



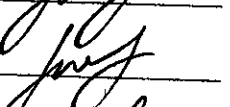
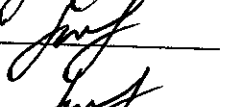
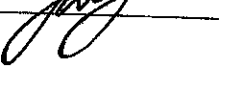



Drain: UG MITCHNER Drain #: 275
Improvement/Arm: ORVILLE KEYS RECONSTRUCTION / ARM 2
Operator: J. LIVINGSTON Date: 4-19-04
Drain Classification: Urban ~~Rural~~ Year Installed: 1984

GIS Drain Input Checklist

- Pull Source Documents for Scanning 
- Digitize & Attribute Tile Drains 
- Digitize & Attribute Storm Drains _____
- Digitize & Attribute SSD _____
- Digitize & Attribute Open Ditch _____
- Stamp Plans 
- Sum drain lengths & Validate 
- Enter Improvements into Posse 
- Enter Drain Age into Posse 
- Sum drain length for Watershed in Posse 
- Check Database entries for errors 

Gasb 34 Footages for Historical Cost
Drain Length Log

Drain-Improvement: UG MITCHNER - ORVILLE KEYS RECONSTRUCTION / ARM 2

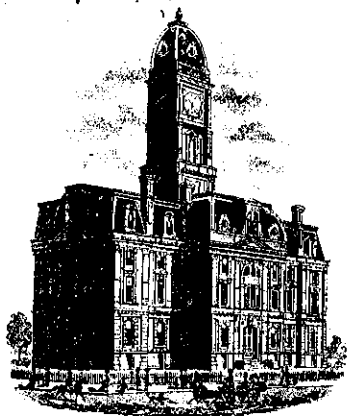
					If Applicable	
Drain Type:	Size:	Length	Length (DB Query)	Length Reconcile	Price:	Cost:
CONCRETE TILE	16"	625'	625'			
	18"	2125'	2125'			
DRAINAGE	425'	—	0'			
* PLASTIC TILE (25')	10"	0'				
2125' GRASS WATERWAY	16' WIDE	0'				
ARM 2 CONCRETE TILE	10"	1000'	1000'			
CMP	10"	78'	78'			

Sum: 3828' 3828' \$32,627.¹⁵

Final Report: _____

Comments:

- * CONNECT NEW TILE TO EXISTING CB N SIDE 15' ST.
- ** 10-28-2004 Bridgewater Club Relocation vacated Arm 2 of the Keys.



SURVEYOR'S OFFICE
Hamilton County

Kenton C. Ward, Surveyor

776-9626

Noblesville, Ind. 46060 March 29, 1984

TO: Hamilton County Drainage Board

RE: Orville Keys Drain

Attached is a drain map, drainage shed map and assessment roll for the Orville Keys Drain. This drain is located in Sections 8,9,16 and 17, Township 18 North, Range 4 East in Washington and Noblesville Townships.

The Orville Keys Drain was constructed in 1920 and consists of a tiled Main Ditch and Arm, 3824 feet in length. There are two descriptions for this drain, one from 1917 with one arm and another dated 1918 with two arms. It is my opinion that the 1917 description was used because of the close correlation to a cut sheet labeled "as cut". The length was also taken from this cut sheet.

Although the Keys Drain is presently number eight (8) on the Maintenance Classification, this report is a reconstruction report. It was initiated on February 20, 1984 when the Board of Commissioners petitioned the Drainage Board for a new drain in order to improve the drainage along Gray Road. (see attached petition). During investigation it was found that the tile portion of the U.G. Mitchner Drain was in need of complete reconstruction. Also at this time it was found that Public Service Indiana had placed a power transmission pole in the tile, thus blocking it. Because of this PSI has agreed to pay a portion of the reconstruction.

The U.G. Mitchner Drain was constructed in 1909. The portion which is part of this project will be 2540 feet of tile and 450 feet of open ditch.

Two possible routes exist for solving the drainage problem on Gray Road. The first is to install a tile drain on the East side of Gray Road directly North to the Mary Cox Drain. I estimate the drainage shed contributing to the problem to be approximately fifty-three (53) acres. According to the SCS EFM, Rigid Tile Drainage Chart on page 14-109 a 18 inch tile should be used with a 2' drainage coefficient and .35% grade which is the best case scenario. For demonstration purposes I have shown the cost estimate for a 12" tile using a 3/4 inch drainage coefficient and a .35% grade. Because of the depths involved bell tile (RCP) or PVC Plastic (sched 40) should be used. The prices for tile installation was given by Taylor Excavating and include tile installation up to 15 feet of depth \$4.00 to \$5.00 per foot, when including 12" tile-\$12.00 per foot, depths greater than 15' \$8.00 to \$10.00 per foot, when including 12" tile \$28.00 per foot.

1175 ft	12" tile 4-15' cut	@ \$12.00/ft	\$ 14,100.00
550 ft	12" tile 15'+cut	@ \$28.00/ft	\$ 15,400.00
Seeding	1.2 acres	@ \$300.00/acre	\$ 360.00
20'	16" CMP	@ \$10.00/ft	\$ 200.00
1-16'	Animal Guard		\$ 35.00
40'	12" RCP	@ \$20.00/ft	\$ 800.00
2	Tile inlets	@ \$150.00/inlet	\$ 300.00
			<hr/>
			\$ 31,195.00

With fifty-three (53)^{acres} in the drainage shed the cost per acre would be \$588.58. Although this would be the better route, the cost per acre is so extreme I do not believe this route should be taken.

* The second route, to be called Arm #2 Orville Keys Drain, is the most practical and economic although the outlet is limited. The tile would begin in the East R/W approximately 400ft North of the intersection of Gray Road and 156th Street, which is the North East corner of 17-18-4. It will cross the road and then run South along the West R/W for approximately 45'. At this point, STA 10 on attached plan, the tile will run West 10' to 15' South of the fence line to the existing Keys Drain. The Keys Drain is ten (10) inch tile at this point. Using the chart on page 14-109 in the EFM a 12" tile should be used with a 3/4" drainage coefficient and a .1% grade. Because of the size of the Keys Drain, I believe an 10" tile should be used. A junction box should be constructed at STA 0+00 where this arm joins the main ditch. Concrete tile should be used from STA 0 to 10 with a 90° bend or elbow at STA 10. Because of the farm operation and lack of adequate cover on the Steckley and Elliott property the tile should be placed on the Lotshaw property and along the Gray Road R/W. From STA 10 to 10+78 CMP should be used. Inlets will be installed at Stations 10+45 and 10+78. Although this is not the best solution to the problem, I believe it will at least provide an outlet

for the standing water problem.

The cost estimate for Arm #2 is as follows:

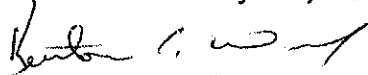
1000ft 10" tile @ \$3.50/ft	\$ 3,500.00
78ft 10" CMP @ \$9.50/ft	\$ 741.00
2 inlets @ \$200.00 each	\$ 400.00
1 acre seeding @ \$300.00/acre	\$ 300.00
Junction Box	\$ 500.00
	<hr/>
	\$ 5,441.00

The cost for this arm will be included in the cost for reconstruction of the U.G. Mitchner Drain mentioned above. The present tile is 12" between the catch basin and 151st Street and 15" between 151st Street and the open drain. With approximately 270 acres in the shed, 3/8" drainage coefficient and .4% grade the size of tile in North of 151st Street should be 16". The lower reach having 390 acre, 3/8/ drainage coefficient and .15% grade should be a 20" tile. However, I believe a 18" tile will be adequate and more economical. The cost estimate for this work is as follows.

625ft 16" tile @ \$5.65/ft	\$ 3,531.25
2125ft 18" tile @ \$7.00/ft	\$14,875.00
20' 21" CMP @ \$14.00/ft	280.00
21" animal Guard	65.00
Junction Box	500.00
Catch Basin	400.00
450ft Dredging @ \$2.50/ft	1,125.00
2125ft Waterway @ \$1.60/ft	3,400.00
Rock Chute Structure	2,300.00
	<hr/>
sub total	\$26,476.25
+Arm #2	5,441.00
	<hr/>
	\$31,917.25
+ 10% Contg.	3,191.72
TOTAL	<hr/>
	\$35,108.97

On February 21, 1984 the Hamilton County Commissioners moved to pay one-half ($\frac{1}{2}$) of the cost , or \$2,720.00 on Arm #2. Also PSI has agreed to pay for the section of tile from STA 26 to 32+25 which is estimated at \$3,531.25. This reduces the cost to \$28,857.72. With 537.52 acres in the drainage shed the cost per acre will be \$53.70, with a \$53.70 minimum. A maintenance program should be established at \$2.00 per acre, \$6.00 minimum. This will collect \$1,130.66 per year for maintenance. Maintenance will cover the reconstructed portion of the Mitchner Drain and the Orville Keys Drain.

A hearing for the above proposals should be held on May 14, 1984.


Kenton C. Ward
Hamilton County Surveyor

KCW/no

SPECIAL INSTRUCTIONS

PROJECT DESCRIPTION

This project consists of construction of a new arm to the Orville Keys Drain. Arm #2, consisting of 1078 feet of ten (10) inch tile. The project also consists of reconstructing part of an existing open and tile ditch. This portion includes 625 feet of sixteen (16) inch tile, 2125 feet of eighteen (18) inch tile, one junction box, one catch basin, 450 feet of dredging, 2125 feet of waterway and one rock chute structure.

ARM #2

Arm #2 shall begin at a breather to be located in the fence line in the existing tile. A sketch of this section is on the plan and profile sheet. Tile will then run ten (10) feet North of the fence line to the Right of Way on Gray Road. Tile will then run North between the fence line and the Right of Way to the inlet at STA 10+45. At this point the tile will cross the road to the East and will end at the inlet at STA 10+78.

A detail of the inlets is attached. Tile price shall include "T"'s and a 90° bend. From STA 0 to STA 10+00 tile shall be ten (10) inch Extra Quality Heavy Duty Concrete Tile, installed with a Tile Machine in good working order. From STA 10+00 to 10+78 CMP shall be used, installed with a back hoe, CMP shall be sixteen (16) GA.

OPEN DITCH

Open Ditch will begin at the South fence line of James Thurston's property and run to Gray Road and under to the West side of the culvert. Ditch shall be 450 feet in length, have a four (4) foot bottom width, 2:1 side slope and a 0.1% grade.

* note: Gray Road is also known as Hinkle Road

STRUCTURE

At STA 4+50, on the West side of Gray Road, a Rock Chute structure is to be placed. Structure is to be located at the end of the surface waterway as shown on the plans. The present headwall is to be removed and buried. Include this in structure cost.

JUNCTION BOX

Construct a junction box at STA 32+25. Form box with two (2) inch thick sidewalls and four (4) inch reinforced top using 3500 to 4000 PSI Concrete. Remove existing junction box and bury. Box shall have inside demensions of four feet by four feet (4'x4"), the floor of the box shall be six (6) inches thick and six (6) inches below invert of new tile and shall have at least two (2) feet of soil over the top. Approximately twenty-five (25) feet of ten (10) inch plastic tile and thirty (30) feet of eight (8) inch plastic tile will be needed to connect existing tiles to the new junction box.

BREATHER

At STA 26+00 on the North side of 151st Street, install a breather. Use a sixteen inch by four inch (16"x4") tee and slip a six inch (6") CMP over the four inch (4") tee and concrete. Bring pipe three (3') feet above the ground level.

CONNECT OLD CATCH BASIN

At STA 26 is a old catch basin which will be connected to the new tile. Use twenty-five (25') feet of ten (10") inch plastic tile to make this connection. A sixteen inch by ten inch (16"x10") tee will be needed.

GRASS WATERWAY

Construct a grassed waterway from the rock chute at STA 4+50 to 151st Street. Waterway will have a bottom width of sixteen (16') feet with 8:1 side slope and an average one (1') foot depth. The finished waterway will be smooth without dips or flat spots and will be raked before seeding. Shape drainage swales from North into the waterway. See Profile and cross section for further details.

TILE

Blinding-----Blind the tile with loose top soil to a depth of six inches (6") above the top of the tile. Shovel tamp the soil underneath and beside the tile.

Installation-Gaps should be no larger than one quarter (1/4") inch between tiles.

Backfilling--Make sure the backfill material does not have any large stones that could crush or break the tile. Cuts over six (6') feet deep should be backfilled twice. Backfill half the trench after the tile is installed and finish backfilling when the first has settled.

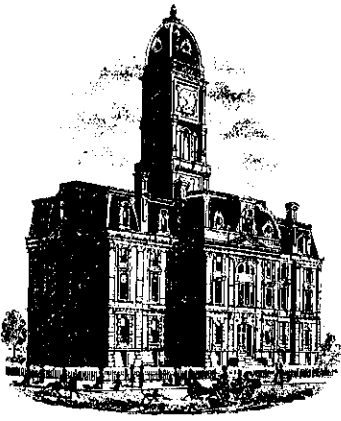
ROAD CUT

Granular material should be used for the backfill material in the road cut. Bring the fill up to the existing road surface. County Highway will patch road on a later date. Contact County Highway Department one (1) week prior to closing the road. (317 773-7770)

Forty (40') feet of reinforced sixteen (16") inch concrete bell tile shall be used under 151st Street. Install 2125 feet of eighteen (18") inch concrete tile from the rock chute at STA 4+50 to 151st Street. Tile shall be twenty (20') feet South or West of the waterway center line. From STA 26 to STA 32+25 use sixteen (16") inch concrete tile. This tile shall be placed twenty-five (25') feet East of the PSI Poles. All tile, except for the RCP and unless otherwise noted, shall be extra quality heavy duty concrete tile installed with a tile machine in good working order.

BEGINNING DATE

Work on the open ditch may commence at any time. Work on the tile , on the main ditch and Arm #2 may begin upon receipt of written permission from the owners. Otherwise work must begin after crops are out.



SURVEYOR'S OFFICE

Hamilton County

Kenton C. Ward, Surveyor

776-9626

Noblesville, Ind. 46060 March 21, 1985

TO: Hamilton County Drainage Board

RE: Orville Keys Drain

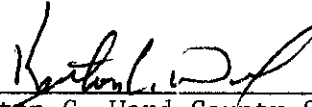
On March 7, 1985, I made a final inspection on the Orville Keys Drain reconstruction done by Walter Lawrence & Son. At that time I found the work to be complete and acceptable.

The cost estimate for this work was \$35,108.97. The bid price came in at \$30,171.90. Added to this cost was extra work, such as a ten (10) inch plastic tile, to connect an old tile from the West (shown on profile sheet) waterway, extra Riprap at the tile outlet and backhoe time. This cost came to \$2,455.25 bringing the total cost to \$32,627.15.


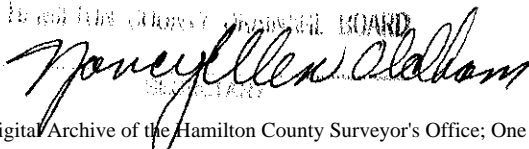
At this time a total of \$27,733.12 has been paid to the contractor. The remaining balance is the 15% retainer which comes to \$4,894.03. A claim for this amount has been submitted and should be paid with the May claims.

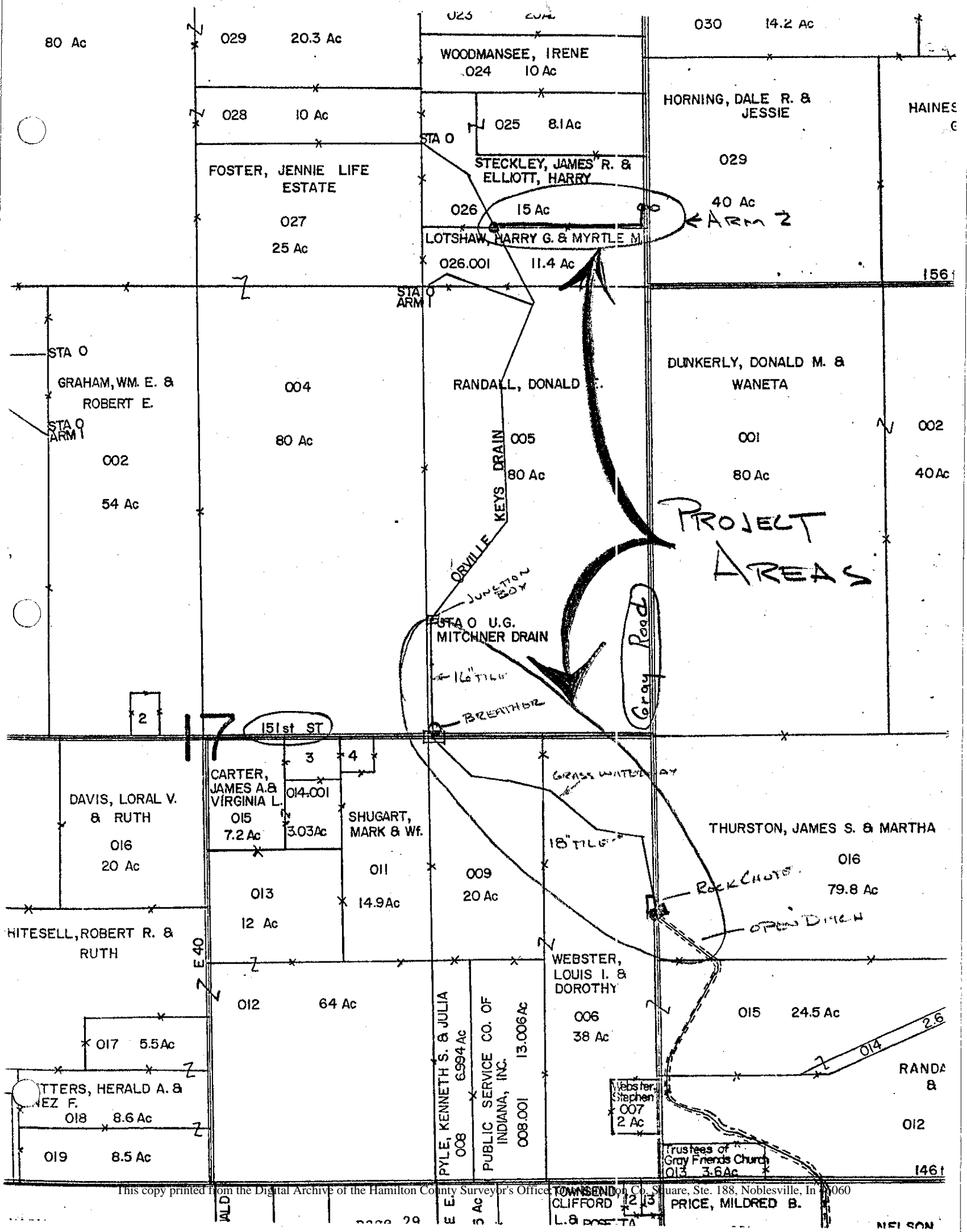
A statement has been submitted by the Contractor certifying that all expenses for labor and materials have been paid.

KCW/no




 Kenton C. Ward-County Surveyor


 RECEIVED
 HAMILTON COUNTY DRAINAGE BOARD

 Nancy Ellen Adams



DATE	
BY	
REVISION	
NO.	
DATE	
BY	
REVISION	
NO.	
DATE	
BY	
REVISION	
NO.	

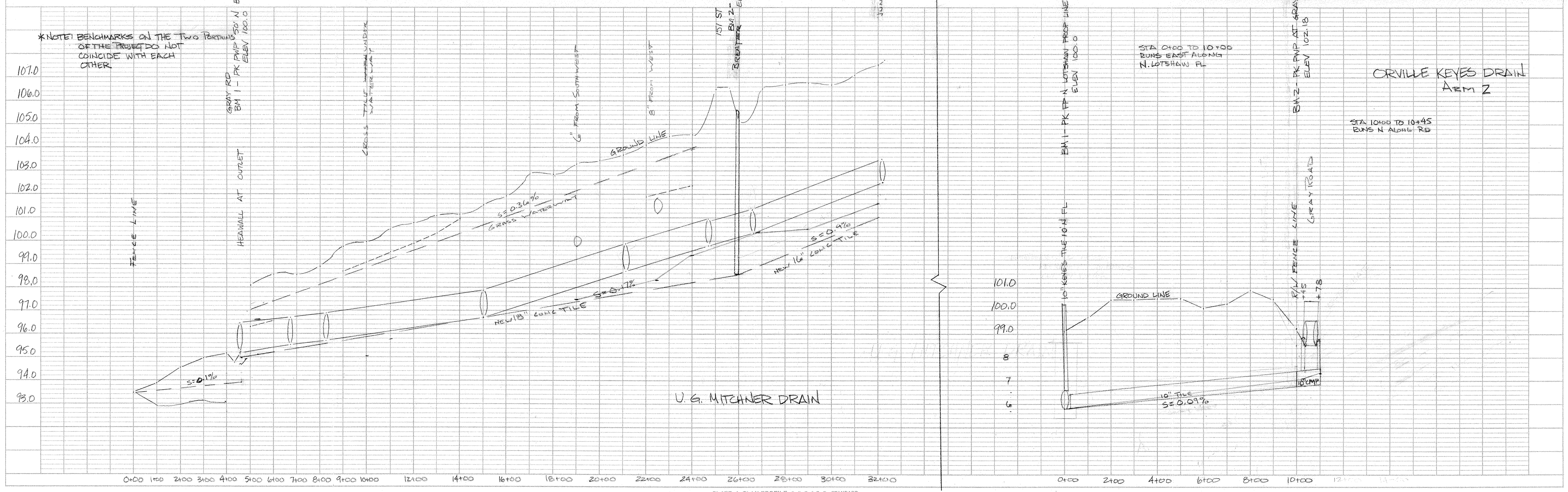
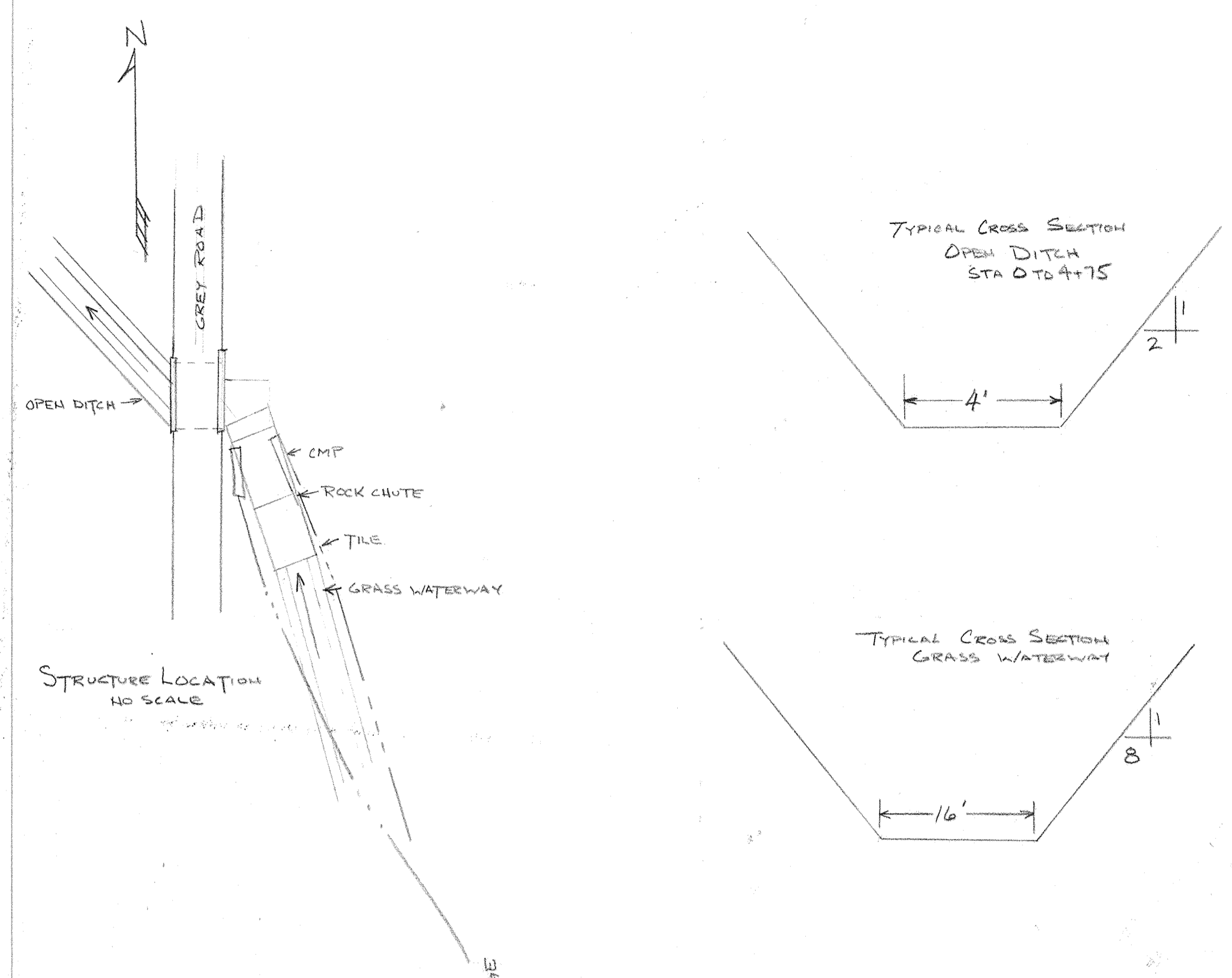
DATE	
BY	
REVISION	
NO.	
DATE	
BY	
REVISION	
NO.	



This information was gathered for input into the Hamilton County Geographical Information System. This document is considered an official record of the GIS.

Entry Date: 4-20-04

Entered by: [Signature]



RED DENOTES AS BUILT