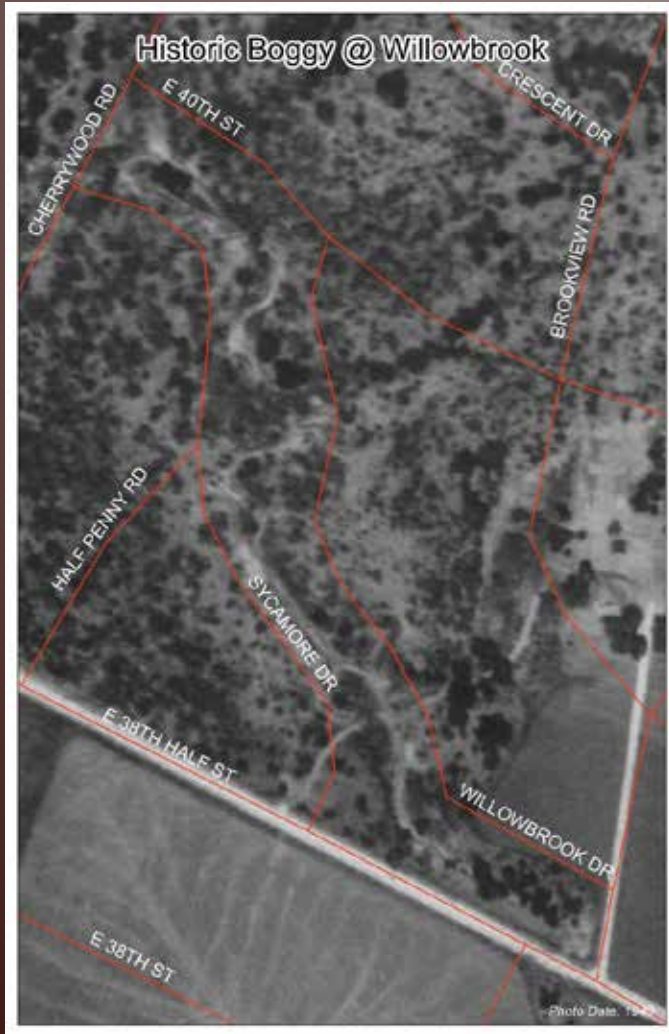


# BOGGY CREEK RIPARIAN RESTORATION



Willowbrook Reach Case Study  
Staryn J. Wagner  
City of Austin

1940



2009





# 1997 Stream Channel Erosion Evaluation



Roll 1, Photo 16. Looking D/S at channel D/S of Cherrywood Road.

# 1997 Stream Channel Erosion Evaluation Results

Table 5. Rapid Geomorphic Assessment Approach For Application To Response Segments

(28 with 11 packets) Biggy Creek Reach 7 From 300' D/C at 38 1/2 feet to Asper's Blvd

| FORM/PROCESS                            | GEOMORPHIC INDICATOR   | PRESENT  |  | INDEX        |
|---|--|--|--|--------------|
|   |  | No   | Yes  |              |
| EVIDENCE OF AGGRADATION (AI)            | 1. lobate bars<br>2. coarse material in riffles embedded<br>3. siltation of pools<br>4. medial bars<br>5. accretion on point bars<br>6. poor longitudinal sorting of bed materials<br>7. deposition of sediment in the overbank zone   | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓                | ✓  | 1/7<br>0.14  |
| EVIDENCE OF DEGRADATION (DI)            | 1. exposed bridge footing(s)<br>2. exposed sanitary sewer/gas pipelines/etc<br>3. elevated storm sewer outfall(s)<br>4. undermined gabion baskets/concrete aprons/etc.<br>5. scour pools downstream of culverts/stormsewer outlets<br>6. avalanche faces on bar forms<br>7. head cutting due to knick point migration<br>8. terrace cut through older bar material<br>9. suspended armor layer visible in bank<br>10. channel worn into undisturbed overburden | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓ | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓ | 6/10<br>0.60 |
| EVIDENCE OF WIDENING (WI)               | 1. fallen/leaning trees/fence posts<br>2. occurrence of Large Organic Debris<br>3. exposed roots on trees<br>4. basal scour on inside meander bends<br>5. basal scour on both sides of the channel in riffle sections<br>6. gabion baskets/concrete walls/etc. out flanked<br>7. length of channel with basal scour > 50%  | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓                | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓                | 3/6<br>0.50  |
| EVIDENCE OF PLANIMETRIC ADJUSTMENT (PI) | 1. formation of chutes<br>2. evolution of single thread channel to multiple<br>3. evolution of pool-riffle to braided form<br>4. cutoff channels<br>5. formation of islands<br>6. fluvial alignment out of phase with meander geometry<br>7. bar forms poorly formed/re-worked/removed   | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓                | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓                | 3/7<br>0.29  |
| STABILITY INDEX                         |  |  |  | SI = 0.38    |

IN TRANSITION

The stability index (SI) is defined as:

$$SI = (AI + DI + WI + PI) / m$$

where m=4, AI, DI, WI, and PI are the normalized values of the aggradation, degradation, width enlargement and planimetric indices, respectively. The normalized value for each of the four FORM/PROCESS categories is computed as the sum the GEOMORPHIC INDICATORS for which a Yes determination is reported in the PRESENT column divided by n = the number of GEOMORPHIC INDICATORS used for each index. If a GEOMORPHIC INDICATOR is not applicable note n/a opposite this INDICATOR in the PRESENT column and reduce n by 1. For example, if there are no bridges in the reach then GEOMORPHIC INDICATOR No. 1 "exposed bridge footing(s)" under "EVIDENCE OF DEGRADATION (DI)" is not applicable and the observer should record an n/a opposite this INDICATOR, reduce n to 9 and move to the next INDICATOR.



# 2003 With Just A Few Years To Grow





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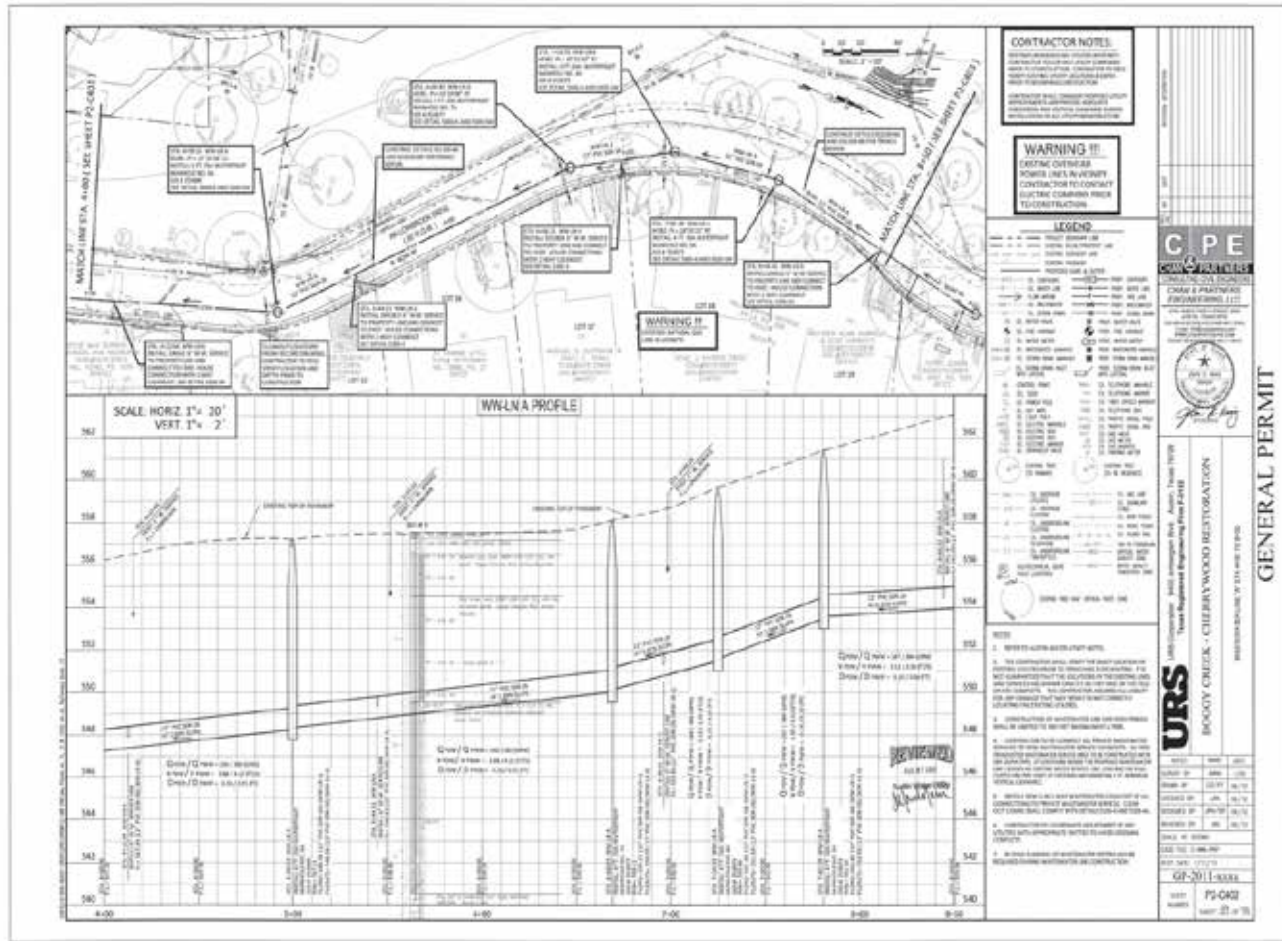


# 2003 With Just A Few Years To Grow





# And Then What Happened?



# The People Wanted A Different Kind Of Change



64memo.com



# Actually It Was These People





# What We Did





# What We Did





# How It Turned Out





# How It Turned Out



## Take Away

- The vegetation that grew for free changed the project from \$850 -> \$25 per linear foot
- Neighborhood got to participate in the design and construction of project
- The impact of the passive vegetation gave us a seat at the table with the engineers