

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

Drain-Improvement: MARGARET CADE - RELOCATION (1986)

Drain Type:	Size:	Length ( )	Length (DB Query)	Length Reconcile	If Applicable	
					Price:	Cost:
OPEN		929'				14053. <sup>88</sup>

Sum: 929' \$ 14053.<sup>88</sup>

Final Report: \_\_\_\_\_

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



SURVEYOR'S OFFICE  
**Hamilton County**

*Kenton C. Ward, Surveyor*

776-9626

*Noblesville, Ind. 46060* April 14, 1986

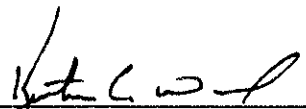
TO: Hamilton County Drainage Board

RE: Margaret Cade Drain

Attached is the RC & D report for the Cade Drain. This was requested by the Surveyor's Office in June 1983 and received the completed report March 24, 1986. The proposal is to move the drain along Six Points Road, East approximately 20 feet. This will prevent further deterioration of the edge of the pavement and improve road safety. The cost will be shared by the Hamilton County Highway Department and the RC & D Council. Commitments for these funds have been made by both entities. Land owners in the drainage shed will not be assessed for this work.

I recommend a hearing be set for July 14, 1986.

KCW/no


  
Kenton C. Ward  
Hamilton County Surveyor



HOOSIER HEARTLAND RC&D AREA  
 CADES BRANCH CRITICAL AREA TREATMENT  
 HAMILTON COUNTY, INDIANA

COST ESTIMATE

<u>Item</u>	<u>Work</u>	<u>Spec No.</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Amount</u>
1.	Mobilization	8	SUM	JOB	<u>\$XXX</u>	<u>\$ 688.00</u>
2.	Excavation Common	21	4000	Cu.Yds.	<u>\$ 2.00</u>	<u>\$ 8,000.00</u>
3.	Riprap	212C	100	Tons	<u>\$ 20.00</u>	<u>\$ 2,000.00</u>
Items 4 and 5 consist of "Corrugated Metal Surface Water Pipes"						
4.	Flared End Sections for 15" Diameter	51	2	Ea.	<u>\$ 100.00</u>	<u>\$ 200.00</u>
5.	15" Diameter	51	100	L.F.	<u>\$ 20.00</u>	<u>\$ 2,000.00</u>
Items 6 through 8 consist of "Corrugated Metal Tile Outlet Pipes"						
6.	8" Diameter	51	12	L.F.	<u>\$ 12.00</u>	<u>\$ 144.00</u>
7.	10" Diameter	51	42	L.F.	<u>\$ 14.00</u>	<u>\$ 588.00</u>
8.	12" Diameter	51	40	L.F.	<u>\$ 17.00</u>	<u>\$ 680.00</u>
9.	Seeding and Mulching	6	3	Ac.	<u>\$ 900.00</u>	<u>\$ 2,700.00</u>
TOTAL BID					<u>\$ 17,000.00</u>	

*Submitted by* 

PRELIMINARY REPORT  
on the  
CADES BRANCH CRITICAL AREA TREATMENT  
Hamilton County, Indiana

TO: Hamilton County Commissioners and Drainage Board and the Hamilton County  
Soil and Water Conservation District

General

This report on a proposed Resource Conservation and Development (RC&D) measure is hereby presented for your consideration in accordance with your request to the Executive Council of the Hoosier Heartland RC&D Area.

Purpose

The purpose of the report is to provide preliminary costs and engineering feasibility information on various alternative solutions on a critical area treatment system for the Cades Branch open ditch streambank.

Statement of Problem

Cades Branch of Jay Ditch flows directly alongside of Six Points Road for approximately 1000 feet at a location about one-half mile south of IN Hwy. 38, northwest of Noblesville. The stream is close enough to the road and the streambank steep enough ( 1:1) that stress cracks from the bank slippage are showing up in the road surface.

The very close proximity of a stream that is about 7 feet deeper than the road also presents a significant safety hazard to vehicular traffic. There are no guard rails and an electrical power transmission line is weary on the opposite side of the road from the ditch.

Soils

The major soils in the area are Patton, Crosby, Brookston, and Miami.

The Patton silty clay loam soils are level, deep and poorly drained. They have moderate permeability with a seasonal high water table. They occupy broad depressions and drainageways on lake plains and terraces.

Brookston silty clay loam soils are level, deep and very poorly drained in broad depressions, swales, and narrow depressions on till plains.

The Miami soils are deep, well drained soils that have a medium or moderately fine textured surface layer and moderately fine textured subsoil. They developed in loamy glacial till and occupy nearly level to moderately sloping areas on upland till plains. They have moderate to slow permeability and runoff is slow to rapid.

The Crosby soils are deep, somewhat poorly drained soils that have a medium textured surface layer and moderately fine textured subsoil. They developed in glacial till on nearly level and gently sloping uplands. They have slow permeability and runoff is very slow or slow, with a seasonal high water table at two to four feet.

#### Discussion of Alternatives

At the basis of this problem is the involvement and too close proximity of a well-traveled road to a fairly large drainage ditch and that each of their "uses" are impinging on the other. Therefore, all but one of the alternatives involve obtaining some additional land rights (either a right-of-way or outright purchase) to separate them enough so there is less "impingement" on each other.

#### Alternative No. 1

The open ditch would be moved away from the county highway approximately 25 feet. The extra distance would provide a minimum of 15-foot berm between the road and open ditch bank and to flatten the open ditch bank so that it is more stable against high velocities. The ditch bank would also have its toe protected by armor.

The extra width (25 feet) and the area for spoil spreading would require additional land rights on the property just east of the open ditch. A portion of this would fall under the 75-foot drainage board right-of-way.

Three pipes to outlet surface water will be needed along with 3 pipes to outlet tile water.

#### Alternative No. 2

This alternative would not require any additional land rights over and above that provided for in the existing drainage basement. Steel sheet piling would be driven along the road side of the ditch. The top of the piling would be anchored and then backfilled against to provide the necessary berm width to provide a margin of safety along the road. Ditch capacity would be reduced somewhat, but only in the larger floods, such as the 100-year event. It would still be necessary to provide reflecting markers along the ditch bank.

#### Alternative No. 3

This alternative would leave the situation as it presently is. The open ditch bank would continue to erode and slide into the ditch and, in a year or two, would take a part of the county road pavement with it.

Other alternatives are possible. Some are variations of the above, such as using gabions instead of sheet piling in Alternative No. 2, or the road could be moved well away from the ditch west of the power line; but this alternative would involve all land rights cost and no cost-sharer construction cost.

Alternative No. 1

<u>Item</u>	<u>Amount</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
Mobilization	1	sum job	500.00	\$ 500.00
Excavation Common	5,600	cu.yd.	1.50	8,400.00
Armor	220	ton	15.00	3,300.00
Riprap	140	ton	20.00	2,800.00
Tile Outlet Pipes	3	ea.	400.00	1,200.00
Surface Water Pipes	3	ea.	1,000.00	3,000.00
Reflector Markers	10	ea.	25.00	250.00
Seeding and Mulching	2.3	ac.	600.00	1,380.00
				<u>20,830.00</u>
				.....
				<u>2,083.00</u>
				<u>\$22,913.00*</u>

Plus approximately 10% contingencies  
Total

\*Plus land rights costs

Alternative No. 2

<u>Item</u>	<u>Amount</u>	<u>Unit</u>	<u>Uni</u>
Mobilization	1	sum job	500
Sheet Piling	8,000	sq. ft.	12
Tile Outlet Pipes	3	ea.	400
Surface Water Pipes	2	ea.	500
Reflector Markers	10	ea.	25
Seeding and Mulching	1.0	ac.	600

229.00  
9305  
8100.00  
655.55  
8755.55  
550.00  
9305.55

Plus approximately 10% contingencies  
Total

\*No land rights costs

This measure can be cost-shared between the Soil Conservation Service and the sponsoring agency. The sponsoring agency will be responsible for carrying out the proposed measure. The technical assistance is expected to cost \$2,000.00 and operation and maintenance should average \$250.00 per year.

The Hoosier Heartland RC&D Executive Council will secure the required technical assistance for the proposed measure from the Soil Conservation Service.

An RC&D measure plan will be prepared by the Soil Conservation Service upon acceptance of this preliminary report by the sponsoring agency. The measure plan will consider the suggestions offered by the sponsors upon their review of the report.

Benefits from the measure are expected to exceed the costs, and the measure is considered to be feasible.

Prepared by:

SOIL CONSERVATION SERVICE

*Mark H. Kelly*  
District Conservationist

2/8/85  
Date

*Gayne Lindley*  
Area Engineer

2/8/85  
Date

Reviewed by:

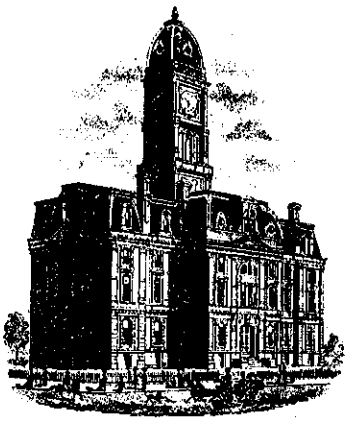
\_\_\_\_\_  
Project Coordinator

\_\_\_\_\_  
Date

Approved by:

*Gayne Lindley*  
Area Engineer

2/8/85  
Date



SURVEYOR'S OFFICE  
**Hamilton County**

Kenton C. Ward, Surveyor

776-9626

Noblesville, Ind. 46060 October 6, 1986

TO: Hamilton County Drainage Board

RE: Margaret Cade Drain

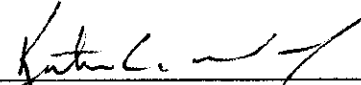
On September 22, 1986 I made the final inspection of the Margaret Cade Drain relocation done by Ron Taylor Excavating. At that time I found the work to be complete and acceptable.

In the course of this project a few slight changes were made. These are outlined on the attached contract modification from the SCS. The proposed location of the drain did not change.

The contract price of \$13,794.00 was increased to \$14,053.38 because of extra work. At this time claims for \$11,984.28 have been submitted. The retainer of \$1,809.72 shall be paid in December. The final amount is less than the estimate of \$17,000.00.

The portion which is Federally funded shall be \$9,134.70 with the County Highway funding at \$4,918.68. A claim has been submitted to the SCS and the Highway should now be notified of its final cost.

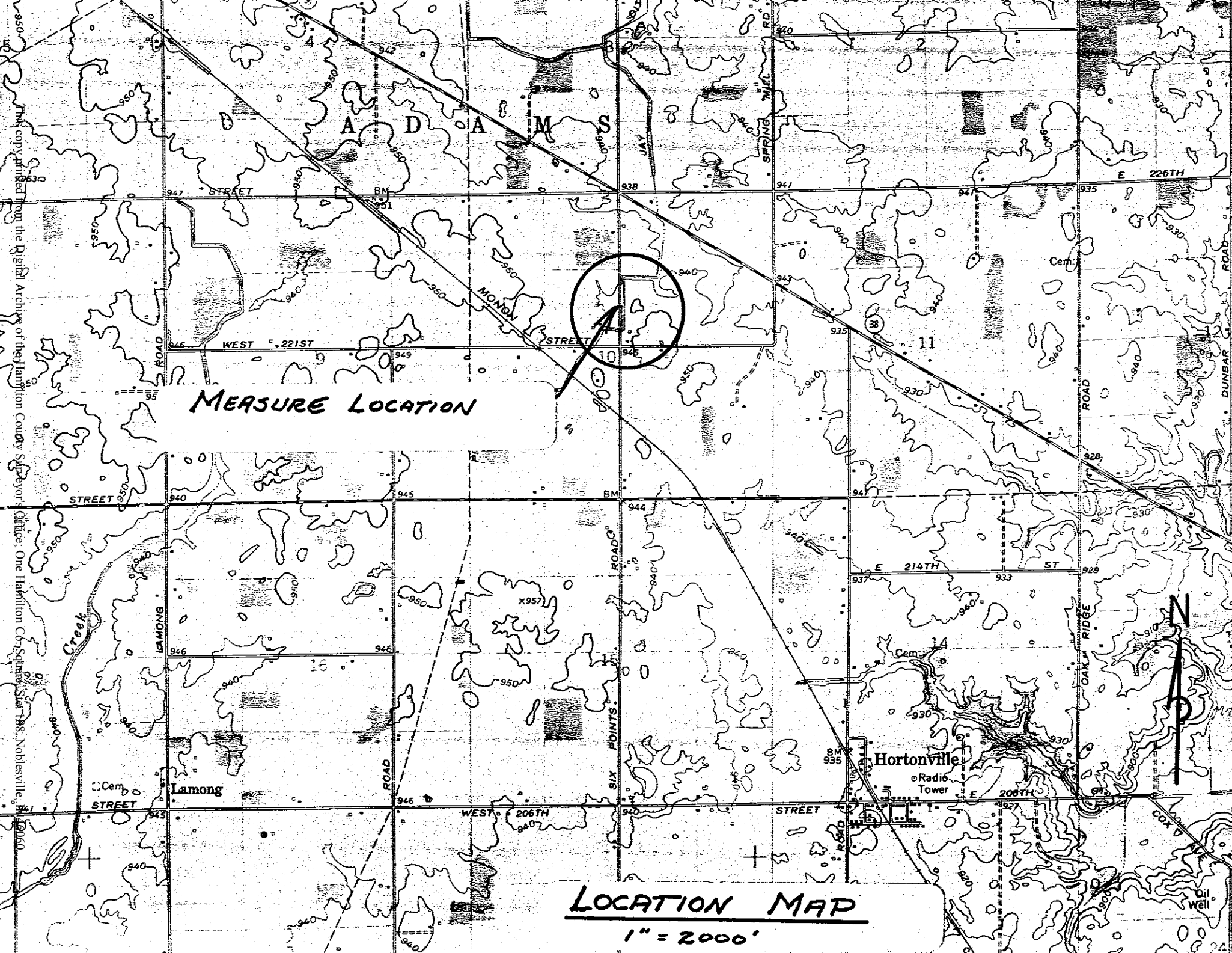
A statement of contractors payment of expenses has been submitted.

  
Kenton C. Ward  
Hamilton County Surveyor

KCW/no

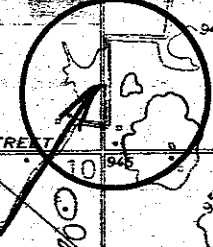
**FILED**  
OCT 14 1986  
HAMILTON COUNTY DRAINAGE BOARD  
SECRETARY





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MEASURE LOCATION



**LOCATION MAP**  
 $1" = 2000'$



A D A M

Hortonville

Lamong

WEST 206TH

STREET

WEST 206TH

E 206TH

WEST 221ST

STREET

E 214TH ST

E 226TH

LAMONG ROAD

SIX POINTS ROAD

SPRING WICK RD.

OAK RIDGE ROAD

DUNBAR ROAD

Creek

Radio Tower

Cem

Cem

Oil Well

16

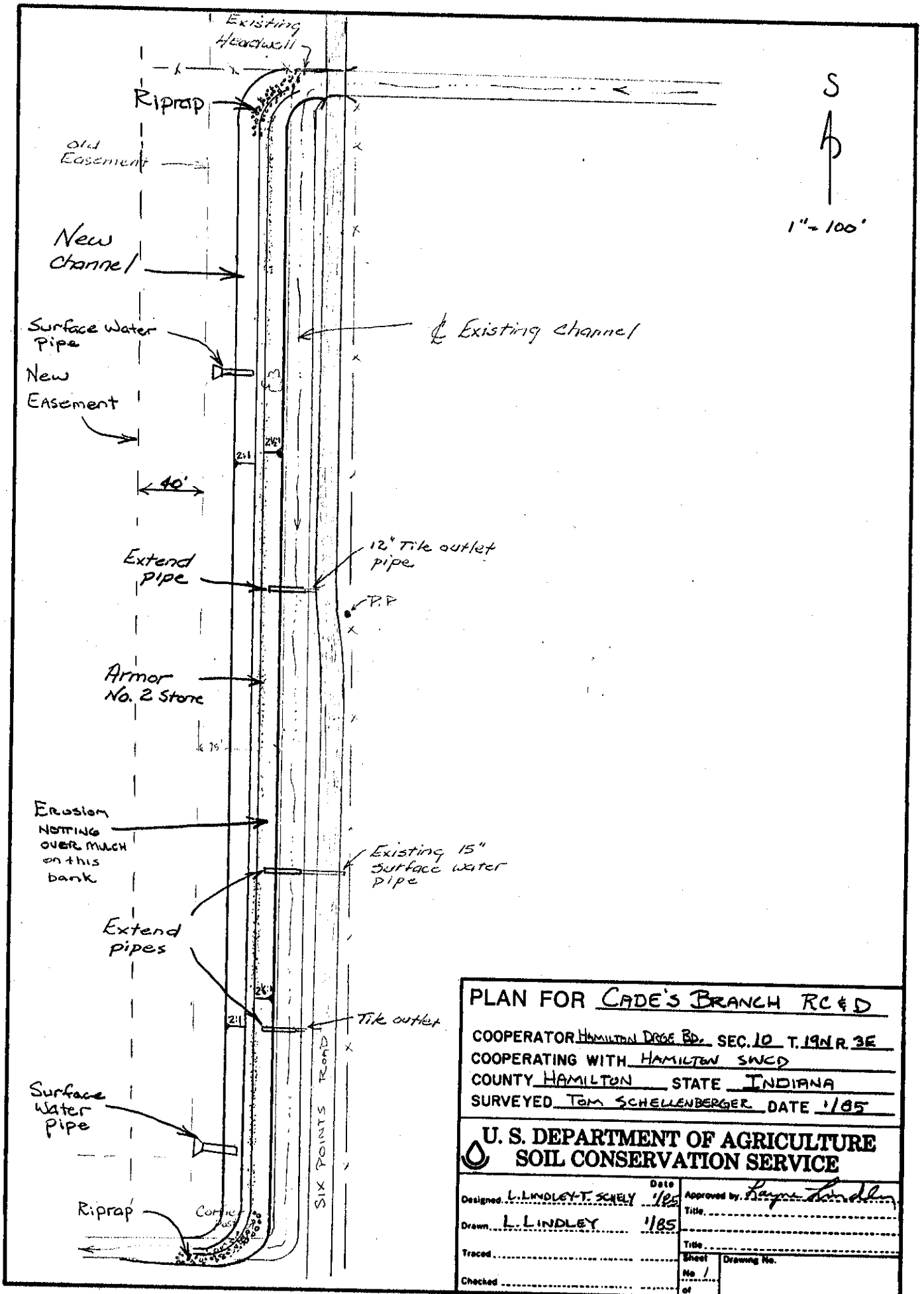
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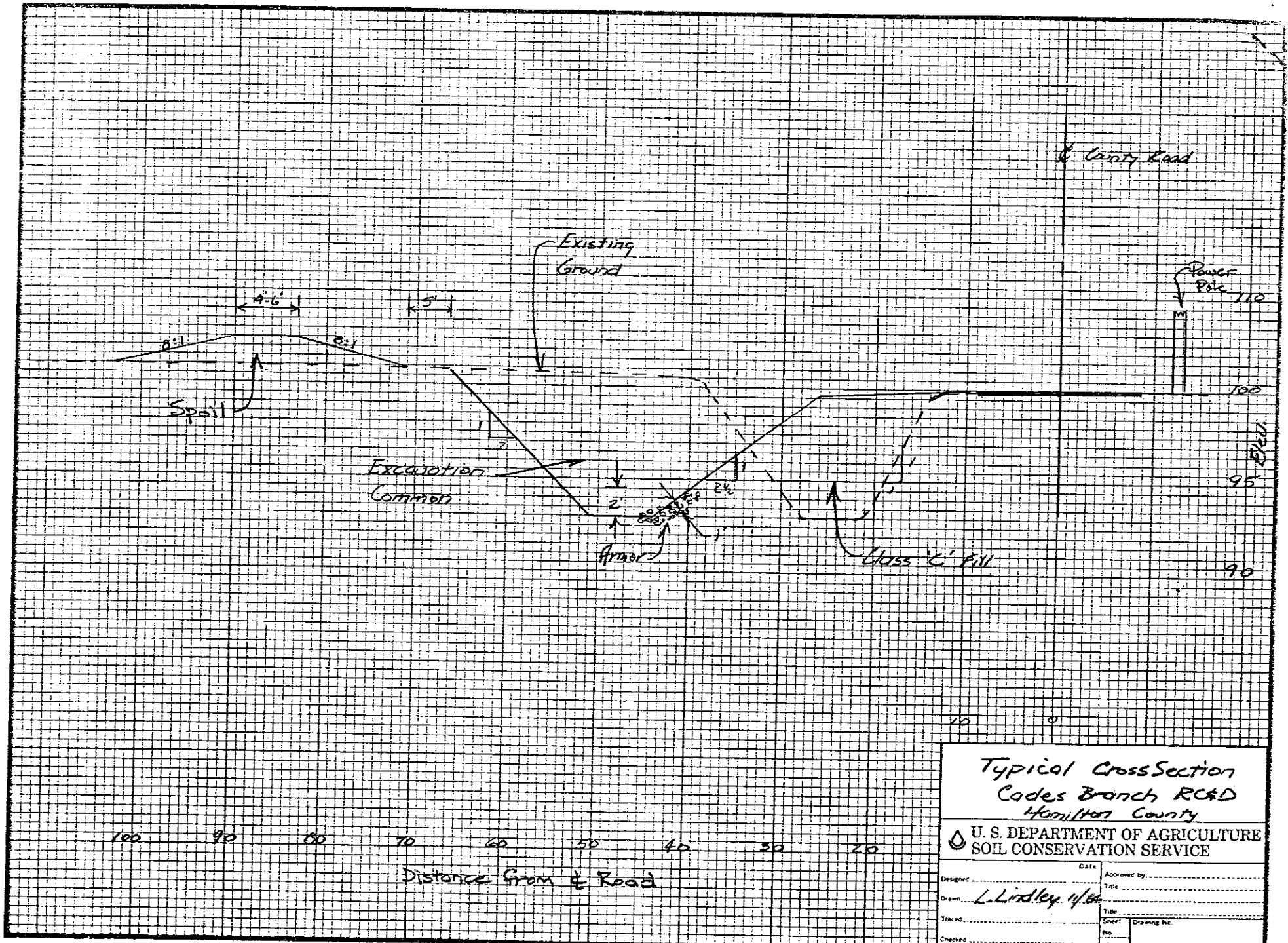
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25



S  
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 1" = 100'

<b>PLAN FOR CADE'S BRANCH RC&amp;D</b>			
COOPERATOR <u>HAMILTON DRAINAGE DIST. SEC. 10 T. 19N R. 3E</u>			
COOPERATING WITH <u>HAMILTON SWCD</u>			
COUNTY <u>HAMILTON</u> STATE <u>INDIANA</u>			
SURVEYED <u>TOM SCHELLENBERGER</u> DATE <u>1/85</u>			
<b>U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE</b>			
Designed <u>L. LINDLEY T. SCHELY</u>	Date <u>1/85</u>	Approved by <u>Layne Lindley</u>	
Drawn <u>L. LINDLEY</u>	<u>1/85</u>	Title _____	
Traced _____	Title _____		
Checked _____	Sheet <u>1</u>	Drawing No. _____	
	of _____		



Typical Cross Section  
 Cades Branch Road  
 Hamilton County

U. S. DEPARTMENT OF AGRICULTURE  
 SOIL CONSERVATION SERVICE

Designed	Date	Approved by
Drawn: L. Lindley 1/18		Title
Traced	Sher	Drawing No.
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	C'	

SCS-ENG-315A REV 8-75

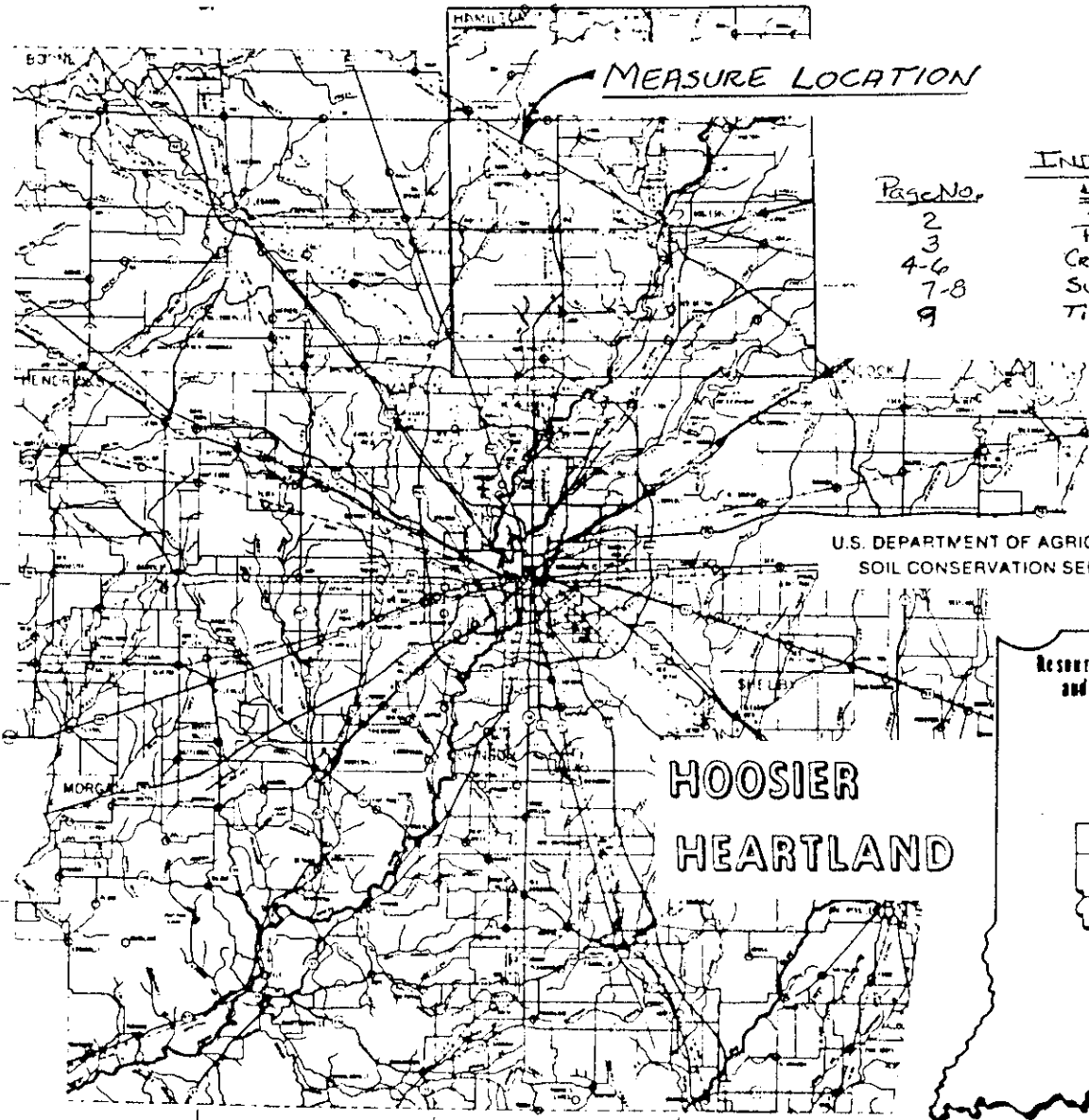
DETAIL PLANS FOR

# CADE'S BRANCH C.A.T.

## HOOSIER HEARTLAND RESOURCE CONSERVATION AND DEVELOPMENT AREA

IN COOPERATION WITH  
HAMILTON COUNTY SOIL AND WATER CONSERVATION DISTRICT  
AND

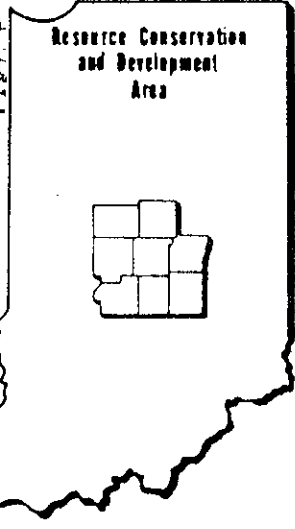
HAMILTON COUNTY DRAINAGE BOARD



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U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE



### HOOSIER HEARTLAND

SOURCE  
U.S. ENGINEERING & ARCHITECTURE  
FOR TECHNICAL INFORMATION

Sheet 1 of 9