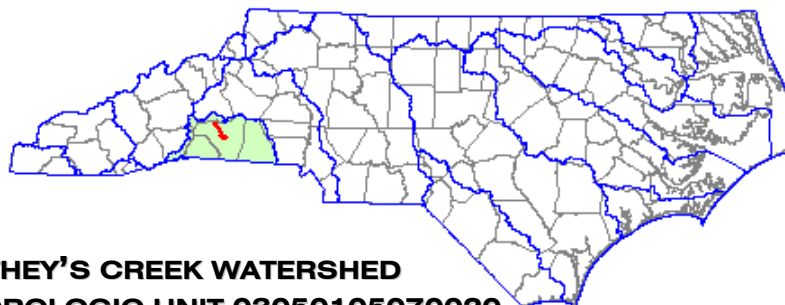


# CATHEY'S CREEK TECHNICAL WATERSHED ASSESSMENT

## Project Atlas



**CATHEY'S CREEK WATERSHED  
HYDROLOGIC UNIT 03050105070020  
RUTHERFORD COUNTY, NORTH CAROLINA**



**Ecosystem Enhancement Program  
1619 Mail Service Center  
Raleigh, NC 27699**



A **tyco** International Ltd. Company  
**Earth Tech of North Carolina, Inc.  
701 Corporate Center Drive, Suite 475  
Raleigh, NC 27607**

**JULY 2005**

Modified from original. All landowner information removed, including that in tables, figures, and text. Introduction, Table 1, and subwatershed maps included (AJL, October 12, 2011)

Modified from original. All landowner information removed, including that in tables, figures, and text. Introduction, Table 1, and subwatershed maps included (AJL, October 12, 2011)

**TABLE OF CONTENTS**

1.0 INTRODUCTION .....1  
2.0 SUBWATERSHED 01 SUMMARY DESCRIPTION .....13  
3.0 SUBWATERSHED 02 SUMMARY DESCRIPTION .....22  
4.0 SUBWATERSHED 03 SUMMARY DESCRIPTION .....29  
5.0 SUBWATERSHED 04 SUMMARY DESCRIPTION .....30  
6.0 SUBWATERSHED 05 SUMMARY DESCRIPTION .....36  
7.0 SUBWATERSHED 06 SUMMARY DESCRIPTION .....43  
8.0 SUBWATERSHED 07 SUMMARY DESCRIPTION .....48  
9.0 SUBWATERSHED 08 SUMMARY DESCRIPTION .....55  
10.0 SUBWATERSHED 09 SUMMARY DESCRIPTION .....62  
11.0 SUBWATERSHED 10 SUMMARY DESCRIPTION .....74  
12.0 SUBWATERSHED 11 SUMMARY DESCRIPTION .....75  
13.0 SUBWATERSHED 12 SUMMARY DESCRIPTION .....83  
14.0 SUBWATERSHED 13 SUMMARY DESCRIPTION .....87  
15.0 SUBWATERSHED 14 SUMMARY DESCRIPTION .....100

**FIGURES**

Figure 1. Catheys Creek Vicinity Map .....5  
Figure 2. Catheys Creek Sub-watershed Map .....6  
Figure 3. Catheys Creek Subwatershed 01 .....14  
Figure 4. Catheys Creek Site 01a .....15  
Figure 5. Catheys Creek Site 01b .....16  
Figure 6. Catheys Creek Site 01c .....17  
Figure 7. Catheys Creek Site 01d .....18  
Figure 8. Catheys Creek Site 01e .....19  
Figure 9. Catheys Creek Subwatershed 02 .....23  
Figure 10. Catheys Creek Site 02a .....24  
Figure 11. Catheys Creek Site 02b .....25  
Figure 12. Catheys Creek Site 02c .....26

Figure 13. Catheys Creek Subwatershed 04 .....	31
Figure 14. Catheys Creek Subwatershed 04a .....	32
Figure 15. Catheys Creek Site 04b .....	33
Figure 16. Catheys Creek Subwatershed 05 .....	37
Figure 17. Catheys Creek Site 05a.....	38
Figure 18. Catheys Creek Site 05b .....	39
Figure 19. Catheys Creek Site 05c.....	40
Figure 20. Catheys Creek Subwatershed 06 .....	44
Figure 21. Catheys Creek Site 06a.....	45
Figure 22. Catheys Creek Site 06b .....	46
Figure 23. Catheys Creek Subwatershed 07 .....	49
Figure 24. Catheys Creek Site 07a.....	50
Figure 25. Catheys Creek Site 07b .....	51
Figure 26. Catheys Creek Site 07c.....	52
Figure 27. Catheys Creek Subwatershed 08 .....	56
Figure 28. Catheys Creek Site 08a.....	57
Figure 29. Catheys Creek Site 08b .....	58
Figure 30. Catheys Creek Site 08c.....	59
Figure 31. Catheys Creek Subwatershed 09 .....	64
Figure 32. Catheys Creek Site 09a.....	65
Figure 33. Catheys Creek Site 09b .....	66
Figure 34. Catheys Creek site 09c .....	67
Figure 35. Catheys Creek site 09d.....	68
Figure 36. Catheys Creek Site 09e.....	69
Figure 37. Catheys Creek Site 09f.....	70
Figure 38. Catheys Creek Site 09g .....	71
Figure 39. Catheys Creek Subwatershed 11 .....	76
Figure 40. Catheys Creek Site 11a.....	77
Figure 41. Catheys Creek site 11b .....	78
Figure 42. Catheys Creek Site 11c.....	79
Figure 43. Catheys Creek Site 11d .....	80
Figure 44. Catheys Creek Subwatershed 12 .....	84
Figure 45. Catheys Creek Site 12a.....	85

Figure 46. Catheys Creek Subwatershed 13 .....	89
Figure 47. Catheys Creek Site 13a.....	90
Figure 48. Catheys Creek Site 13b .....	91
Figure 49. Catheys Creek Site 13c.....	92
Figure 50. Catheys Creek Site 13d .....	93
Figure 51. Catheys Creek Site 13e.....	94
Figure 52. Catheys Creek Site 13f.....	95
Figure 53. Catheys Creek Site 13g .....	96
Figure 54. Catheys Creek Site 13h .....	97
Figure 55. Catheys Creek Subwatershed 14 .....	101
Figure 56. Catheys Creek Site 14a.....	102

## **TABLES**

Table 1. Prioritized Subwatershed Site Information.....	7
Table 2. Landowner Information .....	9
Table 3. Subwatershed 01 Site Information.....	13
Table 4. Subwatershed 02 Site Information.....	22
Table 5. Subwatershed 04 Site Information.....	30
Table 6. Subwatershed 05 Site Information.....	36
Table 7. Subwatershed 06 Site Information.....	43
Table 8. Subwatershed 07 Site Information.....	48
Table 9. Subwatershed 08 Site Information.....	55
Table 10. Subwatershed 09 Site Information.....	62
Table 11. Subwatershed 11 Site Information.....	75
Table 12. Subwatershed 12 Site Information.....	83
Table 13. Subwatershed 13 Site Information.....	87
Table 14. Subwatershed 14 Site Information.....	100

## 1.0 INTRODUCTION

### General Information

This *Project Atlas* is designed to accompany the *Watershed Management Plan* (Earth Tech, 2005) for the Cathey's Creek watershed (HU 03050105070020 in the Broad River Basin). It is intended to assist the Implementation Staff of the Ecosystem Enhancement Program in locating potential watershed improvement projects identified in the *Watershed Management Plan* and initiating project development. Hard-copy maps showing potential project sites at the sub-watershed scale as well as at the individual site scale are included in this document. A digital GIS database, provided on CD, includes additional data layers not displayed on the field maps as well as the complete attribute tables for all data layers. Large maps based on USGS topographic quadrangles and 1998 aerial photography are also provided at a scale convenient for navigation around the watershed.

The Cathey's Creek Watershed runs from northwest to southeast through north-central Rutherford County, with the northernmost tip forming a portion of the Rutherford-McDowell County boundary. See **Figure 1** in this atlas. It is located between the Broad and Second Broad Rivers. The total watershed area is 44.77 square miles and the main channel length of Cathey's Creek is 19.2 miles long. The headwaters of Cathey's Creek originate at the northwest end of the watershed on low mountains that fall within the Blue Ridge physiographic province. The remainder of the watershed lies within the Piedmont physiographic province. Elevations in this area range from 2,508 feet on the summit of Rich Mountain to about 1,200 feet at the foothills of these mountains. Elevations range from 1,200 feet in the foothills to 806 feet where Cathey's Creek joins the Second Broad River. The average channel slope is 44.8 feet/mile. The hilly terrain is very finely dissected by numerous drainages that coalesce to form six major tributaries to Cathey's Creek. The major municipalities are located in the flatter terrain at the lower end of the basin.

### Mapping

The atlas was developed using mapping, data, field observations, and other information that was compiled and analyzed for three previous reports—the *Initial Watershed Characterization and Sampling Plan* (Earth Tech, 2003), the *Critical Area Analysis* (Earth Tech, 2005), and the *Watershed Management Plan* (Earth Tech, 2005). These reports should be consulted for detailed information on GIS information sources and analysis and GIS updates and calculations that were performed by Earth Tech. **Figure 2** in this atlas shows the 14 sub-watersheds in the Cathey's Creek and highlights the four priority sub-watersheds (01, 08, 09, and 13) that are discussed in the *Watershed Management Plan*.

The base mapping was developed using BasinPro 3.1 and other sources according to procedures documented in the *Initial Watershed Characterization*. For the *Critical Area Analysis*, two important updates created by Earth Tech should be noted. These updates were used in all subsequent reports, including this atlas.

- 1) New layers were created for streams and buffers by digitizing these features as they appeared on 1998 color infrared Digital Orthophoto Quarter Quadrangles. Buffers were delineated along the streams at distances of 10 and 30 feet from the stream. Three buffer categories were defined and streams segments were classified by visual inspection of the aerial photo according to these categories. This buffer classification is shown on Figure 2 of the *Critical Area Analysis* and can be viewed in the digital version of this atlas.
- 2) The USGS land use/land cover layer was updated based on field observations of newly cleared land. The extent of clearing was not delineated in the field, so clearing estimates are based on parcel boundaries and/or visual estimates of boundaries.

### **Site Identification**

Potential project sites listed in this atlas were identified by a combination of procedures—mainly the potential site identification procedure (referred to as GIS Analysis 2 on mapping) and field sampling as described in the *Critical Area Analysis*. The potential site identification procedure described in the *Initial Watershed Characterization* (referred to on mapping as GIS Analysis 1) was ignored in favor of the later procedure that used updated stream and buffer information. Visual analysis of aerial photography was also used to identify potential sites in areas of the sub-watershed that were not directly sampled or observed. Potential project sites are displayed on **Figures 3** through **56** in this atlas.

The following criteria were considered when identifying potential project sites:

- Stream project length greater than 1500 ft
- Five or fewer landowners (except for residential stormwater BMPs)
- Inadequate buffer along stream
- Livestock access to stream
- Field observations indicating functional degradation (restoration or enhancement potential as indicated by eroding banks, lack of sinuosity, channel incision, etc.)
- If site was not sampled, visually appears similar on aerial photography to sampled sites (*e.g.*, lacks sinuosity and/or forested buffer) and was assumed to have similar degradation issues.
- Potential for stormwater BMP retrofits and/or significant community interest

It should be noted that reaches of only 300 feet were sampled, so potential stream project segments highlighted on the maps in this atlas were defined visually from aerial photography and/or cut off at parcel boundaries. Buffer widths along these segments can be viewed in the digital atlas.

Narrative descriptions of sub-watershed characteristics and field sampling sites from the *Critical Area Analysis* are included here for convenience. See Appendix A of that document for a table of individual site scores and measurements.

A hazard analysis and full investigation of constraints was beyond the scope of this report. Any potential constraints observed during field sampling were noted and are included in the narrative descriptions of the sample sites.

### **Potential Project Ranking**

Potential project sites were listed in an Excel spreadsheet with fields for key ranking criteria such as presence in a priority watershed and number of landowners. See **Table 1** in this atlas. The projects are grouped into four categories as follows

- **Group 1** - sites that are in a priority sub-watershed and may be funded by EEP entirely or in part. Within this group, sites are sorted by number of landowners.
- **Group 2** - sites that are also in a priority sub-watershed, but are not projects that can be funded by EEP or have more than 5 landowners
- **Group 3** - sites that are not a priority watershed but may be funded entirely or in part by EEP. Within this group, sites are sorted by number of landowners
- **Group 4** - sites that are not in a priority sub-watershed, and are not projects that can be funded by EEP but may be of interest to local resource professionals.

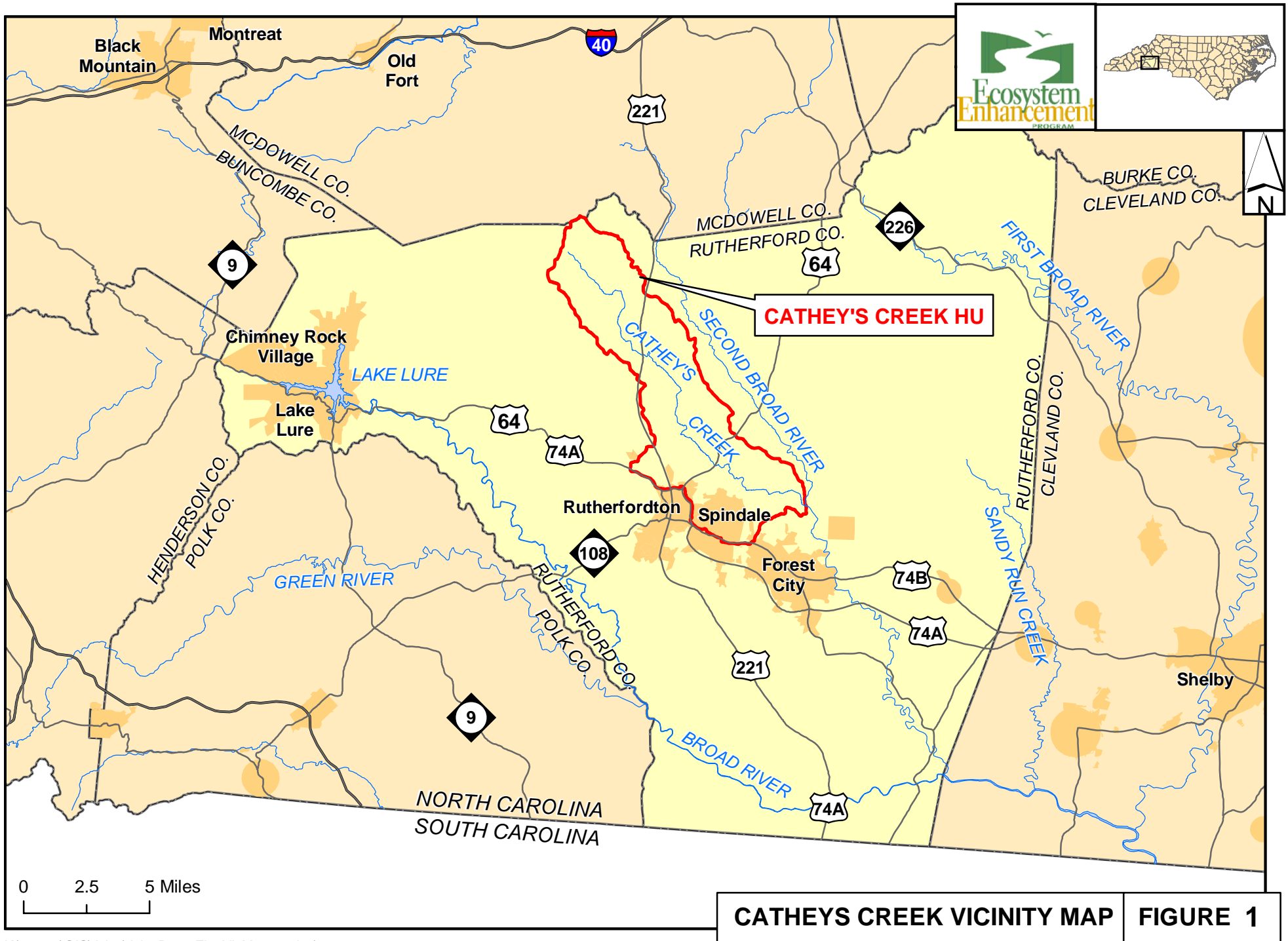
This table is included with the GIS database submitted on CD and may be expanded to include additional fields and/or resorted as needed.

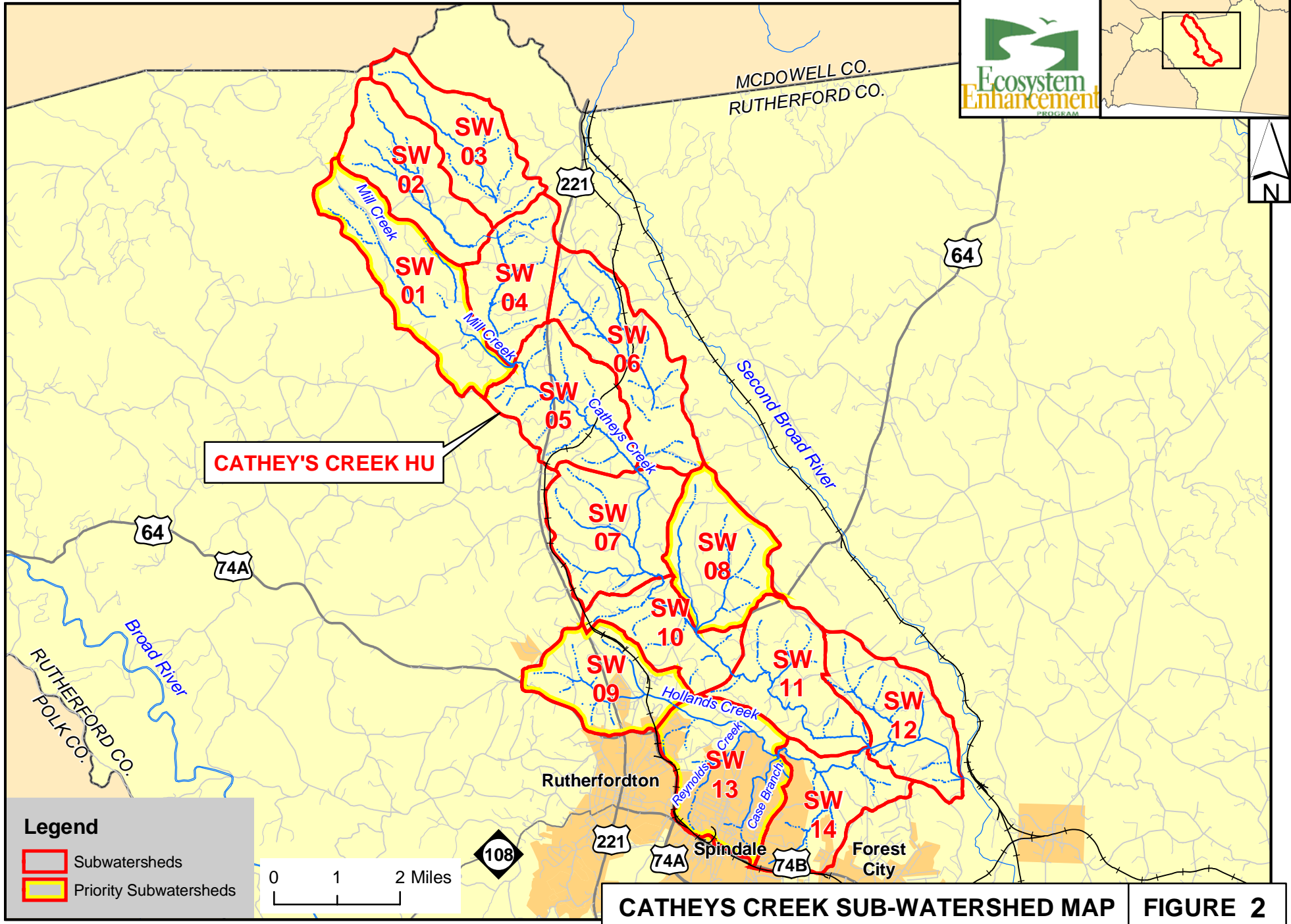
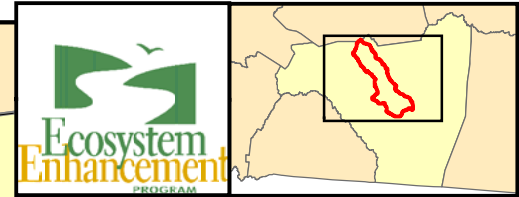
**Table 2** lists the names and addresses of landowners for every site identified in Table 1 that has 5 or fewer landowners. Complete parcel information for the entire Cathey's Creek watershed is included with the GIS database submitted on CD.

## Abbreviations

Field lengths for attribute tables in the GIS are limited to 10 characters, so a list of abbreviations used in Tables 1 and 2 is included here.

<b>FieldSite</b>	Field sampling site as described in the Critical Area Report
<b>FigNum</b>	Figure number in Project Atlas on which potential project site is shown
<b>LgthFtTot</b>	Total length in feet of a potential stream restoration or enhancement segment
<b>N</b>	No
<b>NS</b>	Not sampled
<b>NumOwners</b>	Number of landowners
<b>NumParcels</b>	Number of parcels
<b>PrioritySW</b>	Priority sub-watershed
<b>SubWS_site</b>	Potential project ID number, combination of subwatershed number and a letter
<b>TyAgBMP</b>	Type of potential project-Agricultural BMPs
<b>TyBuffEnh</b>	Type of potential project-Buffer enhancement (increasing width of existing inadequate buffer)
<b>TyBuffRest</b>	Type of potential project-Buffer restoration (planting a buffer where absent)
<b>TyForBMP</b>	Type of potential project-Forestry BMPs
<b>TyLvstkBMP</b>	Type of potential project-Livestock BMPs
<b>TyStormBMP</b>	Type of potential project-Stormwater BMPs
<b>TyStrmEnh</b>	Type of potential project-Stream enhancement
<b>TyStrmRest</b>	Type of potential project-Stream restoration
<b>Y</b>	Yes





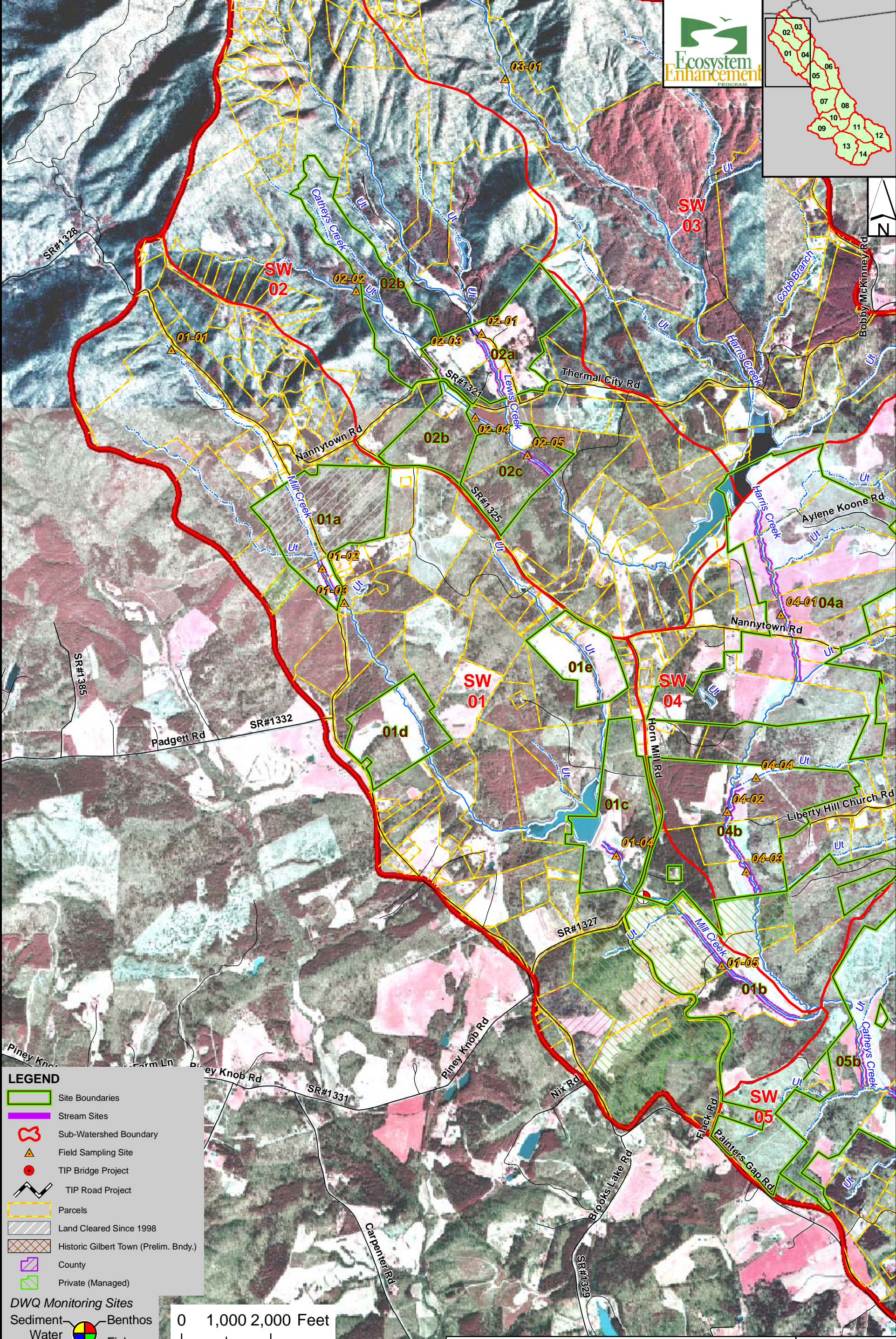
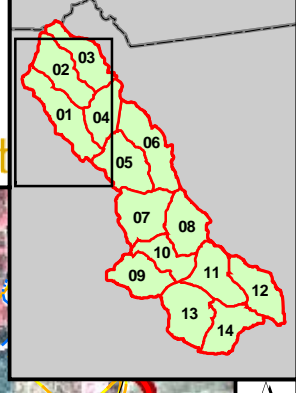
CATHEY'S CREEK HU

**CATHEYS CREEK SUB-WATERSHED MAP** **FIGURE 2**

**Table 1. Prioritized Subwatershed Site Information**

SubWS_site	LgthFtTot	PrioritySW	NumParcels	NumOwners	TyStrmRest	TyStrmEnh	TyBuffRest	TyBuffEnh	TyForBMP	TyAgBMP	TyLvstkBMP	TyStormBMP	Implementer	FigNum	FieldSite	Notes	Grouping
01c	1596	YES	1	1	Y	N	Y	N	N	N	Y	N	EEP	6	01-05	pair w/01b	Group 1 sites are in a priority sub-watershed and may be funded by EEP entirely or in part. Within this group, sites are sorted by number of landowners.
09a	0	YES	1	1	N	N	N	N	N	N	N	Y	EEP,Local	32	NS	High school	
08c	0	YES	7	1	N	N	N	N	N	N	N	Y	EEP,Local	30	NS	airport	
08b	1693	YES	2	1	Y	N	Y	N	N	N	Y	N	EEP,NRCS	29	08-01	horse farm, 5 acres wetland potential	
01b	3595	YES	3	2	Y	N	Y	N	N	N	Y	N	EEP	5	01-04	pair w/01c	
09b	0	YES	9	2	N	N	N	N	N	N	N	Y	EEP,Local	33	NS	Broyhill factory	
08a	2125	YES	2	2	Y	N	Y	N	N	N	Y	N	EEP,NRCS	28	08-03	cow pasture	
13g	1522	YES	4	3	N	Y	Y	N	N	N	N	N	EEP	53	13-04		
01a	1064	YES	4	3	Y	N	Y	N	Y	N	N	N	EEP,NCDFR	4	01-02,03		
13f	2665	YES	2	4	N	Y	Y	N	N	N	N	N	EEP	52	13-02	Hollands Creek at POTW	
13h	560	YES	5	4	N	Y	N	N	N	N	N	N	EEP	54	13-01		
09c	0	YES	10	4	N	N	Y	N	N	N	N	Y	EEP,Local	34	09-03	Tanner factory	
13a	5930	YES	4	4	Y	N	Y	N	N	Y	Y	N	EEP,NRCS	47	13-03		
09e	1930	YES	5	5	N	Y	Y	N	N	N	N	N	EEP	36	09-02		
01d	0	YES	1	1	N	N	N	N	N	Y	Y	N	NRCS	7	NS		Group 2 sites are also in a priority sub-watershed, but are not projects that can be funded by EEP or have more than 5 landowners.
01e	0	YES	4	4	N	N	N	N	N	Y	Y	N	NRCS	8	NS		
09d	3449	YES	5	5	N	N	Y	N	N	N	Y	N	NRCS	35	09-01		
09f	2182	YES	53	>5	N	Y	Y	N	N	N	N	Y	Local	37	09-04		
09g	3204	YES	72	>5	N	N	N	Y	N	N	N	Y	Local	38	NS		
13b	1115	YES	213	>5	N	N	Y	N	N	N	N	Y	Local	48	NS		
13c	4613	YES	446	>5	N	N	Y	N	N	N	N	Y	Local	49	NS		
13d	1919	YES	413	>5	N	N	Y	N	N	N	N	Y	Local	50	NS		
13e	7504	YES	17	>5	Y	N	Y	N	N	N	Y	Y	NRCS,Local	51	13-05		

SubWS_site	LgthFftTot	PrioritySW	NumParcels	NumOwners	TyStrmRest	TyStrmEnh	TyBuffRest	TyBuffEnh	TyForBMP	TyAgBMP	TyLvstkBMP	TyStormBMP	Implementer	FigNum	FieldSite	Notes	Grouping
11b	1808	NO	1	1	N	Y	Y	N	N	N	N	N	EEP	41	11-02		Group 3 sites are not a priority watershed but may be funded entirely or in part by EEP. Within this group, sites are sorted by number of landowners.
07b	2265	NO	2	1	Y	N	Y	N	N	N	Y	N	EEP,NRCS	25	07-02		
06a	1443	NO	2	2	Y	N	Y	N	N	N	N	N	EEP	21	06-02		
07c	1232	NO	2	2	Y	N	Y	N	N	N	N	N	EEP	26	07-05		
11a	1067	NO	5	2	N	Y	N	N	N	N	N	N	EEP	40	11-01		
02a	1869	NO	3	2	Y	N	Y	N	N	N	Y	N	EEP,NRCS	10	02-01		
07a	2388	NO	2	2	Y	N	Y	N	N	N	Y	N	EEP,NRCS	24	07-01	5 acres wetland potential	
12a	1750	NO	3	3	Y	N	N	Y	N	N	N	N	EEP	45	12-01		
04b	3066	NO	3	3	Y	Y	Y	N	N	N	Y	N	EEP,NRCS	15	04-02,03,04	same owner as 01b	
06b	3001	NO	3	3	Y	N	Y	N	N	N	Y	N	EEP,NRCS	22	06-04		
11c	1866	NO	3	3	Y	N	Y	N	N	N	Y	N	EEP,NRCS	42	11-03		
02b	822	NO	4	4	Y	Y	N	N	N	N	Y	N	EEP,NRCS	11	02-03		
11d	3006	NO	4	4	Y	N	Y	N	N	N	Y	N	EEP,NRCS	43	11-05		
05a	2057	NO	4	4	N	Y	Y	N	N	Y	Y	N	EEP,NRCS	17	05-02,03		
04a	4332	NO	11	7	Y	N	N	Y	N	Y	Y	N	EEP,NRCS	14	04-01	>5 owners but excellent potential	
14a	1005	NO	2	1	N	N	Y	N	N	N	N	Y	Local	56	14-01,02		Group 4 sites are not in a priority sub-watershed, and are not projects that can be funded by EEP.
02c	896	NO	2	2	N	N	N	N	N	N	Y	N	NRCS	12	02-05		
05c	1976	NO	2	2	N	N	Y	N	N	Y	N	N	NRCS	19	NS		
05b	3123	NO	6	5	N	N	Y	N	N	Y	N	N	NRCS	18	NS		

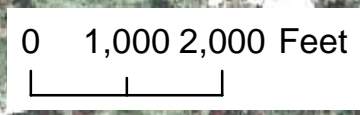


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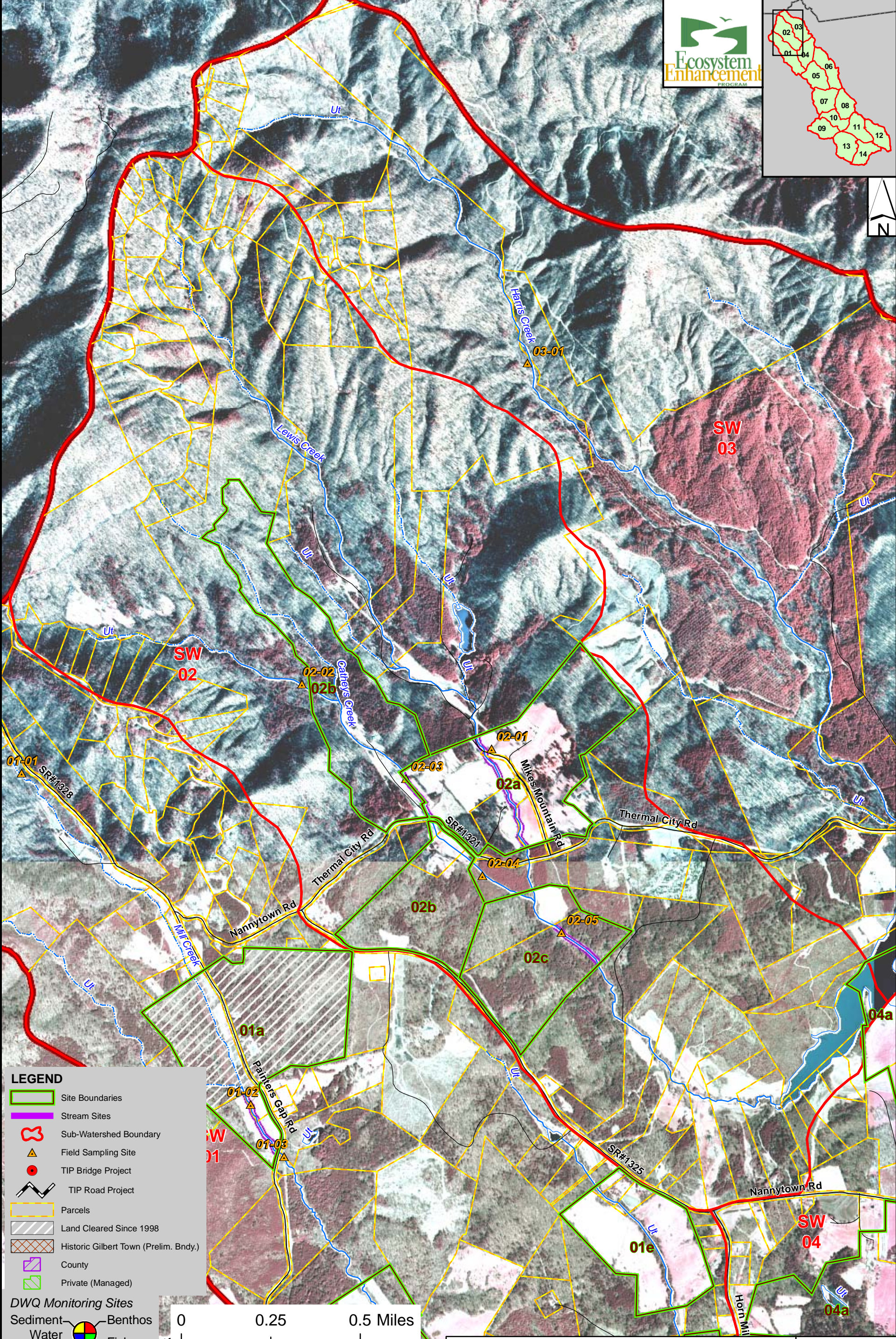
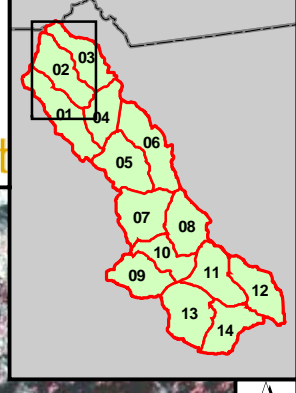
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- Stream Sites
- Sub-Watershed Boundary
- ▲ Field Sampling Site
- TIP Bridge Project
- TIP Road Project
- Parcels
- Land Cleared Since 1998
- Historic Gilbert Town (Prelim. Bndy.)
- County
- Private (Managed)

**DWQ Monitoring Sites**

- Sediment ●
- Benthos ●
- Water Quality ●
- Fish ●

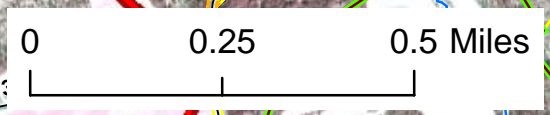


**CATHEYS CREEK SUBWATERSHED 01** **FIGURE 3**

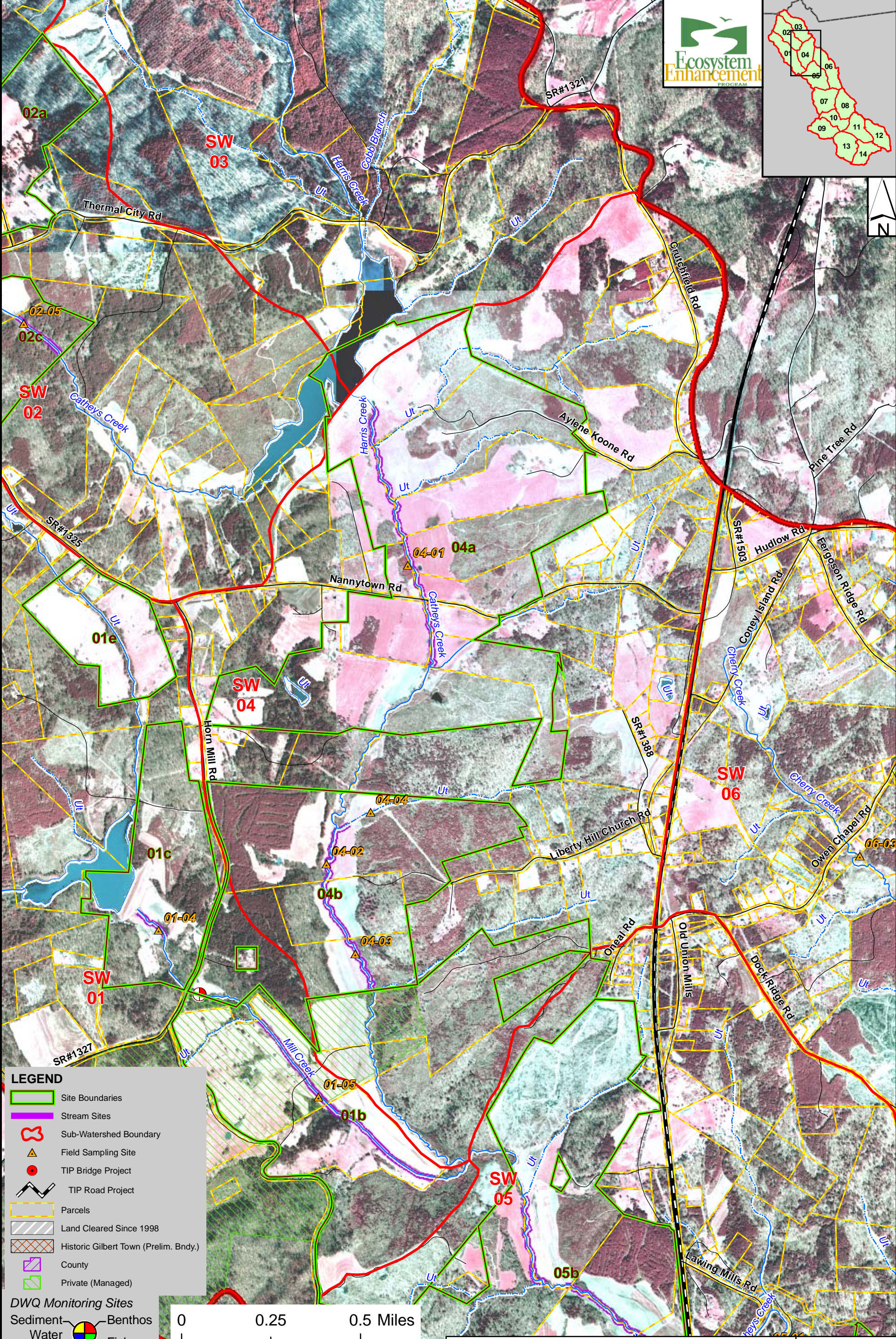
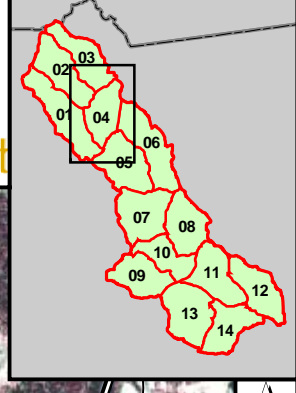


- LEGEND**
- Site Boundaries
  - Stream Sites
  - Sub-Watershed Boundary
  - Field Sampling Site
  - TIP Bridge Project
  - TIP Road Project
  - Parcels
  - Land Cleared Since 1998
  - Historic Gilbert Town (Prelim. Bndy.)
  - County
  - Private (Managed)

- DWQ Monitoring Sites**
- Sediment
  - Benthos
  - Water Quality
  - Fish



**CATHEYS CREEK SUBWATERSHED 02** **FIGURE 9**

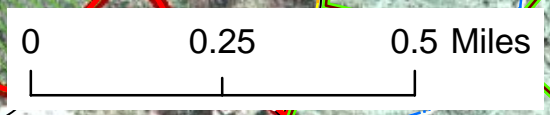


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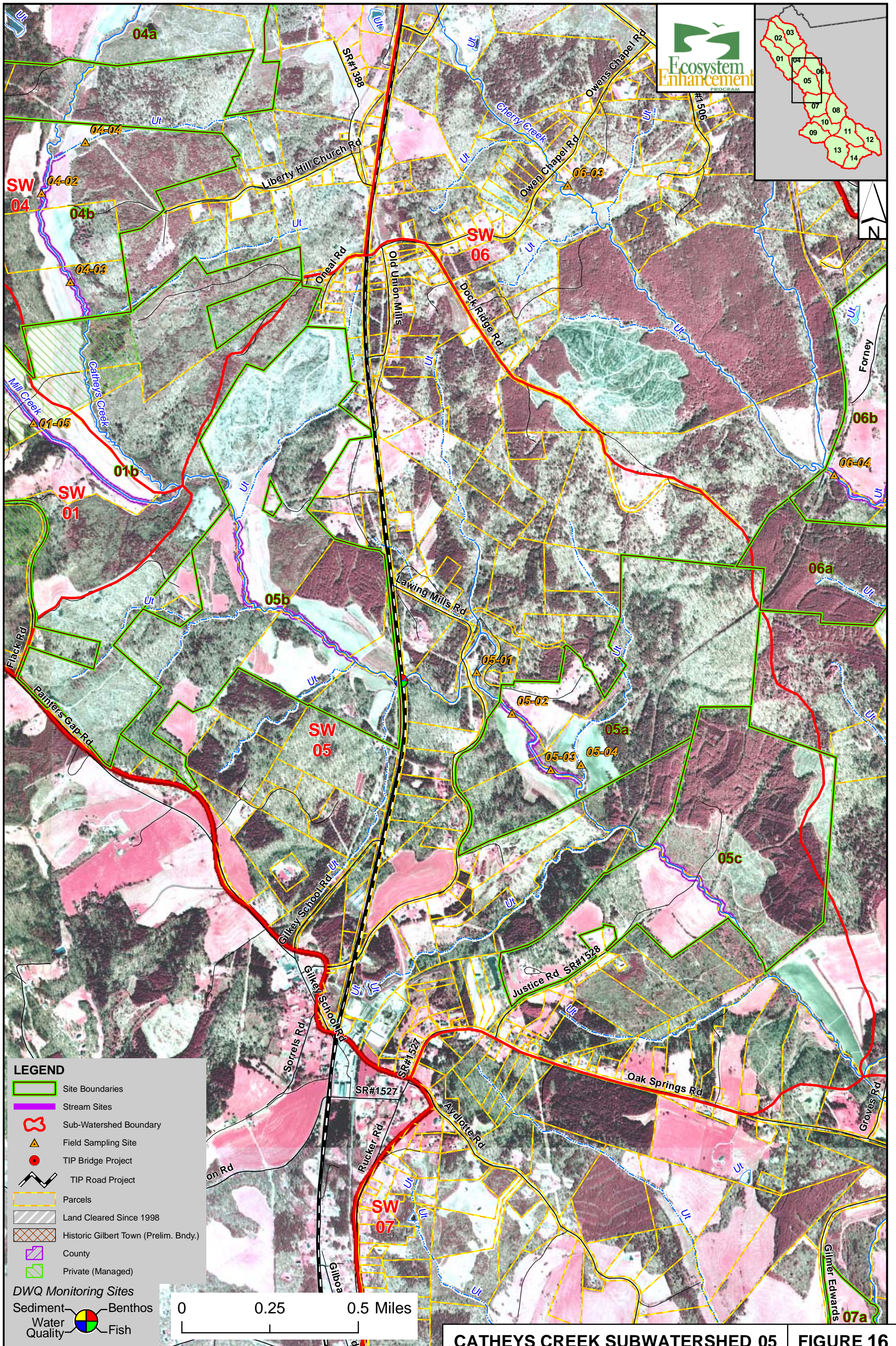
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- Sub-Watershed Boundary
- Field Sampling Site
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- TIP Road Project
- Parcels
- Land Cleared Since 1998
- Historic Gilbert Town (Prelim. Bndy.)
- County
- Private (Managed)

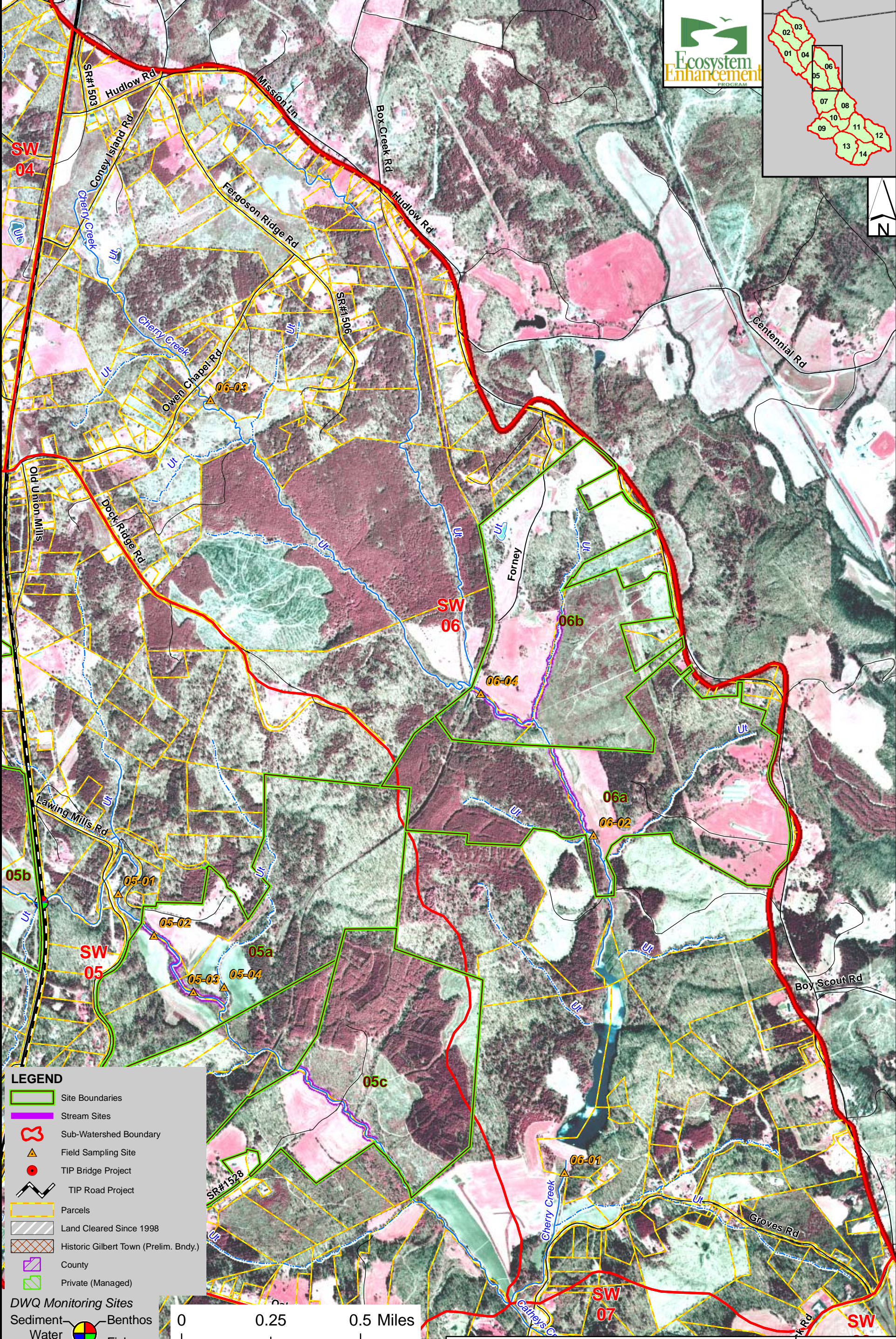
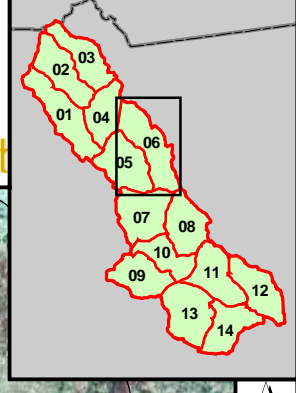
**DWQ Monitoring Sites**

- Sediment
- Benthos
- Water Quality
- Fish



**CATHEYS CREEK SUBWATERSHED 04** **FIGURE 13**



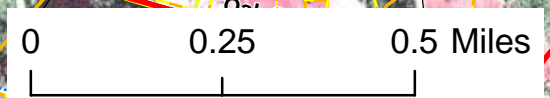


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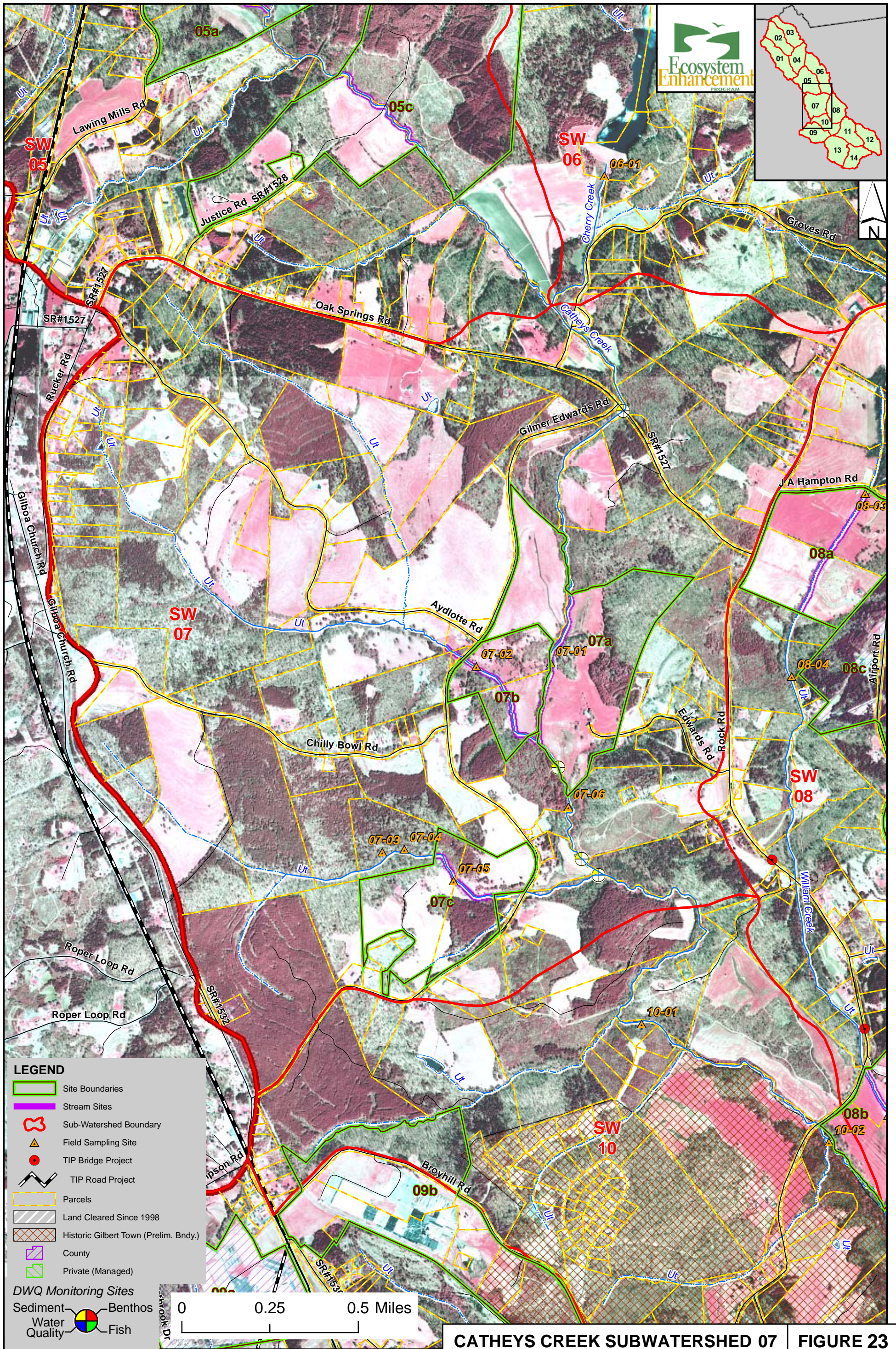
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- Stream Sites
- Sub-Watershed Boundary
- Field Sampling Site
- TIP Bridge Project
- TIP Road Project
- Parcels
- Land Cleared Since 1998
- Historic Gilbert Town (Prelim. Bndy.)
- County
- Private (Managed)

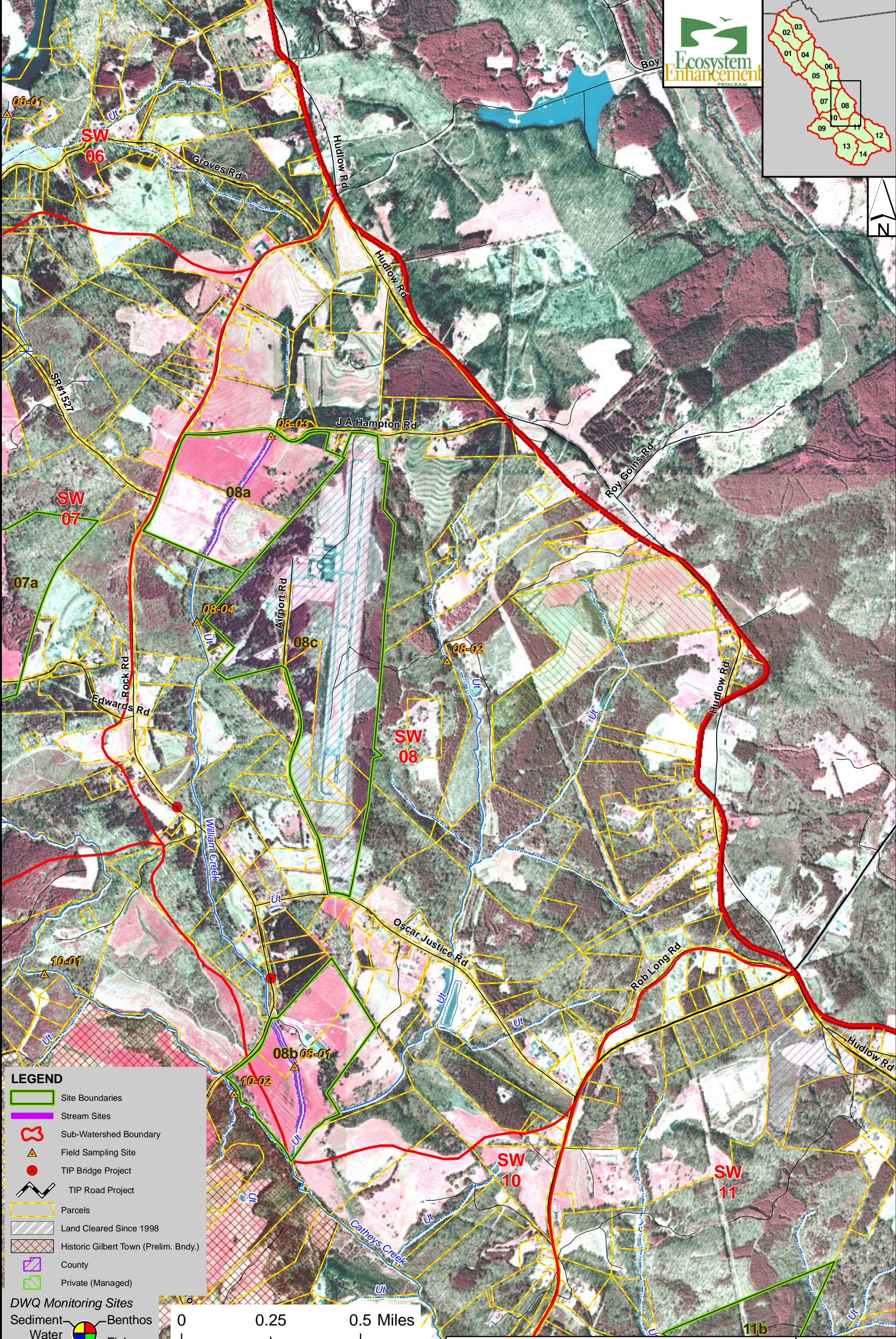
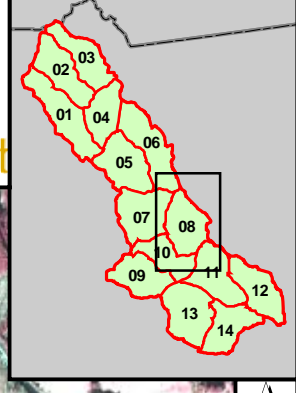
**DWQ Monitoring Sites**

- Sediment
- Benthos
- Water Quality
- Fish



**CATHEYS CREEK SUBWATERSHED 06** **FIGURE 20**



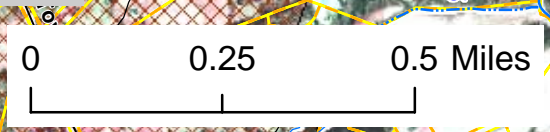


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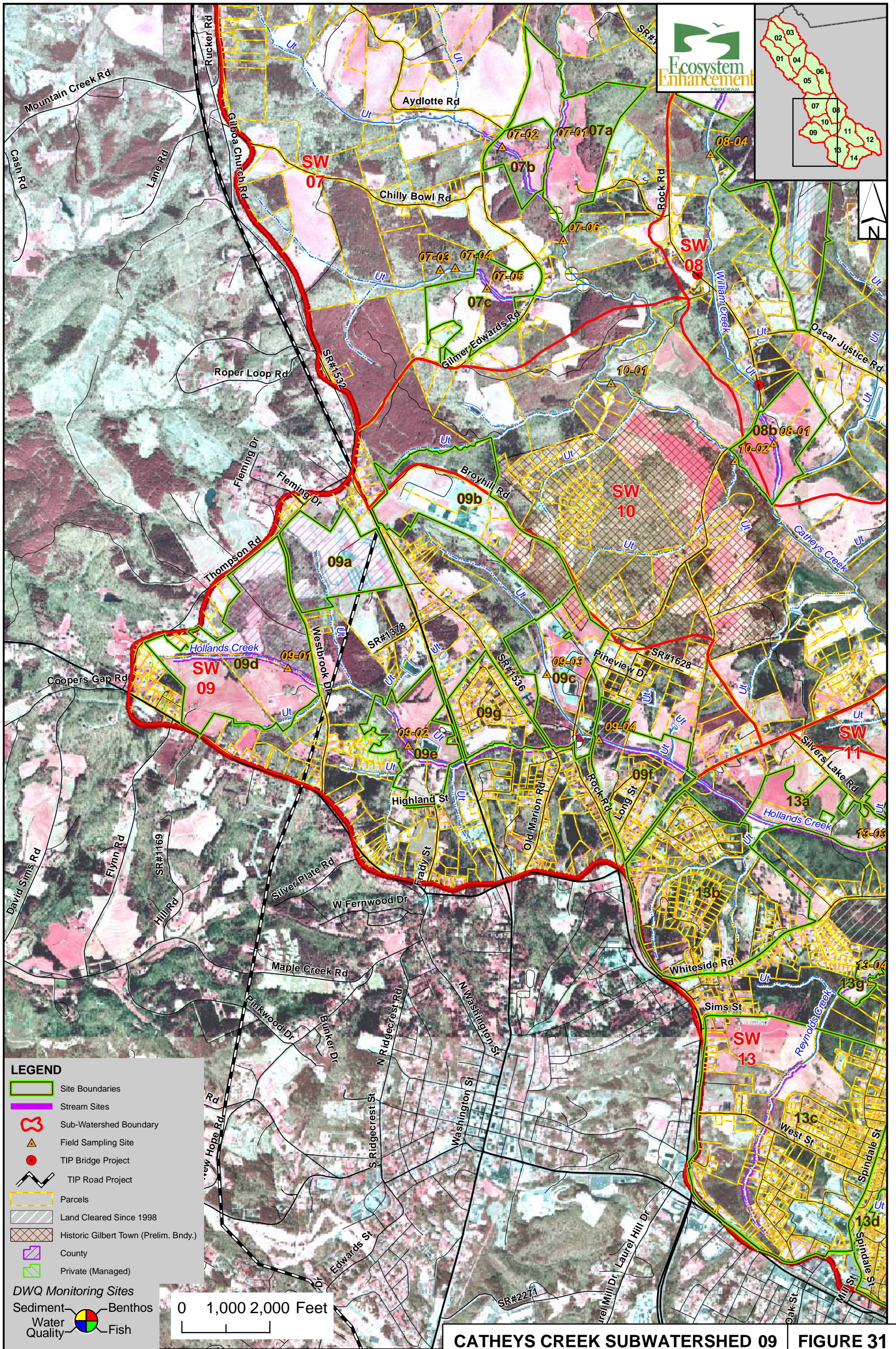
- Site Boundaries
- Stream Sites
- Sub-Watershed Boundary
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- TIP Bridge Project
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- County
- Private (Managed)

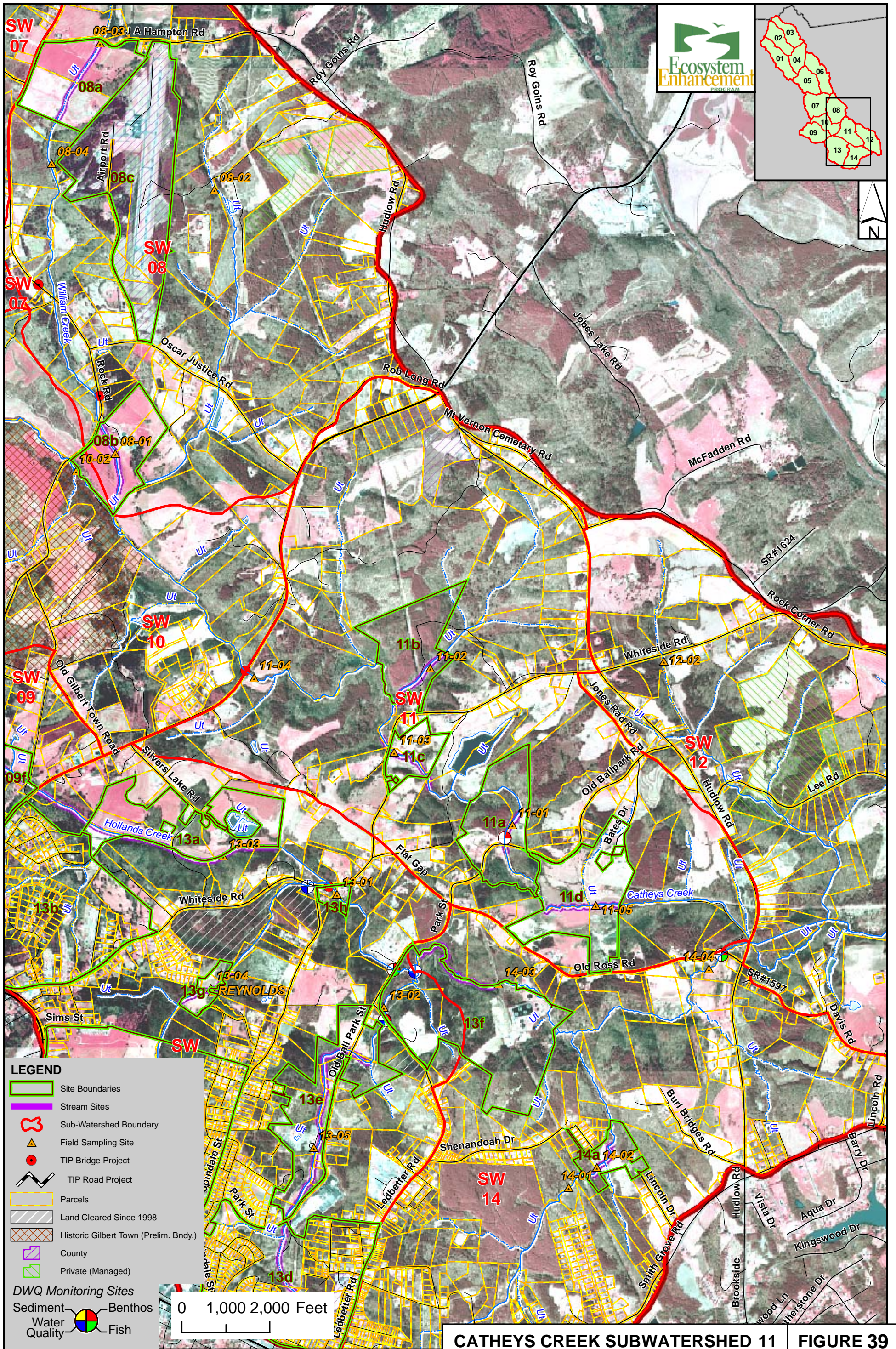
**DWQ Monitoring Sites**

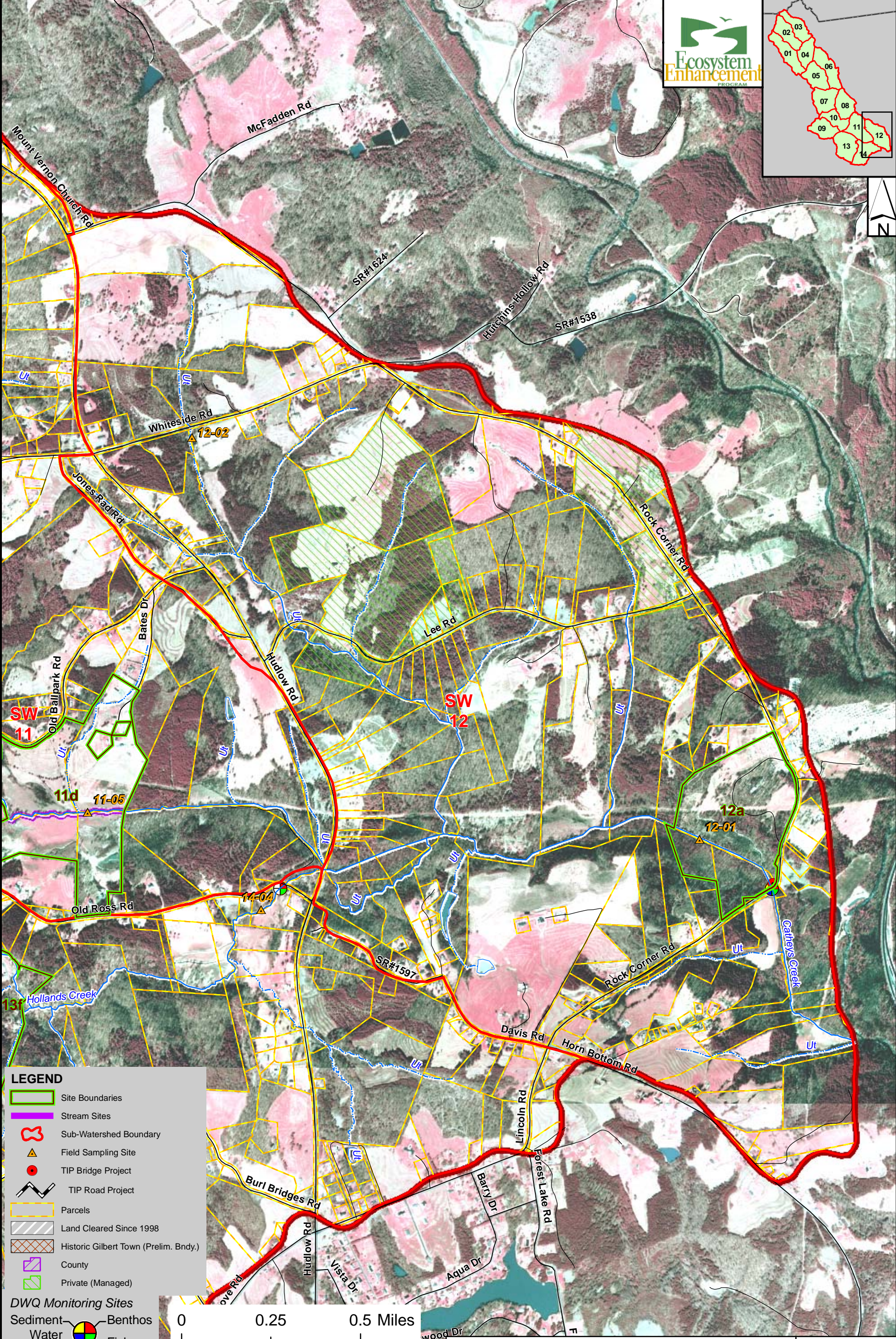
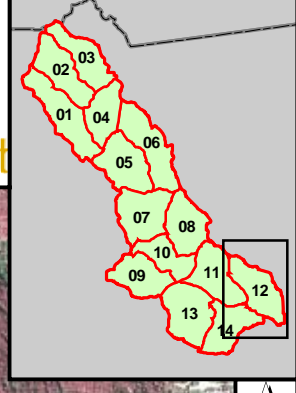
- Sediment
- Benthos
- Water Quality
- Fish



**CATHEYS CREEK SUBWATERSHED 08** **FIGURE 27**





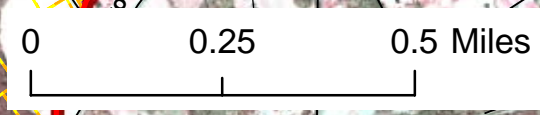


**LEGEND**

- Site Boundaries
- Stream Sites
- Sub-Watershed Boundary
- Field Sampling Site
- TIP Bridge Project
- TIP Road Project
- Parcels
- Land Cleared Since 1998
- Historic Gilbert Town (Prelim. Bndy.)
- County
- Private (Managed)

**DWQ Monitoring Sites**

- Sediment
- Benthos
- Water Quality
- Fish



**CATHEYS CREEK SUBWATERSHED 12** **FIGURE 44**

