



Bridger Creek Drainage Improvements

After the September 26, 2007 rainfall event that produced significant flooding in the Bridger Creek Drainage Basin, the City of Jonesboro Engineering Department was asked to study and determine a solution to solve the current stormwater drainage issues that resulted in property damage for several residents in the Windsor Landing Subdivision. This flooding event resulted in water entering 13 houses and 23 garages.

Analysis of the drainage basin consisted of boundary surveys of existing easements and rights of way, surveys of ditch cross-sections and control structures, and hydrologic modeling of the basin using HEC_HMS software. All hydrologic modeling was based on the SCS, Type II 24-hour rainfall distribution for the 100-year design frequency.

Alternatives considered include:

1. Do nothing, map all Special Flood Hazard Zones associated with the Bridger Creek Drainage Basin and require all affected residents to pay flood insurance.
2. Buy approximately 11 houses in Windsor Landing, additional land next to Bridger Creek, along with other drainage modifications to convey the 100-year design storm.
3. Construction of three detention ponds totaling an approximated 141 acre-ft of storage. These ponds will require the purchase of 57 acres of land. Other major drainage improvements include the replacement of larger culverts under Peachtree and Britton Drive along with approximately a mile of channel reshaping. The estimated cost for these improvements is \$3.4 million.

Table I. Bridger Creek Improvements Cost Estimate

Item	Description	Quantity	Units	Unit Cost	Total Cost
1	Pond #1 Excavation (North of Peachtree)	39262	CU. YD.	\$5.00	\$196,310.00
2	Pond #1 Compacted Borrow Fill for Levee (North of Peachtree)	7782	CU. YD.	\$8.00	\$62,256.00
3	Pond #1 Outlet Structure (18" Pipe)	150	LF	\$50.00	\$7,500.00
4	Pond #1 Property Acquisition (Pond and Access)	20	ACRE	\$10,000.00	\$200,000.00
5	Box Culvert (Peachtree)	100	LF	\$400.00	\$40,000.00
6	Channel Reshaping-12' Bottom w/ 3:1 Side Slopes (Peachtree to Pond #2)	1900	LF	\$40.00	\$76,000.00
7	Pond #2 (West of Windsor Landing Subdivision)	211331	CU. YD.	\$5.00	\$1,056,655.00
8	Pond #2 Outlet Structure (48" Pipe)	165	LF	\$125.00	\$20,625.00
9	Pond #2 Property Acquisition	25	ACRE	\$10,000.00	\$250,000.00
10	Channel Reshaping-4' Bottom w/ 3:1 Side Slopes (Through Windsor Landing Subdivision)	1400	LF	\$52.00	\$72,800.00
11	Box Culvert (Britton Dr.)	114	LF	\$400.00	\$45,600.00
12	Channel Reshaping-12' Bottom w/ 3:1 Side Slopes (Through Windsor Landing Subdivision)	1650	LF	\$40.00	\$66,000.00
13	Pond #3 (West of Clinton School Road)	51207	CU. YD.	\$5.00	\$256,035.00
14	Pond #3 Outlet Structure (18" Pipe)	1	LUMP	\$5,000.00	\$5,000.00
15	Pond #3 Property Acquisition	12	ACRE	\$20,000.00	\$240,000.00
16	Tree and Vegetation Clearing	55	ACRE	\$2,000.00	\$110,000.00
17	Hydro-seeding	48	ACRE	\$3,500.00	\$168,000.00
18	Miscellaneous Pipe Tie-ins	1	LUMP	\$10,000.00	\$10,000.00
19	Erosion Control Measures (Rip-rap & TRM's)	1	LUMP	\$200,000.00	\$200,000.00

Total	\$3,082,781.00
Contingencies (10%)	\$308,278.10
Grand Total	\$3,391,059.10