

Drainage Study to Address Flooding at 614 Knollwood Drive



Source: Reginald Hunt

Prepared for:



Richland County Purchase Order No. CPS17046

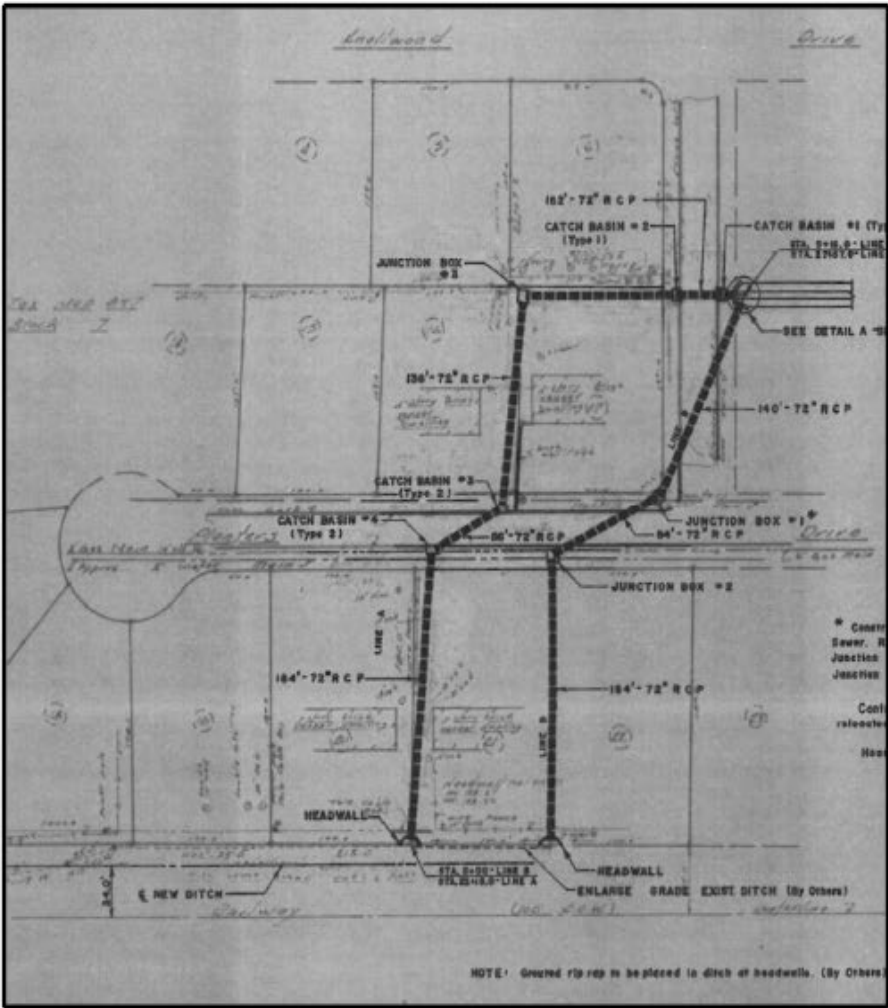
Prepared by:



CDM Smith Project No. 215247

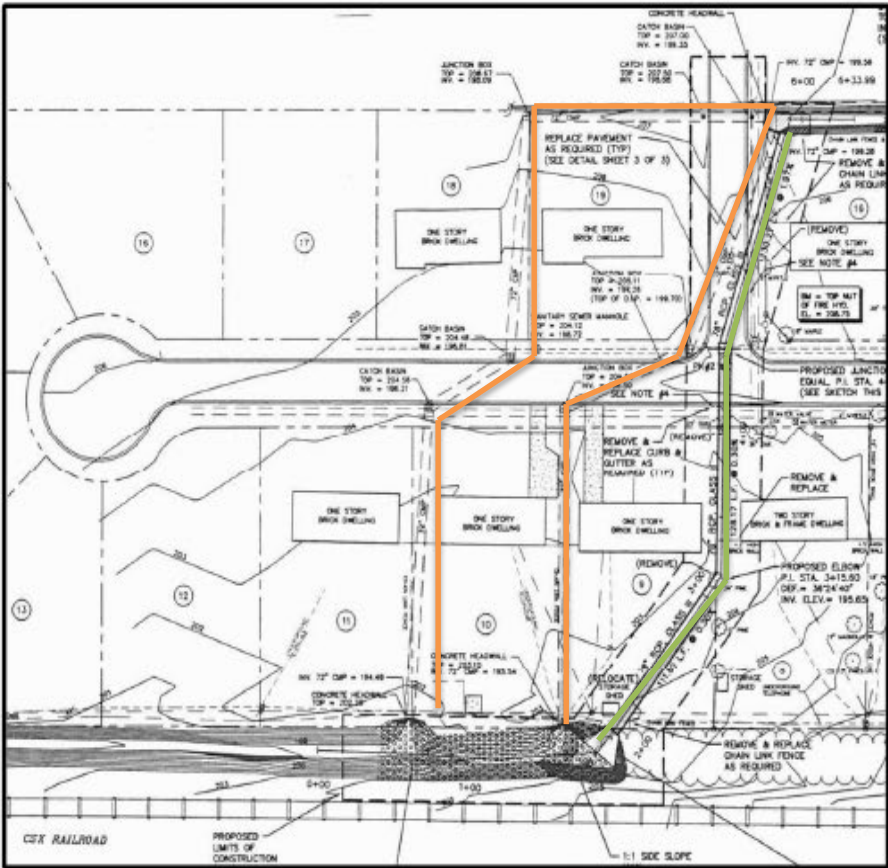
April 10, 2017

Figure 2.2. Drainage Plans, 1976

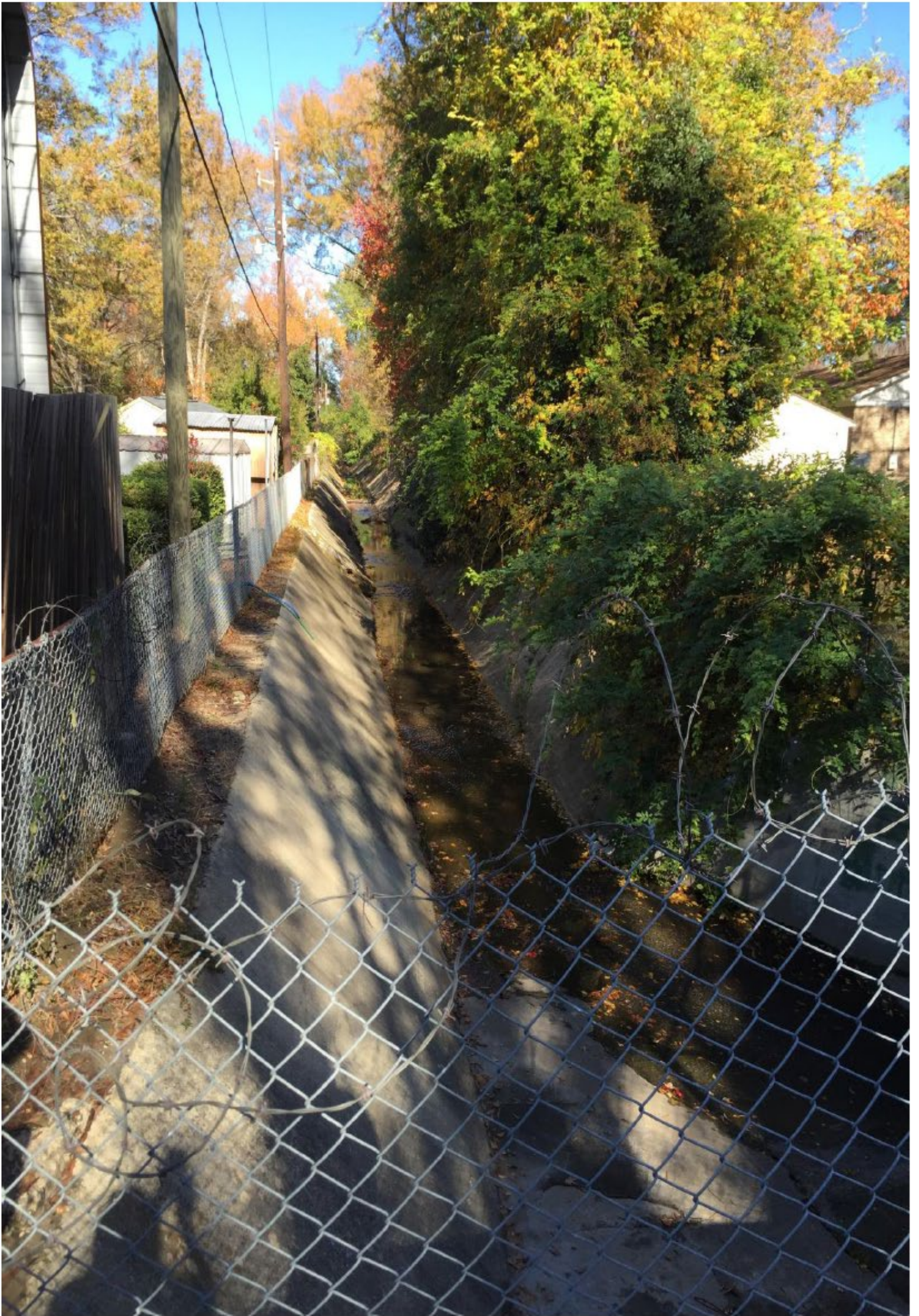


In 1995, a third 72" pipe was installed to convey flows from the concrete lined channel to the railroad ditch as shown in Figure 2.3.

Figure 2.3. Drainage Plans, 1995



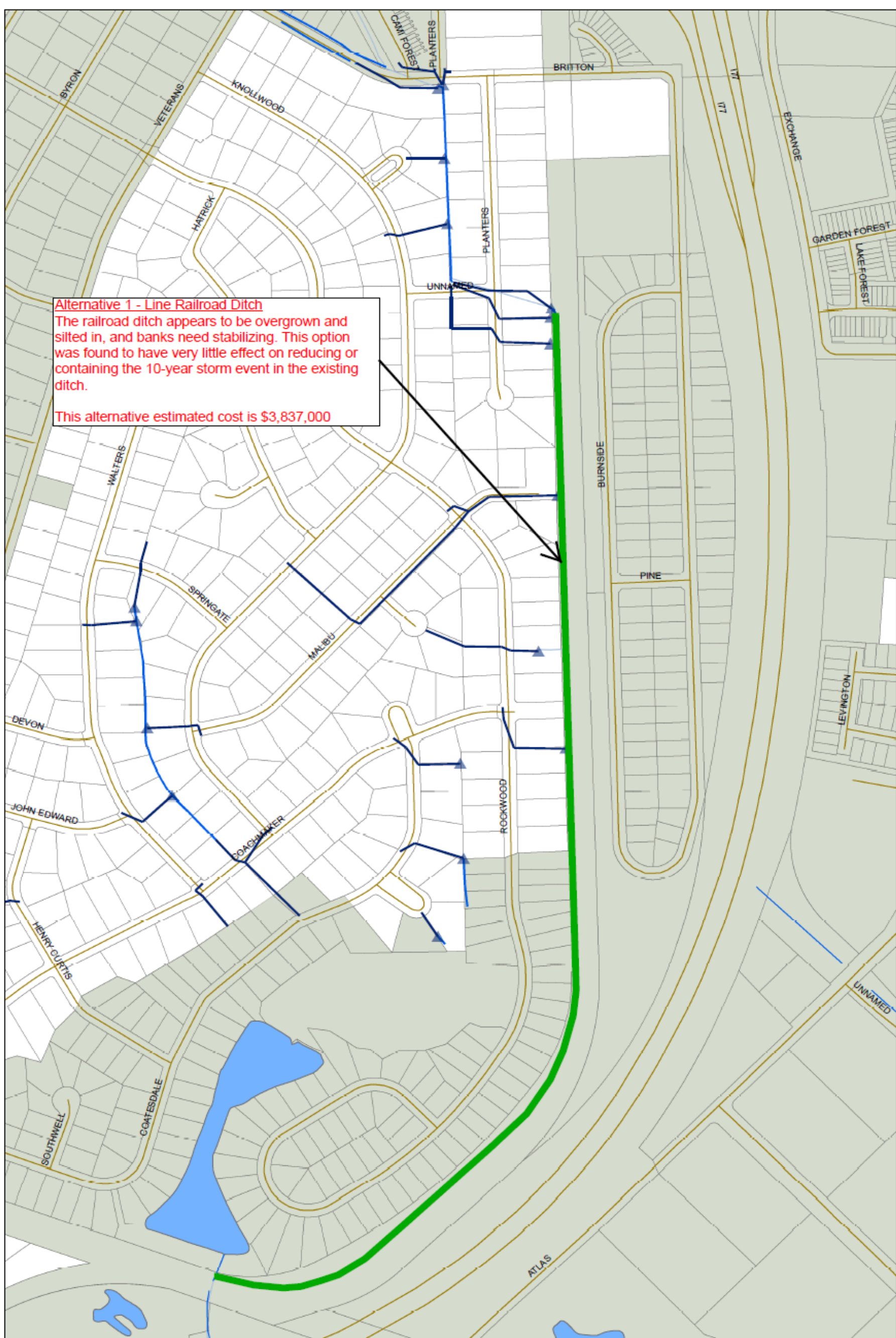




Alternative 1 - Line Railroad Ditch

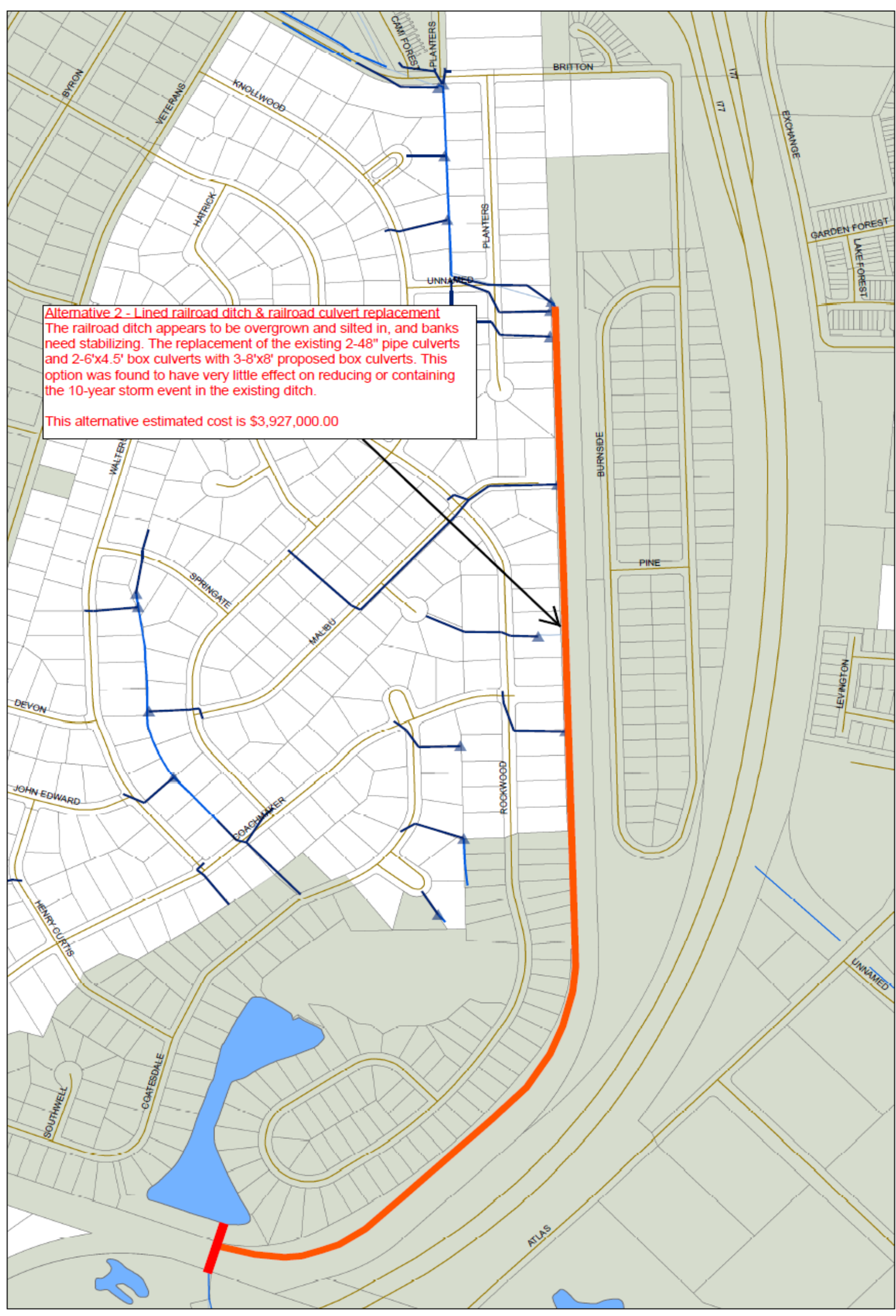
The railroad ditch appears to be overgrown and silted in, and banks need stabilizing. This option was found to have very little effect on reducing or containing the 10-year storm event in the existing ditch.

This alternative estimated cost is \$3,837,000



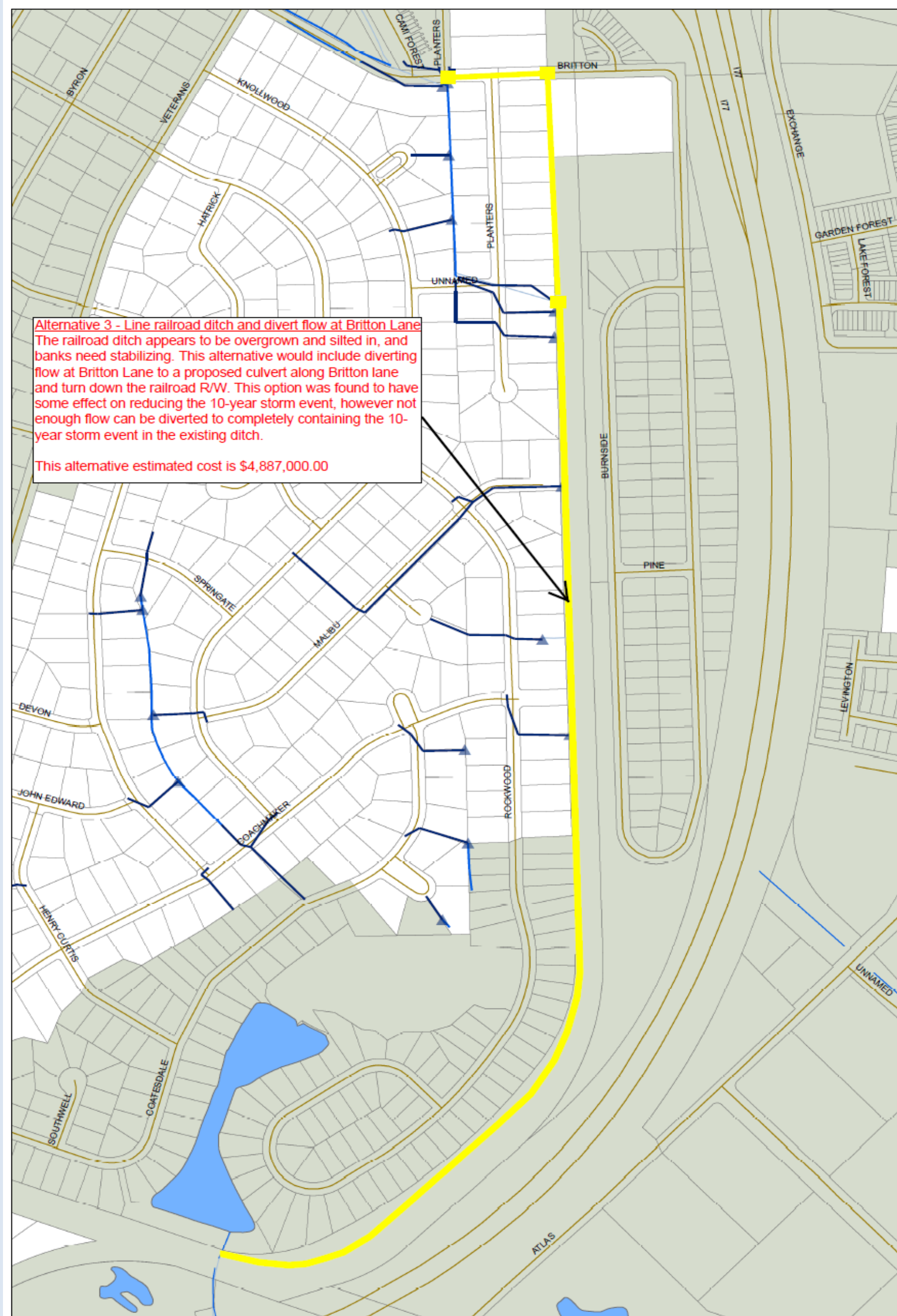
Alternative 2 - Lined railroad ditch & railroad culvert replacement
The railroad ditch appears to be overgrown and silted in, and banks need stabilizing. The replacement of the existing 2-48" pipe culverts and 2-6'x4.5' box culverts with 3-8'x8' proposed box culverts. This option was found to have very little effect on reducing or containing the 10-year storm event in the existing ditch.

This alternative estimated cost is \$3,927,000.00



Alternative 3 - Line railroad ditch and divert flow at Britton Lane
The railroad ditch appears to be overgrown and silted in, and banks need stabilizing. This alternative would include diverting flow at Britton Lane to a proposed culvert along Britton lane and turn down the railroad R/W. This option was found to have some effect on reducing the 10-year storm event, however not enough flow can be diverted to completely containing the 10-year storm event in the existing ditch.

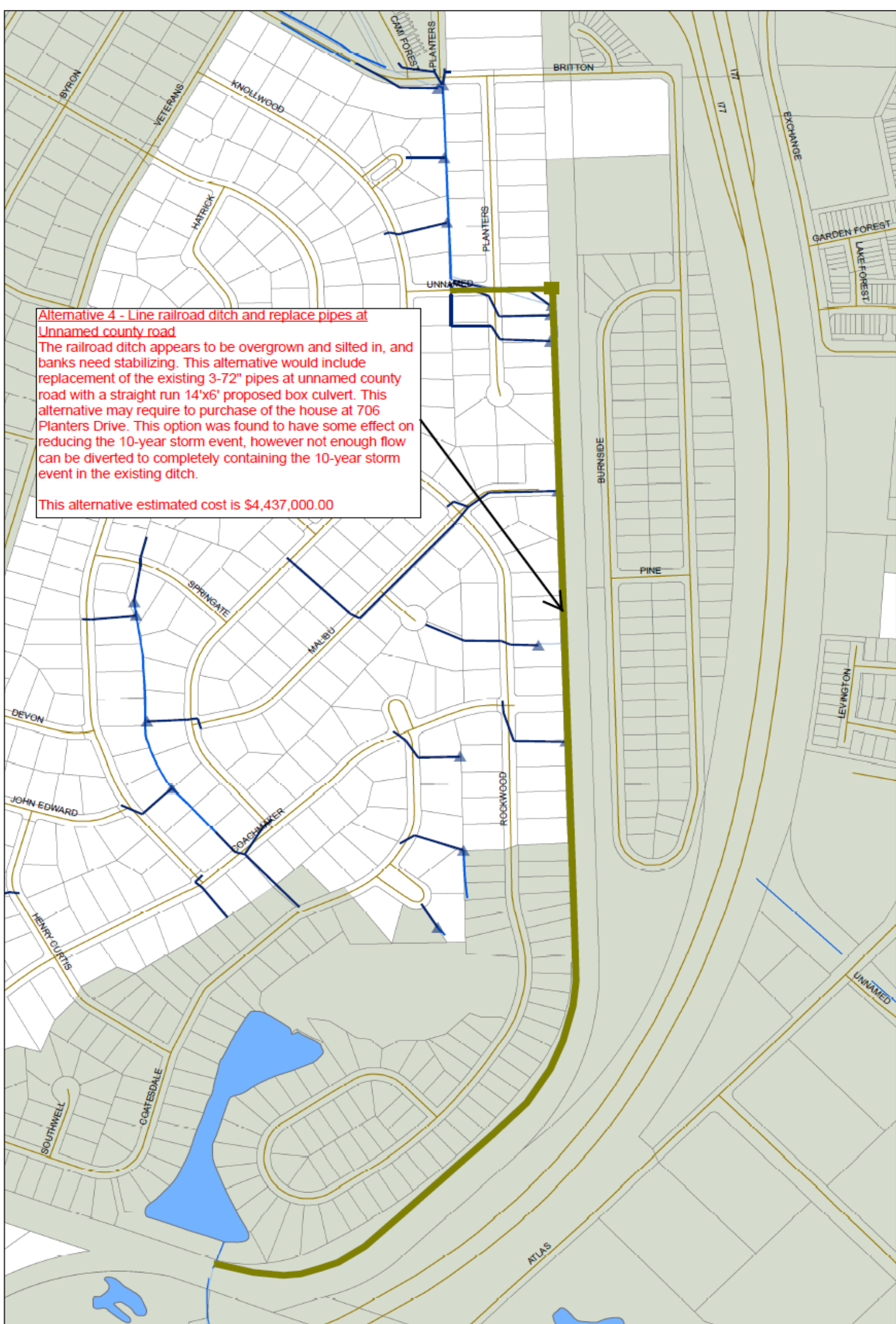
This alternative estimated cost is \$4,887,000.00



Alternative 4 - Line railroad ditch and replace pipes at Unnamed county road

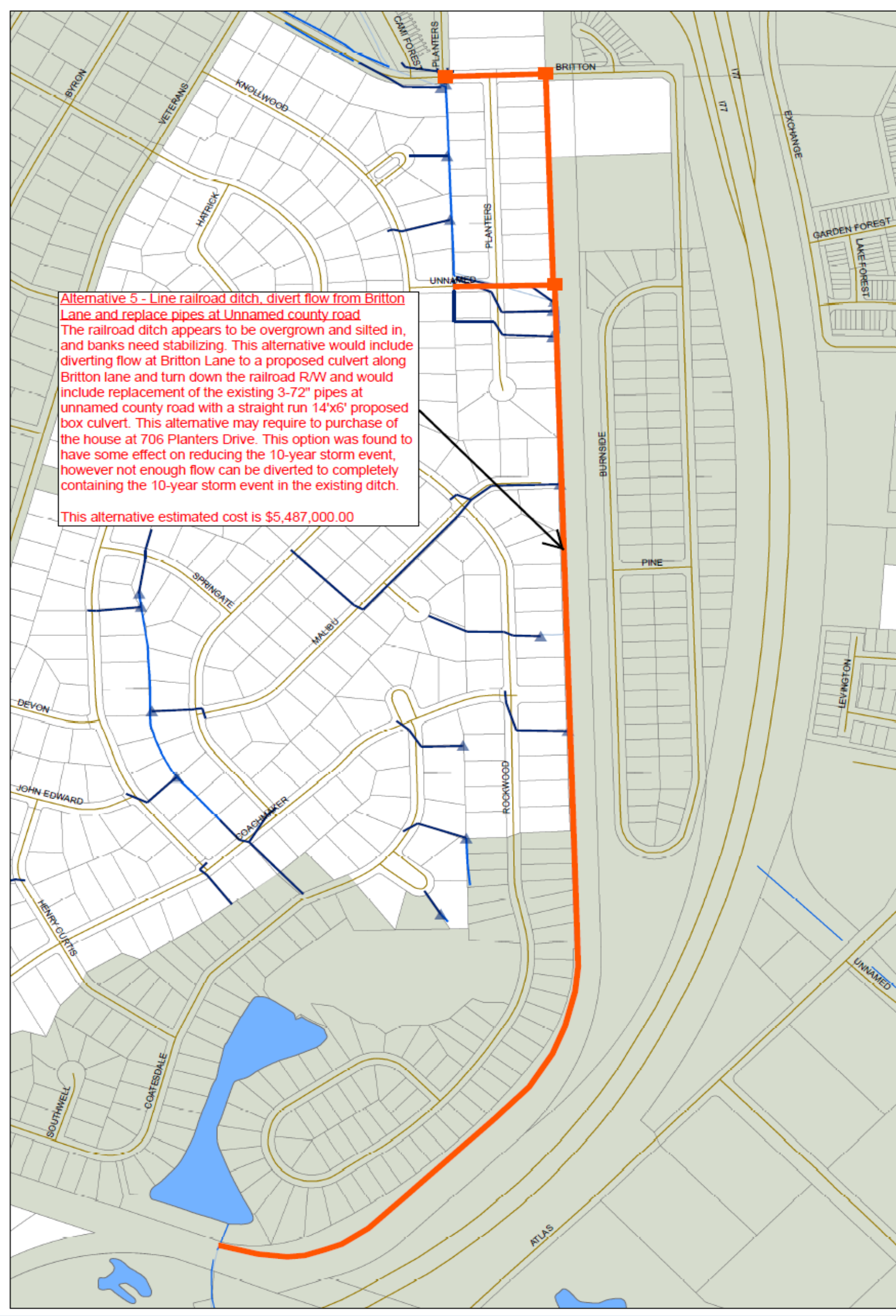
The railroad ditch appears to be overgrown and silted in, and banks need stabilizing. This alternative would include replacement of the existing 3-72" pipes at unnamed county road with a straight run 14'x6' proposed box culvert. This alternative may require to purchase of the house at 706 Planters Drive. This option was found to have some effect on reducing the 10-year storm event, however not enough flow can be diverted to completely containing the 10-year storm event in the existing ditch.

This alternative estimated cost is \$4,437,000.00



Alternative 5 - Line railroad ditch, divert flow from Britton Lane and replace pipes at Unnamed county road
The railroad ditch appears to be overgrown and silted in, and banks need stabilizing. This alternative would include diverting flow at Britton Lane to a proposed culvert along Britton lane and turn down the railroad R/W and would include replacement of the existing 3-72" pipes at unnamed county road with a straight run 14'x6' proposed box culvert. This alternative may require to purchase of the house at 706 Planters Drive. This option was found to have some effect on reducing the 10-year storm event, however not enough flow can be diverted to completely containing the 10-year storm event in the existing ditch.

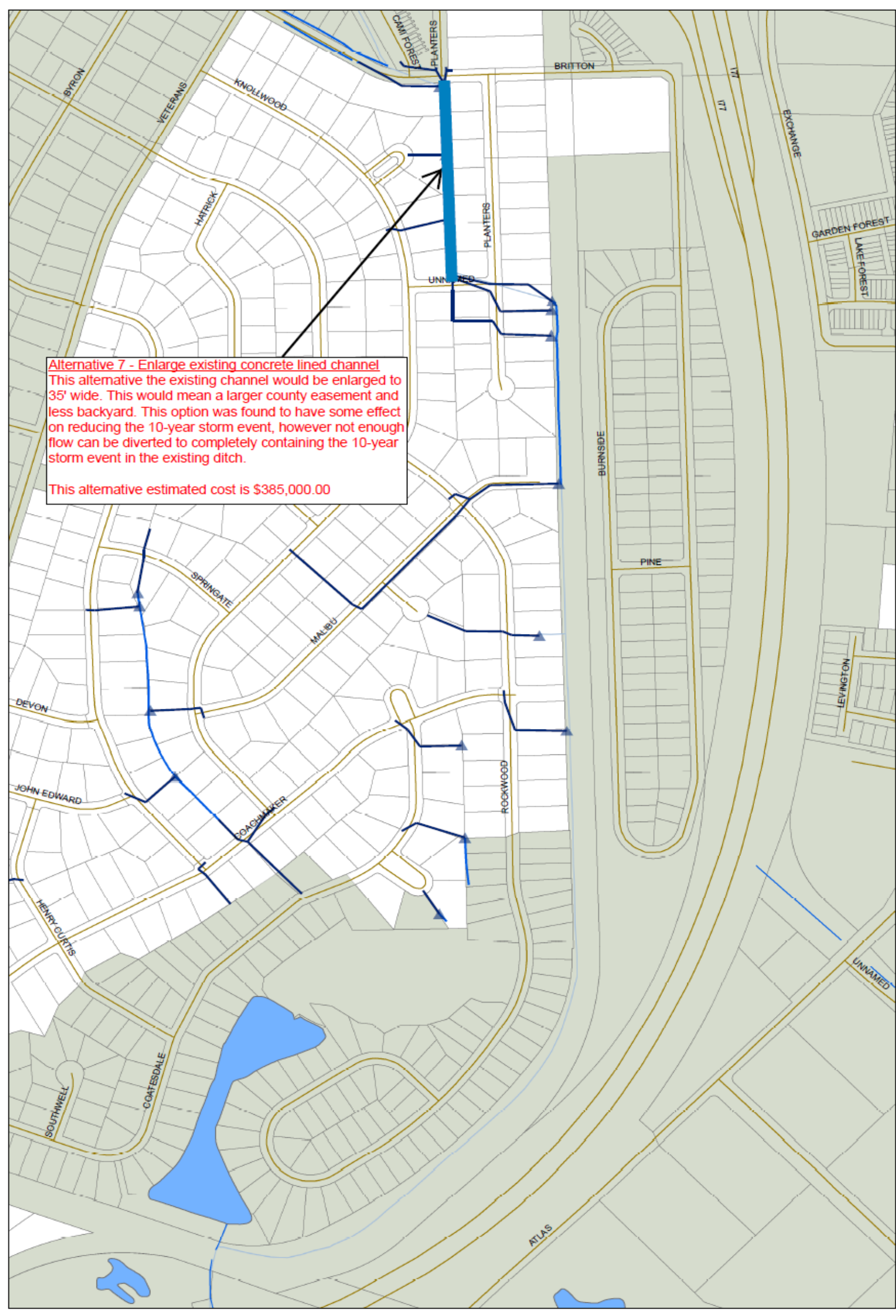
This alternative estimated cost is \$5,487,000.00

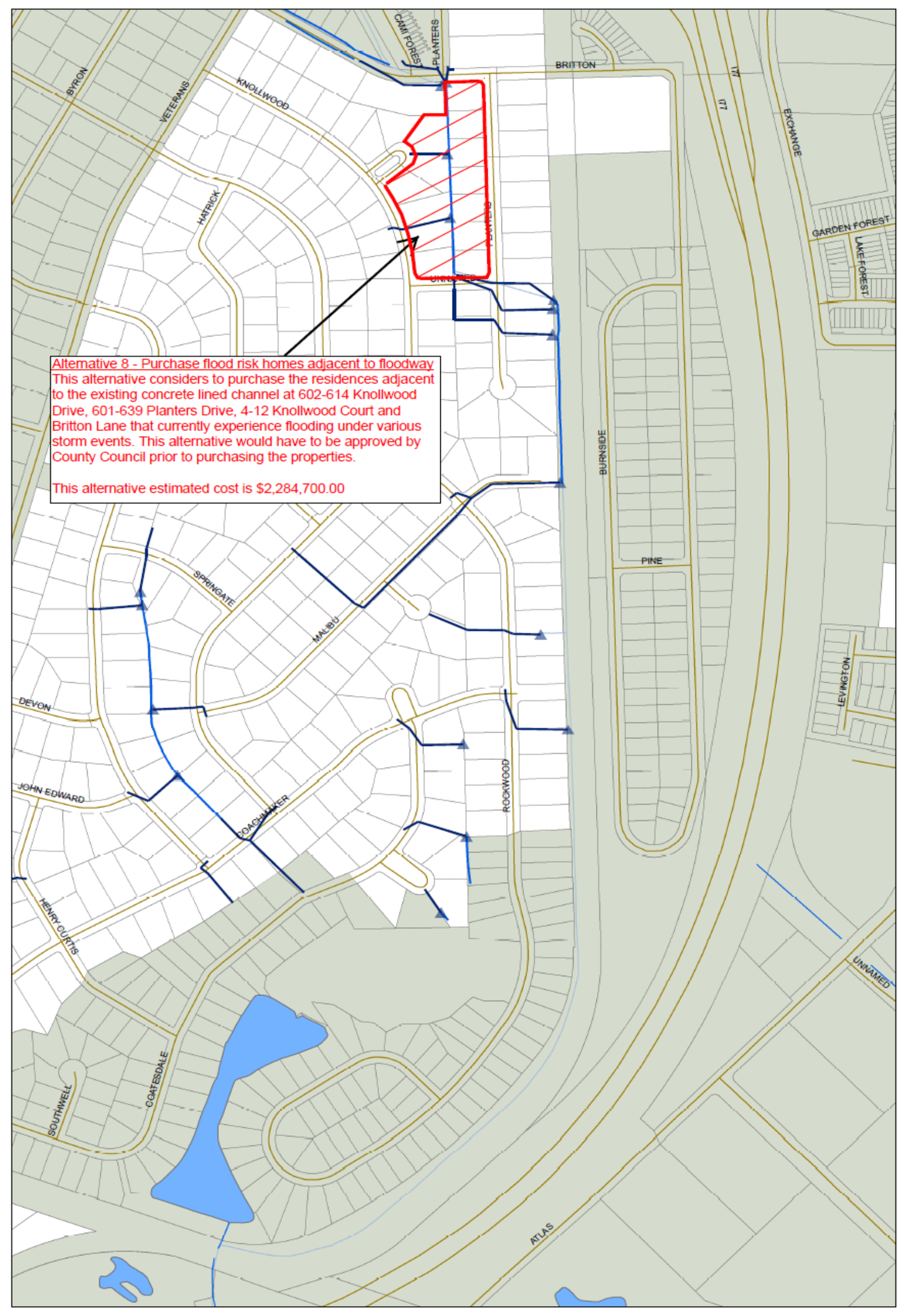


Alternative 7 - Enlarge existing concrete lined channel

This alternative the existing channel would be enlarged to 35' wide. This would mean a larger county easement and less backyard. This option was found to have some effect on reducing the 10-year storm event, however not enough flow can be diverted to completely containing the 10-year storm event in the existing ditch.

This alternative estimated cost is \$385,000.00





Alternative 8 - Purchase flood risk homes adjacent to floodway
This alternative considers to purchase the residences adjacent to the existing concrete lined channel at 602-614 Knollwood Drive, 601-639 Planters Drive, 4-12 Knollwood Court and Britton Lane that currently experience flooding under various storm events. This alternative would have to be approved by County Council prior to purchasing the properties.

This alternative estimated cost is \$2,284,700.00



Knollwood Dr. Drainage Study Community Meeting

Current Funding Sources	
2017 Stormwater Capital Budget	\$301,817
2018 Requested Stormwater Budget	\$1,495,690
2019 Requested Stormwater Budget	\$1,679,592

Potential Funding Options	
Hazard Mitigation Grant Funding	Can be used for home buyouts in the special flood hazard area.
CDBG-DR Grant	Can be used for home rehabilitation if area meets income requirements

In the Short Term:

- 1. Wait on results of the 2018/2019 Budget approval. Currently \$165,000 in the Stormwater Budget for Knollwood Improvements;
 - a. Re-line and clean out ditch at a minimum;
- 2. Contact the railroad concerning maintenance of the ditch in their easement;
- 3. Gauge interest in residents on buyout options;
- 4. Research additional grant funding that may assist with improvements.