$0.00	$0.00
Contracted Services	$0.00	$18,000.00
Office Exp. (Supplies, Postage, Heat, Electricity, Telephone, Equipment, etc.)	$0.00	$0.00
Bond & Insurance		
Audit		
Testing-St. Reg. Agy.		
Chemicals		
Transportation		
Electricity	$0.00	$0.00
Contribution to General Fund	$0.00	$0.00
Maintenance and Repairs	$0.00	$0.00
Misellaneous	$0.00	$0.00
Bulk Water Purchase	$0.00	$13,782.00
Transfer to other funds	$0.00	$0.00
Capital Outlay	$0.00	$0.00
Contract Capital Replacement	$0.00	$0.00
SUB-TOTAL	$0.00	$31,782.00
Debt Service:		
Proposed	$0.00	$21,847.17

Alternative No. 3
EXISTING RATE SCHEDULE

RESIDENTIAL					COMMERCIAL				
First	2,000	gallons @	$12.000	Minimum	User Fee			$31.50	
Next	4,000	gallons @	$4.125	Per 1,000 gal.	First	50,000	gallons @	$2.35	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.	Next	50,000	gallons @	$1.75	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.	Next	900,000	gallons @	$1.65	Per 1,000 gal.
Next	40,000	gallons @	$4.125	Per 1,000 gal.	All Over	1,000,000	gallons @	$1.55	Per 1,000 gal.
Next	50,000	gallons @	$4.125	Per 1,000 gal.					
All Over	100,000	gallons @	$4.125	Per 1,000 gal.					

PROPOSED RATE SCHEDULE

RESIDENTIAL						COMMERCIAL				
First	2,000	gallons @	$12.000	Minimum		User Fee			$31.50	
Next	4,000	gallons @	$4.125	Per 1,000 gal.	4.125	First	50,000	gallons @	$2.35	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.		Next	50,000	gallons @	$1.75	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.		Next	900,000	gallons @	$1.65	Per 1,000 gal.
Next	40,000	gallons @	$4.125	Per 1,000 gal.		All Over	1,000,000	gallons @	$1.55	Per 1,000 gal.
Next	50,000	gallons @	$4.125	Per 1,000 gal.						
All Over	100,000	gallons @	$4.125	Per 1,000 gal.						

USE AND INCOME ESTIMATES
(According to proposed rate schedule)

WATER
Benefited Users (All users with 3/4 x 5/8 meters)

	Existing		Additional		Total					
0-2000	0		13		13	users @	2,000	gal.	$156.00	26000
2001-6000	0		32		32	users @	6,000	gal.	$912.00	192000
6001-8000	0		8		8	users @	10,000	gal.	$360.00	80000
001-10000	0		5		5	users @	15,000	gal.	$328.13	75000
001-40000	0		7		7	users @	20,000	gal.	$603.75	140000
01-100000	0		1		1	users @	30,000	gal.	$127.50	30000
er 100000	0		0		0	users @	40,000	gal.	$0.00	0
TOTAL:	0	0	66	0	66	users			$2,487.38	543000

Non Benefited Users (All users with larger than 3/4 x 5/8 meters)

	Existing	New	Total				
	0		0	users @	50,000	gal.	$0.00
	0		0	users @	100,000	gal.	$0.00
	0		0	users @	1,000,000	gal.	$0.00
	0		0	users @	2,000,000	gal.	$0.00
Total:	$0.000	0	0	users			$0.00

TOTAL = $2,487.38 x 12 = $29,848.50 Annually

10/15/08

BUDGET FOR COMPLETED FACILITY

Alternative No. 4

	(FISCAL YEAR 2008-2009	Estimated (Completed Facility)
INCOME:		
Water Charges	$0.00	$20,587.50
Other: Service Charges, Tap-On Fees Sales and Investment Earnings		$0.00
Fund Balance Appropriation	$0.00	$0.00
Non-Operating Revenue		$0.00
TOTAL	$0.00	$20,587.50
EXPENSES:		
Salaries:		
Labor	$0.00	$0.00
Contracted Services	$0.00	$18,000.00
Office Exp. (Supplies, Postage, Heat, Electricity, Telephone, Equipment, etc.)	$0.00	$0.00
Bond & Insurance		
Audit		
Testing-St. Reg. Agy.		$6,000.00
Chemicals		$6,000.00
Transportation		
Electricity	$0.00	$6,000.00
Contribution to General Fund	$0.00	$0.00
Maintenance and Repairs	$0.00	$2,000.00
Misellaneous	$0.00	$0.00
Bulk Water Purchase	$0.00	$0.00
Transfer to other funds	$0.00	$0.00
Capital Outlay	$0.00	$0.00
Contract Capital Replacement	$0.00	$0.00
SUB-TOTAL	$0.00	$38,000.00
Debt Service:		
Proposed	$0.00	$42,501.32
TOTAL	$0.00	$80,501.32
BALANCE AVAILABLE	$0.00	-$59,913.82

10/15/08

Alternative No. 4

EXISTING RATE SCHEDULE

RESIDENTIAL

First	2,000	gallons @	$12.000	Minimum
Next	4,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	40,000	gallons @	$4.125	Per 1,000 gal.
Next	50,000	gallons @	$4.125	Per 1,000 gal.
All Over	100,000	gallons @	$4.125	Per 1,000 gal.

COMMERCIAL

User Fee			$31.50	
First	50,000	gallons @	$2.35	Per 1,000 gal.
Next	50,000	gallons @	$1.75	Per 1,000 gal.
Next	900,000	gallons @	$1.65	Per 1,000 gal.
All Over	1,000,000	gallons @	$1.55	Per 1,000 gal.

PROPOSED RATE SCHEDULE

RESIDENTIAL

First	2,000	gallons @	$12.000	Minimum
Next	4,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	2,000	gallons @	$4.125	Per 1,000 gal.
Next	40,000	gallons @	$4.125	Per 1,000 gal.
Next	50,000	gallons @	$4.125	Per 1,000 gal.
All Over	100,000	gallons @	$4.125	Per 1,000 gal.

COMMERCIAL

	User Fee			$31.50	
4.125	First	50,000	gallons @	$2.35	Per 1,000 gal.
	Next	50,000	gallons @	$1.75	Per 1,000 gal.
	Next	900,000	gallons @	$1.65	Per 1,000 gal.
	All Over	1,000,000	gallons @	$1.55	Per 1,000 gal.

USE AND INCOME ESTIMATES

(According to proposed rate schedule)

WATER

Benefited Users (All users with 3/4 x 5/8 meters)

	Existing		Additional		Total				
0-2000	0		9		9	users @	2,000	gal.	$108.00
2001-6000	0		22		22	users @	6,000	gal.	$627.00
6001-8000	0		5		5	users @	10,000	gal.	$225.00
001-10000	0		3		3	users @	15,000	gal.	$196.88
001-40000	0		5		5	users @	20,000	gal.	$431.25
01-100000	0		1		1	users @	30,000	gal.	$127.50
er 100000	0		0		0	users @	40,000	gal.	$0.00
TOTAL:	0	0	45	0	45	users			$1,715.63

Non Benefited Users (All users with larger than 3/4 x 5/8 meters)

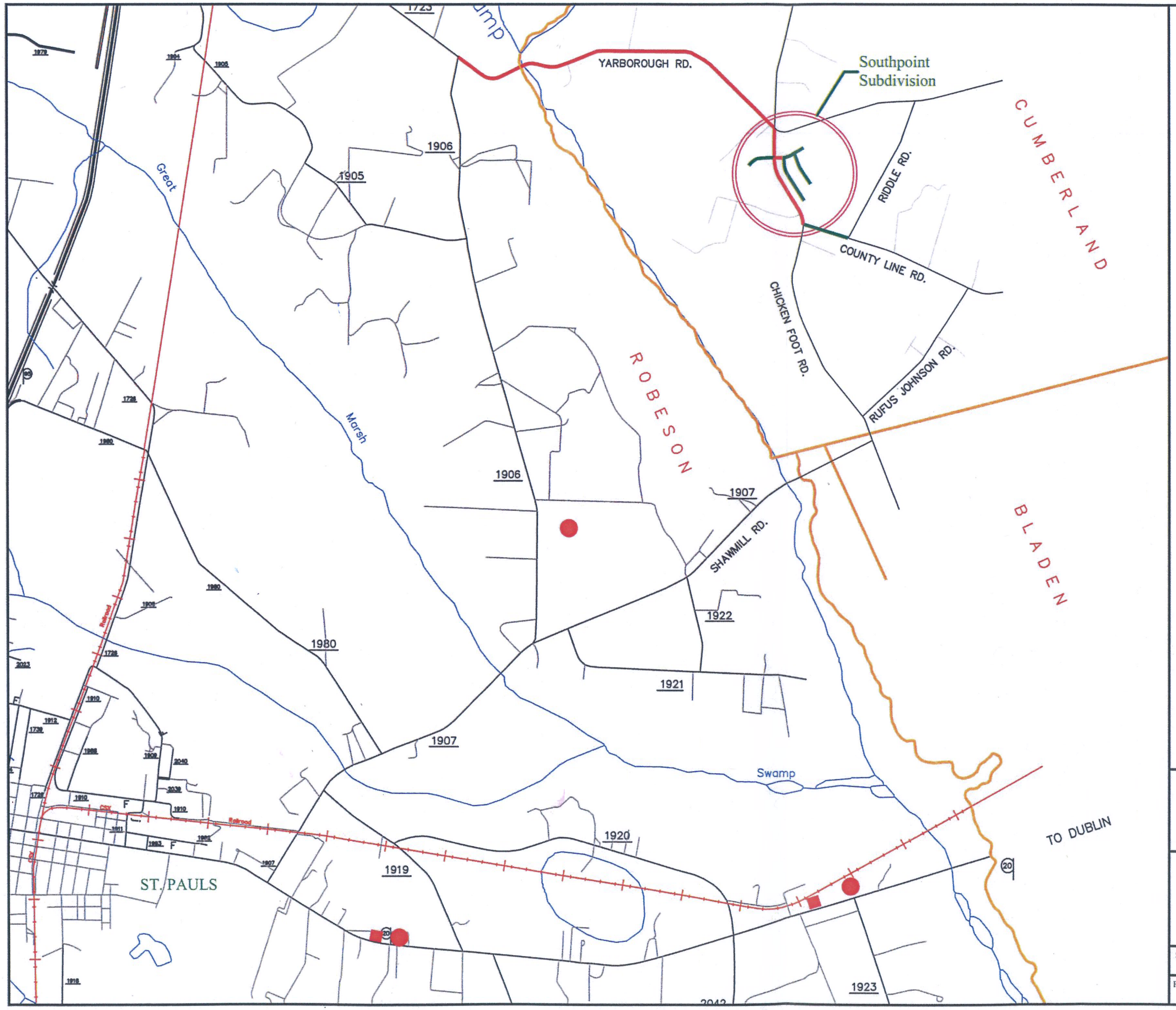
	Existing	New	Total				
	0		0	users @	50,000	gal.	$0.00
	0		0	users @	100,000	gal.	$0.00
	0		0	users @	1,000,000	gal.	$0.00
	0		0	users @	2,000,000	gal.	$0.00
Total:	$0.000	0	0	users			$0.00

TOTAL = $1,715.63 x 12 = $20,587.50 Annually

10/15/08

APPENDIX D

MAPS



- PROPOSED 8" WATER MAIN
- PROPOSED 6" WATER MAIN
- EXISTING ELEVATED STORAGE TANK
- EXISTING TREATMENT FACILITY

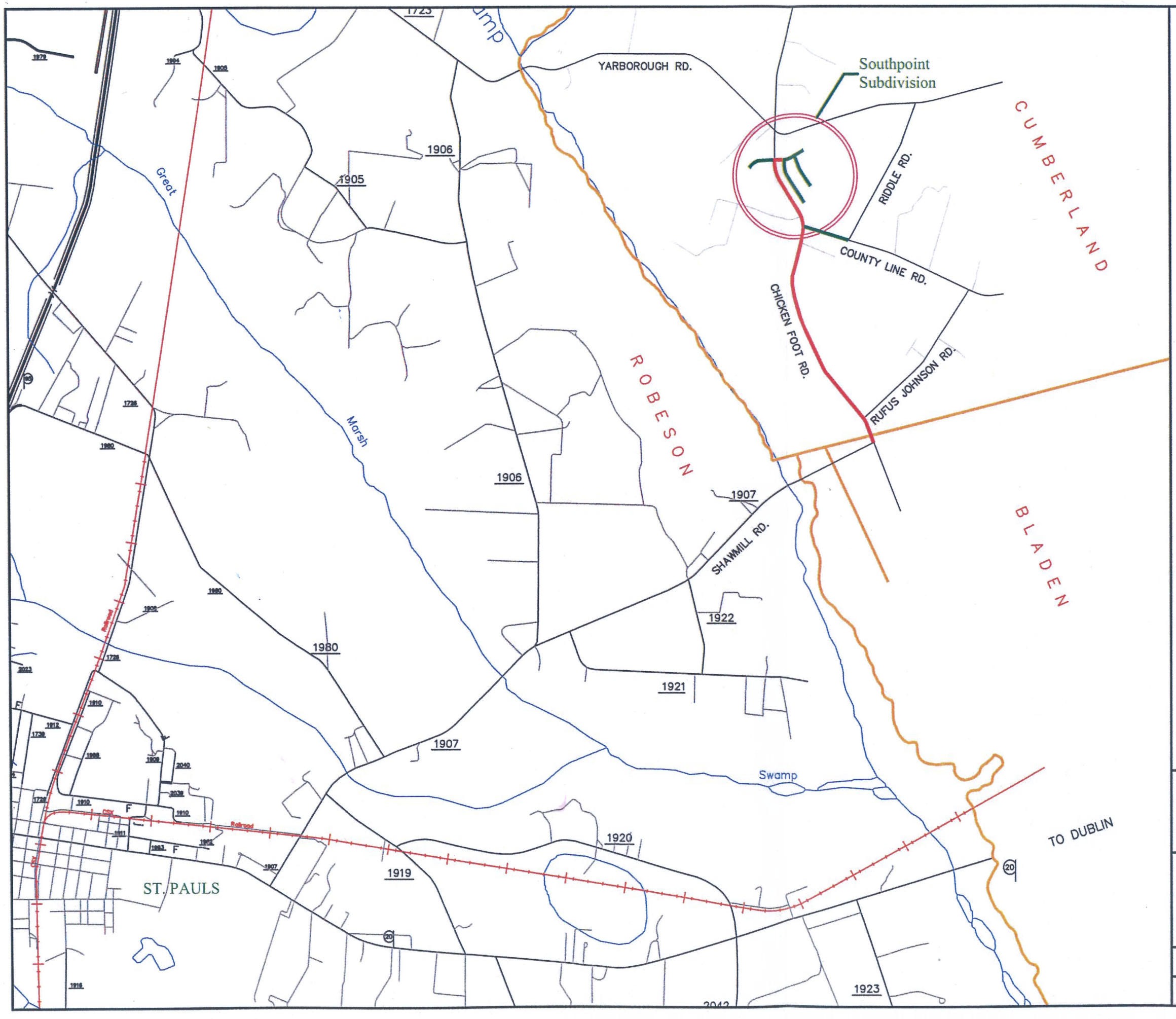
Alternative 2

PRELIMINARY ENGINEERING REPORT FOR
WATER SYSTEM IMPROVEMENTS TO SERVE
SOUTHPOINT SUBDIVISION AREA

Koonce, Noble & Associates, Inc.
Consulting Engineers

208 EAST 5th STREET
P.O. BOX 1027
LUMBERTON, NC 28359
(910) 738-9376
FAX (910) 738-9378
EMAIL - kna1@bellsouth.net

SCALE:	DRAWN BY:	CHECKED BY:
1"=1/2 mile	CBB	SRN
FILE NAME: ALTERNATIVE 2 REV	DATE: 10-10-08	FIGURE:



- PROPOSED 8" WATER MAIN
- PROPOSED 6" WATER MAIN

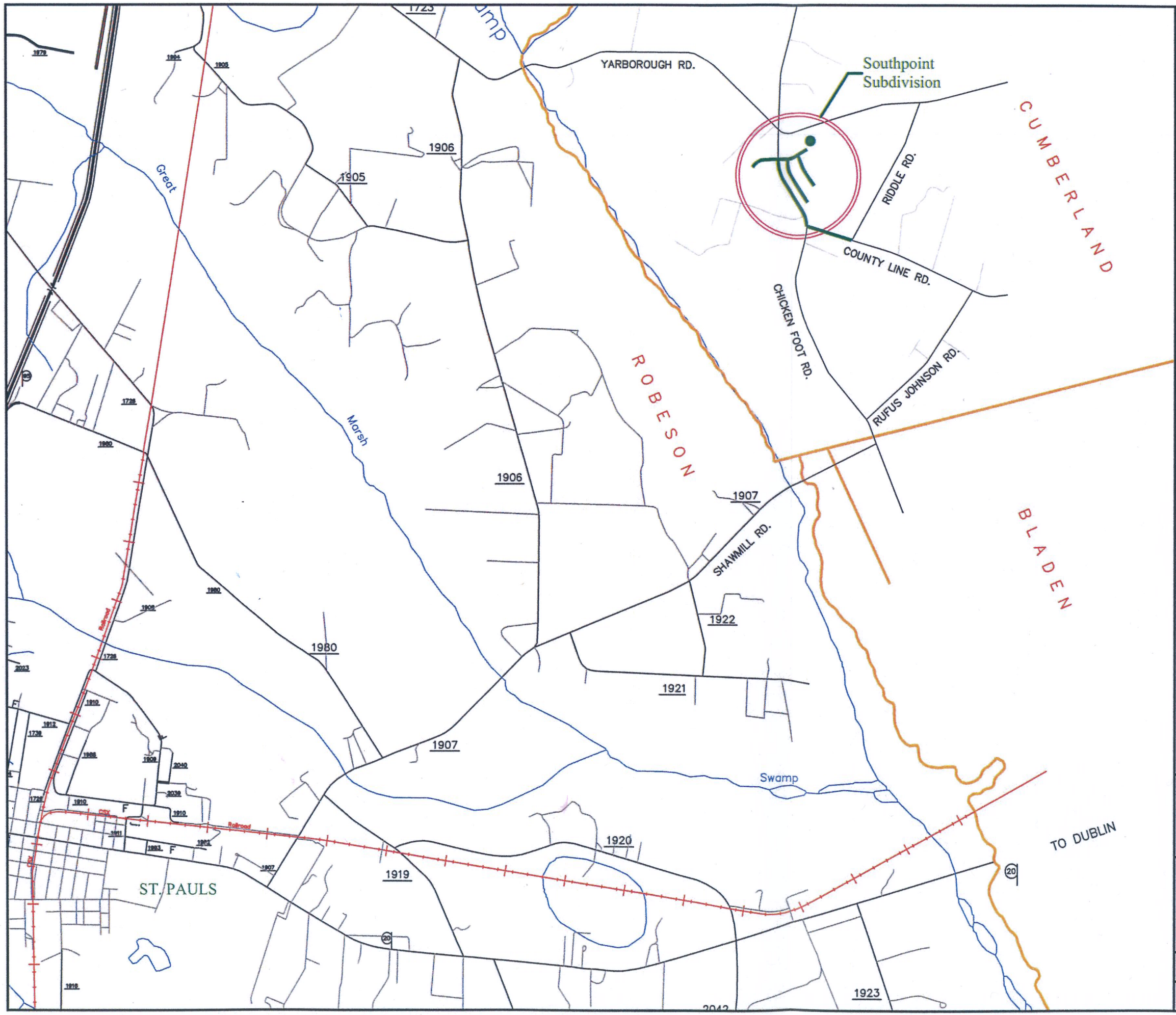
Alternative 3

PRELIMINARY ENGINEERING REPORT FOR
WATER SYSTEM IMPROVEMENTS TO SERVE
SOUTHPOINT SUBDIVISION AREA

Koonce, Noble & Associates, Inc.
Consulting Engineers

208 EAST 5th STREET
P.O. BOX 1027
LUMBERTON, NC 28359
(910) 738-9376
FAX (910) 738-9378
EMAIL - kna1@bellsouth.net

SCALE: 1"=1/2 mile	DRAWN BY: CBB	CHECKED BY: SRN
FILE NAME: ALTERNATIVE 3 REV	DATE: 10-10-08	FIGURE:



- PROPOSED 8" WATER MAIN
- PROPOSED 6" WATER MAIN
- PROPOSED PRODUCTION WELL

Alternative 4

PRELIMINARY ENGINEERING REPORT FOR
WATER SYSTEM IMPROVEMENTS TO SERVE
SOUTHPOINT SUBDIVISION AREA

Koonce, Noble & Associates, Inc.
Consulting Engineers

208 EAST 5th STREET
P.O. BOX 1027
LUMBERTON, NC 28359
(910) 738-9376
FAX (910) 738-9378
EMAIL - kna1@bellsouth.net

SCALE:	DRAWN BY:	CHECKED BY:
1"=1/2 mile	CBB	SRN
FILE NAME: ALTERNATIVE 4 REV	DATE: 10-10-08	FIGURE: