

Drain: FM MUSSELMAN **Drain #:** 243
Improvement/Arm: ARM 2 RECONSTRUCTION
Operator: J. LIVINGSTON **Date:** 4-27-04
Drain Classification: Urban/Rural **Year Installed:** 1990

GIS Drain Input Checklist

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

**Gasb 34 Footages for Historical Cost
Drain Length Log**

Drain-Improvement: FM MUSSELMAN - ARM 2 RECONSTRUCTION

Drain Type:	Size:	Length	Length (DB Query)	Length Reconcile	If Applicable	
					Price:	Cost:
CONCRETE TILE	15"	896'	896'			
CMP	18"	20'	20'			

Sum: 916' 916' \$14,847.⁰⁰

Final Report: 916'

Comments:



SURVEYOR'S OFFICE
Hamilton County

Kenton C. Ward, Surveyor

776-9626

942 Maple Avenue

Noblesville, Indiana 46060 January 30, 1990

TO: Hamilton County Drainage Board

RE: F.M. Musselman Drain, Arm 2 Petition

Attached is a petition filed by Mr. Frank Hahn on September 1, 1989, reconstruction plans, drainage shed map and assessment schedule for Arm #2 of the F.M. Musselman Drain. Investigations in the summer of 1989 showed that the existing tile is full of soil. (see attached letter dated August 9, 1989).

Arm #2 of the F.M. Musselman Drain was constructed in 1908 when the Isaac Miesse Drain was reconstructed as the F.M. Musselman Drain. The 1908 description of the F.M. Musselman Drain lacks a description for Arm #2. The arm was to consist of 955 feet of twelve (12") inch tile. According to the 1932 County Drainage Map, the arm begins in the NE $\frac{1}{4}$ of Section 27, Township 19N Range 5East and runs in a Northwesterly direction, ending in the main ditch in the SE $\frac{1}{4}$ of Section 22, Township 19N Range 5East. A 1903 map of the Isaac Miesse shows a tile drain in this general location as does another map of the drain of unknown date. A headwall was constructed at Station 116 during the 1928 reconstruction of the Musselman Drain. This headwall is the same headwall shown on the attached plans West of the new tile outlet.

On December 10, 1989, I located a twelve (12") inch tile outlet approximately 450 feet West and 650 feet North of the SE corner of the West $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 22, Township 19, Range 5E. A surface water swale empties into the open ditch about seventy-five (75') feet West of the tile outlet. This swale runs from the SE from the concrete box culvert under 196th Street. I believe the tile also runs in this general direction. This would correspond with the other evidence found on the maps.

The proposed reconstruction will consist of a thirty (30") inch concrete tile located on the North and East side of the existing surface water swale between 196th Street and the F.M. Musselman open ditch. The tile will begin at STATION 0 which is located South of the centerline of 196th Street, twenty-three (23') feet and three (3') feet East of the the East line of the W $\frac{1}{2}$, NE $\frac{1}{4}$ of Section 27, Township 19N, Range 5E. The tile will end at Station 8+82, where the tile will empty into the F.M Musselman open Drain approximately forty (40') feet East of the outlet for the original Arm #2. At Station 0, an existing six (6") inch tile and an existing twelve (12") inch tile will be connected to the new system. Station 0, 2+65 and 6+37 will have inlets for surface water. Station 0 to Station 6+62 will consist of thirty (30") inch extra quality concrete field tile, Station 6+62 to 8+82 will consist of thirty-six (36") inch CMP. The original Arm #2 as described in the 1908 reconstruction report of the F.M. Musselman Drain will be vacated.

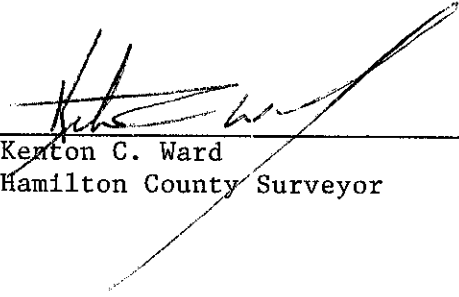
The cost estimate for the reconstruction of Arm #2 is as follows:

862ft	30" Conc. tile at \$24.00/ft.		\$20,688.00
20ft	36" CMP at 55.00/ft.		1,100.00
1	Animal Guard	300.00/each	300.00
40ft	6" Plastic tile	7.00/ft	280.00
70ft	12" Plastic tile	12.00/ft	840.00
4	Fence repair	75.00/each	300.00
2.5	Cu.Yd Riprap at	40/cu yd	100.00
1.5ac	Seeding at	350.00/ac	525.00
1	Silt Basin at	300.00/each	300.00
34	SQ YDPavement		
	Repair at	16.00/sq yd	544.00
3	Inlets w/casting	825.00/each	2,475.00
			<hr/>
		Sub Total	\$27,452.00
		10% Contg.	2,745.20
		TOTAL	<hr/> \$30,197.21

The thirty (30") inch tile will have the capacity to handle forty (40) cfs per the nomograph for solution of Mannings Formula for flow in storm sewers flowing full. The Q for a one (1) year storm using the computer program for TR-55, graphic method is 56 cfs. To handle the one (1) year storm by using the nomograph, a thrity-tree (33") inch tile would be required. However, a thrity-three (33") inch is only available for RCP, not concrete field tile. The next available size is a thirty-six (36") inch tile. Because of cost constraints, it was decided to use a thirty (30") inch tile. With approvimately 150 acres in the contributing drainage shed South of 196th Street, the prorated allowable runoff will be 0.26 cfs per acre if this area is developed. Please note that this tile design is for existing conditions and does not quite meet the design criteria for a one (1) year storm under existing conditions.

In calculating the reconstruction costs, I have figured approximately eight-six (86%) percent of the costs being assessed to Mr. Frank Hahn for a total of \$26,227.21. This will cover the acreage within Chads Woodland Acres, which is a subdivision Mr. Hahn is developing. I have reviewed the plans and believe the reconstruction of the drain will benefit each remaining tract equally. Therefore, I recommend each remaining tract be assessed equally. The remaining cost, \$3,970.00 is to be prorated among the 137.99 acres remaining within the drainage shed. This would be an assesement of \$20.00 per acre with an minimum assessment of \$150.00. I have further reviewed each tract within the drainage shed for the purposes of maintenance and believe each tract will be benefited equally. Therefore, I recommend each tract within the entire drainage shed be assessed equally. The maintenance assessment should be set at \$5.00 per acre with a \$25.00 minimum and is charged for all properties within the drainage shed, including all properties within Chads Woodland Acres.

I request a hearing be set for April 1990.



Kenton C. Ward
Hamilton County Surveyor

KCW/no



Petition denied as submitted - 1/16/90

SURVEYOR'S OFFICE

Hamilton County

Kenton C. Ward, Surveyor

776-9646

1942 Maple Avenue

Noblesville, Indiana 46060

January 12, 1990

To: Hamilton County Drainage Board

Re: F.M. Musselman Drain, Arm 2

Attached is a petition filed by Frank Hahn on September 1, 1989, reconstruction plans, drainage shed map and assessment schedule for Arm 2 of the F.M. Musselman Drain. Investigations in the Summer of 1989 showed that the existing tile is inoperable due to being full of soil. (See attached letter dated August 9, 1989)

Arm 2 of the F.M. Musselman Drain was constructed in 1908 when the Isaac Miesse Drain was reconstructed as the F.M. Musselman Drain. The 1908 description of the F.M. Musselman Drain lacks a description for Arm 2. The arm was to consist of 955 feet of 12" tile. According to the 1932 County Drainage Map, the arm begins in the NE 1/4 of S27 T19 R5 and runs in a northwesterly direction ending in the main ditch in the SE 1/4 of S22 T19 R5. A 1903 map of the Isaac Miesse shows a tile drain in this general location as does another map of the drain of unknown date. A headwall was constructed at Station 116 during the 1928 reconstruction of the Musselman Drain. This headwall is the same headwall shown on the attached plans west of the new tile outlet.

On December 10, 1980 I located a 12" tile outlet approximately 450 feet west and 650 feet north of the SE corner of the W 1/4 SE 1/4 of S22 T19 R5. A surface water swale empties into the open ditch about 75 feet west of the tile outlet. This swale runs from the SE from the concrete box culvert under 196th Street. I believe the tile also runs in this general direction. This would correspond with the other evidence found on the maps.

The proposed reconstruction will consist of a 30" concrete tile located on the north and east side of the existing surface water swale between 196th Street and the F.M. Musselman open ditch. The tile will begin at Station 0 which is located south of the centerline of 196th Street, 23 feet and 3 feet east of the east line of the W 1/2, NE 1/4 of S27 T19 R5. The tile will end at Station 8+82 where the tile will empty into the F.M. Musselman open drain approximately 40' east of the outlet for the original arm 2. At Station 0, an existing 6" tile and an existing 12" tile will be connected to the new system. Station 0, 2+65 and 6+37 will have inlets for surface water. Station 0 to Station 6+62 will consist of 30" extra quality concrete field tile, Station 6+62 to 8+82 will consist of 36" CMP. The original arm 2 as described in the 1908 reconstruction report of the F.M. Musselman Drain will be vacated.

The cost estimate for the reconstruction of arm 2 is as follows:

862 ft	30" Conc. tile	at \$24.00/ft	\$20,688.00
20 ft	36" CMP	at 55.00/ft	1,100.00
1	Animal Guard	\$300.00 each	300.00
40 ft	6" Plastic Tile	7.00/ft	280.00
70 ft	12" Plastic Tile	12.00/ft	840.00
4	Fence Repairs	75.00 each	300.00

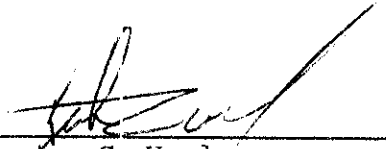
2.5 cu yd	Riprap	at 40.00/cu yd	100.00
1.5 Acre	Seeding	at 350.00/ac	525.00
1	Silt Basin	at 300.00 each	300.00
34 sq yd	Pavement Repair	at 16.00/sq yd	544.00
3	Inlets w/casting	at 825.00 each	<u>2,475.00</u>
	Sub total		27,452.00
	10% Cont.		<u>2,745.20</u>
	Total		\$30,197.21

The 30" tile will have the capacity to handle 40 cfs per the nomograph for solution of Mannings Formula for flow in storm sewers flowing full. The Q for a one (1) year storm using the computer program for TR-55, graphic method is 56 cfs. To handle the 1 year storm by using the nomograph, a 33 inch tile would be required. However, a 33 inch is only available for RCP, not concrete field tile. The next available size is a 36". Because of cost constraints, it was decided to use a 30" tile. With approximately 150 acres in the contributing drainage shed south of 196th Street, the prorated allowable runoff will be 0.26 cfs per acre if this area is developed. Please note that this tile design is for existing conditions and does not quite meet the design criteria for a 1 year storm under existing conditions.

In calculating the reconstruction costs, I have figured approximately half of the costs being assessed to Frank Hahn for a total of \$15,100.00. This will cover the acreage within Chads Woodland Acres which is a subdivision Mr. Hahn is developing. I have reviewed the plans and believe the drain will benefit each tract equally. Therefore, I recommend each tract be assessed equally. The remaining cost, \$15,097.21 is to be prorated among the 137.99 acres remaining within the drainage shed. This would be an assessment of \$109.00 per acre with an minimum assessment of \$125.00. The maintenance assessment should be set at \$5.00 per acre with a \$25.00 minimum and is charged for all properties within the drainage shed.

Hearing for this should be set for March 1990.

DENIED


Kepton C. Ward,
Hamilton County Surveyor

KCW/jh



SURVEYOR'S OFFICE
Hamilton County

Kenton C. Ward, Surveyor

776-9626

942 Maple Avenue

Noblesville, Indiana 46060 March 1, 1990

TO: Hamilton County Drainage Board

RE: F.M. Musselman Drain, Arm 2 Petition

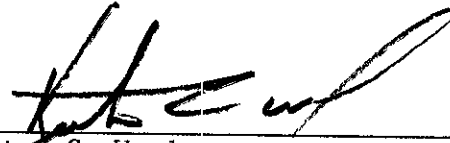
Attached is a petition filed by Mr. Frank Hahn on September 1, 1989. Also attached are reconstruction plans, drainage shed map and assessment schedule for Arm #2 of the F.M. Musselman Drain. Investigations in the summer of 1989 showed that the existing tile is full of soil. (see attached letter dated August 9, 1989)

Arm #2 of the F.M. Musselman Drain was constructed in 1908, when the Isaac Miesse Drain was reconstructed as the F.M. Musselman Drain. The 1908 description of the F.M. Musselman Drain lacks a description for Arm #2. The arm was to consist of 955 feet of twelve (12") inch tile. According to the 1932 County Drainage Map, the arm begins in the NE $\frac{1}{4}$ of Section 27, Township 19N, Range 5East and runs in a NorthWesterly direction, ending in the main ditch in the SE $\frac{1}{4}$ of Section 22, Township 19N, Range 5 East. A 1903 map of the Isaac Miesse shows a tile in this general location, as does another map of the drain, date unknown. A headwall was constructed at Station 116 during the 1928 reconstruction of the Musselman Drain. This headwall is the same headwall shown on the attached plans, West of the new tile outlet.

On December 10, 1989, I located a twelve (12") inch tile outlet approximately 450 feet West and 650 North of the SouthEast corner of the West $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 22, Township 19, Range 5 East. A surface water swale empties into the open ditch about seventy-five (75') feet West of the tile outlet. This swale runs from the SouthEast from the concrete box culvert under 196th Street. I believe the tile also runs in this general direction. This would correspond with the other evidence found on the maps.

remaining tract equally. Therefore, I recommend each remaining tract be assessed equally. The remaining cost, \$4835.90 is to be pro-rated among the 141.98 acres remaining within the drainage shed. This would be an assessment of \$20.70 per acre , with a minimum assessment of \$200.00. I have further reviewed each tract within the drainage shed for the purposes of maintenance and believe each tract will be benefitted equally. Therefore, I recommend each tract within the entire drainage shed be assessed equally. The maintenance assessment should be set at \$5.00 per acre, with a \$25.00 minimum and is charged for all properties within the drainage shed, including all properties within Chads Woodland Acres. The total annual maintenance assessment will be \$1048.28.

I request a hearing be set for April 1990.



Kenton C. Ward
Hamilton County Surveyor

KCW/no



SURVEYOR'S OFFICE
Hamilton County

Kenton C. Ward, Surveyor

776-9626

942 Maple Avenue

Noblesville, Indiana 46060
December 5, 1990

TO: Hamilton County Drainage Board

RE: F.M. Musselman Drain Arm #2


An final inspection has been made on the reconstruction of the F.M. Musselman Drain, Arm II. This reconstruction was completed by Sweeney Construction Corporation. At the time of inspection the project was found to be complete and acceptable.

The project was completed per contract without change orders. The contract price is \$14,847.00, which is under the cost estimate per my report dated March 1, 1990 of \$15,035.90. At this time 85% of the contract price, \$12,619.95 has been paid. The claim for the retainer, \$2,227.05, has been submitted and should be approved.

The description of the tile is as follows:

Commencing at the NE corner of the NW1/4 of S26, T19, R5; thence North 89 degrees, 59' 32", West a distance of 2469.08' to a point; thence South 73 degrees, 16' 22" East a distance of 112.36' to a beehive structure; said structure being the point of beginning; thence North 25 degrees 22' 57" West a distance of 232.73' to a beehive structure; thence North 24 degrees 44' 57" West a distance of 245.00' to the outlet of Arm II into the F.M. Musselman Ditch.

Consists of 896 feet of 15 inchs concrete tile and 20 feet of 18 inch CMP for a total of 916 feet.


Kenton C. Ward

The proposed reconstruction will consist of a fifteen (15") inch concrete tile located on the North and East side of the existing surface water swale, between 196th and the F.M. Musselman open Ditch. The tile will begin at STATION 0, which is located South of the centerline of 196th Street, twenty-three (23') feet and three (3') feet East of the East line of the W $\frac{1}{2}$, NE $\frac{1}{4}$ of Section 27, Township 19N, Range 5 East. The tile will end at STATION 8+82, where the tile will empty into the F.M. Musselman open Ditch, approximately forty (40') feet East of the outlet for the original Arm #2. At STATION 0, an existing six (6") inch tile and existing twelve (12") inch tile will be connected to the new system. STATION 0, 2+65 and 6+37 will have inlets for surface water. STATION 0 to STATION 6+62 will consist of fifteen (15") inch extra quality concrete field tile, STATION 6+62 to 8+82 will consist of eighteen (18") inch CMP. The original Arm #2 as described in the 1908 reconstruction report of the F.M. Musselman Drain will be vacated.

The cost estimate for the reconstruction of Arm #2 is as follows:

862ft	15" Concrete Tile	at	\$ 10.00/ft	\$ 8620.00
20ft	18" CMP	at	30.00/ft	600.00
1	Animal Guard	at	60.00/each	60.00
40ft	6" Plastic Tile	at	7.00/ft	280.00
70ft	12" Plastic Tile	at	12.00/ft	840.00
4	Fence Repair	at	75.00/each	300.00
2.5	Cu. Yd RipRap	at	40/ cu yd	100.00
1.5ac	Seeding	at	350.00/ac	525.00
1	Silt Basin	at	300/each	300.00
34	Sq Yd Pavement Repair	at	16.00/sq yd	544.00
3	Inlets w/castings	at	500.00 each	1500.00
			SUB TOTAL	13,669.00
			10% Contg.	1,366.90
			TOTAL	\$15,035.90

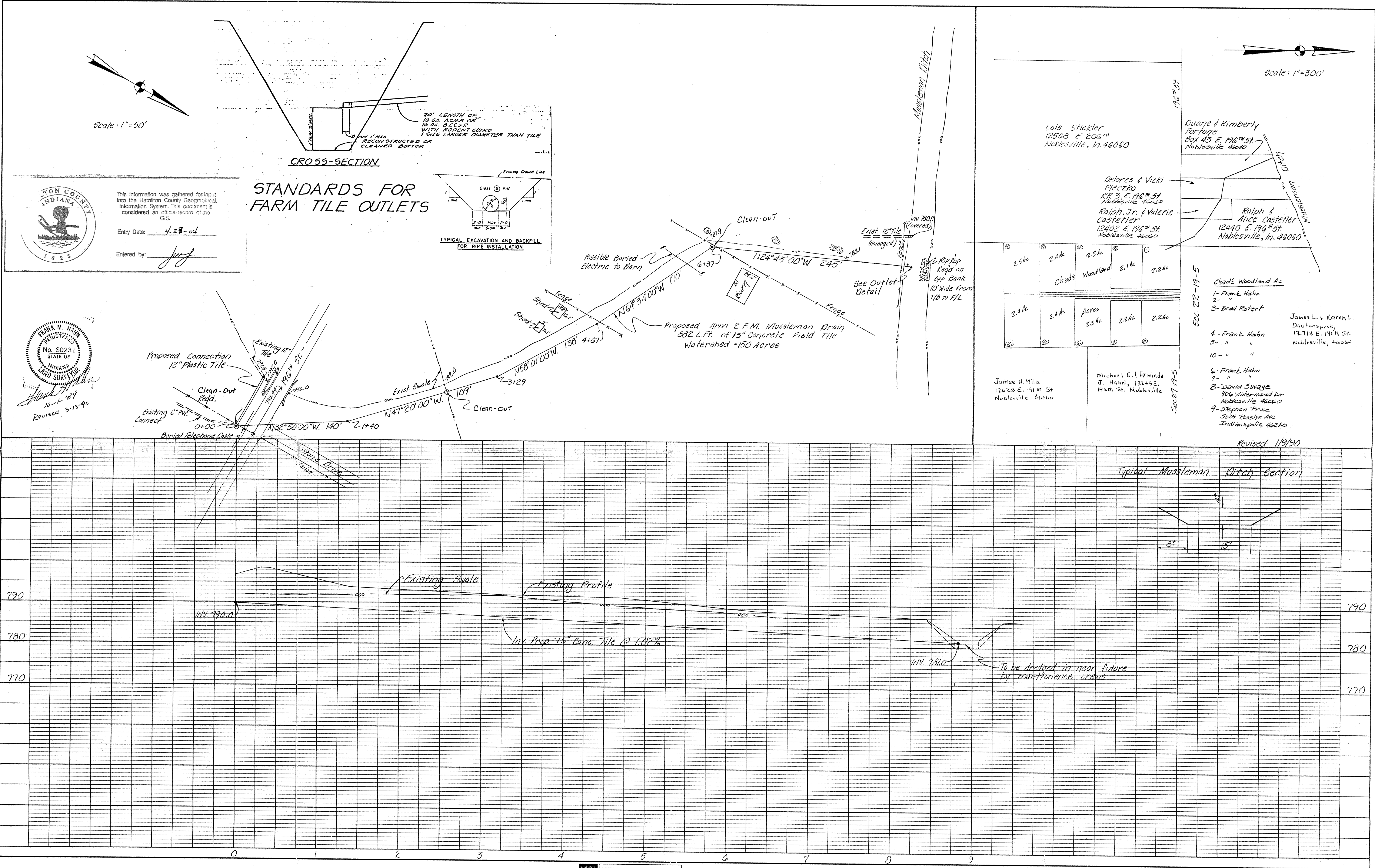
Per the SCS Engineer Field Manuel, the size of the tile is an eighteen (18") inch using one-half"($\frac{1}{2}$) Drainage Co Efficient with 150 acres. Using a 3/8" Drainage Co Efficient, the tile is an sixteen (16") inch/ The one-half ($\frac{1}{2}$) inch Co Efficient is used for sizing tiles without inlets. Because the Board set the maximum size of the tile at fifteen (15") inch at its February 20, 1990 meeting, the tile as discussed in this report is set at fifteen (15") inch.

In calculating the reconstruction costs, I have figured Mr. Frank Hahn's assessment at his previous estimate, submitted to me for a twelve (12") inch tile, at \$10,200.00. This will cover the acreage within Chads Woodland Acres, which is a subdivision Mr. Hahn is developing. I have reviewed the plans and believe the reconstruction of the drain will benefit each

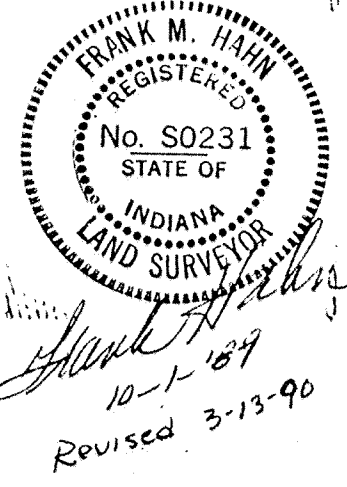
DATE: 2-22-99
 BY: PYZE
 SURVEYED: []
 NOTE BOOK: []
 ALIGNMENT CHECKED: []
 RT. OF WAY CHECKED: []
 PLAN NO.:

Frank M. Hahn & Associates, Inc.
 3422 East 96th Street
 Indianapolis, Indiana 46240

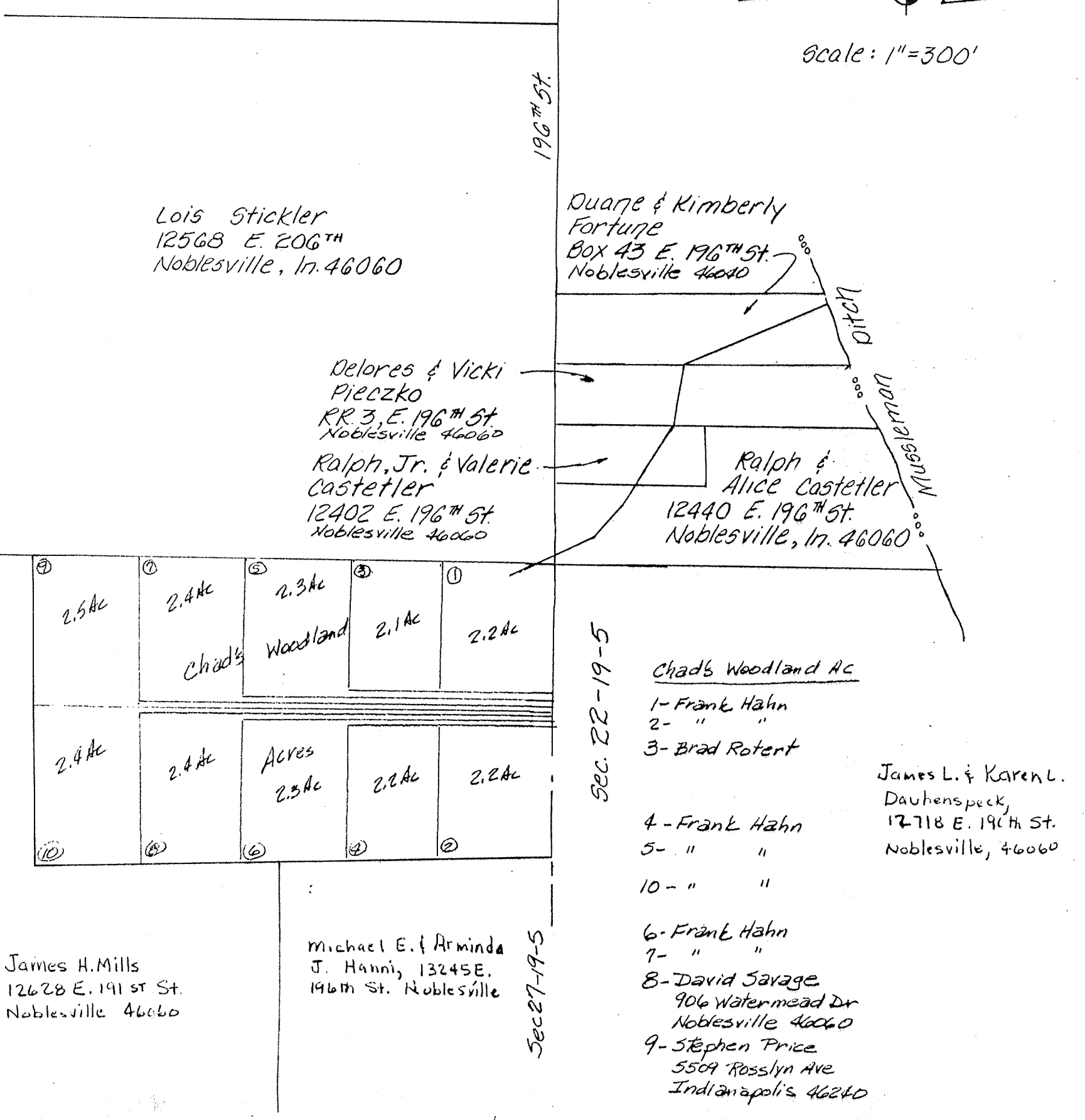
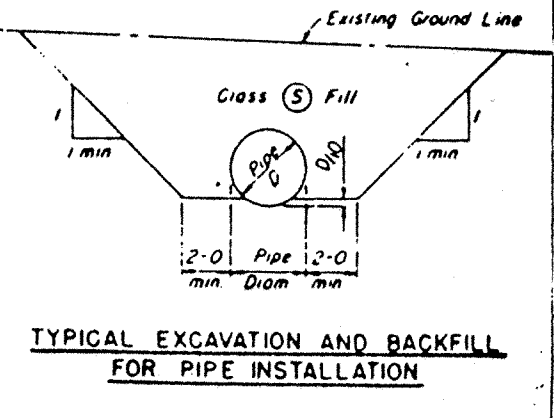
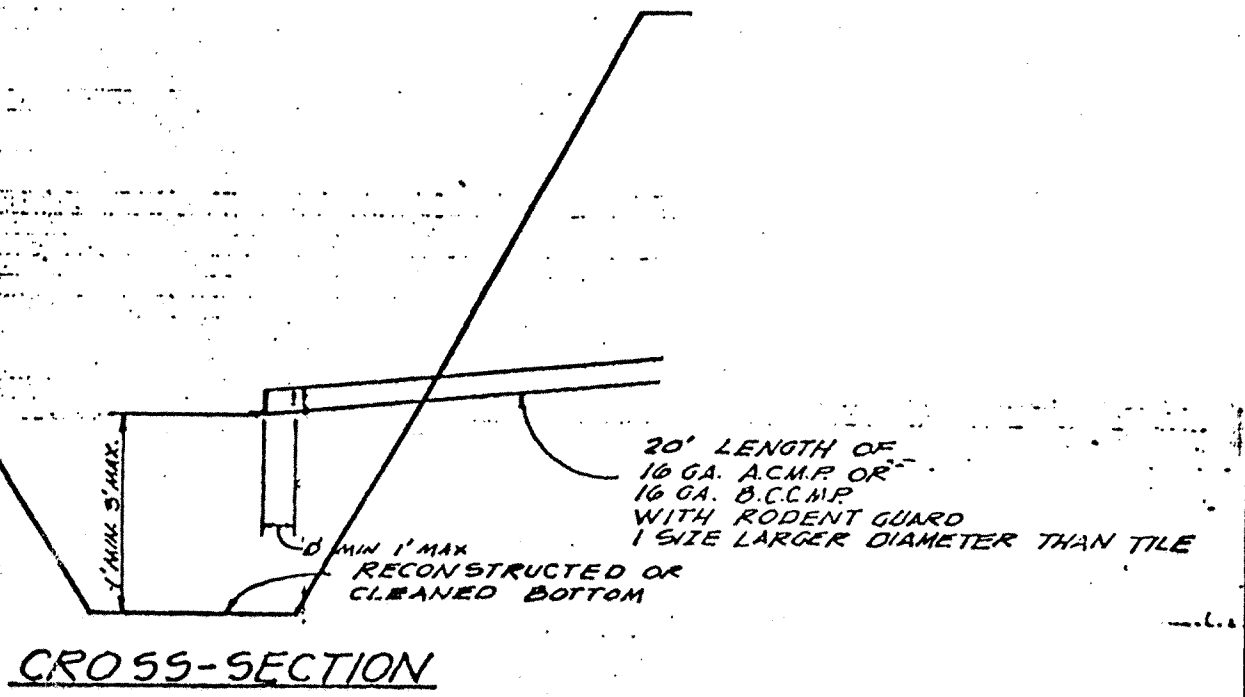
DATE: 2-22-99
 BY: PYZE
 SURVEYED: []
 NOTE BOOK: []
 GRADES CHECKED: []
 E. M. NOTED: []
 STRUCTURE NOTATIONS CHECKED: []
 PROFILE NO.:



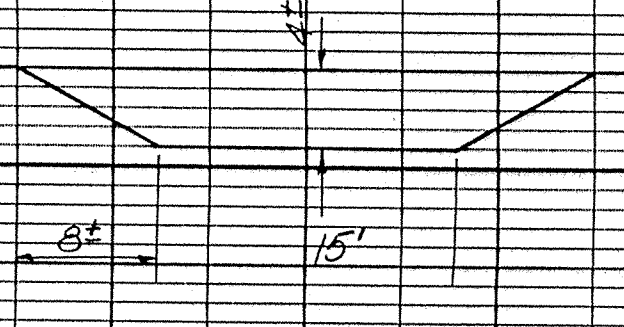
This information was gathered for input into the Hamilton County Geographical Information System. This document is considered an official record of the GIS.
 Entry Date: 4-28-01
 Entered by: Juf



STANDARDS FOR FARM TILE OUTLETS



Typical Musselman Ditch Section



This copy printed from the Digital Archive of the Hamilton County Surveyor's Office; One Hamilton Co. Square, Ste. 188, Noblesville, In 46060