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FLOOD CONTROL MINNESOTA RIVER MINNESOTA MINNESOTA
MANKATO-NORTH MANKATO-L... (U) CORPS OF ENGINEERS ST PAUL
MN ST PAUL DISTRICT NOV 80

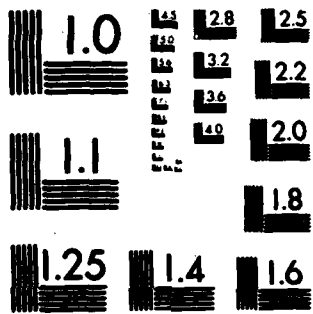
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STATEMENT II TO THE FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
THE
RELOCATION

FROM ELEMENTS 140 AND 40
ON THE ALICE RIVER RIVER BETWEEN
MILE 100 AND 101

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A120871	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) FLOOD CONTROL MINNESOTA RIVER, MINNE- SOTA, MANKATO-NORTH MANKATO-LE HILLIER, DESIGN MEMO- RANDUM NO.8, PART I (Location study) & DRAFT SUPP. TO THE FINAL EIS FOR BRIDGE RELOCATIONS. Trunk Highways 169 and 60 over the Blue Earth River between Mankato		5. TYPE OF REPORT & PERIOD COVERED Draft suppl. EIS
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18. SUPPLEMENTARY NOTES Issued in three parts. Design Memorandum for Chicago and Northwestern Trans. Co. bridge (April 1981) Design Memorandum for Main Street Trunk Highway 60 bridge (June 1981)		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Environmental impact statements Flood control Bridge relocation		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The St. Paul District is constructing flood control works on the Minnesota and Blue Earth Rivers to protect developed portions of Mankato, North Mankato and Le Hillier lying in the floodplain from frequent flood damage. The two Trunk Highway 169/60 bridges over the Blue Earth River must be raised or replaced to an elevation approximately 17 feet above the existing bridges. Plans 1B and 1C were selected for detailed study. Except for small locational differences, the two are similar. In both plans a new bridge is proposed to be built immediately upstream of the existing bridges, and a northbound off ramp and a southbound on		

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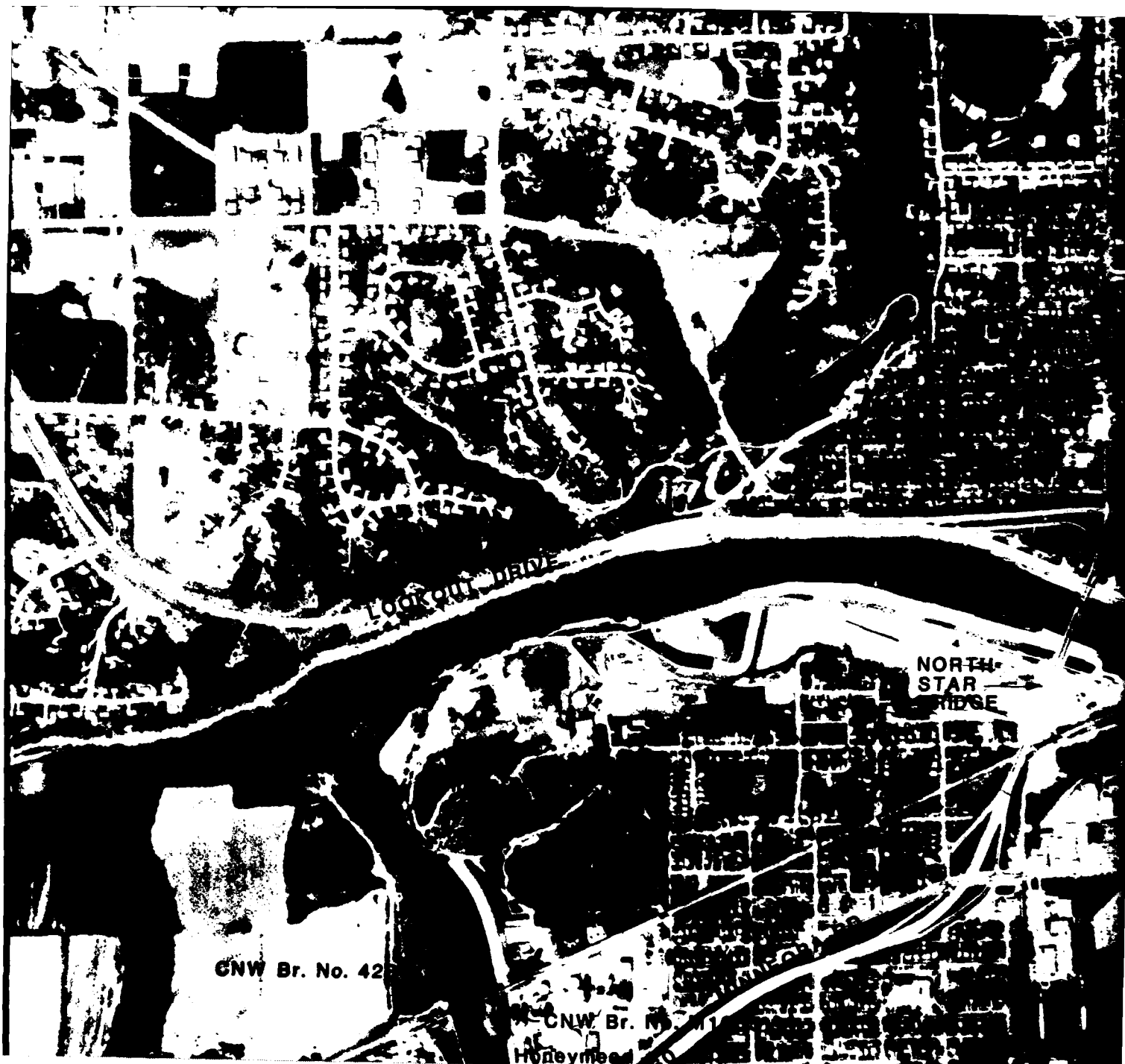
Plan would be built to replace an existing at-grade intersection. Plan 1B would require slightly less property acquisition, while Plan 1C would provide better operational characteristics. Plan 1C has been tentatively selected.



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TABLE OF CONTENTS

	<u>Page</u>
Cover	
Title	
Frontispiece	
Table of Contents	i
Introduction	1
Study Authority	1
Scope of the Study	3
Study Participants and Coordination	3
Prior Studies and Reports	4
The Report and Study Process	4
Problem Identification	5
Description of Crossing, TH 169/60	5
National Objectives	7
Existing Conditions	8
Available Planning Data	8
Population and Economy	8
Land Use	9
Traffic and Transportation	10
Noise and Air Quality	17
Climate	20
Topography	20
Geology	21
Soils and Foundations	21
Hydrology and Hydraulics	21
Natural Resources	22
Parks and Recreation	23
Historic and Archaeological Resources	23
Utilities	24
Institutions Dealing with Resource Management	24
Adequacy of Information for Use in the Study	24
Conditions if No Federal Action is Taken	24
Alternatives of Not Raising Bridges	25
Planning Constraints and Objectives	26
Formulation of Preliminary Plans	26
Plan Formulation Criteria	26
Flood Control	26
Traffic Service	27
Highway Design	27

	<u>Page</u>
Analysis of Plans - Stage 1	28
Reuse of Existing Bridges	28
Location Factors for Replacement Structure	29
Le Hillier Approach Effects	33
Mankato Approach Effects	33
Analysis of Plans - Stage 2	35
Description of Plans	35
Comparative Assessment and Evaluation	35
Traffic Service and Safety	36
Property Acquisitions and Relocations	37
Neighborhood Cohesion	37
Maintenance of Traffic During Construction	38
Capital Cost	38
Conclusions	38
Assessment and Evaluation of Alternatives	39
Alternative 1B	39
Description	39
Impact Assessment	39
Evaluation and Trade-off Analysis	43
Mitigation Requirements	43
Implementation Responsibilities	44
Public Views	44
Alternative 1C	45
Description	45
Impact Assessment	45
Evaluation and Trade-off Analysis	50
Mitigation Requirements	50
Implementation Responsibilities	51
Public Views	51
Comparison of Detailed Plans	52
Comparison of Detailed Plans	52
Displacements (Families & Businesses Affected)	52
Tax Loss	53
Historic Properties	53
Property Values	53
Traffic Safety	53
Traffic Maintenance During Construction	53
Cost	53
Rationale for Selection of the National Economic Development (NED) Plan	54
Discussion of Environmental Quality (ED) Objective	54
Compliance with Executive Orders	55
Rationale for the Tentatively Selected Plan	55

DRAFT SUPPLEMENT TO THE FINAL ENVIRONMENTAL
IMPACT STATEMENT

	<u>Page</u>
	EIS 1-28
Appendix A Plans, Profiles and Typical Cross Sections	A1-A10
Appendix B Detailed Estimates	B1-B5
Appendix C Public Views and Responses	C1-C34
Appendix D Glossary	D1

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	General Plan	2
2	Primary Study Area	11
3	Generalized Existing Land Use	12
4	Zoning	13
5	Roadway Network - Functional Classifications	15
6	Bridge Location for Alternatives 1A, 2A and 3A	30
7	Bridge Location for Alternatives 1B, 1C, 2B, 3B, Procedure I	31
8	Bridge Location for Alternatives 1B, 1C, 2B, 3B, Procedure II	32

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Origin-Destination Summary	16
2	Common Environmental Noise Levels (dBA)	18
3	Present Ambient Noise Levels (dBA) at Nearest Receptors	19
4	Displacements	37
5	Capital Cost Comparison	38
6	Comparative Assessment of Alternatives	54

DEIS TABLES

A	Relationship of Plans to Environmental Requirements	8
B	Comparative Impact of Alternatives	16

TECHNICAL REPORTS

Listed below are the technical reports prepared in conjunction with the study. Copies of these are available from the St. Paul District, Corps of Engineers.

<u>Report Number</u>	<u>Title</u>
1	Present and Projected Traffic
2	Geology and Soils
3	Preliminary Noise Analysis
4	Social and Economic Resources
5	Historic Resources
6	Natural Resources

INTRODUCTION

1. The St. Paul District, Corps of Engineers is constructing a flood control system along the Minnesota and Blue Earth Rivers to provide flood protection for the communities of Mankato, North Mankato and Le Hillier. The flood protection project requires major alterations of existing conditions at three bridge sites. The alterations include raising and replacement of these bridges and their approaches.

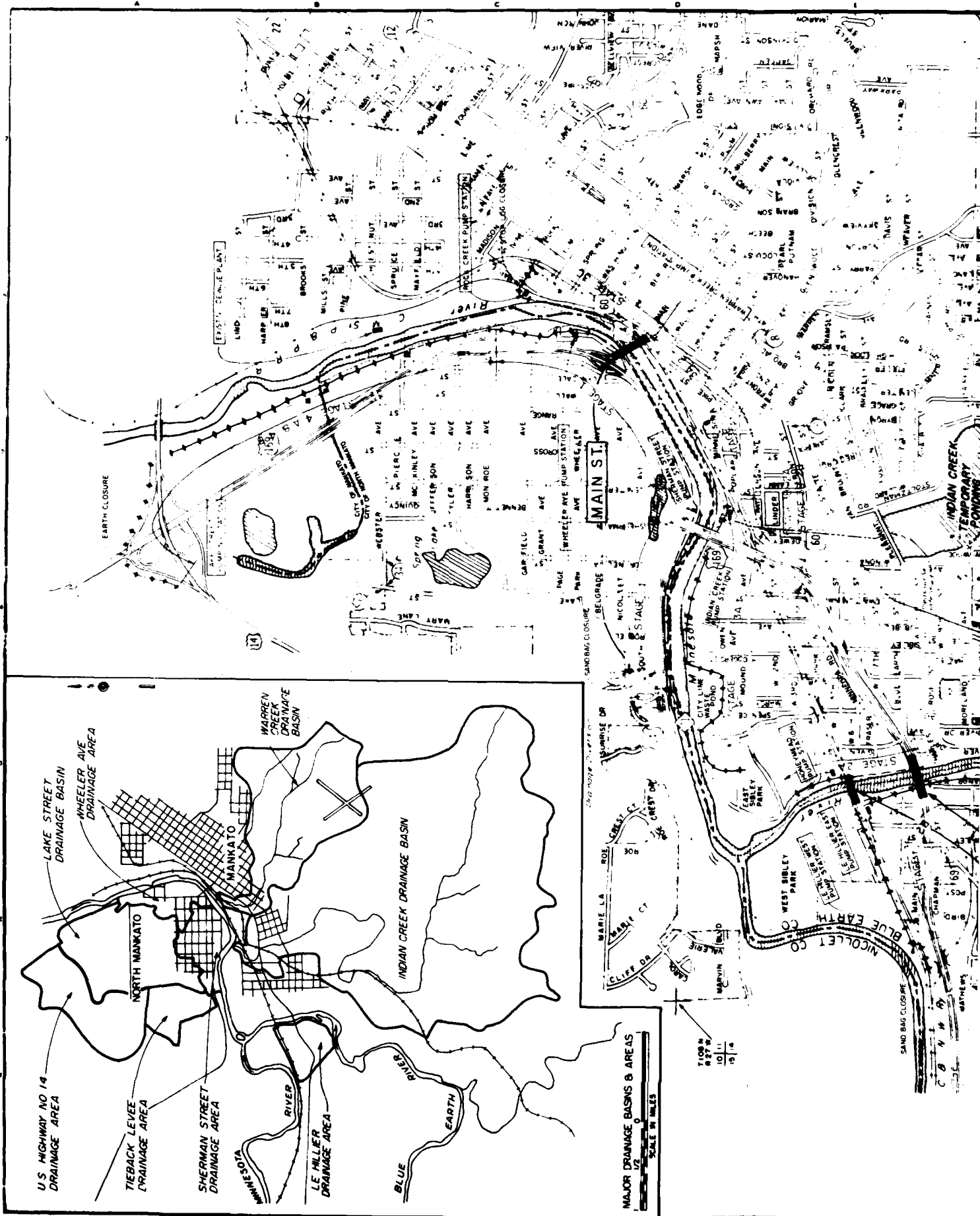
2. The three bridge sites are shown on Figure 1 and are described as follows:

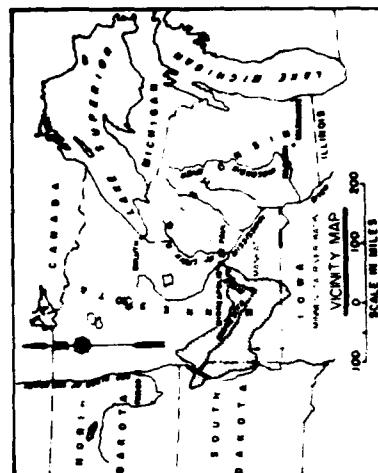
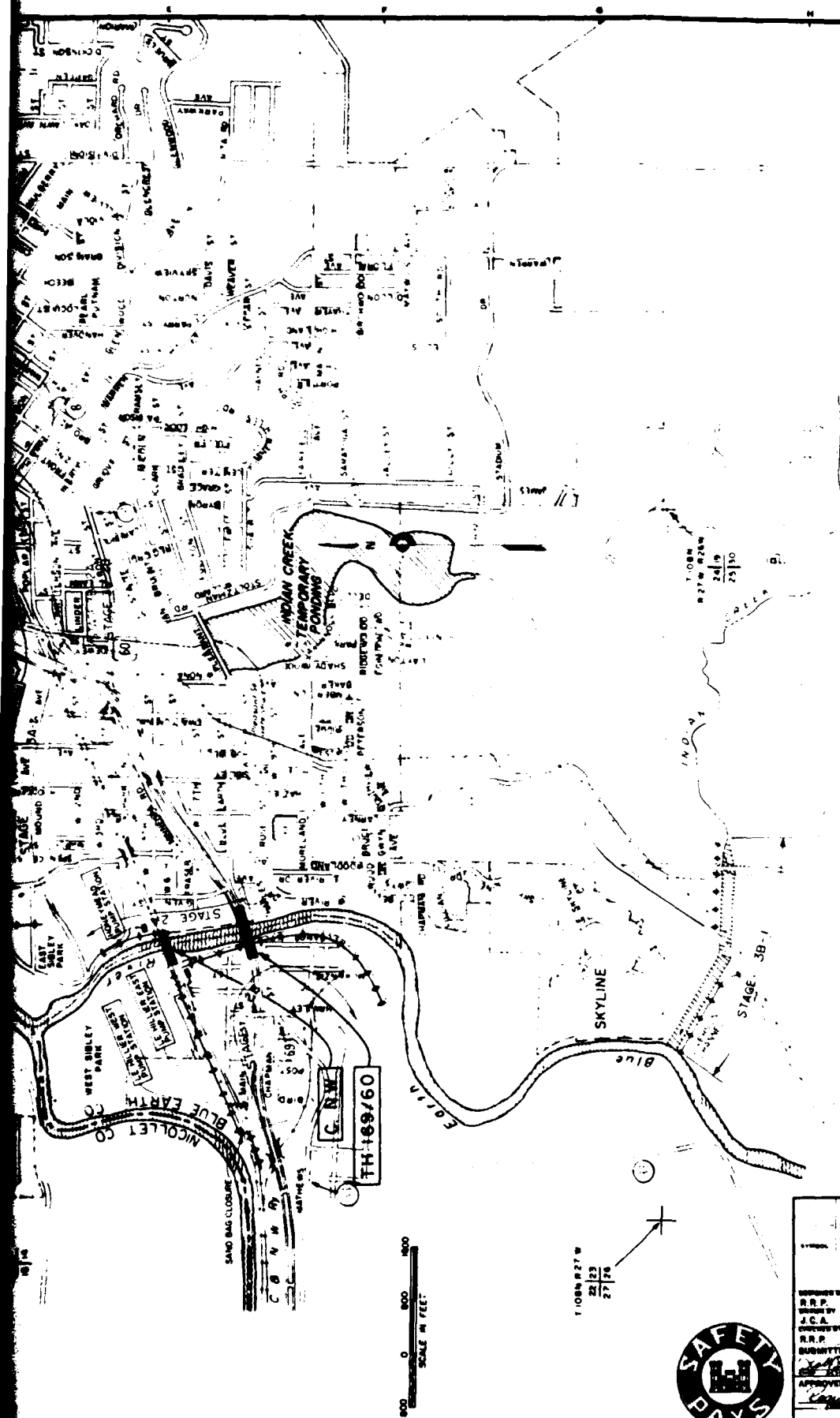
- a. State bridges 9413 (steel) and 4952 (concrete arch) carrying U.S. Trunk Highway 169 and State Trunk Highway 60 (TH 169/60) over the Blue Earth River between Mankato and Le Hillier.
- b. Chicago and North Western Transportation Company (CNW) bridge M1605 and 423 over the Blue Earth River between Mankato and Le Hillier.
- c. State Trunk Highway 60 (Main Street) bridge 411 over the Minnesota River between Mankato and North Mankato.

3. Location studies for each site were conducted concurrently. However, during the course of these studies, it became apparent that the three sites were physically and functionally separate and the issues and area of concern were also different. Therefore, three separate volumes have been prepared. This volume describes the study area of TH 169/60 over the Blue Earth and summarizes the investigation made and presents alternative solutions considered relating to raising or replacement of the two bridges. This volume also recommends the preferred alternative for implementation. The second volume describes and summarizes the alternatives, the study area and the findings for the CNW bridges over the Blue Earth River. The third volume describes and summarizes the study area and alternatives for the Main Street Bridge over the Minnesota River.

STUDY AUTHORITY

4. Public Law 85-500, 85th Congress approved 3 July 1958, authorized the development and construction of the Minnesota River, Mankato-North Mankato-Le Hillier Flood Control Project. This authority directed Standard Project Flood protection be provided and that the required alterations to the CNW bridges across the Blue Earth be affected at Federal expense. Section 104 of the 1976 Water Resources Development Act, P. L. 94-587, approved 22 October 1976, provided that alterations to the TH 169/60 highway bridges over the Blue Earth River and the Main Street bridge over the Minnesota River, including rights-of-way, shall also be accomplished at complete Federal expense.





- LEGEND**
- FLOOD BARRIER
 - EARTH FILL
 - EARTH WALL
 - CONCRETE WALL
 - PROPOSED EASING
 - ROAD RAISE
 - BRIDGE RELOCATION

DESIGN MEMORANDUM NO. 8 BRIDGE ALTERATION FOR FLOOD CONTROL MINNESOTA RIVER AND BLUE EARTH RIVER MANKATO - NORTH MANKATO - LE MILLER GENERAL PLAN	
APPROVED BY: DATE:	NOVEMBER 1960
FIGURE 1	



5. The bridge alterations are not covered in the "Final Environmental Impact Statement (FEIS) Minnesota River, Minnesota Mankato-North Mankato-Le Hillier Flood Control: Phase 1" U.S. Army Engineer District, St. Paul, 18 January 1972. This volume together with the two other volumes has been prepared as DM 8-Part I and "Draft Supplement II" to the FEIS to cover the proposed bridge alterations.

SCOPE OF THE STUDY

6. This study investigates and evaluates the alternatives for raising or relocating the two bridges carrying TH 169/60 over the Blue Earth River between Mankato and Le Hillier. All alternatives studied are consistent with the requirements of the flood control system in satisfying existing Corps of Engineers standards. Figure 1 illustrates that because of surrounding land uses, TH 169/60 lies within a narrow corridor. Because no bypass or other systems alterations are practicable, the alternatives considered lie within this tightly constrained corridor.

STUDY PARTICIPANTS AND COORDINATION

7. The study was conducted by the St. Paul District, Corps of Engineers with the Minnesota Department of Transportation functioning as a cooperating agency for the TH 169/60 and Main Street bridges. An on-going, working cooperative arrangement was maintained with the Cities of Mankato and North Mankato, and with the Chicago and North Western Transportation Company. Coordination with the other involved local, state and federal agencies was maintained by correspondence, briefings, and a project newsletter. Coordination was also maintained with staff members of private utility companies having facilities in the project area.

8. The views of the public were actively solicited throughout the course of the study. Individuals, groups and civic organizations, and government bodies were brought into the study process through a broadly based public information program with regular communications on project matters. Specific elements of the public information program included:

- a. A local public information office
- b. Periodic newsletters
- c. News media coverage
- d. Public information meetings
- e. Interviews with citizens directly affected by potential property takings
- f. Presentations to interested civic organizations

The overall public information program covered the entire project, i.e., all three bridge crossings to be altered. Public information releases were prepared to deal with specific bridge locations as appropriate.

PRIOR STUDIES AND REPORTS

9. Other studies and reports significant to the project were:

- a. Bridge Location Study, Cities of Mankato and North Mankato, Minnesota, May 15, 1974. Edwards and Kelcey, Inc.
- b. Flood Control Report, Mankato-North Mankato, Minnesota, October 1975. City Manager, Mankato, Minnesota.
- c. Final Environmental Impact Statement for U.S. 14 Mankato Bypass, March 13, 1975. Federal Highway Administration and Minnesota Department of Highways.
- d. Design Memorandum No. 1 through 7, Flood Control Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier.
- e. Final Environmental Statement, Minnesota River, Minnesota Mankato-North Mankato-Le Hillier, Flood Control, Phase I.

THE REPORT AND STUDY PROCESS

10. This volume documents the planning studies conducted for the relocation and alterations to the TH 169/60 bridges over the Blue Earth River. These location studies were preceded in September 1978 by the "Project Development Report" which established the scope of the study process and alternatives for the entire project.

11. The significant issues and impacts of the alternatives are:

- a. Neighborhood character and cohesion (including property values and aesthetics)
- b. Displacements, business and residential
- c. Historic properties
- d. Noise
- e. Air quality
- f. Water resources
- g. Traffic service and safety
- h. Disruptions and hazards during construction
- i. Capital cost

12. The following schedule summarizes the study process, the preparation of the DM 8, and its accompanying location study and draft supplement to the FEIS, and steps toward construction.

- a. Project Development Report, September 1978
- b. Data collection
- c. Public information meeting, November 1978
- d. Identification of alternatives, Stage 2
- e. Public information meeting, January 1979
- f. Identification of detailed plans, Stage 3
- g. Formulation, assessment and evaluation of detailed plans
- h. Public information meeting, May 1979

- i. Preliminary Design Memorandum No. 8, Part 1, Location Study and Draft Supplement to the Final Environmental Impact Statement
- j. Statutory review and public hearing
- k. Final Environmental Impact Statement
- l. Record of decisions
- m. Design study and hearings
- n. Final Design Memorandum No. 8
- o. Construction plans and rights-of-way acquisition
- p. Construction

PROBLEM IDENTIFICATION

13. The flood control project is being constructed to protect the communities of Mankato, North Mankato and Le Hillier against the Standard Project Flood (SPF). This volume is concerned with that part of the project relating to raising or relocating the existing TH 169/60 bridges over the Blue Earth River. Currently the bridge decks are 6.1 feet below the SPF elevation of 790.6. Consequently, the bridges, if left in place, would cause detrimental effects due to debris and ice jams. To clear the SPF, a raise of approximately 17 feet is required to the present roadway and bridge profile; this includes depth of structure and freeboard clearance above the SPF.

DESCRIPTION OF CROSSING, TH 169/60

14. Two bridges now provide highway crossings of the Blue Earth River. The upstream bridge (9413) carrying eastbound traffic was constructed in 1962. It is a 3-span, continuous 4-welded steel plate girder bridge with two hammerhead piers and two cellular abutments. Spans are 105, 108 and 105 feet. The bridge is founded on rectangular footings and 25- to 30-foot timber piles. Curb-to-curb width of deck is 30 feet and the out-to-out width is 38.83 feet. There are a 5-foot sidewalk along the south side, a 1.5-foot curb along the north side and 1.17-foot railings on each side. The bridge carries four telephone line conduits under the deck between the north fascia and first interior beams.

15. Bridge 9413, at present, adequately handles the vehicular traffic density and it is believed it can accommodate foreseeable future needs. The bridge was constructed in 1962, and the Minnesota Department of Transportation has estimated its remaining life at about 40 years. The deck, abutments and piers were found to be in good condition by an Edwards and Kelcey inspection team in November 1978. However, it was found that several upstream (south) fascia girders had been damaged in recent floods. Reinforcement included interior bracing, installation of a hold-down system between the girders and substructure, and concrete buttresses between piers. Other than the

damaged sections, the steel girders appeared to be in good condition. The bridge constitutes a substantial impediment to design flood flows and if the structure were to be raised the requisite amount (about 17 feet, the higher overturning forces and the increased dead loads on the piers and abutments would preclude the use of the present foundations.

16. The downstream bridge (4952) carrying westbound traffic was constructed in 1931. It is an open spandrel concrete arch bridge with architecturally treated piers, abutments and railings. The bridge consists of three spans of 107, 108, and 107 feet and is founded on step footings and 25- to 30-foot long timber piles. Curb-to-curb width of the deck is 40 feet and the out-to-out dimension is 57.17 feet. There are 7.33-foot wide sidewalks and 1.25-foot rails on each side of the bridge. The bridge deck carries two traffic lanes plus shoulders.

17. Bridge 4952 now adequately handles the vehicular traffic density and it is believed it can accommodate foreseeable future needs. The bridge was constructed in 1931 and formerly used for 2-way traffic. It now has an estimated remaining life of about 20 years according to the Minnesota Department of Transportation. The 1978 inspection by Edwards and Kelcey engineers revealed that the deck, sidewalk, railings, abutments, piers and the arches are generally in very good condition. However, for the concrete arches to clear the design flood elevation the bridge would have to be raised from 25 to 30 feet which is impractical. A new structure without arches will require about a 17 foot raise. Therefore, the existing bridge must be replaced.

18. The existing bridges currently carry two travel lanes in each direction with sidewalks. The present (1978) average weekday traffic volume on the bridges is a total of 19,000 vehicles per day. This being a business and commuter route, the average weekday peak hour has been selected as the design hour.

19. A major influence on traffic at this location is the Honeyamead Soybean Processing Plant which in the harvest season receives 600 truckloads of beans during the 12 daytime hours. Ninety-five percent of these approach the plant from the south and west on TH 169 and TH 60. This truck traffic has been added proportionately to the average weekday peak hour traffic for design purposes.

20. Local access to TH 169/60 is presently provided at three locations within the potential influence of the bridge alteration:

- a. At Hawley Street in Le Hillier on the left bank. This is a right angle, 4-way at-grade intersection providing access to and from local streets on both sides of the highway.

- b. A "T" intersection at the end of Minneopa Road near the Honeymead plant entrance on the right bank. For TH 169/60 traffic to and from the south and west, this "T" intersection provides convenient access for industrial traffic to the plant and local access to West Mankato and Sibley Park neighborhoods. While it permits turns to and from the north and east, these are small in number because a more convenient and direct access is provided at the Park Lane (South Front Street) interchange.
- c. At the Park Lane interchange. This is a major, signalized diamond interchange connecting with the arterial street system of Mankato. Because the Minneopa Road intersection serves the West Mankato and Sibley Park neighborhoods better and is more convenient for TH 169/60 trips to and from the west, very few of these movements are made at the Park Lane interchange. Design hour volumes at this interchange are approaching capacity.

NATIONAL OBJECTIVES

21. The overall flood control project was formulated to achieve National Economic Development (NED) and Environmental Quality (EQ) as equal national objectives. This integral portion of the project will be developed to further these objectives.

22. NED is to be achieved by increasing the value of the nation's output of goods and services and improving national economic efficiency. EQ is to be achieved by the management, conservation, preservation, creation, restoration, or improvement of the quality of certain natural and cultural resources and ecological systems.

23. Local interests and various governmental agencies through public meetings, by reports, and through correspondence, provided their views as to the objectives of the project. For the TH 169/60 bridges, the following were stated:

- Provide flood protection
- Eliminate existing hazardous intersections
- Keep trucks off local streets
- Provide safety for pedestrians, particularly school children
- Maintain integrity of neighborhoods
- Reduce noise from roadway
- Restrict property takings to a minimum
- Maintain good truck access to industries
- Improve access to Park Lane/Front Street
- Improve Northstar Bridge

EXISTING CONDITIONS

Available Planning Data

24. In addition to the reports listed under "Prior Studies and Reports" above, the following are significant to the project planning process and provide general background data:

- a. "Flood Control, Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier, Design Memorandum No. 1, General", Department of the Army, St. Paul District, Corps of Engineers, St. Paul, Minnesota, April 1967.
- b. "Final Environmental Statement, Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier, Flood Control - Phase I Amended December 1971", U.S. Army Engineer District, St. Paul 18 January 1972.
- c. "Special Flood Hazard Information, Minnesota River and Tributaries, Mankato, North Mankato, Le Hillier", Department of the Army, St. Paul District, Corps of Engineers, St. Paul, MN, October 1973.

Population and Economy

25. In 1978 Mankato and North Mankato had estimated populations of 34,430 and 9,780, respectively and immediately adjacent townships added another 6,700 persons for a total area population of 50,910. The area is expected to reach a population of 66,000 by the year 2000.

26. Agriculture is highly significant to the economy of the immediate area. Corn and soybeans are the principal crops, while oats and hay, though still important, have been declining in importance in the last 20 years. Wheat production, which dominated the agriculture of the region earlier, has declined to a level of minor importance in recent years. Hogs and beef and dairy cattle are also raised in the area. The size of the farms and value of rural land have risen steadily. The average farm size is now nearly 300 acres and farm land sales now average about \$2,100 per acre.

27. The manufacture of agricultural products in the area is dominated by the Honeymead Soybean Processing Plant, the ADM Grain Company, and the Hubbard Mill, all in Mankato. Other industries include sales and service outlets, concrete products and other manufacturing and quarrying.

28. The economic indicators demonstrate the economy of the Greater Mankato area is strong and appears to be expanding. Area cash sales for crops and livestock, the number of building permits and bank deposits have all increased markedly in recent years.

29. Less than 10 percent of the area population is employed in agriculture. Trade and services, manufacturing and construction account for the major portion of the employment. The total number of jobs has increased from approximately 17,500 in 1972 to over 20,000 in 1977.

Land Use

30. As indicated in the project "Social and Economic Resources Report", three identifiable neighborhood areas, Le Hillier, Sibley Park and West Mankato may be affected as a result of alterations to the TH 169/60 bridges. These are shown on Figure 2, Primary Study Area.

31. The Le Hillier neighborhood, which is bisected by TH 169/60 is characterized by a mixture of land uses, see Figure 3, Generalized Existing Land Use. These include single family homes, mobile homes, apartment conversions and a variety of businesses and industries. There are no dominant land uses and the mixed pattern of development has contributed to the instability of land uses and lower property values. The County Planning Department is currently attempting to zone the area and it is expected that the neighborhood will consist of a mixture of residential, commercial and industrial zoning districts.

32. The Sibley Park neighborhood is essentially an older, fully developed residential neighborhood which includes concentrations of industrial and commercial activity along its southern boundary and in its northeast quadrant (see Figure 3, Generalized Existing Land Uses). Residences are primarily single family, although conversions to multiple family dwellings have become common.

33. Honeymead Products, Inc., a large soybean processor and Mankato's largest employer, is situated on the right (east) bank of the Blue Earth River between TH 169/60 and the CNW tracks, and west of Woodland Avenue. A recent expansion of the plant necessitated the relocation of several homes and businesses. The plant constitutes the dominant land use of the entire neighborhood. Extending east from Honeymead along Minneopa Road and Park Lane is a commercial area which embraces a variety of uses. In the northeast portion of the neighborhood is a concentration of industries dominated by the North Star Concrete Company which manufactures concrete and related products.

34. A large portion of the neighborhood is occupied by the Sibley Park East for which the area is named. This large community park is heavily used by residents of the region and provides both active and passive recreational outlets. The park is situated in an

historic Indian setting and is utilized for many community-wide activities. Between Sibley Park East and the northeast industrial area is the Mankato Lutheran Home.

35. TH 169/60 which lies along the southern and eastern boundary of the neighborhood, isolates the area from adjoining neighborhoods to a degree. Zoning in the area as shown in Figure 4, reflects the uses of the neighborhood and is indicative of envisioned changes in land use. The zones included are R-1 and R-3, one family and limited multiple dwelling residential; B-2, community business; M-2, heavy industrial; and I-1, planned industrial. The business and industrial zones adjoin TH 169/60 and Minneopa Road.

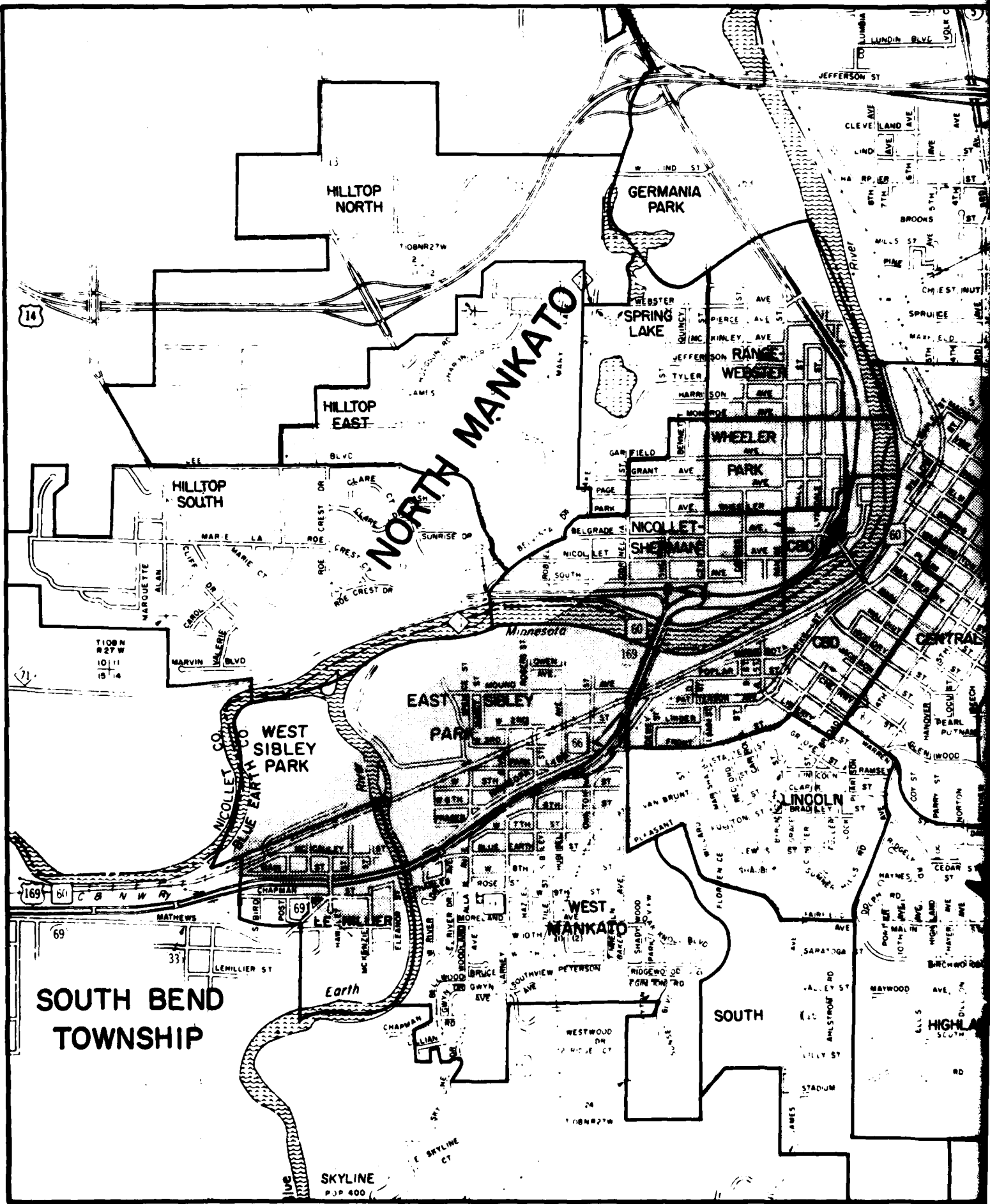
36. The West Mankato neighborhood is a high quality, fully developed neighborhood consisting largely of single family dwellings. A public school, a parochial school, and two churches lie within the potential impact area. The neighborhood is zoned for one and two family dwellings.

Traffic and Transportation

37. The Trunk Highway 169/60 crossing of the Blue Earth River is part of the expressway-freeway system of southern Minnesota and the Mankato area, as shown on Figure 5. The crossing carries a current (1978) average weekday traffic (AWDT) flow of 19,000 vehicles per day. Morning traffic peaks between 7:30 and 8:30 AM at 1300 vehicles per hour, with 800 vehicles northbound (toward Mankato) and 500 vehicles southbound. Evening traffic peaks between 4:15 and 5:15 PM, with 750 vehicles northbound and 900 vehicles southbound. Midday traffic averages 1100 to 1200 vehicles per hour, with approximately 550-600 vehicles per hour in each direction.

38. Based on travel surveys taken in October 1978, approximately 30 percent of the crossings are "through" trips, with both origin and destination outside of the Mankato area. Another 45 percent are destined to or coming from the Mankato area, while the remaining 25% are "local" trips with both trip ends in the Mankato area. Table 1 summarizes origin and destination locations on each side of the bridge.

39. Primary trip purposes identified by the bridge users were 21 percent to and from work, 32 percent company business, 12 percent shipping, 11 percent recreation and 6 percent school. Average vehicle occupancy was approximately 1.7 persons per vehicle. Heavy commercial trucks accounted for over 12 percent of the total traffic. In addition to vehicular traffic, over 30 pedestrians and 15 bicyclists used the bridge on the survey day. Greyhound and Midwest Coach intercity buses and school buses also use the crossing.



HILLTOP
NORTH

HILLTOP
EAST

HILLTOP
SOUTH

GERMANIA
PARK

SPRING
LAKE

NORTH MANKATO

WHEELER
PARK

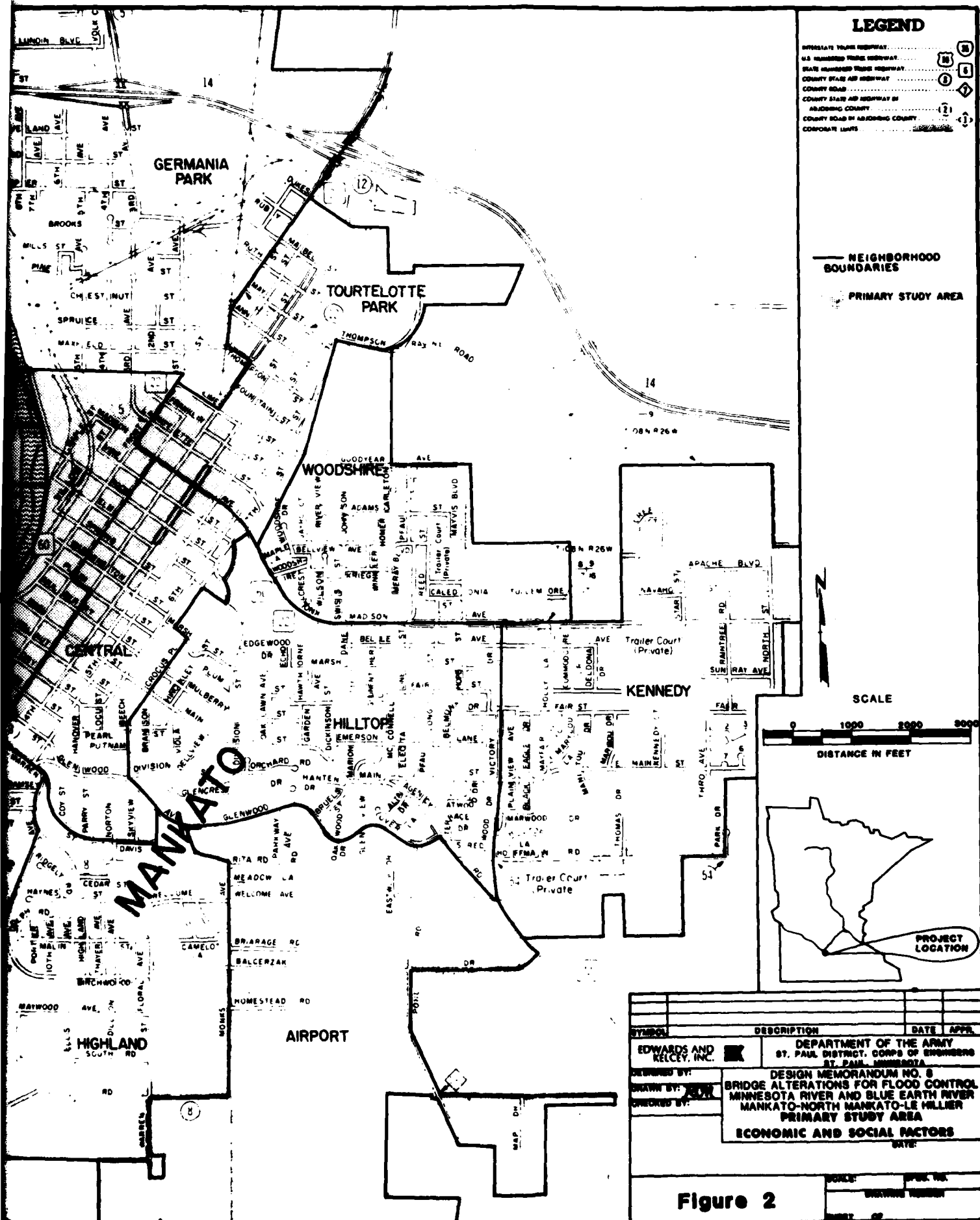
EAST
PARK

WEST
SIBLEY
PARK

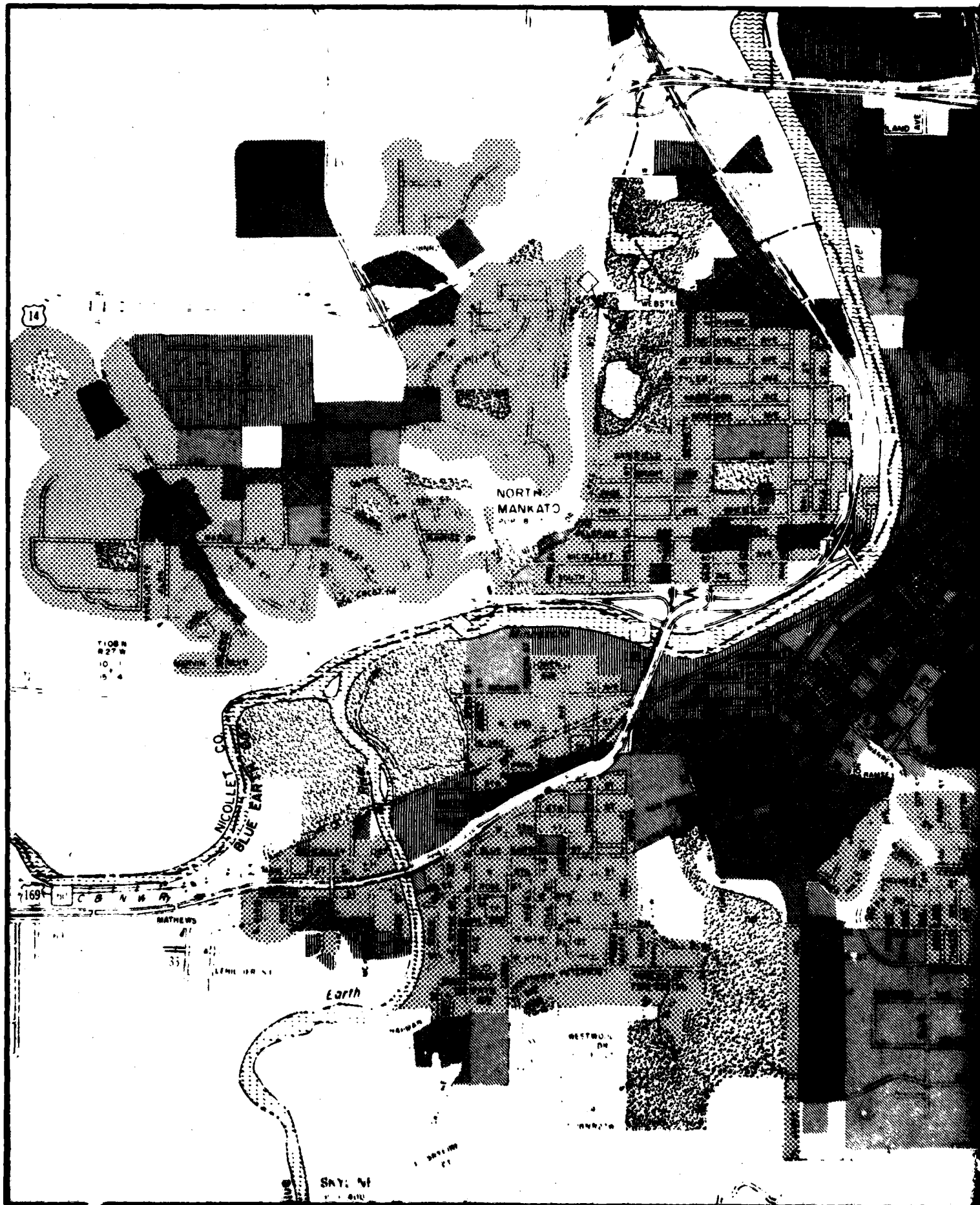
WEST
MANKATO

SOUTH BEND
TOWNSHIP

SKYLINE
PJP 400



SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY:	DESIGN MEMORANDUM NO. 8		
DRAWN BY:	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY:	MINNESOTA RIVER AND BLUE EARTH RIVER		
	MANKATO-NORTH MANKATO-LE HILLIER		
	PRIMARY STUDY AREA		
	ECONOMIC AND SOCIAL FACTORS		
	DATE:		
	WORK:		
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	WORK:		
	DATE:		





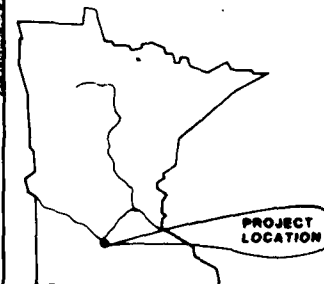
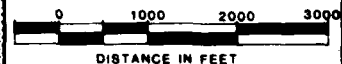
LEGEND

INTERSTATE TRUNK HIGHWAY
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 ADJACENT COUNTY
 COUNTY ROAD IN ADJACENT COUNTY
 COPYRIGHT 1975

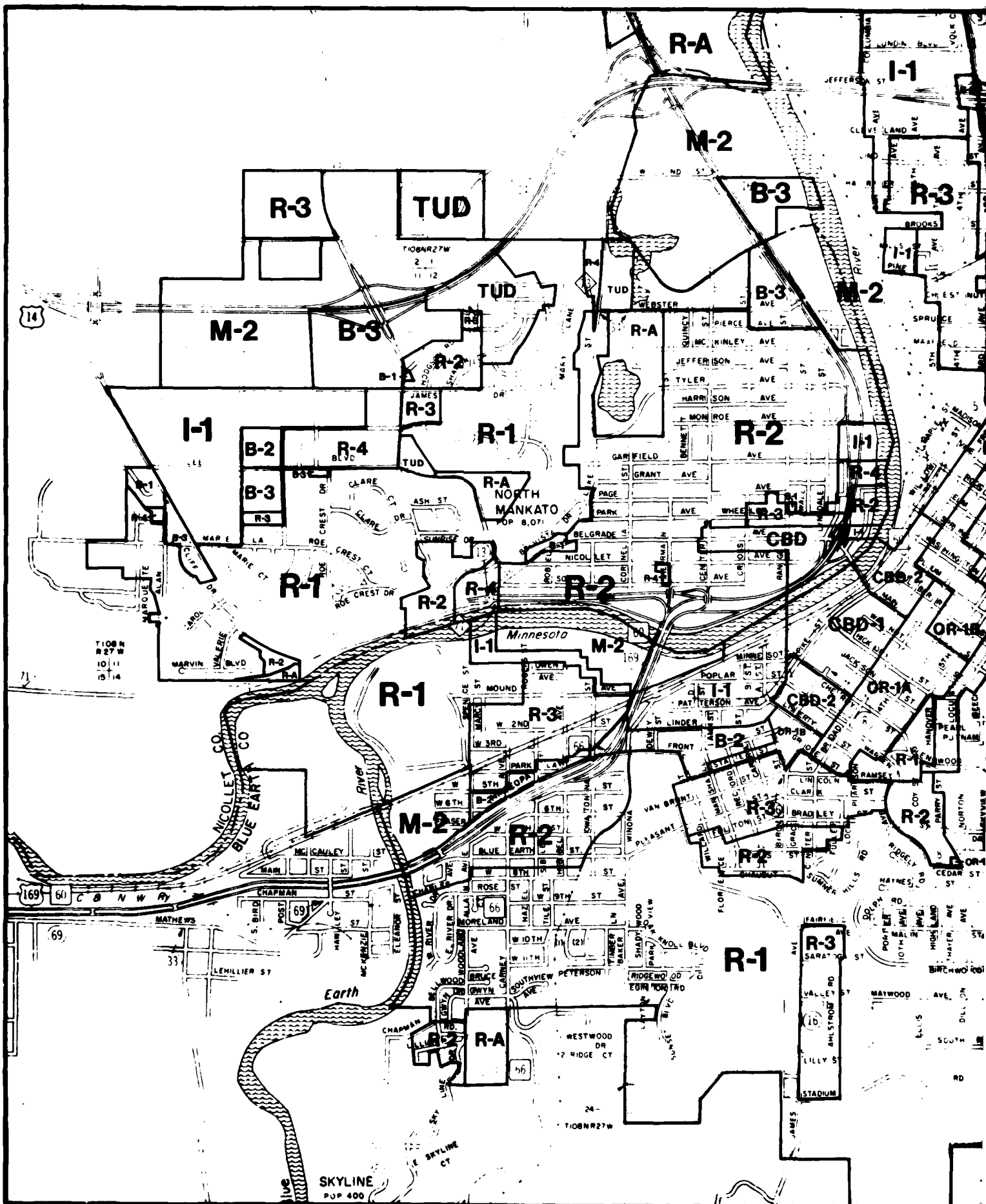


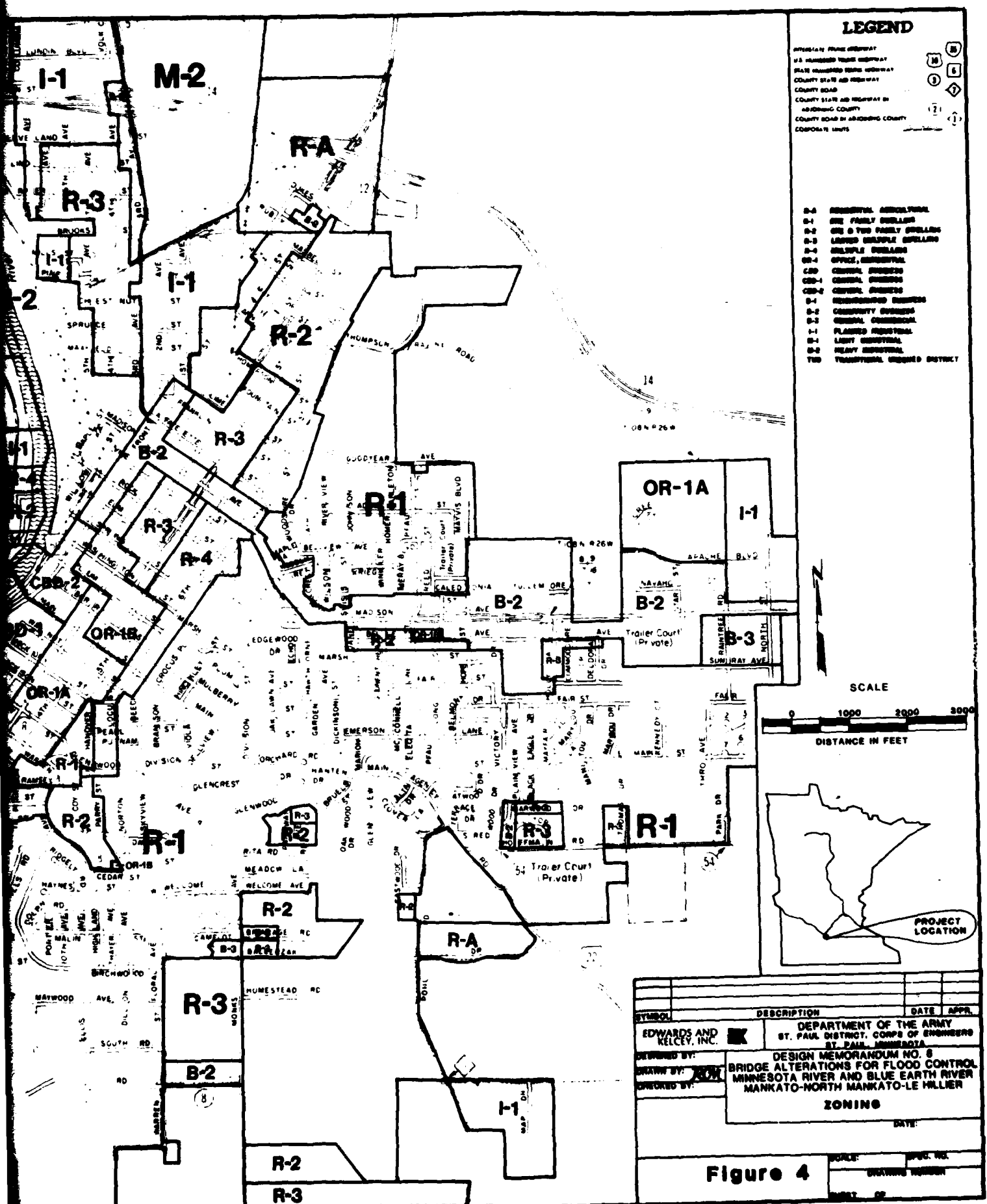
SINGLE FAMILY
 RESIDENTIAL
 MULTI FAMILY
 RESIDENTIAL
 COMMERCIAL
 INDUSTRIAL
 PUBLIC/
 INSTITUTIONAL
 RECREATIONAL/
 OPEN SPACE
 VACANT

SCALE



SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY:	DESIGN MEMORANDUM NO. 8		
DRAWN BY:	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY:	MINNESOTA RIVER AND BLUE EARTH RIVER MANKATO-NORTH MANKATO-LE MILLIER		
GENERALIZED EXISTING LAND USE			
DATE			
Figure 3		SCALE	SPEC. NO.
		DRAWING NUMBER	
		SHEET OF	





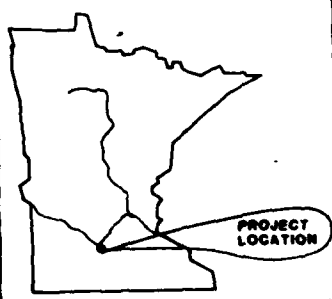
LEGEND

FEDERAL HIGHWAY
 STATE HIGHWAY
 COUNTY STATE AND HIGHWAY
 COUNTY ROAD
 COUNTY STATE AND HIGHWAY IN
 ADJACENT COUNTY
 COUNTY ROAD IN ADJACENT COUNTY
 CORPORATE LIMITS



- R-1 RESIDENTIAL AGRICULTURAL
- R-2 ONE FAMILY DWELLING
- R-3 ONE & TWO FAMILY DWELLING
- R-4 LIMITED SINGLE DWELLING
- R-5 MULTIPLE DWELLING
- OR-1 OFFICE, RESIDENTIAL
- OR-2 OFFICE, BUSINESS
- OR-3 OFFICE, BUSINESS
- OR-4 OFFICE, BUSINESS
- OR-5 OFFICE, BUSINESS
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- OR-100 OFFICE, BUSINESS

SCALE



PROJECT LOCATION

SYMBOL	DESCRIPTION	DATE	APPR.
DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA			
DESIGN MEMORANDUM NO. 8 BRIDGE ALTERATIONS FOR FLOOD CONTROL MINNESOTA RIVER AND BLUE EARTH RIVER MANKATO-NORTH MANKATO-LE HILLIER			
ZONING			
DATE:			
Figure 4		SCALE:	APPR. NO.
		DRAWING NUMBER	
		SHEET OF	

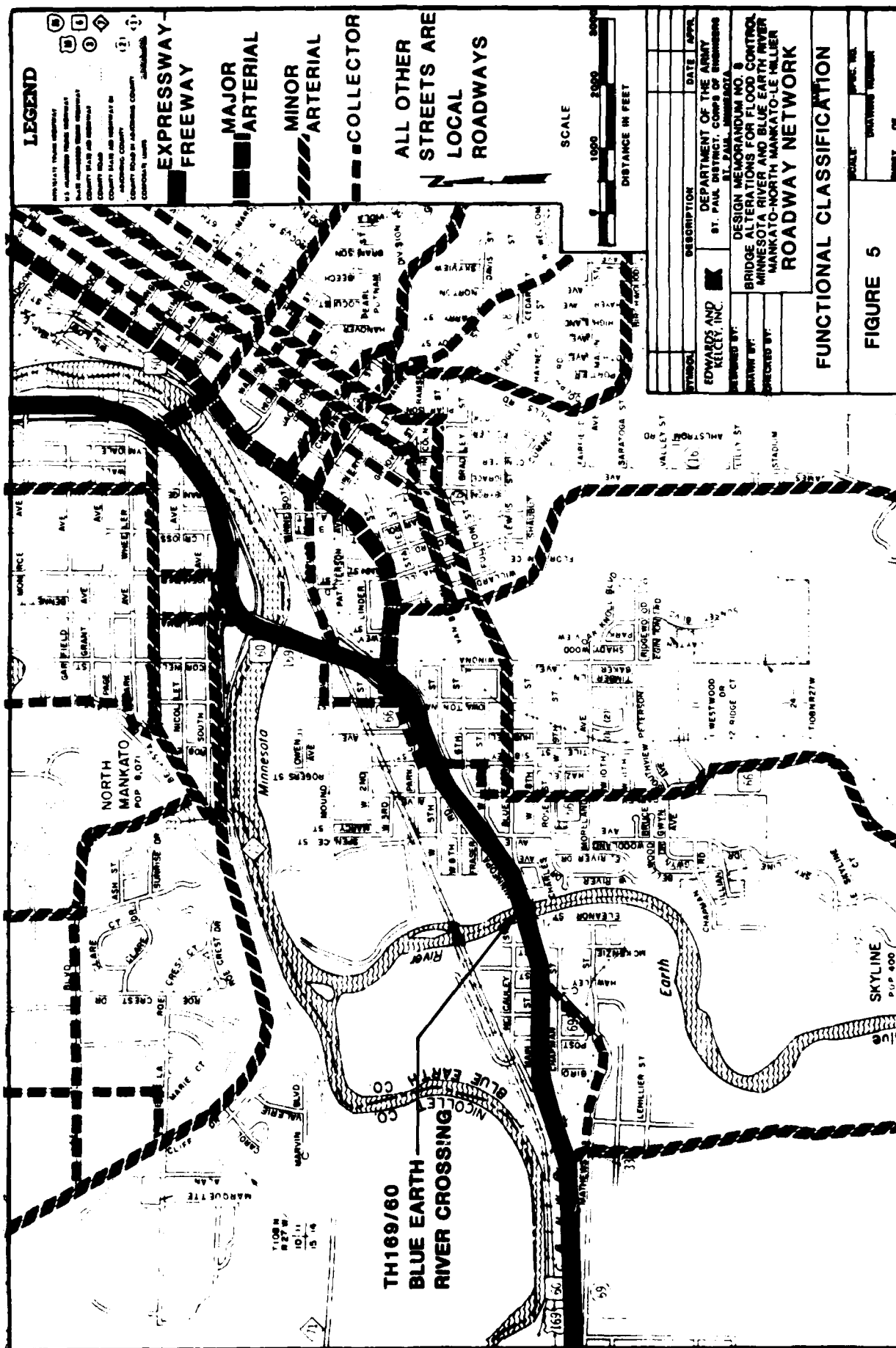


TABLE 1

ORIGIN-DESTINATION SUMMARY

Distribution of Origins and Destinations on Each Side of
the TH 169/60 Blue Earth River Bridge

<u>Mankato Side</u>	<u>Percent of Total Trips</u>
CBD and Old Town	15
Remainder Mankato	39
North Mankato	10
Surrounding Townships	2
Other Minnesota & Out-of-State	<u>34</u>
	100
 <u>Le Hillier (Southbend Township) Side</u>	
Southbend Township	24
Other Blue Earth County	26
Other Minnesota	40
Out-of-State	<u>10</u>
	100

40. Access from TH 169/60 to the Le Hillier neighborhood and Sibley Park West is provided by an at-grade intersection at Hawley Street. The Sibley Park and West Mankato neighborhoods are accessed via an at-grade intersection with Minneopa Road near the northeast end of the bridge and an interchange with Park Lane approximately 0.8 miles to the northeast. To access the West Mankato area, travelers must use Minneopa Road to reach Sibley Street, a collector roadway which passes under TH 169 between the Minneopa Road intersection and Park Lane interchange.

41. The Minneopa Road intersection also provides access to the Honeymead plant. Bean truck movements to and from the Honeymead plant place a heavier than normal traffic load on the intersection during the harvest season. Peak season loads, according to Honeymead officials, amount to approximately 600 truck movements to and from the plant during the 12 hour (7 AM - 7 PM) study period. Approximately 95 percent of the movements are to and from the south and occur in a relatively uniform pattern over the period, due to the use of a staging area to the south on TH 169. The Minneopa Road intersection also serves as an alternate entrance to TH 169/60 from the Mankato CBD and Hilltop areas when the southbound entrance at the Park Lane interchange becomes congested.

Noise and Air Quality

42. Noise is most commonly measured in units called decibels (db). The "A" weighted scale (units expressed as dBA) has been found to compare well with human reaction to noise annoyances. Among the descriptors that correlate human response with a statistical record of noise environment are L_{50} , the median noise level, and L_{10} , the noise measurement that is exceeded 10 percent of the time. The latter provides a measure of loudest noise events and degree of noise level fluctuation from noise sources such as highways.

43. Table 2 lists examples of comparable noise levels of common generators.

44. Table 3 summarizes present noise levels at the nearest row of residences along each side of TH 169/60 in the study area, as determined from field measurements and traffic noise models. In general, present daytime noise levels exceed both Federal Highway Administration Design Noise Levels ($L_{10} = 70$ dBA) and State NPC-2 Noise Standards ($L_{10} = 65$, $L_{50} = 60$) for residential uses. The variation in noise levels shown is due to differences in setbacks and shielding at the nearest row. For example, many of the homes along the south side of TH 169/60 in the West Mankato neighborhood are partially shielded by the bluffline, TH 169/60 being depressed by approximately 20 to 40 feet. In the other neighborhoods, the elevated section of TH 169/60 also helps to reduce noise at some of the near residences.

TABLE 2

COMMON ENVIRONMENTAL NOISE LEVELS (dBA)

<u>Indoor Noise Levels</u>	<u>Decibels</u>	<u>Outdoor Noise Levels</u>
	140---	THRESHOLD OF PAIN
	130---	Pneumatic riveter
Oxygen torch	120---	
	110---	Elevated Train
Rock and roll band	100---	Jet flyover at 1000 feet
		Farm tractor
		Lawn mower at 3 feet
Boiler room	90---	Motorcycle at 25 feet
Food blender at 3 feet		
Garbage disposal at 3 feet	80---	Lawn mower at 100 feet
Shouting voice at 6 feet	70---	Car, 50 mph at 50 feet
Normal speech at 3 feet	60---	Heavy traffic at 300 ft.
Average business office	50---	
Average residence		Bird calls
	40---	
Library		
	30---	
		Quiet rural area at night
Broadcasting studio		
	20---	Rustling leaves
	10---	
	0---	THRESHOLD OF HEARING

TABLE 3
PRESENT AMBIENT NOISE LEVELS (dBA)
AT NEAREST RECEPTORS

	<u>Daytime</u>		<u>Nighttime</u>	
	7 A.M. to 10 P.M.		10 P.M. to 7 A.M.	
	<u>L₁₀</u>	<u>L₅₀</u>	<u>L₁₀</u>	<u>L₅₀</u>
<u>Le Hillier</u>				
North Side TH 169/60	70-74	64-68	63-66	56-59
South Side TH 169/60	67-73	61-66	59-65	53-58
<u>Sibley Park</u>				
North Side TH 169/60	70-75	62-67	63-67	56-58
<u>Mankato West</u>				
South Side TH 169/60	64-72	61-65	60-64	55-61
<u>*State Standard</u>				
Residences	65	60	55	50
<u>*Federal Standards</u>				
Residences	70			

*A detailed analysis of existing noise levels and descriptions of State and Federal standards are provided in Technical Report #3, "Preliminary Noise Analysis".

45. State nighttime standards for residences ($L_{10} = 55$, $L_{50} = 50$ dBA) are also exceeded along both sides of TH 169/60. Background noise from Honeymead which varies from 45-60 dBA depending on location, affects daytime L_{50} and nighttime L_{10} and L_{50} at many of the sites in the West Mankato and Sibley Park neighborhoods. At locations away from TH 169/60 and Honeymead, noise levels (dBA) typically drop off to L_{10} = mid 50's, L_{50} = low 50's daytime, and L_{10} = upper 40's, L_{50} = mid 40's nighttime. A detailed analysis of existing noise levels and noise standards is provided in Technical Report #3, "Preliminary Noise Analysis".

46. Air quality data on the concentration of transportation-related pollutants is not available for the Mankato area. However, the Minnesota Pollution Control Agency has evaluated such pollutants on a state-wide basis in the development of its State Implementation Plan (SIP) to achieve and maintain State and Federal ambient air quality standards. Transportation Control Plans have been developed for areas requiring special measures to meet standards for transportation related pollutants. Mankato has not been identified as an area requiring such controls.

Climate

47. The climate of the area is characterized by warm and moderately humid summers, with maximum rainfall generally occurring in the spring and early summer. The annual mean temperature is 46° F., with July the warmest month, averaging 72° F., and January the coldest, averaging 16° F. The area receives an average of approximately 29.5 inches of precipitation per year, about 14 percent of which occurs as snow. The relative humidity averages approximately 70%, with an average annual temperature range of 118 degrees Fahrenheit. Average annual wind velocity is 9.6 miles per hour. The prevailing winter winds are from the northwest and prevailing summer winds from the southeast. Strongest winds are normally from the south or southwest. Severe thunderstorms, and occasionally tornadoes, occur in the area.

Topography

48. The glaciers that once covered this region greatly modified the original surface features of this area. The present Minnesota River and its tributaries now occupy the valley eroded by glacial waters during the last (Wisconsin) stage of glaciation. The Minnesota River from its location on the western boundary of Minnesota flows southeasterly to the study area, where it bends northeast and flows to its confluence with the Mississippi River at Minneapolis-St. Paul. The Blue Earth River originates in south central Minnesota and flows northward to its confluence with the Minnesota River at northwest Mankato.

49. The TH 169/60 study area is located on the lower reaches of the Blue Earth River. The River, where it passes under TH 169/60 bridges, has a narrow valley and steep bluffs. As it flows northward, it bisects Sibley Park, crosses the Minnesota River Valley, and joins the Minnesota River at the north side of the valley. Two remnant outcrops, presumed to be capped by dolomite of the Oneota formation, exist on either side of the Blue Earth River in Sibley Park East and West. Sandstone bluffs, part of the Jordan formation, are exposed on the east (right) bank of the Blue Earth River and along the south (right) side of the Minnesota River Valley. The Bluffs are about 30 to 50 feet south and 40 feet above the existing TH 169/60 roadway.

Geology

50. The Blue Earth River joins the Minnesota River and the two rivers share a common flood plain. The alluvium, underlying the flood plain, averages 50 to 80 feet in thickness and generally consists of a lower unit of sand and gravel and an upper unit of fine sand, silt and clay. Bedrock within the project area consists of deposits from the mid-continental ocean. These deposits, encountered at progressively greater depths, are the Oneota dolomite, Blue Earth siltstone, Jordan sandstone and St. Lawrence dolomite. The bedrock surfaces are between elevations 700 and 740. Jordan sandstone is generally at the upper elevations, while the St. Lawrence formation is at the lower depths. The sandstone bluffs south of TH 169/60 extend up to approximate elevation 810.

Soils and Foundations

51. The underlying soils can support the anticipated heights of earth fill embankments at the TH 169/60 bridge site. For the bridge supports, piling would be required.

52. A discussion of the geological conditions at the site and foundation requirements may be found in "Report No. 2, Soils and Geology" which is on file in the St. Paul District Office, Corps of Engineers.

Hydrology and Hydraulics

53. Summer rainstorms of short duration and high intensity are common in the region. The greatest 24-hour precipitation recorded at Mankato was 7.72 inches on 10 August 1948. While floods on the Minnesota River produce relatively slow changes in stage, flood stage changes on the Blue Earth River are rapid "flashy" and may permit little advance warning of danger. The maximum known flood on the Minnesota at Mankato, 94,100 cfs, occurred in April 1965.

54. The 100-year and standard project floods on the Minnesota River at Mankato have been estimated as 105,000 cfs and 155,000 cfs, respectively. The desired elevation for the SPF at the TH 169/60 crossing is 790.6. It is this elevation on which the design of the flood protection measures has been based.

Natural Resources

55. The principal mineral deposits of the area consist of sand, gravel, limestone, and sandstone. Outside the corporate limits of the cities, sand can be obtained from the Blue Earth River flood-plain area upstream of the TH 169/60 bridge and quarry limestone can be obtained downstream in the vicinity of Madison Avenue.

56. The vegetation of the area surrounding Mankato is primarily related to agriculture. Naturally occurring wooded land lies along rivers, streams and ravines. Additional small areas of man-planted or preserved trees serve as windbreaks and shelters for farmsteads. The area in the vicinity of the TH 169/60 crossing of the Blue Earth is highly disturbed and is populated by weedy species, goldenrod, elm and cottonwood.

57. The wildlife of the area is typical of a highly urbanized southern Minnesota community. Birds include house sparrows, pigeons, starlings, swallows, hawks, chickadees, nuthatches. Animal life includes house mice, squirrels, bats, cottontail rabbits and small rodents.

58. Because of high concentrations of calcium and magnesium, the waters of the Blue Earth and Minnesota Rivers are very hard -- in excess of 180 milligrams per liter. Both rivers are also quite turbid and have a high sediment concentration, mostly clay and silt. Nutrients are quite high which is attributable to runoff from fertilized fields. Industrial and domestic wastes from Mankato and North Mankato receive primary and secondary treatment. Le Hillier sewage is treated in septic tanks. There is no evidence of any major toxic pollution or any heavy metal "hot spots" in the Blue Earth River near the TH 169/60 bridges, and there is no established aquatic community that is intolerant of the high turbidity of the river. The Blue Earth uses under State water pollution control regulations are classified as "2B, Fisheries, and Recreation" and "3B, Industrial Consumption".

59. The work of the Minnesota-Wisconsin PCB Interagency Task Force in 1976 indicates that the game fish in the Minnesota River near Mankato have higher polychlorinated biphenyl (PCB) levels than the fish either upstream or downstream. This strongly suggests that there are one or more "hot spots" for PCB's in the Minnesota River

near Mankato. Ten sediment samples were taken throughout the project area by the Corps of Engineers, one of which was taken at the TH 169/60 bridge site indicating no PCB's or heavy metals present. Existing studies on the transport of PCB's shows that the compounds are nearly all absorbed on silt particles or dissolved in oil or grease. No endangered species of fish are known to exist in the area. Water quality analysis conducted by the United States Geological Survey was furnished by the Corps of Engineers. A detailed description of the natural resources of the area is contained in Technical Report No. 6, "Natural Resources".

Parks and Recreation

60. There are 27 parks in Mankato and 17 in North Mankato. None of these will be affected by any alterations or relocations of the TH 169/60 bridge crossings.

Historic and Archaeological Resources

61. There are a total of 10 historic standing structures which may potentially be impacted by one or more of the alternatives considered herein. Of these, three are listed on the National Register of Historic Places as of 19 September 1980. The remaining seven are currently considered to be potentially eligible for listing on the National Register. For those potentially eligible properties that will be impacted by the selected alternative, the comments of the State Historic Preservation Officer will be sought in order to determine if any of the properties are eligible for inclusion on the National Register. Any impacts to properties listed on or found to be eligible for listing on the National Register will be mitigated in accordance with the Advisory Council on Historic Preservation Guidelines, 36 CFR 800. A detailed description of the historic standing structure resources of the area is contained in Technical Report No. 5, "Historic Resources."

62. In accordance with Section 106 of the National Historic Preservation Act of 1966, the National Register of Historic Places has been consulted. As of 19 September 1980, no archaeological sites are listed on or eligible for inclusion on the National Register within the proposed project areas.

63. An archaeological survey of the proposed project areas will be conducted during 1981. All sites located during this survey will be tested to determine their National Register eligibility. For those sites found to be eligible for the National Register, mitigation will be completed prior to construction in accordance with the guidance of the Advisory Council on Historic Preservation Guidelines, 36 CFR Part 800. The results of this survey will be prepared as Technical Report No. 7, "Archaeological Resources" printed under separate cover.

Utilities

64. As noted earlier, the eastbound bridge (9413) carries four telephone conduits under deck between the north fascia and first interior beams and a 6-inch high pressure gas line is carried on the westbound bridge (4952) on which service must be maintained at all times. Any alteration plan would require provision for carrying these conduits on a new or revised structure. Any bridge revision which would affect street alignments or grades would probably also require alterations to one or more subterranean utility lines.

Institutions Dealing with Resource Management

65. Other than the U.S. Army Corps of Engineers, there is no institution involved in resource management for the project.

Adequacy of Information for Use in the Study

66. The data accumulated under the authority for this project when completed will be adequate for the purposes of this study.

CONDITIONS IF NO FEDERAL ACTION IS TAKEN

67. If the TH 169/60 bridge crossings are not modified, the flood control project, which is now otherwise largely completed, would provide protection for a flood having a frequency of recurrence of about once in 80 years, but not for the SPF. The SPF protection would be provided with appropriate bridge raises and alterations. Pertinent elevations at the TH 169/60 crossing are:

	<u>At TH 169/60 Site</u>
Low steel - existing (steel)	779.5
existing (arch)	Varies
Existing bridges, roadway	784.5
Standard project flood with bridge raises	790.6
Top of project levee	794.6

68. These elevations indicate that the existing bridges would be under water during the SPF event if no action is taken. If the bridges are not raised, or conditions do not alter them,

the levees and flood walls would be overtopped and this would constitute a departure from the intent of the authorizing legislation. Refer to As-Built Drawing No. M34-P-64/115 Stage 2A Flood Barrier, Corps of Engineers.

69. To achieve SPF protection by raising the existing flood walls and levees would prove difficult and extremely costly. Adding to the height of the flood walls would not be practicable without extensive reconstruction. Further, raising the levees would require increasing base widths and would thus involve additional acquisition and other related problems; and there would still remain a material hazard from the collection of ice and debris on the bridges because of their present low and restrictive profiles. Thus, raising the bridges to complete the project is considered essential.

Alternatives of Not Raising Bridges

70. The alternatives to not raising or modifying the two bridges are floodproofing the bridges, constructing new bridges that are hydraulically efficient in combination with upstream barriers, or constructing movable bridges such as lift or swing bridges.

71. Floodproofing the existing bridges by constructing temporary closure walls or sandbagging the roadway openings at all bridges abutments would require advance warning. The Corps of Engineers has determined that the Blue Earth River is a "flashy" rapid rising river during heavy flood periods. Consequently, advance warning may not be present to adequately floodproof the bridges.

72. The alternative of building hydraulically efficient new structures at the present elevations would require the bridges to be submerged during times of severe flooding. This alternative would require extensive reinforcement and bracing which would normally not be required to carry vehicular traffic to provide protection against overturning and drainage from debris and ice. While the new structures can be designed to reduce the backwater effect, conditions would still require raising the in-place upstream levees, and construction of closure walls at all roadway openings.

73. This project also considered the replacement of the existing bridges with lift bridges. The close proximity of the two roadways, rule out the swing type structures. In order to construct this type, the present roadway alignments would have to be separated and altered considerably, which would defeat the intent of holding the approaches as they are. The alternative of constructing a bascule or lift type structure to clear the channel is costly -- about 3 to 4 times as expensive as typical structures.

structures, and impractical for this site. Movable structures would require an attendant at the site in addition to normal inspection and maintenance, to insure continuous vehicular service. This alternate would also require closure walls and floodproofing during high flood stages.

74. If the bridges are not raised or if less than the full channel is spanned, a bridge or a section of one could tip over. Should this occur, this would create a dam effect, causing upstream flood barriers to overtop, and in turn, require these to be raised. In summary, the loss of a bridge and the raising of the upstream flood barriers would cause long term disruption to the community and users.

PLANNING CONSTRAINTS AND OBJECTIVES

75. The objectives of this project are to provide flood protection and to maintain traffic service. To accomplish these objectives, it will be necessary to raise the highway crossing over the river about 17 feet and to modify the approaches to meet the new elevation. Because of the regional characteristics and the existing highway system configuration, there are no practicable alternative locations. The alignment alternatives at the existing location are severely restricted by residential, commercial and industrial development along the existing highway. The maintenance of existing local traffic access, provision for pedestrian travel across the river, and the physical restraints of the rock bluff to the south, establishes the design requirements for the new facilities.

FORMULATION OF PRELIMINARY PLANS

76. This section describes the two-stage formulation of preliminary plans. It sets forth the basic criteria and standard to be met, describes initial (Stage 1) plan formulation including elimination of impracticable alternatives, and summarizes second level (Stage 2) comparative assessments and evaluations. Concluding the two-stage process is the selection of alternative plans for detailed study.

PLAN FORMULATION CRITERIA

77. In developing alternatives, three engineering elements must be considered: flood control, traffic service and highway design.

Flood Control

78. Levees and flood walls have been completed which provide a channel for the SPF design. The resulting channel cross section shown on the plans and profiles in Appendix A indicates

that a total bridge span of 425 feet face to face of abutments is required. The design flood elevation (with bridges raised) is 790.6 feet above mean sea level and the lowest member of the bridge should clear this stage by three feet to provide for the passage of ice and debris.

Traffic Service

79. Average weekday traffic at the TH 169/60 river crossing has been estimated for the design year (2000) as 33,000 vehicles per day, with a peak hour flow of 2900 vehicles per hour. Any contemplated revision to the bridges should be capable of serving these volumes.

80. Any revisions considered should give adequate recognition to access at Hawley Street in Le Hillier and to Minneopa Road in Mankato. In the latter instance, consideration may be given to retaining the existing intersection or to providing alternate routings such as at the Park Lane intersection. Estimated design hour entrance volumes at Minneopa Road are 200 vehicles (including 50 Honeymead trucks) from the south and 60 vehicles from the north. Design hour exit volumes are 270 vehicles (including 50 Honeymead trucks) to the south and 10 vehicles to the north.

81. Since there are no suitable detours, it is essential that adequate provision is made to handle traffic using the existing bridges during the construction period.

Highway Design

82. On the fringe of the central business district (CBD), the expressway section of TH 169/60 would be influenced by any bridge alterations. It is an area where the design speeds are in transition from flat open rural conditions (70 mph) to urban conditions (50 mph), and the design speed for the proposed alteration has therefore been selected as 60 mph. Local streets and ramps are designed for 30 mph. Mn/DOT standards for a 60 mph expressway and 30 mph ramps are:

- Expressway lane width, 12 feet
- Paved left shoulder, 4 feet
- Paved right shoulder, 10 feet
- Ramps, 1-lane paved with, 16 feet
- Maximum grade, main roadway, 3% desirable, 4% absolute
- Maximum grade, ramps, stopping sight distance control
- Maximum degree of curvature, expressway, 4.5°; 1273 ft. radius
- Maximum superelevation, 0.06 foot/foot
- Maximum degree of curvature, ramps, 21°; 273 ft. radius

Maximum rate of vertical curvature $(K = \frac{\text{length of curve}}{\text{Change in grade}})$

Expressway (60 mph) crest, K=257, sag, K=123

Ramps (30 mph) crest, K=29, sag, K=36

Vertical clearance at underpasses, expressways, ramps and arterial streets, 16'4"

(City of Mankato standard for local streets is 14'0")

ANALYSIS OF PLANS, STAGE 1

83. In the comparative analysis of various alternatives, it was found necessary to make four independent determinations:

- a. Analysis of bridge reuse feasibility and practicability
- b. Assessment of location factors for a replacement structure
- c. Appraisal of Le Hillier approach effects
- d. Appraisal of Mankato approach effects

Reuse of Existing Bridges

84. The raising of the downstream rigid, multi-span, reinforced concrete arch bridge (4952) was recognized to be impractical and not feasible and therefore the investigation centered on the possibility of raising and reusing only bridge 9413, the continuous steel stringer bridge.

85. A detailed field inspection and structural analysis of bridge 9413 was conducted and it was concluded that while feasible, it was not practicable to reuse any portion of the structure for the following reasons:

- a. The foundations could not withstand the additional loads and overturning forces that would be imposed by a raise of 17 feet.
- b. The width of the structure would be changed to meet current design standards and under some alternatives the roadway would be tapered at one end and under others it would be curved. Because of the rectangular configuration of the existing roadway, this made reuse of any of the concrete deck or railing impossible.
- c. The steel girders, while in generally good condition, cannot be refabricated to accommodate the changes in span lengths if the structure were raised. The overall length of the structure would be increased at

a higher structure elevation because of the sloping faces of the levees. Additional piers with short end spans would be required. Such modifications would result in a structure which would lack cost effectiveness.

Location Factors for Replacement Structure

86. Because of the infeasibility of raising the arch bridge and the structural and economic problems of modifying the steel bridge the conclusion was inescapable that a new structure replacing the two existing bridges was most desirable. The high volume of traffic carried by these two bridges and the lack of alternative routes made it imperative that traffic be maintained over at least one of these bridges at all times during construction. A capacity analysis shows that Bridge 4952, the downstream arch bridge, having a roadway width of 40 feet could carry all of the traffic in both directions in four narrow lanes at reduced speed. Bridge 9413 on the other hand with a roadway width of 30 feet is able to carry only two lanes of traffic.

87. Several possible locations are apparent but the following restraints are significant:

- a. Any site downstream of the arch bridge would create an infringement on the Honeymead plant on the right bank.
- b. The existing bridges are too close together to permit construction between them without previous demolition of both bridges thus causing an intolerable traffic problem.
- c. Any site at any appreciable distance upstream from the steel bridge would approach or surmount the bluff on the right bank and would seriously infringe on the West Mankato residential neighborhood.

88. Since the existing arch bridge can accommodate all the traffic at reduced speeds, any site chosen should permit retention of the arch bridge as long as possible. Consequently, sites which are considered herein would establish the new bridge centerline in the vicinity of the centerline of the existing steel bridge. Possible alternatives with ramifications of each are illustrated in Figures 6 to 8.

89. The alternatives designated subsequently as 1A, 2A and 3A would have the same basic alignment on the centerline of existing bridge 9413. For Alternatives 1B, 1C, 2B and 3B, two construction procedures were considered (I and II). While traffic would operate

Figure 6

Bridge Location for Alternatives 1A, 2A, and 3A

- Step 1 - Demolish bridge 9413 and carry northbound and southbound traffic on bridge 4952. Construct 50-ft. width of new bridge.
- Step 2 - Divert all traffic to 50-ft. wide portion of new bridge. Construct remainder of new bridge.

Remarks:

- New alignment very close to existing alignment.
- Long construction time (3 to 4 seasons).
- Complex construction due to close proximity of moving traffic during construction operations.
- Traffic operation at slow speeds.

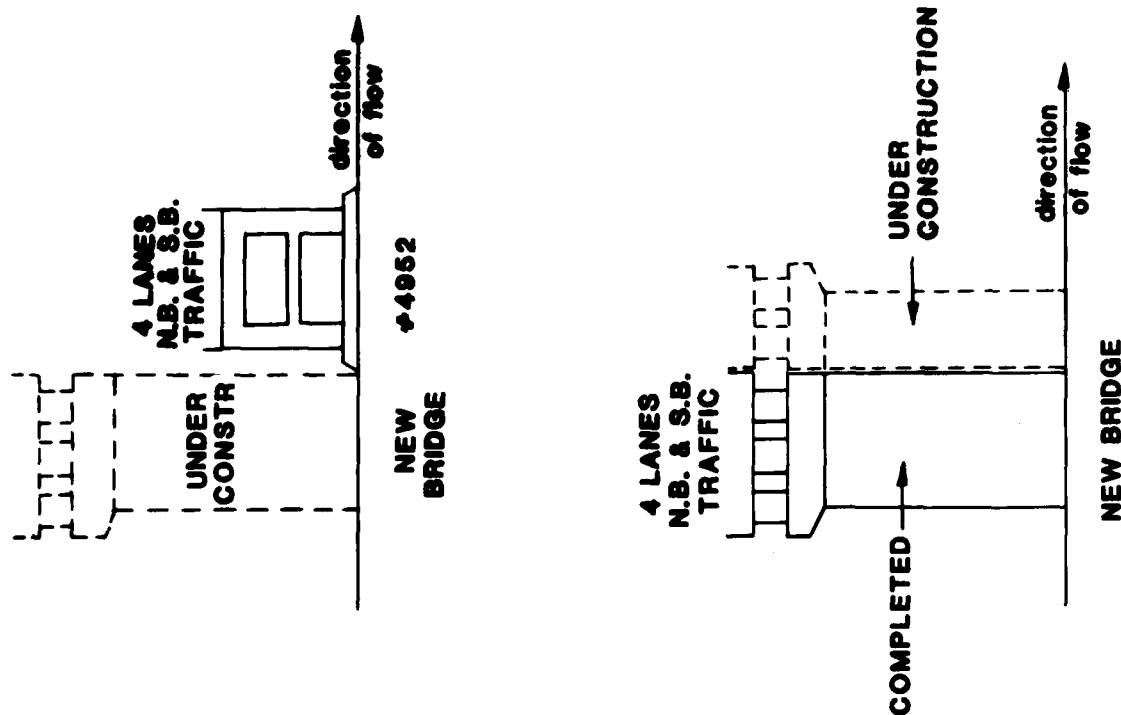


Figure 7

Bridge Location for Alternatives 1B, 1C, 2B, and 3B,
Procedure I

Step 1 - Maintain traffic on existing bridges 9413 and 4952 while constructing northbound half of new bridge.

Step 2 - Demolish bridge 9413 and divert northbound traffic to completed northbound half of new bridge. Continue southbound traffic on bridge 4952 and construct southbound half of new bridge.

Remarks:

- Smooth traffic flow except for interruptions required for construction access to site during Step 2 construction.
- Long construction time (3 to 4 seasons).

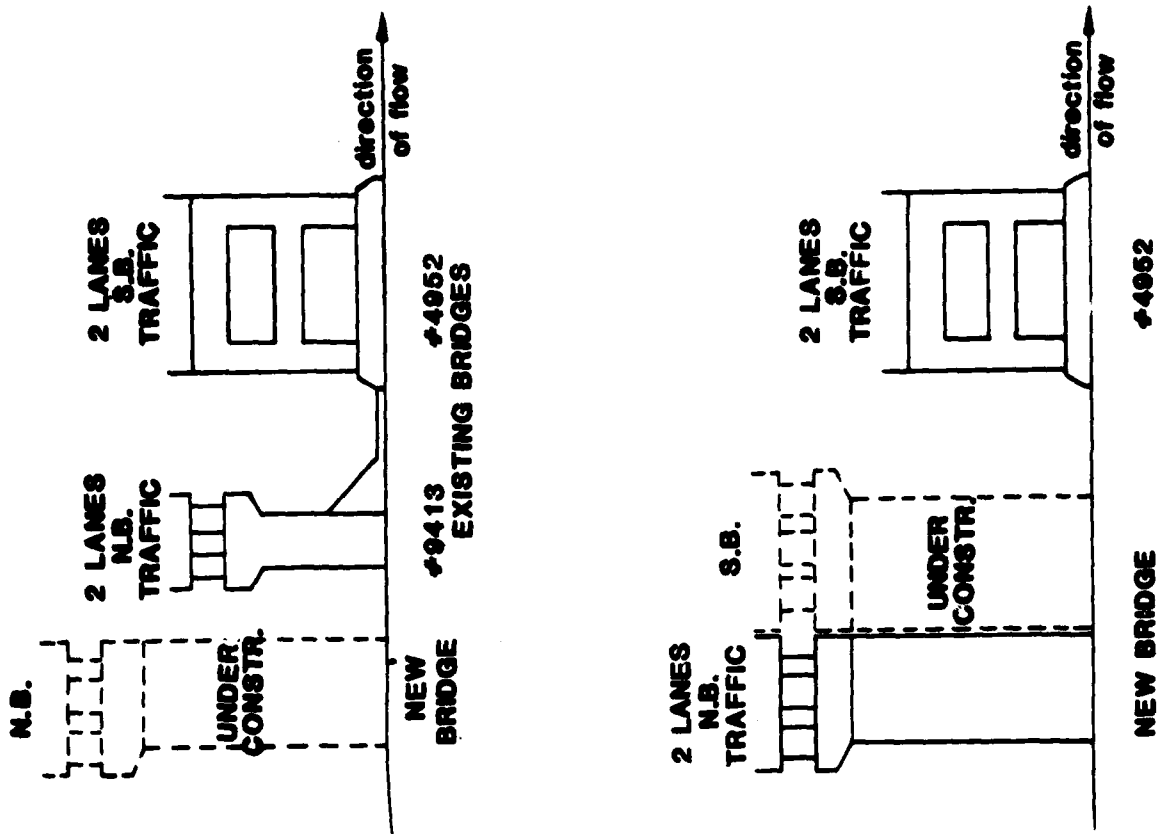


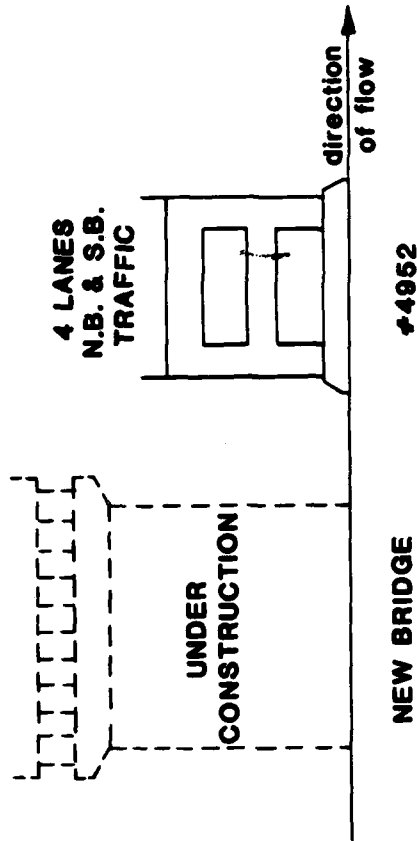
Figure 8

Bridge Location for Alternatives 1B, 1C, 2B, and 3B,
Procedure II (Selected)

Step 1 - Carry northbound and southbound traffic on
bridge 4952. Demolish bridge 9413 and con-
struct entirely new bridge.

Remarks:

- Shortest construction time (2 to 3 seasons).
- Easiest construction process.
- Traffic operation at slow speeds.



at a slower speed during construction under procedure II, the combined advantages of the simpler construction and the significantly shorter construction period of this procedure makes it the more desirable. Procedure I was therefore eliminated from further consideration. Because the approach alignments associated with the two bridge locations differ in their impacts on property and detours during construction, bridge location Alternatives 1A, 1B, 1C, 2A, 2B, 3A and 3B were carried forward to Stage 2 for evaluation.

Le Hillier Approach Effects

90. Alternatives initially considered for the Le Hillier approach included raising or relocating Hawley Street to meet the expected higher elevation of TH 169/60. It was found, however, upon development of the TH 169/60 profile that neither was necessary and that the existing intersection could be retained with minor geometric adjustments for any of the considered alternative plans. A traffic analysis showed that with the proper channelization and turning lanes, the intersections would provide satisfactory capacity and safety for the forecast design year traffic for any plans.

Mankato Approach Effects

91. A wide range of alternatives for the Mankato approach was considered and it appears no unusually difficult construction feature would be encountered for any of the alternative bridge locations described above. The approach alternatives considered were:

- a. Maintain an at-grade intersection with Minneopa Road in the vicinity of the Honeymead plant entrance.
- b. Eliminate any connection to Minneopa Road and modify the ramp terminals at the Park Lane interchange to accommodate the increased traffic.
- c. Eliminate the at-grade intersection with Minneopa Road and build slip ramps to Sibley Street to handle TH 169/60 traffic to and from the south and west. Traffic to and from the north would be accommodated by the Park Lane interchange.
- d. Eliminate the at-grade intersection with Minneopa Road and build ramp connections to Minneopa Road for TH 169/60 traffic to and from the south and west and accommodate TH 169/60 traffic to and from the north by the Park Lane interchange.

- e. Eliminate the at-grade intersection with Minneopa Road and reconstruct the Park Lane interchange to accommodate all of the traffic. (Similar to "b", but with much more extensive reconstruction.) Four different possible configurations were explored.

92. Approach alternatives a and b were obviously the least costly alternatives. Alternative a, the at-grade intersection with Minneopa Road, was examined to determine if it could function without traffic signalization and it was found that before the end of the design period (year 2000), there would not be sufficient gaps in the forecast TH 169/60 traffic to accommodate the turning traffic. Traffic signals could be installed to create gaps, but from a safety standpoint this would be highly undesirable. The intersection would occur in a dip in the profile with limited approach visibility and the signal would be unexpected by the motorist traveling on an otherwise grade-separated section of expressway. This alternative was further examined to determine if it would be feasible to build the at-grade intersection for the immediate future in anticipation of a change when required by traffic. The extensive changes to the bridge that would be required at such a time ruled against this course of action. Major profile changes and deck geometry changes would be required in the future to adapt the bridge to the acceptable long range solutions. For these reasons, this alternative was unacceptable to Mn/DOT.

93. The simple modifications that could be made to the ramp terminals at the Park Lane interchange (Alternative b) without modifying the ramps and their connections to TH 169/60 would not handle existing or forecast traffic volumes. Thus, much more extensive reconstruction, such as under Alternative e, would have to be considered if the Minneopa Road connection were to be closed. Alternatives of the types described in paragraphs c, d, and e were found potentially capable of satisfying traffic requirements and were advanced to second level evaluation. For reasons stated above, alternatives described in paragraphs a and b were eliminated from further consideration.

ANALYSIS OF PLANS - STAGE 2

Description of Plans

94. The basic component alternatives selected in Stage 1 for further analysis were combined into the specific alternative plans described below for assessment and evaluation. All plans would include for the Le Hillier approach essentially the same at-grade intersection and local road adjustment at Hawley Street. The alternatives are:

95. Alternative 1A. Existing river bridge location, with provisions for on and off ramps to Minneopa Road to and from the south. The ramps would meet Minneopa Road west of Woodland Avenue.

96. Alternative 1B. New river bridge location, slightly upstream (south) of existing bridges, with provisions for on and off ramps to Minneopa Road to and from the south. The ramps would meet Minneopa Road west of Woodland Avenue.

97. Alternative 1C. Same as 1B, but the ramps would meet Minneopa Road just east of Woodland Avenue.

98. Alternative 2A. Existing bridge location, with northbound off ramp to Sibley Street and a southbound on ramp from Sibley Street and a southbound on ramp from Minneopa Road.

99. Alternative 2B. New bridge location, slightly upstream of existing bridges, with northbound off ramp to Sibley Street and a southbound on ramp from Minneopa Road.

100. Alternative 3A. River bridges on existing location with major modifications to the Park Lane interchange. No ramps to Minneopa Road.

101. Alternative 3B. River bridges on new location slightly upstream of existing bridges with major modifications to the Park Lane interchange. No ramps to Minneopa Road.

Comparative Assessment and Evaluation

102. The significant differences in impacts between these alternatives were identified in the following categories:

- a. Traffic service and safety
- b. Property acquisitions and relocations
- c. Neighborhood cohesion
- d. Maintenance of traffic during construction
- e. Capital cost

103. Traffic Service and Safety. Alternatives 1A, 1B and 1C all offer excellent traffic service and safety. The small number of trips to and from the north on TH 169/60 which would be diverted from the Minneopa Road intersection can be readily accommodated at the Park Lane interchange. Alternative 1C offers better operating conditions than 1A and 1B in several aspects such as:

- a. The spacing between Hawley Street and the ramp terminals is greater.
- b. The relationship of the exit ramp terminal to the horizontal and vertical alignment of the through roadway is better.
- c. The location of the exit onto Minneopa Road offers smoother flow for the heavy trucking in and out of the Honeymead plant.

104. Alternatives 2A and 2B provide less than desirable traffic service due to the following drawbacks:

- a. Sibley Street is primarily a residential collector street and carries mainly local traffic.
- b. The grade of Sibley Street exceeds 7 percent, which would create very poor and unsafe operating conditions at the intersection of the off ramp and Sibley Street. This is particularly pronounced for heavy trucks. This relatively steep grade continues almost to the intersection with Minneopa Road. Heavy trucks destined for the Honeymead plant would have to make a left turn at this intersection and double back to the plant. Alterations to Sibley Street to reduce the grade would extend several blocks into the neighborhood and would produce a 3 percent reduction in the grade at best.
- c. A major school access route follows the east side of Sibley Street crossing Minneopa Road at the intersection. The safety of the children using this route would be jeopardized by the increased traffic from an off ramp into Sibley Street under the conditions that would exist.

105. Alternatives 3A and 3B were investigated to determine if reconstruction of the Park Lane interchange to full design standards for a diamond interchange would accommodate traffic diverted from a closed Minneopa Road intersection. Capacity analyses indicated that ramp terminal turning conflicts and southbound on ramp demands would exceed the design capacity of a rebuilt diamond interchange. Elimination of these deficiencies would require the construction of a loop on ramp for southbound traffic and extensive changes to the TH 169/60 Northstar Bridge to accommodate acceleration and deceleration lanes, improvements that would likely extend into the Lookout Drive-Center Street-Sherman Street interchange across the Minnesota River. Costs, property acquisitions and neighborhood disruption for such improvements would be prohibitive. While improvements to the Park Lane interchange will be needed

with or without the added traffic from Minneopa Road, accommodation of Minneopa Road traffic at another location would postpone construction of such improvements and reduce their ultimate cost and complexity.

106. Two other adverse traffic impacts would be present if all Minneopa Road traffic were diverted to the Park Lane interchange.

- a. The diverted traffic would have an average increase in travel of 5/6 of a mile per vehicle.
- b. The diverted industrial traffic would come into conflict with the school crossing at Sibley Street.

107. For the above reasons, Alternatives 3A and 3B were eliminated from further consideration in Stage 2 analyses.

108. Property Acquisitions and Relocations. Table 4 summarizes the direct effects on families, special groups and businesses.

TABLE 4. DISPLACEMENTS

<u>EFFECT</u>	<u>ALTERNATIVE</u>				
	<u>1A</u>	<u>1B</u>	<u>1C</u>	<u>2A</u>	<u>2B</u>
Residential Displacements					
Families	7	10	12	12	15
Partial Acquisitions	7	6	5	3	2
Low Income Individuals	2	3	3	4	5
Aged Individuals	1	1	5	7	7
Minority Individuals	0	0	0	2	2
Business Displacements					
Commercial	0	0	1	0	0
Partial Acquisitions	1	1	1	0	0
Employees Full Time	0	0	3	0	0
Employees Part Time	0	0	1	0	0

109. Neighborhood Cohesion. Alternatives 2A and 2B would have significant adverse impacts on the West Mankato neighborhood compared to Alternatives 1A, 1B and 1C. The ramp location on Sibley Street not only intrudes physically into the neighborhood, but would bring heavy industrial truck traffic directly into a block which is exclusively residential. The removal of the row of houses on the north side of West 6th Street between Carney Avenue and Sibley Street would reduce the attractiveness of the south side of the street for residence. The residents of the area responded very negatively to the proposed ramp at Sibley Street, indicating that reduced property values, noise, increased traffic and reduced safety were unacceptable impacts of these alternatives.

110. Maintenance of Traffic During Construction. General construction sequences developed for the five alternatives (1A, 1B, 1C, 2A and 2B) revealed the distinct disadvantages for Alternatives 1A and 2A, the river bridge construction site. Because the location of the new bridge would be at approximately the same location as the existing bridge, half of the new bridge would have to be built at a time, thus extending the construction period at least one additional construction season beyond the time requirement for Alternatives 1B, 1C and 2B. The need for the ramp underpass in Alternatives 1A, 1B and 1C would result in a reduction in standards for the bypass road for these alternatives. Alternatives 2A and 2B would not require the additional bypass. A portion of Minneopa Road west of Sibley Street would be used as bypass roadway in all alternatives. Construction activities for Alternatives 1A and 2A would be closer to the bypass than for Alternatives 1B, 1C and 2B and therefore would require more temporary sheeting of fill materials and a tighter construction work area. Temporary sheeting would be required along the median between the Minneopa Road bypass and the new construction on the Le Hillier side. Alternatives 1A and 2A would require temporary sheeting to retain fills of about 18 feet, whereas Alternatives 1B, 1C and 2B would require temporary sheeting to retain fills between 10 to 15 feet. It is more likely that the permanent retaining wall would be built east of the river eliminating the need for temporary sheeting. The lower fill height on the Mankato approach would create fewer construction interferences under Alternatives 2A and 2B than under 1A, 1B, and 1C. Ranking alternatives from least to most construction disruptions would be: 2B, 1B, 1C, 2A and 1A, with 1B and 1C being practically equal.

111. Capital Cost. The viable alternatives ranking in terms of estimated capital costs (1980 price levels) is shown in Table 5.

TABLE 5. CAPITAL COST COMPARISON

<u>Alternative</u>	<u>Construction</u>	<u>Right-of-Way</u>	<u>Total</u>
2A	\$ 8,836,000	\$ 738,000	\$ 9,574,000
2B	8,872,000	801,000	9,673,000
1C	10,604,000	758,000	11,362,000
1B	11,280,000	532,000	11,813,000
1A	11,793,000	465,000	12,258,000

Conclusions

112. Of the seven alternative plans considered initially, major reconstructions of the Park Lane interchange (Alternatives 3A and 3B and variations) were deemed not to be appropriate or satisfactory solutions to the problems created by the proposed bridge raise. Alternative 2B was judged to be more desirable than Alternative 2A because of its significantly lower disruption during construction. However, neither

Alternative 2A or 2B was acceptable to the public because of their negative neighborhood, traffic service and safety impacts; thus, Alternatives 2A and 2B were eliminated from further consideration. Although Alternatives 1B and 1C have slightly more property acquisitions and relocations than Alternative 1A, these were not considered excessive. The greater disruption during construction of Alternative 1A was felt to be significant enough to eliminate this Alternative. Alternatives 1B and 1C were selected for detailed evaluation.

ASSESSMENT AND EVALUATION OF ALTERNATIVES

113. Alternatives 1B and 1C were each subjected to detailed impact assessment and to an evaluation and tradeoff analysis during Stage 3 planning. Mitigation requirements, implementation responsibilities and public views were also identified for each Alternative.

ALTERNATIVE 1B

Description

114. The plan and profile are shown in Appendix A on Plates A-1 to A-4. TH 169/60 would remain a four lane divided highway with two 12-foot lanes in each direction with paved shoulders (10-foot on right and 4-foot on left) as shown in the typical cross sections, Plate A-9.

Impact Assessment

115. Land Use Patterns. The improved access afforded is expected to reinforce the current industrial trend in the south Sibley Park neighborhood. There are no community development plans affected by the proposed project.

116. Flood Plain Regulations. The project is designed to be compatible with flood plain regulations.

117. Topography. Topographic changes would be limited to:

- a. The raise in elevation of the roadway on the bridge approaches.
- b. Excavation into the bluff line varying from 50 to 120 feet over a distance of 1000 feet.
- c. Excavation for borrow in the amount of about 232,000 cubic yards.

118. Soils and Geology. No significant impacts on soils or geology are anticipated.

119. Water Quality. Excavation will be required in the river for placement of the bridge foundations. PCB's have been found in fish in the adjacent stretch of the Minnesota River and may be present in the bottom sediments. Release of these sediments during construction

would cause these contaminants to be transported downstream. Also the temporary increase in sediment load in the river during construction would be undesirable. The potential for small oil spills during construction exists. No other effects on ground or surface water quality are anticipated.

120. Aquatic Ecosystems. Impacts on the aquatic environment would be minimal, provided that appropriate construction procedures are taken to minimize disruption of bottom sediments and increased turbidity. Special construction procedures would require the construction of cofferdams prior to excavation for substructures. Disposal of excavated material to approved sites, settlement of sediments and turbidity within the dams would also be required prior to pumping of fluids into the river. Procedures would require existing substructures be excavated or removed to within four feet below the river bottom.

121. Vegetation and Wildlife. Alteration of the bluff along TH 60 would eliminate scattered trees and shrubs and numerous cavities used for nesting by swallows. Upon completion of construction, approximately the same amount of bluff face would exist as at present. Some shade trees and landscape shrubs would be removed on the properties acquired for construction. None of the sites affected by the construction of TH 169/60 contain specific plants, communities of plants or a functional wildlife potential that would warrant exclusion of any of the alternatives. The proposed bridge alterations will not significantly impact any wildlife species within the project area.

122. Waste Disposal. Sediments excavated from the river bottom must be deposited in properly controlled sanitary landfills. The remains of bridge 4952 (concrete arch) would be suitable for fill and rip rap, but because of the construction sequence, it could not be used on this project. Materials such as the structural steel from bridge 9413 can be salvaged.

123. Families Affected. Alternative 1B would displace 10 households and acquire land from 6 others. Three of the families displaced are low income and one elderly person would be displaced.

124. Community Services. No community services would be affected.

125. Community Cohesion. Of the ten displacements, removal of seven dwellings from the edge of West Mankato bluff neighborhood and three from Le Hillier would alter neighborhood character for the adjoining non-displaced residences, but should not significantly affect community cohesion. The neighborhoods would remain substantially intact and none of the facilities would divide or significantly intrude into existing neighborhoods.

126. Parks and Recreation. No parks or recreation facilities would be affected. The provision of sidewalks on the river bridges and approaches would maintain pedestrian and bicycle travel through the corridor.

127. Historic Properties. Under this alternative, one potentially eligible property, a home at 712 Blue Earth Street, would be acquired for right-of-way. Should this alternative be selected, a determination of eligibility in consultation with the State Historic Preservation Officer would need to be undertaken on this property. If it is found to be eligible for inclusion on the National Register, any impacts would need to be mitigated in accordance with the Advisory Council Guidelines, 36 CFR 800. Two other properties of local interest (at 713 Blue Earth Street and 902 Woodland Avenue) would be indirectly affected since houses across the street in both instances would be removed to provide additional right-of-way for the project, thus diminishing the attractiveness of the surrounding environment.

128. Aesthetics. The higher, longer and wider bridge, roadways, embankments and retaining walls would increase the visual dominance of these features on the landscape. This visual effect would be minimized by the replacement of the existing steel and concrete arch bridges with two bridges that are similar in construction.

129. Public Utilities. The following public utilities would be affected by the construction:

- a. A 6-inch gas line on bridge 4952 and along Minneopa Road which must be kept in service at all times.
- b. An 8-inch sanitary sewer crossing under existing TH 169/60 at Woodland Avenue, extended, would require replacement.
- c. Telephone lines (in ducts) on bridge 9413 would require temporary relocation during construction.
- d. A high voltage transmission line crossing the river upstream of the existing bridges would require relocation.
- e. A high voltage power line crossing TH 169/60 at Woodland Avenue and some local distribution lines would require relocation.
- f. Provisions for future water and sewer lines to serve Le Hillier from Mankato would be required.

130. Businesses Affected. No businesses would be displaced. Partial acquisition would be made from one business in Mankato. No employees would be displaced.

131. Economic Activity. The improved facility should provide a slight economic stimulus in the south Sibley Park area along Minneopa Road.

132. Tax Loss. Direct annual tax loss because of property acquisitions is estimated at \$2,800.

133. Property Values. Values of commercial and industrial properties in the south Sibley area could be expected to rise slightly. No effect would be expected on residential properties.

134. Access. Vehicle access would be significantly improved on the Mankato side of the river by the replacement of the at-grade intersection with the ramp system. Pedestrian access would be improved by the grade-separated crossing along the upstream (south) side of TH 169/60.

135. Travel Cost. Negligible changes in travel cost are anticipated.

136. Capacity and Congestion. Adequate capacity is provided to meet design year traffic demands on the bridge and at adjoining intersections.

137. Traffic Safety. This design would eliminate a hazardous at-grade intersection of TH 169/60 and Minneopa Road and would provide additional pedestrian safety compared to present conditions. The closeness of the Minneopa Road off and on ramps to the Hawley Street intersection is a drawback of this alternative. The 1000 foot distance which represents less than 14 seconds of travel time at 50 mph, from Hawley Street to the beginning of the northbound off ramp, is less than desirable. The profile would provide only about 450 feet of visibility to the beginning of the off ramp, or about six seconds travel time. This is barely adequate compared to the 10 second "desirable" standard. Similarly, the merging and weaving movements from the southbound on ramp to Hawley Street would be restricted to minimum conditions.

138. Systems Consideration. The Minneopa Road intersection would be close to trips to and from the north on TH 169/60, but these trips would be served at the Park Lane interchange, thus maintaining full system service.

139. Traffic Maintenance During Construction. To maintain traffic during construction, a four-lane bypass road would be constructed between Hawley Street and Sibley Street using the existing concrete arch bridge (4952). This would generally follow the south (west) bound roadway from Hawley Street to the river and then follow Minneopa Road until it passes the site of the new off ramp bridge. It would then rejoin the existing expressway just west of the Sibley Street Bridge. This bypass would permit construction of both bridges concurrently with traffic interference only from construction vehicles entering and leaving the construction site. Traffic would operate at reduced speeds throughout the bypass. Construction of the southbound on-ramp could not be completed until through traffic was operating on the new bridge.

140. Other Construction Impacts. Some blasting may be required to excavate the rock in the bluff east of the river.

141. Air Quality. No significant impact on air quality is anticipated either during or after construction.

142. Noise. The combined effect of a new northbound off ramp, the raised profile of TH 169 and traffic growth would increase noise levels by 4 to 7 dBA in the portion of the West Mankato neighborhood adjoining the new ramp. The number of sites exceeding State day-time standards would increase from 18 to 32 despite the displacement of six sites currently over the standards. Construction of a noise wall to mitigate the increase is under consideration. Small noise level increases of 0-4 dBA can be expected at other adjoining properties by the design year (2000) due to normal traffic growth with or without the proposed project.

Evaluation and Tradeoff Analysis

143. In addition to meeting the requirements for flood control, this alternative would provide improved vehicle and pedestrian access and safety and would be generally compatible with existing land use and social and economic conditions. This would be accomplished at the expense of some residential property acquisition and family displacements, a slight increase in noise levels and a small reduction in aesthetic qualities. Significant disruption to traffic, and some inconvenience to residents in the immediate vicinity would occur during construction. Some disturbance of river bottom sediments might occur during the construction of river bridge foundations and the removal of existing bridges.

Mitigation Requirements

144. The Corps of Engineers would work with displaced persons to the greatest extent possible to ease the difficulties of displacement and relocation. Special attention would be necessary for three low income families and one senior citizen.

145. The larger scale of the highway and bridge would create the main aesthetic impact. This could be softened by careful attention to design details. Another impact would relate to the higher elevation of the through roadway which might be visually objectionable from homes in Le Hillier and on the bluff in Mankato. The impacts on the bluff homes could be mitigated in part by landscaping and the adjustment of sight lines resulting from construction of noise abatement structures. Landscaping of the embankment in Le Hillier would also be helpful. Existing vegetation lost to construction will be mitigated by replacement landscaping in like kind or better. The

most significant mitigating effect would be the reconstruction of an attractive well-proportioned bridge and attractive retaining walls.

146. Construction of a noise abatement wall or combined wall/mound at the edge of the bluff line adjoining TH 169 between the new bridge and Sibley Street is under consideration to mitigate noise increases in the West Mankato neighborhood.

147. To minimize disruptions during construction, specific requirements for maintenance of traffic and performance of work directly affecting the public would be written into the construction specifications. Construction staging and temporary bypass roads will permit the river crossing to remain open throughout the construction process. The impact of construction noise under either alternative can be minimized by restricting the hours of construction activity, utilizing the quietest equipment available, construction of temporary barriers, and by careful attention to see that all equipment is properly muffled. Minnesota Standard Specifications for Highway Construction, Section 7, Subsection 17.C2, states, in part, that the contractor shall comply with all applicable laws, ordinances, regulations, orders and decrees in the performance of construction. Special control of blasting for rock excavation would be required because of the close proximity of residences resting on the same formations. Potential water quality and aquatic life disturbances can be minimized by careful control of construction operation in the river and disposal of excavated sediments at approved disposal sites.

Implementation Responsibilities

148. Under the modifications to the 1976 Water Resources Development Act, P.L. 94-587, approved 22 October 1976, the TH 169/60 bridge replacement is to be constructed entirely at Federal expense. Under this law, any betterments would be local responsibilities. Two are anticipated for future water and sewer lines under the river between Mankato and Le Hillier. Responsibility for financing and construction would lie with the Corps of Engineers. Roadway and bridge design criteria would be the responsibility of the Minnesota Department of Transportation.

149. At current 1980 price levels, the total first costs for this alternative is \$11,813,000. This amount includes the local or non-Federal cost of \$1,000 for utility betterments. See Appendix B for detailed cost estimates.

Public Views

150. Federal Agencies. The National Park Service has advised that it has no responsibilities relative to the project. The Economic Development Administration (EDA) has advised that neither Blue Earth

nor Nicollet Counties are designated redevelopment areas under the Public Works and Development Act of 1965, as amended. Consequently, public works projects in these areas are not eligible for financial assistance through EDA. The U.S. Coast Guard advised that the section of river under study has been placed in the "advance approval" category and therefore a bridge permit will not be required, but measures to prevent oil spills during construction should be included in the plans. The Advisory Council on Historic Preservation and the Heritage Conservation and Recreation Service have provided information on cultural and historic resources and will comment on the Draft EIS. All other Federal agencies have withheld comment until the Draft EIS has been submitted for review.

151. State and County Agencies. The staff of the Minnesota State Historic Preservation Office reviewed, on site, the historic resources of the project area and the first draft of the Historic Resources Report. Their oral responses resulting from this review have been incorporated in that report and are reflected in the evaluation of impacts on the historical resources.

152. Other state agencies and county agencies have indicated they will comment on the Draft EIS when submitted.

153. Others. Citizens and private interests showed vital concern over the project and participated actively at every opportunity. General concern was expressed over the potential for increased noise at residences along the bluff in West Mankato, in the Sibley Park neighborhood and in Le Hillier. Mitigation measures were described at the public information meeting on 30 May 1979.

ALTERNATIVE 1C

Description

154. The plan and profile are shown in Appendix A on Plates A-5 to A-8. TH 169/60 would remain basically a four-lane divided highway with two 12-foot lanes in each direction with paved shoulders (10-foot on right and 4-foot on left) as shown in the typical cross sections, Plate A-10.

Impact Assessment

155. Land Use Patterns. The improved access afforded is expected to reinforce the current industrial trend in the south Sibley Park neighborhood. There are no community development plans affected by the proposed project.

156. Flood Plain Regulations. The project is designed to be compatible with flood plain regulations.

157. Topography. Topographic changes would be limited to:

- a. The raise in elevation of the roadway on the bridge approaches.
- b. Excavation into the bluff line varying from 50 to 120 feet over a distance of 1000 feet.
- c. Excavation for borrow in the amount of about 232 000 cubic yards.

158. Soils and Geology. No significant impacts on soils or geology are anticipated.

159. Water Quality. Excavation will be required in the river for placement of the bridge foundations. PCB's have been found in fish in the adjacent stretch of the Minnesota River and may be present in the bottom sediments. Release of these sediments during construction would cause these contaminants to be transported downstream. Also the temporary increase in sediment load in the river during construction would be undesirable. The potential for small oil spills during construction exists. No other effects on ground or surface water quality are anticipated.

160. Aquatic Ecosystems. Impacts on the aquatic environment would be minimal, provided that appropriate construction procedures are taken to minimize disruption of bottom sediments and increased turbidity. Special construction procedures would require the construction of cofferdams prior to excavation for substructures. Disposal of excavated material to approved sites, settlement of sediments and turbidity within the dams would also be required prior to pumping of fluids into the river. Procedures would require existing substructures be excavated or removed to within four feet below the river bottom.

161. Vegatation and Wildlife. Alteration of the bluff along TH 60 would eliminate scattered trees and shrubs and numerous cavities used for nesting by swallows. Upon completion of construction, approximately the same amount of bluff face would exist as at present. Some shade trees and landscape shrubs would be removed on the properties acquired for construction. None of the sites affected by the construction of TH 169/60 contain specific plants, communities of plants or a functional wildlife potential that would warrant exclusion of any of the alternatives. The proposed bridge alterations will not affect or impact any wildlife species within the project area.

162. Waste Disposal. Sediments excavated from the river bottom must be disposed of in properly controlled sanitary landfills. The remains of bridge 4952 (concrete arch) would be suitable for fill and rip rap, but because of the construction sequence, it could not be used on this project. Materials such as the structural steel from bridge 9413 can be salvaged.

163. Families Affected. Alternative 1C would displace 12 families and acquire land from five others. Three of the families displaced are low income and five elderly persons would be displaced.

164. Community Services. No community services would be affected.

165. Community Cohesion. Of the twelve displacements, removal of seven dwellings from the West Mankato bluff neighborhood, two from the South Sibley Park neighborhood, and three from Le Hillier would alter neighborhood character for the adjoining non-displaced residences, but should not significantly affect community cohesion. The neighborhoods would remain substantially intact and none of the facilities would divide or significantly intrude into the neighborhoods. West Seventh Street would be relocated for a half block at the top of the excavated bluff to maintain the local street system continuity.

166. Parks and Recreation. No parks or recreation facilities would be affected. The provision of sidewalks on the river bridges and approaches would maintain pedestrian and bicycle travel through the corridor.

167. Historic Properties. Under alternative 1C, two potentially eligible standing structures of local historic interest (610 Seventh Street West and 902 Woodland Avenue) would be indirectly affected. The surrounding visual environment of the structure at 610 Seventh Street West would be altered by the removal of four houses in the block to accommodate the redesign of the connection between Woodland Avenue and West Seventh Street. The surrounding environment of the structure at 902 Woodland Avenue would be altered by the removal of three neighboring houses for the project right-of-way.

168. Aesthetics. The higher, longer and wider bridge, roadways, embankments and retaining walls would increase the visual dominance of these features on the landscape. This visual effect would be minimized by the replacement of the existing steel and concrete arch bridges with two bridges that are similar in construction.

169. Public Utilities. The following public utilities would be affected by the construction:

- a. A 6-inch gas line on bridge 4952 and along Minneopa Road which must be kept in service at all times.

- b. An 8-inch sanitary sewer crossing existing TH 169 at Woodland Avenue, extended, would require replacement.
- c. Telephone lines (in ducts) on bridge 9413 would require temporary relocation during construction.
- d. A high voltage transmission line crossing the river up stream of the existing bridges would require relocation.
- e. A high voltage power line crossing TH 169/60 at Woodland Avenue and some local distribution lines would require relocation.
- f. Provisions for future water and sewer lines to serve Le Hillier from Mankato would be required.

170. Business Affected. One business would be displaced. Partial acquisitions would be made from one other business in Le Hillier and Mankato. Three full time employees and one part-time employee would be displaced.

171. Economic Activity. The improved facility should provide a slight economic stimulus in the south Sibley Park area along Minneopa Road.

172. Tax Loss. Direct annual tax loss because of property acquisitions is estimated at \$5,400.

173. Property Values. Values of commercial and industrial properties in the south Sibley area could be expected to rise slightly. A slightly depressing effect would be expected on residential properties on West Fifth Street between Woodland and Carney Avenue.

174. Access. Vehicle access would be significantly improved on the Mankato side of the river by the replacement of the at-grade intersection with the ramp system. Pedestrian access would be improved by the grade-separated crossing along the upstream (south) side of TH 169/60.

175. Travel Cost. Negligible changes in travel cost would be anticipated.

176. Capacity and Congestion. Adequate capacity is provided to meet design year traffic demands on the bridge and at adjoining intersections.

177. Traffic Safety. This design would eliminate a hazardous at-grade intersection of TH 169/60 and Minneopa Road and would provide additional pedestrian safety over present conditions. The Minneopa

Road on and off ramps would be 1500 feet, or 20 seconds of travel time at 50 mph, from the Hawley Street intersection. The profile would provide visibility of the beginning of the off ramp from about 700 feet. At 50 mph, 700 feet is equal to almost 10 seconds of travel time, the "desirable" minimum. The 1800 foot length of the auxiliary lane between the Minneopa Road southbound on ramp and Hawley Street would provide satisfactory conditions for the anticipated weaving and merging traffic.

178. Systems Consideration. The Minneopa Road intersection would be closed to trips to and from the north on TH 169/60, but these trips would be served at the Park Lane interchange thus maintaining full system service.

179. Traffic Maintenance During Construction. To maintain traffic during construction, a four-lane bypass road would be constructed between Hawley Street and Sibley Street using the existing concrete arch bridge (4952). This would generally follow the south (west) bound roadway from Hawley Street to the river then follow Minneopa Road until it passed the site of the new off ramp bridge. It would then rejoin the existing expressway just west of the Sibley Street bridge. This bypass would permit construction of both bridges concurrently with traffic interference only from construction vehicles entering and leaving the construction site. Traffic would operate at reduced speeds throughout the bypass. A relatively steep five percent grade would be required on the temporary road between Minneopa Road and the Sibley Street Bridge.

180. Other Construction Impacts. Some blasting may be required to excavate the rock in the bluff east of the river.

181. Air Quality. No significant impact on air quality is anticipated either during or after construction.

182. Noise. The combined effect of a new northbound off ramp, the raised profile of TH 169 and traffic growth would increase noise levels by 4 to 7 dBA in the portion of the West Mankato neighborhood adjoining the new ramp. The number of sites at this location, exceeding State daytime standards, would increase from 18 to 29, despite the displacement of six sites currently over the standards. Construction of a noise wall to mitigate the increase is under consideration. Small noise level increases of 0-4 dBA can be expected at most other adjoining properties by the design year (2000) due to normal traffic growth with or without the proposed project.

Evaluation and Tradeoff Analysis

183. In addition to meeting the requirements for flood control, this alternative would provide improved vehicle and pedestrian access and safety and would be generally compatible with existing land use and social and economic conditions. This would be accomplished at the expense of some business and residential property acquisitions and family and business displacements, a slight increase in noise levels and a small reduction in aesthetic qualities. Significant disruption to traffic, and some inconvenience to residents in the immediate vicinity would occur during construction. Some disturbance of river bottom sediments might occur during the construction of river bridge foundations and the removal of existing bridges.

Mitigation Requirements

184. Displacements and Relocations. The Corps of Engineers would work with displaced persons to the greatest extent possible to ease the difficulties of displacement and relocation. Special attention would be necessary for three low income families and five senior citizens.

185. The larger scale of the highway and bridge would create the main aesthetic impact. This could be softened by careful attention to design details. Another impact would relate to the higher elevation of the through roadway which might be visually objectionable to homes in the Le Hillier and on the bluff in Mankato. The impacts on the bluff homes could be mitigated in part by landscaping and the adjustment of sight lines resulting from construction of noise abatement structures. Landscaping of the embankment in Le Hillier would also be helpful. Existing vegetation lost to construction will be mitigated by replacement landscaping in like kind or better. The most significant mitigating effect would be the construction of an attractive, well-proportioned bridge and attractive retaining walls.

186. Construction of a noise abatement wall or combined wall/mound at the edge of the bluff line adjoining TH 169 between the new bridge and Sibley Street is under consideration to mitigate noise increases in the West Mankato neighborhood.

187. To minimize disruptions during construction, specific requirements for maintenance of traffic and performance of work directly affecting the public would be written into the construction specifications. Construction staging and temporary bypass roads will permit the river crossing to remain open throughout the construction process. The impact of construction noise under either alternative can be minimized by restricting the hours of construction activity, utilizing the quietest equipment available, construction of temporary barriers, and by careful attention to see that all equipment is properly muffled. Minnesota Standard Specifications for Highway Construction, Section 7, Subsection 17.C2, states, in part, that the contractor shall comply with all applicable laws, ordinances, regulations, orders, and decrees

X

in the performance of construction. Special control of blasting for rock excavation would be required because of the close proximity of residences resting on the same formations. Potential water quality and aquatic life disturbances can be minimized by careful control of construction operations in the river and disposal of excavated sediments at approved disposal sites.

Implementation Responsibilities

188. Under the modifications to the 1976 Water Resources Development Act, P.L. 96-587, approved 22 October 1976, the TH 169/60 bridge replacement is to be constructed entirely at Federal expense. Under this law, any betterments would be local responsibilities. Two are anticipated for future water and sewer lines under the river between Mankato and Le Hillier. Responsibility for financing and construction would lie with the Corps of Engineers. Roadway and bridge design criteria would be the responsibility of the Minnesota Department of Transportation.

189. At current 1980 price levels, the total first costs for this alternative is \$11,362,000. This amount includes the local or non-Federal cost of \$1,000 for utility betterments. See Appendix B for detailed cost estimates.

Public Views

190. Federal Agencies. The National Park Service has advised that it has no responsibilities relative to the project. The Economic Development Administration (EDA) has advised that neither Blue Earth nor Nicollet Counties are designated redevelopment areas under the Public Works and Development Act of 1965, as amended. Consequently, public works projects in these areas are not eligible for financial assistance through EDA. The U.S. Coast Guard advised that the section of river under study has been placed in the "advance approval" category and therefore a bridge permit will not be required, but measures to prevent oil spills during construction should be included in the plans. The Advisory Council on Historic Preservation and the Heritage Conservation and Recreation Service have provided information on cultural and historic resources and will comment on the Draft EIS. All other Federal agencies have withheld comment until the Draft EIS has been submitted for review.

191. State and County Agencies. The staff of the Minnesota State Historic Preservation Office reviewed, on site, the historic resources of the project area and the first draft of the Historic Resources Report. Their oral responses resulting from this review have been incorporated in that report and are reflected in the evaluation of impacts on the historical resources.

192. Other state agencies and county agencies have indicated they will comment on the Draft EIS when submitted.

193. Others. Citizens and private interests showed vital concern over the project and participated actively at every opportunity. General concern was expressed over the potential for increased noise at residences along the bluff in West Mankato, in the Sibley Park neighborhood and in Le Hillier. Mitigation measures were described at the public information meeting on 30 May 1979. Representatives of Honey-mead Company stated that this alternative fit well with their operations.

COMPARISON OF DETAILED PLANS

194. Evaluation of the two alternative plans revealed that they have significant differences in impacts in a limited number of categories and that the differences between them are small in most instances. These categories are:

1. Displacements (families and businesses affected)
2. Tax loss
3. Historic properties
4. Property values
5. Traffic safety
6. Traffic maintenance during construction
7. Cost

COMPARISON OF DETAILED PLANS

Displacements (Families and Businesses Affected)

195. The impacts on displacements of families and businesses affected are compared below:

	<u>1 B</u>	<u>1 C</u>
Households displaced (total)	10	12
Low income	3	3
Elderly persons	1	5
Partial residential acquisitions	6	5
Businesses affected		
Displaced	0	1
Employees	0	3 Full time, 1 Part time
Partial property acquisitions	1	1

196. This comparison illustrates that the displacement impacts would be somewhat less under Alternative 1B than under 1C. Technical Report No. 4, "Social and Economic Resources" indicated that no unusual difficulties are anticipated in relocating displaced persons and businesses.

Tax Loss

197. The direct property tax loss associated with the necessary property acquisition would be \$2,800 for 1B and \$5,400 for 1C, a small advantage favoring 1B.

Historic Properties

198. One house of local historic interest would be displaced under Alternative 1B, otherwise the impact on historic properties would be small and indirect under either alternatives.

Property Values

199. Alternative 1C could have a small depressing effect on the value of about 6 residential properties on West Fifth Street in the vicinity of the Minneopa Road, Ramp intersection. Essentially the same slight increase in commercial property values in the Sibley area would be expected under both alternatives.

Traffic Safety

200. The greater spacing between Hawley Street and the Minneopa Road ramps provided under Alternative 1C would result in operating conditions on this section of TH 169/60 meeting desirable minimum standards, whereas, under Alternative 1B conditions would be barely acceptable.

Traffic Maintenance During Construction

201. Alternative 1B would offer a slightly better grade than 1C on the bypass road between the proposed ramp bridge site and the reconnection to the existing TH 169/60 at the Sibley Street overpass, but because the width of its river bridge is greater than 1C, it encroaches on the existing Minneopa at the east abutment. This would delay completion of the southbound on-ramp until after through traffic was routed over the partially completed new bridge. This would be a small additional complication in the sequence of construction and maintenance of traffic.

Cost

202. Alternative 1C is estimated to cost \$11,362,000 or \$451,000 (approximately 4%) less than 1B. The reason for 1C being lower in cost is due primarily to the reduced area and complexity of the bridge. Alternative 1B bridge area is greater in size and complexity because it has extensive acceleration and deceleration lanes and the 1C bridge does not.

TABLE 6. COMPARATIVE ASSESSMENT OF ALTERNATIVES

	<u>1B</u>	<u>1C</u>
Displacements		
Households	10	12
Businesses	0	1
Acquisitions (Partial)		
Residential	6	5
Businesses	1	1
Tax Losses	\$2,800.	\$5,400.
Historic Properties		
Displaced	1	0
Impact on Remaining	negligible	negligible
Property Values		
Loss/Gain	negligible	negligible
Traffic Safety		
Meets Standards	barely acceptable	yes
Traffic Maintenance		
During Construction	delays expected	acceptable
Cost	\$11,813,000.	\$11,362,000.

RATIONALE FOR SELECTION OF THE NATIONAL ECONOMIC DEVELOPMENT (NED) PLAN

203. Alternative 1C is selected as the NED plan as it meets the economic goal of flood protection at lower cost than 1B and its safer highway operating conditions should produce greater economic return over the long term. The adjusted good relocation potential of the one business which would be displaced indicates that no long term economic loss would occur because of this displacement.

DISCUSSION OF ENVIRONMENTAL QUALITY (EQ) OBJECTIVE

204. Alternatives 1B and 1C are essentially equal in terms of impacts on the environmental quality. Neither one was considered to have a net positive contribution to the EQ objective.

COMPLIANCE WITH EXECUTIVE ORDERS

205. Executive Order 11988, Floodplain Management, 24 May 1977.

The proposed action is judged to be in compliance with E.O. 11988. All alternatives for relocation of the TH 169/60 bridges, including the no action alternative, would result in encroachment by placing bridge abutments within the base floodplain. These abutments are required to provide the authorized SPF level of protection. No practicable alternative exists which would maintain transportation service, allow the provision of SPF protection, and yet not require bridge abutments within the base floodplain. The tentatively selected plan would reduce the risks associated with flooding by: 1) providing for SPF protection improvements, 2) eliminating the present potential for bridge failure during floods, and 3) eliminating the potential for future floodplain encroachments by allowing completion of the project levee and floodwall works currently under construction. The tentatively selected plan would not result in significant adverse impacts upon natural or beneficial floodplain values (see Technical Report No. 6). Disturbances due to construction activities will be temporary and minimized to the maximum possible extent (see DM No. 8, Part 1, p. 46, paragraphs 160 and 161, and p. 50, paragraph 187).

206. Executive Order 11990, Protection of Wetlands, 24 May 1977.

No wetlands would be impacted by any alternative for relocation of the TH 169/60 bridges. In addition, no secondary or indirect effects would accrue to these resources from implementation of the tentatively selected plan. Therefore, the project is judged to be in compliance with E.O. 11990.

207. Executive Memorandum, Analysis of Impacts on Prime and Unique Farmlands in EIS, CEQ Memorandum 30 August 1976.

No prime or unique farmlands are located within the impact areas of any alternative for relocation of the TH 169/60 bridges. In addition, no secondary or indirect impacts would accrue to these resources from implementation of the tentatively selected plan. Therefore, the project is judged to be in compliance with the Executive Memorandum.

RATIONALE FOR THE TENTATIVELY SELECTED PLAN

208. Because of its lower cost, long term safety and operating conditions, minimal adverse impacts and because it is selected as the NED Plan, Alternative 1C is recommended as the tentatively selected plan.

DRAFT SUPPLEMENT II
TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER
FLOOD CONTROL - PHASE I
(As Amended 18 January 1972)

Proposed Plan for the Alternation or Relocation of State
Trunk Highway 169/60 Bridges over the Blue Earth River
between Mankato and Le Hillier, Minnesota

The responsible lead agency is the U.S. Army Engineer District, St. Paul.
The responsible cooperating agency is the Minnesota Department of
Transportation.

Abstract: The St. Paul District currently is constructing flood control works on the Minnesota and Blue Earth Rivers to protect developed portions of Mankato, North Mankato and Le Hillier lying in the flood plain from frequent flood damage. These works include the raising of bridges to clear the high water of the Standard Project Flood. The two Trunk Highway 169/60 bridges over the Blue Earth River must be raised or replaced to an elevation approximately 17 feet above the existing bridges. This necessitates extensive work on the approaches to the bridges as well as to the bridges themselves. Of the seven plans considered, two were selected for detailed study; Plans 1B and 1C. Except for small locational differences, the two alternative plans are similar. In both alternatives a new bridge is proposed to be built immediately upstream of the existing bridges and a northbound off ramp and a southbound on ramp would be built to replace an existing at-grade intersection. Plan 1B would require slightly less property acquisition, while Plan 1C would provide better operational characteristics. Plan 1C has been tentatively selected based on its performance in addressing the identified public concerns and its net positive contributions to the goals of National Economic Development and Environmental Quality.

SEND YOUR COMMENTS TO THE
DISTRICT ENGINEER WITHIN
45 DAYS AFTER THE NOTICE OF
AVAILABILITY IN THE FEDERAL
REGISTER.

If you would like further information on this statement, please contact:

Mr. Robert F. Post
Chief, Environmental Resources Branch
Engineering Division
St. Paul District, Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, Minnesota 55101
Telephone (612) 725-7070

Note: Information, displays, maps, etc., discussed in the TH 169/60 Design Memorandum No. 8 and associated technical reports are incorporated by reference in the EIS.

LIST OF PREPARERS

The following people were primarily responsible for preparing this environmental impact statement.

<u>Name</u>	<u>Expertise</u>	<u>Experience</u>	<u>Role in Preparation of EIS</u>
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TABLE OF CONTENTS

	<u>Page</u>
Title and Abstract	1
List of Preparers	2
Summary	6
Major Conclusion and Findings	6
Areas of Controversy	6
Unresolved Issues	6
Relationship to Environmental Requirements	7
Tiering	7
Need for and Objectives of Action	9
Study Authority	9
Public Concerns	9
Planning Objectives and Constraints	9
Alternatives	10
Plans Eliminated From Further Study	10
Reuse of Existing Structures	10
Location of the River Bridge	10
Approach Alternatives	11
Without Conditions (No Action)	11
Plans Considered in Detail	12
Alternative 1B	12
Alternative 1C	12
Implementation Responsibilities	12
Mitigation Requirements	13
National Economic and Environmental	14
Quality Objectives	14
Tentatively Selected Plan	14
Comparative Impacts of Alternatives	14
Affected Environment	15
Environmental Conditions	15
Significant Concerns	17
Neighborhoods	17
Property Acquisitions and Displacements	17
Historic Properties	18
Noise	18

TABLE OF CONTENTS (Cont'd.)

	<u>Page</u>
Air Quality	18
Water Resources	18
Traffic Service and Safety	19
Environmental Effects	19
Neighborhoods	19
Property Acquisitions and Displacements	20
Historic Properties	20
Noise	21
Air Quality	22
Water Resources	23
Traffic Service and Safety	24
Public Involvement	25
Public Involvement Program	25
Required Remaining Coordination	26
Recipients of EIS	26
Public View and Responses	29
404(b)(1) Evaluation	31
Index, References and Appendixes	41

LIST OF TABLES

<u>Table</u>		<u>Page</u>
A	Relationship of Plans to Environmental Requirements	8
B	Comparative Impact of Alternatives	16

SUMMARY

MAJOR CONCLUSIONS AND FINDINGS

1. Alternatives for the alteration of the TH 169/60 bridges over the Blue Earth River to clear the standard project flood (SPF) were limited to a narrow corridor along the existing roadway. Study and evaluation produced two acceptable, but similar alternatives (1B and 1C). The two alternatives would have roughly equal environmental impacts; but, Alternative 1C would facilitate superior traffic operations and safety and would be more economical (i.e., have a lower first cost).
2. The tentatively selected Alternative, 1C, would begin at the existing grade at Hawley Street intersection in Le Hillier, cross over the Blue Earth River slightly to the south (upstream) of the existing masonry arch bridge (southbound TH 169/60) 17 feet higher than the existing roadway and then rejoin the existing road at its bridge over Sibley Street in Mankato. Parallel on and off ramps for traffic to and from the south and west on TH 169/60 would be provided from Minneopa Road just east of Woodlawn Avenue.
3. Alternative 1C would have a total first cost of \$11,362,000. It would displace 12 households plus one business. Means have been provided in the estimate to mitigate potential noise increases in the West Mankato residential neighborhood.

AREAS OF CONTROVERSY

4. Other than noise, no areas of controversy have developed on this project to date. Most of the significant noise increases attributable to the project could be mitigated and provisions for this mitigation will be included in the project design.

UNRESOLVED ISSUES

Cultural Resources

5. The results of the historic site inventory of the proposed project areas conducted for the Corps of Engineers are included in "Technical Report No. 5, Historic Resources", for this EIS supplement. This inventory identified properties listed on or eligible for inclusion on the National Register of Historic Places within Mankato-North Mankato-Le Hillier, as well as properties that are potentially eligible for listing on the National Register. Potentially eligible properties that would be impacted by the proposed construction will be evaluated against the National Register criteria. All Historic properties found to be listed on or

eligible for inclusion on the National Register that would be impacted by the proposed project would be mitigated in accordance with the guidelines of the Advisory Council on Historic Preservation, 36 CFR Part 800.

6. An archaeological survey of the proposed project areas will be undertaken during 1981. The results of this survey will be included as Technical Report No. 7. All sites located during this survey will be tested to determine their National Register eligibility. For those archaeological sites found to be eligible for the National Register, mitigation will be completed prior to construction in accordance with the guidelines of the Advisory Council on Historic Preservation, 36 CFR Part 800.

RELATIONSHIP TO ENVIRONMENTAL REQUIREMENTS

7. Table A presents the relationship of the detailed alternatives to the requirements of Federal environmental laws, executive orders and related policies; State and local laws and policies; local development plans; and permits and other entitlements needed to implement the detailed plans.

TIERING

8. The Final Environmental Statement Minnesota River, Minnesota Mankato-North Mankato-Le Hillier-Flood Control-Phase I (Amended December 1971) dealt with the overall project for flood protection involving levees, floodwalls, road relocations, interior drainage and intermittent ponding. This supplement under the tiering concept, 40 CFR 1502.20, deals with the issues now ripe for decision relating to relocating the TH 169/60 bridges over the Blue Earth River. The Final Environmental Statement referenced is available from:

St. Paul District, Corps of Engineers
1135 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

TABLE A
RELATIONSHIP OF PLANS TO ENVIRONMENTAL REQUIREMENTS
(TENTATIVELY SELECTED PLAN IS ALTERNATIVE 1C)

	<u>Alternative 1B</u>	<u>Alternative 1C</u>
<u>Federal Policies</u>		
Clean Air Act, as amended, 42 U.S.C. 7401, <u>et seq.</u>		Full Compliance
Clean Water Act, as amended (Federal Water Pollution Control Act), 33 U.S.C. 1251, <u>et seq.</u>		Full Compliance
Endangered Species Act, as amended, 16 U.S.C. 1531, <u>et seq.</u>		Full Compliance
Federal Water Project Recreation Act, as amended, 16 U.S.C. 460-1(12), <u>et seq.</u>		
Fish and Wildlife Coordination Act, as amended, U.S.C. 661, <u>et seq.</u>		Full Compliance
Floodplain Management, EO. 11988*		Full Compliance
National Environmental Policy Act, as amended, 42 U.S.C. 4321, <u>et seq.</u>	Comments requested on this Draft Supplement II	Partial Compliance
National Historic Preservation Act, as amended, 16 U.S.C. 470a, <u>et seq.</u>	Comments requested from SHPO	Partial Compliance
Protection of Wetlands, EO. 11990*		Full Compliance
Uniform Relocation Act (P.L. 91-646)		Full Compliance Intended
FHWA Design Noise Levels	Mitigation and Exceptions may be required	Partial Compliance
Impacts on Prime and Unique Farmlands*		Full Compliance
Protection and Enhancement of Environmental Quality, EO. 11514		Full Compliance
Archaeological and Historic Preservation Act, as amended, 16 U.S.C. 469 <u>et seq.</u>		Partial Compliance
River and Harbor Act		Full Compliance
<u>State and Local Policies</u>		
Minnesota Environmental Policy Act	Comments requested on this Draft Supplement EIS	Partial Compliance
Mn/DOT Design Standards		Full Compliance
Municipal Zoning Ordinances		Full Compliance
MCP 2 Noise Standards	Mitigation and exceptions may be required	Partial Compliance
State Implementation Plan (Air Quality)		Full Compliance
<u>Entitlements</u>		
Coast Guard Bridge Permit		Not Required
DNR Work in Waters Permit (150)		Full Compliance
Dredge & Fill Permit (404)		Full Compliance

*Reference Main Report; p. 55.

NEED FOR AND OBJECTIVES OF ACTION

STUDY AUTHORITY

9. The government has, under authority of Public Law (P.L.) 85-500, 84th Congress approved 3 July 1958, undertaken the development of a project known as Minnesota River, Mankato-North Mankato-Le Hillier Flood Control Project. The authority for the project directed that standard project flood protection for the project area be provided. Section 104 of the 1976 Water Resources Development Act, P.L. 94-587, approved 22 October 1976, modified the project to provide that changes to the Trunk Highway (TH) 169/60 highway bridges over the Blue Earth River and the Main Street bridge over the Minnesota River, including rights-of-way and changes to approaches and relocation made necessary by the project and its present plan of protection, be accomplished at complete Federal expense.

10. The location and design of the bridge alterations are not covered in "Final Environmental Impact Statement Minnesota River, Minnesota Mankato-North Mankato-Le Hillier Flood Control - Phase I", U.S. Army Engineer District, St. Paul, 18 January 1972.

PUBLIC CONCERNS

11. Local interests and various governmental agencies through public meetings, by reports, and through correspondence, provided their views as to the objectives of the project. For the TH 169/60 bridges, the following were stated:

1. Provide flood protection
2. Eliminate existing hazardous intersections
3. Keep trucks off local streets
4. Provide safety for pedestrians, particularly school children
5. Maintain integrity of neighborhoods
6. Reduce noise from roadway
7. Restrict property takings to a minimum
8. Maintain good truck access to industries
9. Improve access to Park Lane/Front Street
10. Improve Northstar Bridge

PLANNING OBJECTIVES AND CONSTRAINTS

12. Of the list of stated public concerns, the provision of flood protection is the primary objective of the project. This is to be accomplished by raising the elevation of the TH 169/60 bridge over

the river and accomplishing the necessary modifications to the approaches to provide satisfactory highway operating conditions to the year 2000. Safety, neighborhood integrity, noise reduction, local truck routing and industrial access are planning constraints and will be maintained or enhanced wherever possible consistent with the primary project objective. Minimizing property acquisitions and displacements is of vital concern.

ALTERNATIVES

PLANS ELIMINATED FROM FURTHER STUDY

Reuse of Existing Bridges

13. The infeasibility of raising the downstream rigid, multi-span, reinforced concrete arch bridge (4952) was acknowledged early and the investigation centered on the possibility of raising and reusing, or replacing bridge 9413, the continuous steel stringer bridge. It was determined following a detailed inspection and structural analysis of bridge 9413 that this structure could not be reused because the foundations could not withstand the added forces imposed by a raise of 17 feet, because the deck width and alignment would have to be change, and the steel, though in generally good condition, would have to be refabricated to accommodate necessary revisions in span length.

Location of the River Bridge

14. After a new structure was considered most desirable, it was necessary to determine the best location for this structure. Any site downstream of the arch bridge would infringe on Minneopa Road and the Honeymead plant; the existing bridges are too close together to permit construction of a new bridge between them without prior demolition of both bridges; and any site located an appreciable distance upstream from the steel bridge would seriously infringe on the West Mankato neighborhood.

15. Since the existing arch bridge can accommodate all the existing traffic at reduced speeds, this bridge should be retained as long as possible to minimize traffic disruptions. Two general alignment plans were evolved. In one location, common to Alternatives 1A, 2A and 3A, the alignment would place the new bridge just upstream of, and partially overlapping, the existing concrete bridge. This would cause considerable disruption of service since the concrete bridge would have to be demolished midway through the construction sequence. The other location, common to Alternatives 1B, 1C, 2B and 3B, would place

the alignment far enough upstream so that the concrete bridge would be available to carry the traffic until the new bridge was completed. Essentially on this basis, Alternatives 1A, 2A and 3A were eliminated from further consideration.

Approach Alternatives

16. Le Hillier. It was found that under all alternatives the existing Hawley Street Intersection would require little alteration. Thus, the Le Hillier approach design would be the same under all of the alternatives.

17. Mankato. Alternative 2B would introduce an off ramp (north-bound) into the West Mankato residential neighborhood at Sibley Street. The negative impacts of the intrusion of heavy trucking and other traffic into this neighborhood coupled with the poor geometric conditions on Sibley Street made this alternative unacceptable to the community and it was dropped from further consideration.

18. Alternative 3B which consisted of major reconstruction of the Park Lane TH 169/60 interchange was dropped from final consideration because first, the cost, property takings, and neighborhood disruption that would result from the amount of reconstruction necessary to accommodate all of the traffic at the location would be prohibitive; and second, the retention of connections from Minneopa Road to TH 169/60 postpones the reconstruction of the Park Lane interchange and reduces the scale of improvements ultimately needed. Further, the combination of the two interchanges would provide better overall travel service than the single interchange at Park Lane.

WITHOUT CONDITIONS (No Action)

19. If the TH 169/60 bridge crossings are not modified, the flood control project, which is now otherwise largely completed, would only protect against a flood having a frequency of occurrence of about once in 80 years. However, Standard Project Flood (SPF) protection would be provided with appropriate bridge raises and alterations.

20. The standard project flood water surface elevation at the TH 169/60 crossing is based on the bridges being raised. If not the bridges would act as a dam causing the water surface to exceed the height of the upstream barriers as presently constructed. This would cause disruption to the communities and users and be contrary to the legislation authorizing protection for the SPF.

Thus, to achieve SPF protection either the existing flood barriers and levees or the bridges would have to be raised. Raising or adding to the height of the flood barriers would require extensive reconstruction, increased base widths, and be extremely costly. This would involve additional acquisition and other related problems, and the collection of ice and debris would still remain a material hazard due to the present low and restrictive profiles of the bridges. Thus, raising the bridges to complete the project is considered essential.

PLANS CONSIDERED IN DETAIL

Alternative 1B

21. This plan would incorporate an alignment for a new bridge slightly upstream (south) of the existing bridges with provisions for parallel on and off ramps to Minneopa Road to and from the south. The off-ramp would pass under TH 169/60 just before meeting Minneopa Road in a common intersection with the on ramp just west of Woodland Avenue. The plan would provide good traffic service and adequate operating and safety conditions. Property acquisitions would be relatively limited. Neighborhood cohesion would not be materially adversely affected and construction disruptions would not be severe. Construction costs would be relatively high.

Alternative 1C

22. This plan would also incorporate an alignment for a new bridge upstream of the existing bridges with provisions for on and off ramps to Minneopa Road to and from the south similar to Alternative 1B. The ramps would meet Minneopa Road just east of Woodland Avenue. The plan would provide good traffic service and good operating and safety conditions. Property acquisitions would be moderate. Neighborhood cohesion would not be materially adversely affected and construction disruptions would not be severe. Construction costs would be moderate.

Implementation Responsibilities

23. Under the modifications to the 1976 Water Resources Development Act, P.L. 94-587, approved 22 October 1976, the TH 169/60 bridge replacement is to be considered entirely at Federal expense. Under this law, betterments are a local responsibility. Two such betterments are anticipated; one for future water and the other for sewer lines under either the 1B or 1C alternative.

Responsibility for financing and construction would lie with the Corps of Engineers. Roadway and bridge design criteria would be the responsibility of the Minnesota Department of Transportation.

Mitigation Requirements

24. Public law 91-646 provides procedures to assist persons displaced by a Federally funded project. The Corps of Engineers would work with displaced persons to the greatest extent possible to ease the difficulties of displacement and relocation. Low income families and senior citizens would require special attention.

25. The larger scale of the highway and bridge would create the main aesthetic impact. This could be softened by careful attention to design details. Another impact would relate to the elevated TH 169/60 roadway which might be visually objectionable from homes in Le Hillier and on the bluff in Mankato. The visual impacts on the bluff homes would be minimized in part by landscaping. Landscaping of the embankment in Le Hillier would also be helpful.

26. The most significant mitigating effect would be the construction of an attractive well-proportioned bridge and aesthetically pleasing retaining walls.

27. Construction of a noise abatement wall or combined wall/mound at the edge of the bluff line adjoining TH 169/60 between the new bridge and Sibley Street is under consideration to mitigate noise increases in the West Mankato neighborhood.

28. To minimize disruptions during construction, specific requirements for maintenance of traffic and performance of work directly affecting the public would be written into the construction specifications. Construction staging and temporary bypass roads would permit the river crossing to remain open throughout the construction process. The impact of construction noise under either alternative can be minimized by restricting the hours of construction activity, utilizing the quietest equipment available, construction of temporary barriers, and careful attention to see that all equipment is properly muffled. Minnesota Standard Specifications for Highway Construction, Section 7, Subsection 17.C2, states, in part, that the contractor shall comply with all applicable laws, ordinances, regulations, orders, and decrees in the performance of construction. Special control of blasting for rock excavation would be required because of the proximity of residences resting on the same formations. Potential water quality and aquatic life disturbances

can be mitigated by careful control of construction operations in the river and disposal of excavated sediments at approved disposal sites.

National Economic Development and Environmental Quality Objectives

29. Alternative 1C is selected as the NED plan because it meets the economic goal of flood protection at lower cost than 1B and because its safer highway operating conditions should produce greater economic return over the long term. The good relocation potential of the one business which would be displaced indicates that no long term economic loss would result.

30. Alternatives 1B and 1C are essentially equal in terms of impacts on environmental quality. Neither alternative was considered to have a net positive contribution to the EQ objective. Because Alternative 1C is selected as the NED Plan and is considered least damaging to the environmental quality, Alternative 1C is the recommended plan.

Tentatively Selected Plan

31. Alternative 1C is recommended as the tentatively selected plan for the following reasons:

- a. It qualifies as one of two least environmentally damaging plans, and as the National Economic Development Plan.
- b. It would provide greater traffic service and safety than Alternative 1B.
- c. Neighborhood character and cohesion would not be materially adversely affected.
- d. Construction disruptions would not be severe.
- e. Construction costs would be moderate.

COMPARATIVE IMPACTS OF ALTERNATIVES

32. The impacts of Alternatives 1B and 1C were found to center on specific significant issues and concerns: project costs, neighborhoods, property acquisitions and displacements, historic properties, noise, air quality, water resources and traffic service and safety. Significant impacts are summarized in Table B. Further detail is provided in following sections.

AFFECTED ENVIRONMENT

ENVIRONMENTAL CONDITIONS

33. Mankato and North Mankato dominate economically a fairly prosperous, agriculture-oriented area. The cities, together with the small unincorporated community of Le Hillier, furnish employment and housing for a population of about 44,000 persons. The manufacture of agricultural products, small industries, sales and service organizations, construction, and related business and professions comprise the economic activities of the metropolitan region.

34. Adjoining the TH 169/60 bridges on the east bank of the Blue Earth River are the Sibley Park and West Mankato neighborhoods. The Sibley Park neighborhood is an older, fully-developed residential neighborhood which also contains concentrations of industrial and commercial activity and Sibley Park East, for which the area is named, is in the northeast quadrant. Residences are primarily single family although conversions to multiple family dwellings have become common. The CNW railroad tracks split the residential area into north and south sections. Honeyamead Products, Inc., a large soybean processor and Mankato's largest employer, occupies a 24 acre site immediately adjoining the bridge terminus on the northeast. Extending east from Honeyamead along Minneopa Road and Park Lane, which form a northern frontage road for TH 169/60, is a commercially owned area which embraces a variety of commercial and residential uses.

35. The West Mankato area is a high quality, fully developed neighborhood comprised mostly of single family residences and related uses, including a public school, a parochial school and two churches. In the vicinity of the bridges, a 20 to 40 foot high bluff separates TH 169/60 from the adjoining residences overlooking it.

36. TH 169/60 bisects the Le Hillier area of single family homes, mobile homes, apartment conversions, and a variety of businesses and industries on the west bank of the Blue Earth River. The mixed pattern of development has contributed to the instability and low property values of the neighborhood. The TH 169/60 roadway embankment varies from 0 to 10 feet in height above the adjoining lands.

37. The Blue Earth River has high total hardness and turbidity levels and is subject to periods of high siltation. However, there are no indications in the water quality study of any major

TABLE B

COMPARATIVE IMPACT OF ALTERNATIVES

<u>Concern</u>	<u>Alternative 1B</u>	<u>Alternative 1C</u>
<u>Project First Cost</u>	\$11,813,000	\$11,362,000
<u>Neighborhoods</u>	Minimal	Minimal
<u>Property Acquisitions and Displacements</u>	10 Households 3 Low income 1 Elderly	12 Households 5 Low income 5 Elderly 1 Business 3 full time employees 1 part time employee
<u>Historic Properties</u>	Take 1 house of local historic interest. Indirect effect on 2 houses of local interest.	Indirect effect on 2 houses of local historic interest.
<u>Noise</u>	-----Temporary Construction Noise Impact----- Small increase (0-4 dBA) in Le Hillier noise levels due to increased traffic with or without project. Increases of up to 4-7 dBA in West Mankato neighborhood without mitigation; therefore, noise wall construction is proposed. Slight noise increases along Minneapolis Road.	
<u>Air Quality</u>	---No significant adverse impact. Consistent with State plans.-----	
<u>Water Resources</u>	-----No significant impacts, but construction precautions required.---	
<u>Traffic Service and Safety</u>	Good traffic service, but close spacing between Hawley Street and Minneapolis Road ramps would result in barely acceptable design standards on this section of TH 169/60.	Good traffic service, maintain desirable minimum design standards throughout.

toxic pollution or any heavy metal "hot spots" within the area of disturbed, urban habitats in southern Minnesota. No threatened or endangered flora or fauna are known to exist in the area. See Technical Report No. 6, Natural Resources.

38. A total of ten historic sites, including three pending nominations to the National Register and seven potentially eligible properties, are located in the bridge relocation study area.

SIGNIFICANT CONCERNS

39. Impact categories identified as significant concerns on the basis of public interest, law standards and/or technical criteria were: neighborhoods, property acquisitions and displacements, historic properties, noise, air quality, water resources, and traffic service and safety. Each of these concerns and their significance are summarized below. The remaining impact categories identified in Section 122 of P.L. 91-611 were evaluated, and no impacts are anticipated.

Neighborhoods

40. TH 169/60 is a significant feature bisecting the Le Hillier neighborhood and bordering the Sibley Park and West Mankato. These neighborhoods are described in the preceding section. Changes to TH 169/60 present a concern with respect to the character and cohesion of these neighborhoods, including any potential related effects on land use, property values and aesthetics.

Property Acquisitions and Displacements

41. Property acquisitions and household or business displacements are a concern not only in terms of direct acquisition and relocation costs, but also because of potential social, psychological and financial hardships placed on those involved, and the resulting tax loss to the affected municipalities. Housing supply is adequate to meet both the needs of relocated individuals and any increase in demand due to construction force requirements.

Historic Properties

42. Of the eleven historic properties in the bridge study area, four were found to lie in the potential impact area of the two alternatives selected for detailed study. None of the four sites are on or eligible for the National Register of Historic Places. The "Criteria of Effect" used for Federal historic preservation purposes were applied to determine the potential impact on each site.

Noise

43. Present noise levels at the nearest row of residences adjoining TH 169/60 generally exceed State daytime and nighttime standards and Federal Highway Administration design noise levels. Therefore, any substantial increases that cannot be mitigated would be unacceptable. While noise impacts are neighborhood concerns, they have been considered separately (in addition to other neighborhood impacts) because of the standards that exist. Mitigation of construction noise is also a significant concern. See Technical Report 3, "Preliminary Noise Analysis".

Air Quality

44. Transportation related pollutants are not considered to present a problem in the Mankato area. Federal and State guidelines for highway projects require the evaluation of potential local "hot spots" to insure that ambient air quality standards are not exceeded. See Technical Report No. 6, "Natural Resources".

Water Resources

45. The Blue Earth River is the predominant natural resource of the study area. Its uses under State water pollution control regulations are classified as "2B fisheries and recreation" and "3B industrial consumption". The river is quite turbid and has high concentrations of calcium, magnesium, and nutrients. No evidence exists for any major toxic pollution or any heavy metal "hot spots" in the Blue Earth River near the TH 169/60 bridges, and no established aquatic community is intolerant of the high turbidity of the river. Groundwater in the project area has been developed for domestic, industrial and municipal use. Municipal and industrial sources are primarily deep bedrock wells, with some supplemental municipal and private domestic shallow wells in the valley alluvium. Potential water resource impact during construction was identified as the major concern.

Traffic Service and Safety

46. Traffic service and safety concerns were major factors in the elimination of Alternatives 2 and 3 in the preliminary planning stages. Alternative 2 would have required unsafe and inefficient travel through a residential neighborhood and conflict with a local school pedestrian route. Under Alternative 3, the Park Lane interchange would be unable to accommodate added traffic demands, and truck access to the Honeymead plant would be circuitous. For those alternatives selected for detailed study, the primary traffic service and safety concerns were: (1) to maintain safe and efficient traffic flow during construction, (2) to provide suitable ramp connections to Minneopa Road, and (3) to provide for pedestrian and bicycle traffic.

ENVIRONMENTAL EFFECTS

NEIGHBORHOODS

47. Removal of dwellings from Le Hillier (three under either 1B or 1C), the West Mankato bluff neighborhood (seven under either 1B or 1C), and the south Sibley Park neighborhood (two under 1C) would adversely affect the neighborhood character for the remaining adjoining residences. However, the basic neighborhoods will remain intact and will not be segmented by the proposed facilities. Thus, existing community cohesion should not be significantly affected. Under Alternative 1C, West Seventh Street would be relocated for a half block at the top of the excavated bluff to maintain the local street continuity. The issue of relocation will be addressed more fully, either in DM No. 8 Part II, or the Relocation DM, when it has been determined which people will be relocated. See Technical Report No. 4, "Social and Economic Resources," concerning assessment of impacts on an individual basis or on the elderly in need of special services.

48. Improved access is expected to reinforce the current industrial trend in the south Sibley Park neighborhood. Under either alternative, values of commercial and industrial properties in the south Sibley area could be expected to rise slightly. Under Alternative 1C, a slightly depressing effect on residential properties on West Fifth Street between Woodland and Carney Avenues would be expected. Under Alternative 1B, no significant effect on residential property values would be expected.

49. The higher, longer and wider bridge and the elevated roadways, embankments and retaining walls, would increase the visual dominance of these features on the landscape under either alternative. This visual effect would be lessened by the replacement of two dissimilar structures (one steel and one concrete arch) with two bridges that are similar in construction.

PROPERTY ACQUISITIONS AND DISPLACEMENTS

50. Alternative 1B would displace 10 households and acquire land from six others. Three of the families displaced are low income and one elderly person would be displaced. Alternative 1C would displace 12 families and take land from five others. Three of the families displaced are low income and five elderly persons would be displaced.

51. For the low income and the elderly persons displaced, special services and assistance would be required. Partial acquisitions would adversely affect the property values. See Technical Report No. 4, "Social and Economic Resources".

52. No businesses or employees would be displaced under Alternative 1B. The project would partially encroach upon one business in Mankato. Under Alternative 1C, one business would be displaced and the project would partially encroach upon one business in Mankato. Three full time employees and one part-time employee would be displaced.

53. Direct annual tax losses due to the above average property acquisitions are estimated as \$2,800 and \$5,400, respectively, for Alternatives 1B and 1C.

HISTORIC PROPERTIES

54. No historic standing structures on or eligible for the National Register of Historic Places will be affected by either alternative.

55. Under Alternative 1B, one potentially eligible property of local historic interest (a home at 712 Blue Earth Street) would be acquired. Two other properties of local historic interest (at 713 Blue Earth Street and 902 Woodland Avenue) would be indirectly affected since houses across the street in both instances would be removed to provide additional right-of-way for the project, thus diminishing the attractiveness of the surrounding environment.

56. Under Alternative 1C, two potentially eligible properties of local historic interest (612 Seventh Street West and 902 Woodland Avenue) would be indirectly affected. The surrounding environment of the Seventh Street property (Pots house) would be altered because four houses in the block would be removed to accommodate the new design of the connection between Woodland Avenue and West Seventh Street. The surrounding environment of the Woodland Avenue property (Fuller house) would be altered by the removal of three neighboring houses for the project right-of-way.

NOISE

57. Le Hillier - South Side of TH 169/60 (Unzoned). State standards are currently exceeded at an estimated 28 residential sites. Slight increases of 0-3 dBA (units of sound pressure levels) can be expected as a result of projected traffic growth by the design year with either alternative or without the proposed project. Three of the sites will be displaced. See Main Report, page 17, and Technical Report No. 3, "Preliminary Noise Analysis".

58. Le Hillier - North Side of TH 169/60 (Unzoned). State standards are currently exceeded at an estimated 22 residential sites during daytime hours and 25 residential sites during nighttime hours. Despite normal traffic growth, noise levels east of Sturgis Street will be at or below current levels due to the increased elevation and slight relocation of the roadway section. West of Sturgis, projected design year traffic growth with (either alternative) or without the proposed project will produce a 3-4 dBA increase, with four additional sites exceeding the night standard. See Technical Report No. 3, "Preliminary Noise Analysis".

59. West Mankato - South Side of TH 169/60 (Zoned Residential). State standards are currently exceeded at an estimated 18 residential sites during daytime hours and 34 sites during nighttime hours. Six of these sites will be displaced under either alternative. Daytime L_{50} and nighttime L_{10} and L_{50} noise levels at most sites in the area are influenced by background noise from Honeymead (varies from 45-60 dBA depending on location). The combined effect of a new ramp, an elevated TH 169 and traffic growth will produce L_{10} noise levels of 70+ dBA daytime and 63+ nighttime at sites near the proposed eastbound off ramp, an increase of approximately 4 to 7 dBA above current levels. Near West Sixth Street and Carney, noise levels at the nearest receptor will increase about 2-3 dBA (L_{10} daytime 72 to 74 dBA, L_{10} nighttime 64 to 66 dBA) due to the raised profile and increased traffic on TH 169. Despite the displacement of six sites, the number of sites above State standards would increase under either alternative. Construction of a wall or combined wall/mound at the edge of the bluff line adjoining TH 169 between the new bridge and Sibley Street is under consideration. The wall should protect all the impacted sites except three fronting on Sibley Street. See Technical Report No. 3, "Preliminary Noise Analysis".

60. West Mankato - North Side of TH 169/60 (Zoned Industrial and Business). State standards are currently exceeded at an estimated 10 residential sites, with daytime standards exceeded at an additional three commercial sites. Relocation of Minneopa Road under Alternative 1C will displace three of the sites (1 commercial, 2 residential). Background noise from Honeymead is approximately 55 dBA. Slight noise increase of approximately 0-3 dBA are predicted by the design year, primarily due to normal traffic growth. Two to four additional sites along 5th Street will approach or exceed standards under either alternative. See Technical Report No. 3, "Preliminary Noise Analysis".

61. Mitigation does not appear practicable since Minneopa Road, a local access roadway, generally controls peak noise levels in the area.

62. Other. Typical construction noise disturbances (e.g., from trucking of construction materials, grading operations and pile driving) can be expected in the adjoining residential areas under any of the alternatives. Such impacts can be minimized by restricting the hours of construction activity, utilizing the quietest equipment available, construction of temporary barriers, and careful attention to see that all equipment is properly muffled.

63. Some blasting may be required to excavate the rock in the bluff east of the river. Special precautions should be taken to minimize potential noise vibration impacts if blasting is required.

64. It should be noted that all predicted noise levels are at best, an estimate of their magnitude for the design year. The model used for predicting noise assumed a truck fleet with noise characteristics similar to the existing "national mix" (Circa 1970) as determined by the FHWA. Existing State and Federal regulations will require newly-manufactured trucks to be quieter prior to the design year. However, no approved model is available at this time that accounts for the change.

AIR QUALITY

65. The air quality impact of the proposed bridge relocation and raising has been analyzed. The proposed improvement is not anticipated to have significant air quality impacts and is considered consistent with the approved State Implementation Plan (SIP).

66. The project does not require an indirect source assessment and permit from the Minnesota Pollution Control Agency (MPCA) since:

- a. The project is not within a Standard Metropolitan Statistical Area (SMSA).
- b. The project is a modification of an existing roadway with a projected traffic increase of less than 10,000 vehicles/day in the ten years following construction, with or without the proposed modification.

67. Furthermore, prior consultation with MPCA is considered as accomplished under a MPCA Memorandum of Understanding with the Minnesota Department of Transportation.

68. The U.S. Environmental Protection Agency's screening procedures in "Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9 (Revised): Evaluating Indirect Sources", September 1978, were used to estimate peak carbon monoxide concentrations at the nearest critical receptors along this project. The screening procedure "worst case" assumptions include a 1 meter per second wind at a 6° angle to the roadway, a Pasquill-Gifford stability classification of "D" (neutral condition), and 10% cold starts at an ambient temperature of 20° F. The estimated 1985 (year of completion) and 1995 peak one-hour and eight-hour concentrations, including background, are well below the Federal standards of 35 ppm and 9 ppm and Minnesota standards of 30 ppm and 9 ppm, as shown below:

	<u>1985</u>	<u>1995</u>
Peak 1-Hour CO Concentration	4.3ppm	2.7ppm
Pear 8-Hour CO Concentration	2.0ppm	1.7ppm

69. An analysis of the airborne lead from this project indicates no violations of the lead standard. The airborne lead concentration at the nearest critical receptor along the proposed project has been analyzed using a procedure based upon a 31 January 1978 Federal Highway Administration memorandum, "Proposed National Ambient Air Quality Standard for Lead".

70. No violations of the lead standard (1.50 micrograms per cubic meter) were indicated. The highest concentration after completion of construction is estimated at 0.2 micrograms per cubic meter.

WATER RESOURCES

71. No significant impact on ground water or surface water quality is anticipated under any of the alternatives. Impacts on the aquatic

environment will be minimal, provided that appropriate construction precautions are taken to avoid potential oil spills and to minimize disruption of bottom sediments and increased turbidity. Sediments excavated from the river bottom must be disposed of at approved sites.

TRAFFIC SERVICE AND SAFETY

72. Under either alternative, vehicle access would be significantly improved on the Mankato side of the river by the replacement of the at-grade intersection with the ramp system. Pedestrian access would be improved by the grade-separated crossing along the upstream (south) side of TH 169/60. Negligible changes in travel cost would be anticipated. Adequate capacity is provided to meet design year traffic demands on the bridge and at adjoining intersections. Either design would eliminate a hazardous at-grade intersection of TH 169/60 and Minneopa Road and would provide additional pedestrian safety over present conditions. The Minneopa Road intersection would be closed to trips to and from the north on TH 169/60, but these trips would be served at the Park Lane interchange thus maintaining full system service.

73. A system of detours and temporary bypasses will be coordinated and constructed to maintain full traffic and public services, particularly emergency services during construction. These concerns will be considered and developed in greater detail during the design studies.

74. Under Alternative 1B, the closeness of the Minneopa Road off and on ramps to the Hawley Street intersection is undesirable. The 1000 foot distance which represents less than 14 seconds of travel time at 50 mph, from Hawley Street to the beginning of the north bound off ramp is less than desirable. The profile would provide only about 450 feet of visibility to the beginning of the off ramp, or about six seconds travel time. This is barely adequate compared to the 10 second "desirable" standard. Similarly, the merging and weaving movements from the south bound on ramp to Hawley Street would be restricted to minimum conditions.

75. The Minneopa Road on and off ramps under Alternative 1C would be 1500 feet, or 20 seconds of travel time at 50 mph, from the Hawley Street intersection. The profile would provide visibility of the beginning of the off ramp from about 700 feet. At 50 mph, 700 feet is equal to almost 10 seconds of travel time, the "desirable" minimum. The 1800 feet provided between the south-bound on ramp nose and Hawley Street in conjunction with the full additional lane provided in addition to the right turn lane at Hawley Street would provide satisfactory weaving operation for that section of roadway.

76. Under either alternative, use of a temporary bypass road and the existing concrete arch bridge for two-way traffic would permit construction of both bridges concurrently with traffic interference only from construction vehicles entering and leaving the construction site. Traffic would operate at reduced speeds throughout the bypass.

PUBLIC INVOLVEMENT

PUBLIC INVOLVEMENT PROGRAM

77. The study has been conducted by the St. Paul District, Corps of Engineers, with the Minnesota Department of Transportation functioning as a cooperating agency for the TH 169/60 and Main Street bridges. As required by guidelines of the Council on Environmental Quality, a scoping process was conducted as a part of the ongoing coordination and public involvement activities. A regular, working cooperative arrangement has been maintained with the Cities of Mankato and North Mankato. The Chicago and Northwestern Transportation Company and the Chicago, Milwaukee, St. Paul and Pacific Railroad were contacted with reference to possible effects on railroad facilities and operations. Coordination with the other involved local, State, and Federal agencies was maintained by correspondence, briefings and the project newsletter. Direct working relationships were also maintained with private utility companies having facilities in the project area.

78. The views of the public were actively solicited throughout the course of the study. Individuals, groups and civic organizations, and governmental bodies were brought into the study process through a broadly-based public information program with regular communications on project matters.

79. Elements of the public information program included:

- a. A local public information office
- b. Periodic newsletters
- c. News media coverage
- d. Public information meetings
- e. Interviews with citizens directly affected by potential property acquisitions
- f. City Council and staff workshops
- g. Presentations to interested civic organizations

80. The overall public information program covered the entire project, i.e., all three bridge crossings to be altered. Specific public information releases were prepared to deal with the three separate bridge locations as appropriate.

REQUIRED REMAINING COORDINATION

81. Following completion of this draft supplement to the FEIS, the only coordination remaining will be: the securing of necessary permits from the Minnesota Department of Natural Resources and the Corps of Engineers for the construction of the bridges, review and comment on the draft supplement, and views expressed during the public hearing.

82. During construction, all of the agencies having direct concern with the work will have to be kept informed. A regularly scheduled series of progress meetings to which all concerned would be invited may prove to be most effective for this purpose.

RECIPIENTS OF EIS

83. This Draft Supplement EIS is being sent to the following for review and comment:

Distribution List

Federal, State and Local Agencies and Officials

United States Senators

Honorable David Durenberger - Minnesota
Honorable Rudy Boschwitz - Minnesota

United States House of Representatives

Honorable Thomas Hagedorn - Minnesota
Honorable Bill Frenzel - Minnesota

Honorable Albert H. Quie - Governor of Minnesota

Federal Agencies

United States Department of Interior

United States Fish and Wildlife Service, Field Office
United States Fish and Wildlife Service, Regional Office
Assistant Secretary for Program Policy
Acting Assistant Director, United States Geological Survey
United States Geological Survey, Conservation Division,
Area Water Power
Bureau of Indian Affairs
Heritage Conservation and Recreation Service
Office of Archaeology and Historic Preservation
Interagency Archaeological Services

United States Department of Transportation

Federal Highway Administration, St. Paul, Minnesota
Second Coast Guard District, St. Louis, Missouri
Federal Highway Administration, Homewood, Illinois

United States Department of Agriculture
Eastern Region Forest Service
United States Forest Service
Soil Conservation Service, River Basin Planning Branch
Soil Conservation Service, Minnesota State Conservationist

United States Department of Commerce
Deputy Assistant Secretary for Environmental Affairs
Economic Development Representative, Duluth, Minnesota
National Oceanic & Atmosphere Administration - National
Marine Fisheries Service

United States Department of Health and Welfare
Director of Environmental Affairs
Region V Environmental Office

United States Department of Housing and Urban Development,
Region V Environmental Clearance Officer

United States Department of Energy
Federal Energy Regulatory Commission
Division of NEPA Affairs
Advisor on Environmental Quality

United States Environmental Protection Agency, Region V
Administrator

Advisory Council on Historic Preservation, Executive
Director

Minnesota State Agencies

Department of Natural Resources
Office of Economic Opportunity
Department of Agriculture
Energy Agency
Minnesota Historical Society, Environmental Office
Minnesota Historical Society, State Historical
Preservation Office
State Archaeologist
Environmental Quality Board
Environmental Quality Board, Citizen's Advisory Committee
Minnesota Pollution Control Agency
Minnesota State Planning Agency
Minnesota State Planning Agency, Intergovernmental Planning
Minnesota Department of Transportation
Minnesota Senate

Minnesota State House of Representatives
Minnesota Environmental Education Board
Minnesota Department of Economical Development
Minnesota Department of Health, Division of
Environmental Health Association
Water Resources Board, Administrative Secretary,
Minnesota
Minnesota-Wisconsin Boundary Area Commission

Regional, County, Local Agencies

City of Mankato, Mayor
City of Mankato, Planning Director
City of Mankato, Director of Public Works
City of North Mankato, Mayor
City Engineer, North Mankato
Blue Earth County Engineer
Blue Earth County Board
Nicollet County Engineer
Nicollet County Board
Southern Minnesota Rivers Basin Commission
Region Nine Regional Development Commission

Libraries

Minneapolis Public Library
State Capitol Legislative Library
Environmental Conservation Library of Minnesota
St. Paul Public Library
Hill Reference Library
Metropolitan Council Library
University of Minnesota Library
University of Minnesota Agricultural Library
Mankato State College Library
Minnesota Valley Regional Library, Mankato
Minnesota Valley Regional Library, North Mankato

Newspapers, Media

The Waterways Journal, St. Louis, Missouri
The St. Peter Herald
Mankato Free Press
Mankato State College, Mankato Reporter
Gustavus Adolphus College, Gustavian Weekly

Interest Groups

Friends of the Earth, Minnesota Branch
Izaak Walton League of America

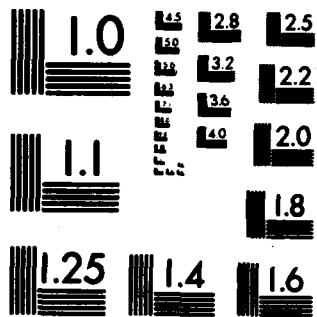
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MANKATO-NORTH MANKATO-L... (U) CORPS OF ENGINEERS ST PAUL
MN ST PAUL DISTRICT NOV 80

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Izaak Walton League, Minneapolis Chapter
 Ducks Unlimited
 Minnesota Environmental Control Citizens Association
 Minnesota Public Interest Research Group
 Sierra Club, North Star Chapter
 Minnesota League of Women Voters
 Soil Conservation Society of America
 Environmental Defense Fund, Inc.
 National Audubon Society, North Midwest Region
 National Audubon Society, North Midwest Representative
 Midwestern Gas Transmission
 National Wildlife Federation
 Minnesota Futurists Chapter of World Future
 Environmental Resources
 Water Resources Development Commission, River
 Bend Association

Individuals

H. Paul Friesma, Butler University
 James Jack, Mankato State University
 John Turtle, Route 1, Mankato

Public Views and Responses

84. During their attendance at public meetings, or through their comments to reports and correspondence, local interest groups and individuals and various governmental agencies expressed their views on the desired objectives of the project. Summarized below are the expressed views and the project responses.

<u>Views</u>	<u>Responses</u>
a. Provide flood protection.	Bridge alterations proposed herein will complete the flood control project thus providing protection against the standard project flood.
b. Eliminate existing hazardous intersections.	This was given full consideration throughout the study. The tentatively selected alternative eliminates the most hazardous one.
c. Keep trucks off local streets.	The tentatively selected alternative accomplishes this to the fullest extent possible. Alternatives not meeting this goal were eliminated.

- | | |
|--|--|
| d. Provide safety for pedestrians particularly school children. | All alternatives considered this aspect and provisions were made in all for safety of pedestrians. Improved safety would result from the tentatively selected alternative. |
| e. Maintain integrity of neighborhoods. | The integrity of neighborhoods was a major consideration in the development, evaluation and selection of the alternatives. |
| f. Reduce noise from roadway. | Every possible consideration was accorded this concern and will be considered in greater detail during design studies. |
| g. Restrict property acquisitions to a minimum. | The negative effects of possible residential and business displacements were accorded thorough investigations. |
| h. Maintain good truck access to industries. | Consideration of all alternatives recognized the significant economic importance of the Honeymead plant and other industries and the need for efficient truck service thereto. |
| i. Improve access to Park Lane/Front Street | Improvement of access to Park Lane/Front Street was found to be fundamentally independent of, but enhanced by, maintenance or improvement of access between Minneopa Road and TH 169/60 near the present location. |
| j. Improve North Star Bridge. | This was found to be unrelated to the TH 169/60 Blue Earth River Bridge. |
| k. Maintain traffic services for emergency vehicles during construction. | All alternatives considered these concerns, and the selected alternative will consider these in greater detail during design studies. |

SECTION 404(b)(1) EVALUATION
FLOOD CONTROL, MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER
BRIDGE MODIFICATIONS

The following is an evaluation of the proposed construction and fill activity in accordance with the requirements of Section 404 of the Clean Water Act of 1977 (33 U.S.C. 1344).

1. PROJECT DESCRIPTION

This evaluation describes the proposed bridge relocations for the flood control project at Mankato-North Mankato-Le Hillier, Minnesota, with emphasis on construction and fill activities that affect navigable waters in the project area.

Fill activities are associated with the following project features:

Construction of replacement bridges for the Highway 169 and the Chicago and Northwestern Railroad Bridges over the Blue Earth River, and for the Trunk Highway 60 (Main Street) Bridge over the Minnesota River.

a. Description of the proposed discharge of dredged or fill materials.

(1) General characteristics of material - Materials to be used as fill in the various stages of construction activities are classified as concrete, pervious fill, impervious fill, filter layer, and riprap. The pervious fill, consisting of sands and gravels available from local pits, would be used for fill placed under water. The impervious fill would be used for shaping the river-bank above water. The impervious fill would be clayey material obtained from borrow areas in the higher ground along the river valley. No organic material will be permitted in either the pervious or impervious fill. The filter layer and riprap would be coarse granular and quarried rock materials placed on the finished slopes for erosion protection. Bridge reconstruction requires placement of concrete bridge piers in the river. Cofferdams constructed out of steel sheeting would be utilized to place the new bridge piers. A description of the construction activities associated with each of the bridge relocations is presented below.

The following fill activities would occur at the new Trunk Highway 60 (Belgrade/Mulberry) Bridge over the Minnesota River:

Construction of temporary cofferdams for pier footing

Install piling, concrete footings, and concrete shafts for piers 1 and 2.

Backfill with washed sand and gravel over pier footings (source of fill from Minnesota Department of Transportation (MN/DOT) approved borrow sites).

Riprap over washed sand and gravel at pier locations to approximate elevation 748, or temporary cofferdams left in place to elevation 748.

The following fill activities would occur at the Chicago and Northwestern Transportation Company Bridges and pedestrian walk over the Blue Earth River:

Placement of abutment piling, footings, walls, and wing walls.

Placement of riprap on slopes.

Construct temporary cofferdams for pier footings.

Install piling, concrete footings, and concrete shafts for all piers.

Backfill with washed sand and gravel behind abutment walls and over pier footings (source of fill from MN/DOT approved borrow sites).

Riprap over washed sand and gravel at pier location to approximate elevation 755, or temporary cofferdams left in place to elevation 755.

The following fill activities would occur at the TH 169 and 60 Bridge over the Blue Earth River:

Furnish and install abutment piling.

Remove and replace riprap on slopes.

Construct temporary cofferdams for pier footings.

Install piling, concrete footings, and concrete shafts for piers 1 and 2.

Backfill with washed sand and gravel behind abutment walls and over pier footings (source of fill from MN/DOT approved borrow sites).

Riprap over washed sand and gravel at pier locations to approximate elevation 755, or temporary cofferdams left in place to elevation 755.

(2) Quantity of material proposed for discharge - The approximate quantities of materials involved in river construction (although not all would be placed below normal high water mark) are as follows for each bridge relocation:

The Belgrade/Mulberry Bridge requires the following fill materials and quantities:

Steel Sheet piling - Cofferdams	250 tons
Selected Backfill - Piers	800 cubic yards
Steel H-Piling - Piers	4,800 linear feet
Concrete - Piers	2,200 cubic yards
Riprap Slope Protection - Piers	200 cubic yards

The railroad bridge modification requires the following fill materials and quantities:

Steel Sheeting - Cofferdams	180 tons
Selected Backfill	2,000 cubic yards
Steel H-Piling	11,200 linear feet
Concrete - Piers	2,000 cubic yards
Concrete - Abutments	400 cubic yards
Riprap Slope Protection	4,300 cubic yards

The TH 169 and 60 Bridge over the Blue Earth River requires the following fill materials and quantities:

Steel Sheeting - Cofferdams	140 tons
Selected Backfill	1,500 cubic yards
Steel H-Piling	12,000 linear feet
Concrete - Piers	1,400 cubic yards
Concrete - Abutments	700 cubic yards
Riprap Slope Protection	3,200 cubic yards

(3) Source of material - Backfill for around bridge piers would be obtained from Minnesota Department of Transportation approved borrow sites. Sand, gravel, and quarried rock used in the riprap and filter layer would be obtained from local pits. Concrete would be purchased from local commercial sources.

b. Description of the proposed disposal sites for fill material

(1) Location - Fill activities are associated with proposed project works located between miles 109 and 104 on the Minnesota River and on the lower 1-mile reach of the Blue Earth River.

(2) Type of disposal sites - The river valley in the project area is composed mostly of sand. Fill areas would be along the shore and, for the bridge piers, in the river.

(3) Method of discharge - Fill will be placed with normal construction equipment such as bulldozers and cranes equipped with buckets.

(4) When will disposal occur? - The bridge alterations are scheduled to begin by spring 1983 and should be completed by fall 1984.

(5) Projected life of fill sites - The life of the project is 100 years.

(6) Bathymetry - The river has been channelized and consists mostly of a shifting sand bottom. About 10 feet deep at normal water level, the river increases to about 30 feet for the design flood.

2. PHYSICAL EFFECTS (40 CFR 230.4-1(a))

a. Potential destruction of wetlands - effects on (40 CFR 230.4-1(a)(1)(i-vi))

(1) Foodchain production - Because of the existing poor water quality, the shifting sand bottom, and previous channelization work that has already degraded the aquatic environment, the proposed work should not have an appreciable effect on foodchain production.

In general, the production of algae and aquatic invertebrates is inhibited in the project area by excessive silt, which reduces light penetration and destroys the utility of rocky substrate as invertebrate habitat.

(2) General habitat - Because the channelized river provides little habitat value, there would be little effect on aquatic or terrestrial species. Temporary effects of increased siltation during the short term of project construction would be harmful to aquatic biota, especially the algae and invertebrates which form the fishery forage base. There should be very little long-term impact upon river biota because the base flow characteristics will not be modified.

(3) Nesting, spawning, rearing, and resting sites for aquatic or land species - Essentially no nesting or spawning sites are available in the project area. Some aquatic species such as mollusks and benthic invertebrates would be affected by silting and direct placement of fill material. Long-term effects on aquatic and land species would be minimal, however.

(4) Those areas set aside for aquatic environment study or sanctuaries or refuges - Not applicable. No such areas are located within the area of project influence.

(5) Natural drainage characteristics - The project would not alter the natural drainage characteristics of the area.

(6) Sedimentation patterns - Sedimentation patterns are not expected to be changed because the large ambient sediment load and the base flow characteristics of the river channel will not be changed.

(7) Salinity distribution - No salinity parameters are applicable to the project.

(8) Flushing characteristics - Base or flood flow characteristics of the river channel will not be changed by the proposed fill activities.

(9) Current patterns - Base or flood flow characteristics of the river channel will not be changed.

(10) Wave action, erosion, or storm damage protection - Fill and riprap activities associated with the project would protect the riverbank from erosion by normal water flow and from high energy storm flows.

(11) Storage areas for storm waters and floodwaters - Fill activities will not affect storage areas for storm waters and floodwaters.

(12) Prime natural recharge areas - Groundwater and prime natural recharge areas are not expected to be affected by fill activities.

b. Impact on water column (40 CFR 230.4-1(a)(2))

(1) Reduction in light transmission - Increased turbidity during and immediately after construction would temporarily reduce light transmission.

(2) Aesthetic values - Fill activities would have little effect on the aesthetics of the water column because of the high ambient sediment load in the river.

(3) Direct destructive effects on nektonic and planktonic populations - Direct destruction of these populations would be minor due to the existing poor water quality and poor spawning habitat in the construction area. In general, the production of algae is inhibited in the project area by excessive silt, which reduces light penetration and destroys the utility of river habitat.

c. Covering of benthic communities (40 CFR 230.4-1(a)(3))

(1) Actual covering of benthic communities - In general, excessive silt, which destroys the utility of the substrate as invertebrate habitat, inhibits the production of aquatic invertebrates in the project area. Some aquatic invertebrate populations are apparent in the project area. Those animals dwelling directly in the path of the fill and riprap activities would be covered and thus eliminated by project construction.

(2) Changes in community structure or function - Fill and riprap activities would cover and eliminate some benthic communities. This would be a short-term adverse impact until "seed" organisms from similar habitats in the river could colonize the new substrate. Riprap activity would alter the substrate from mostly sand and silt to the riprap rock, allowing organisms which are adapted to a rock substrate to colonize the riprap area. This new habitat would increase the diversity of the number of species because of the increased surface area. Total community function is limited by the overall poor quality of the aquatic ecosystem.

d. Other effects (40 CFR 230.4-1(a))

(1) Changes in bottom geometry and substrate composition - Riprap would cover the existing uneven, sandy surface of the riverbank with a flat surface of rocks with slopes of 1 vertical to 2-1/2 or 3-1/2 horizontal. Bridge piers would cover and replace the existing surface with a concrete pier stretching from the river bottom to above the waterline.

(2) Water circulation - Base or flood flow characteristics of the river channel will not be changed by the project.

(3) Salinity gradients - Not applicable.

(4) Exchange of constituents between sediments and overlying water with alterations of biological communities - Fill activities would cover the existing fine-grained sandy sediments. The new condition with the fill would not be a probable habitat for organisms which have the ability for chemical exchange between constituents in the sediments and overlying water.

3. CHEMICAL - BIOLOGICAL INTERACTIVE EFFECTS (40 CFR 230.4-1(b))

a. Does the material meet the exclusion criteria?

The exclusion criteria state that dredged or fill material may be excluded from this evaluation if it is composed predominantly of sand, gravel, or any other naturally occurring sedimentary material with particle sizes larger than silt, characteristic of and generally found in areas of high current or wave energy such as streams with high bedloads or coastal areas with shifting bars and channels, or when the material proposed for discharge is taken from a site sufficiently removed from sources of pollution to provide reasonable assurance that such material has not been contaminated by such pollution. The fill material to be used for this project would meet these standards. Fill material would consist of sand, quarried rock, fieldstone, or any other naturally occurring sedimentary or glacial material with particle sizes larger than silt, generally found in areas having high current or wave energy. The fieldstone would be of glacial origin. The fill material would be obtained from MN/DOT approved borrow sites. Concrete would be obtained from commercial sources.

4. DESCRIPTION OF SITE COMPARISON (40 CFR 230.4-1(c))

a. Total sediment analysis (40 CFR 230.4-1(c)(1))

Sediment analysis performed in the study area shows that, except for high lead counts downstream of the Main Street Bridge, the values for heavy metals are similar to those found in the Minnesota River and do not represent a problem. The high lead content is due to storm sewer runoff in that area. One sample site near the Main Street Bridge also revealed the presence of PCB's (6 ug/kg). Any polluted sediments which are excavated will be placed in approved disposal sites and not returned to the river. Clean sand, gravel, and other material would be used as fill; and use of this material would present no major environmental impact in regard to concentration differences of critical constituents between the fill site and the fill material.

b. Biological community structure analysis (40 CFR 230.4-1(c)(2))

The composition of the biological community was sampled in the study area. The insect association is generally representative of a warm water lotic environment but is limited due to periodic siltation. The clam and fish populations in the area are also limited. The existing water quality is rather poor, while a shifting sand bottom and previous channelization work have degraded the aquatic environment. The non-aquatic nature of the fill material is unlikely to be a factor in the biological community structure at the fill sites.

5. REVIEW APPLICABLE WATER QUALITY STANDARDS

a. Compare constituent concentrations

The water quality of the Minnesota River study area is rather poor, with high turbidity and bedload movement at certain times of the year. The Minnesota River study area (including parts of tributaries) is classified as 2B fisheries and recreation and 3B industrial consumption. The constituent concentrations of the fill material are related to the source of the fill material. All fill material would be clean gravel, sand, rock, or concrete.

b. Consider mixing zone

The seepage water from the cofferdam would be pumped back into the river. Because the seepage water would be essentially the same as the existing river water, minor impacts are anticipated and consideration of the mixing zone is not applicable.

c. Will fill operation be in conformance with applicable standards?

According to the criteria outlined in Minnesota State Regulations, Minnesota Pollution Control Agency WPC 14, the project would not affect the river's ambient quality.

6. SELECTION OF DISPOSAL SITES (40 CFR 230.5) FOR FILL MATERIAL

a. Need for the proposed activity

The bridges have to be modified to pass the design standard project flood.

b. Alternatives considered

Alternatives other than the placement of fill are rather limited. Bridge removal with no replacement is neither acceptable nor practical; therefore, pier construction and backfilling is needed, which requires the placement of a cofferdam. The steel sheetpile cofferdam, concrete bridge piers, riprap, and clamshell placement of fill material are alternatives that would minimize turbidity and help reduce future water quality impacts.

c. Objectives to be considered in discharge determination (40 CFR 230.5(a))

(1) Impacts on chemical, physical, and biological integrity of aquatic ecosystem (40 CFR 230.5(a)(1)) - Due to their clean nature, fill activities would not have a significant impact on the chemical, physical, or biological properties of the aquatic ecosystem. Fill activities would not alter the temperature, flow rate, or other physical parameters of the river. Fill activities would not have a significant impact on the biological integrity of the aquatic ecosystem. The runoff from the decks of the constructed bridges, resulting from precipitation events or spills, would not drain directly into the river but would be routed to points on land to the storm sewer system where it would be possible to contain the runoff if necessary. (A more detailed description of this impact is presented in the Environmental Impact Statement.)

(2) Impact on foodchain - Because of the existing poor water quality, the shifting sand bottom, and previous channelization work that has already degraded the aquatic environment, the proposed work should have no effect on foodchain production. In general, excessive silt currently inhibits the production of algae and aquatic invertebrates in the project area.

(3) Impact on diversity of plant and animal species - Biological diversity is fairly low in the fill area of the project. As a result, fill activities are not expected to have a significant impact on plant and animal diversity.

(4) Impact on movement into and out of feeding, spawning, breeding, and nursery areas - Habitat in the fill area is not conducive for such activities. Fill activities are not expected to have a significant impact on this movement.

(5) Impact on wetland areas having significant functions of water quality maintenance - No wetland areas with this function are near the fill activities of the project area.

(6) Impact on areas that serve to retain natural high waters or floodwaters - No natural floodwater retaining areas of significant size are in the project area.

(7) Methods to minimize turbidity - Construction below the normal high water level would be accomplished during low flow periods to minimize turbidity. Using steel sheet piles and making the cofferdams as small as possible yet still able to provide sufficient construction work area would also reduce turbidity. The use of clean fill material would minimize impacts on aquatic organisms and reduce effects on water quality parameters.

(8) Methods to minimize degradation of aesthetic, recreational, and economic values - The cofferdam would be a temporary fill activity with short-term minor aesthetic and recreational impacts. The altered bridge piers would have aesthetic, recreational, and economic impacts similar to the existing conditions, and these would be considered minor.

(9) Threatened and endangered species - No Federal or State threatened or endangered species would be affected by the proposed fill activities.

(10) Other measures that avoid degradation of aesthetic, recreational, and economic values of navigable waters - The fill portions of the project would have no significant impacts on aesthetic, recreational, or economic values of the navigable waters.

d. Impacts on water used at proposed fill sites (40 CFR 230.5(b)(1-10))

(1) Municipal water supply intakes - The fill sites are not near any public water supply intakes.

(2) Shellfish - The fill sites are not in an area of shellfish production.

(3) Fisheries - No significant fish habitat would be affected by the fill activities.

(4) Wildlife - During construction, equipment associated with the placement of fill would temporarily disturb some wildlife.

(5) Recreation activities - Water-related recreation activities are not important in the project area.

(6) Threatened and endangered species - No Federal or State threatened or endangered species are located in the project area.

(7) Benthic life - In general, benthic life is inhibited in the project area by excessive silt, which destroys the utility of the substrate as benthic habitat. However, fill activities would cover any benthic life existing at the fill sites. This would be a short-term adverse impact because recolonization would occur.

(8) Wetlands - Wetlands would not be affected by fill activities.

(9) Submersed vegetation - The fill sites do not contain a significant population of submersed vegetation.

(10) Size of disposal site - The size of the disposal site would have minor environmental impacts in the project area. In addition, the disposal sites are the smallest possible that still provide required construction space.

(11) Coastal Zone Management programs (40 CFR 230.3(e)) - Not applicable.

e. Considerations to minimize harmful effects (40 CFR 230.5(c)(1-7))

(1) Water quality criteria - According to the criteria outlined in Minnesota State Regulations, Minnesota Pollution Control Agency WPC 14, the project would not affect the river's ambient quality.

(2) Alternatives to open water fill - There are no practical alternatives to the fill required to accomplish the bridge modifications.

(3) Physical characteristics of alternative fill sites - The flood control project, as designed, requires modifications to the bridges. Alternatives are not compatible with the project.

(4) Ocean dumping - Not applicable.

(5) Covering contaminated fill material with cleaner material - All fill material would be clean.

X (6) Methods to minimize effects of runoff from confined areas on the aquatic environment - All fill material is clean, and no confined areas other than the cofferdams would be utilized.

(7) Coordinate potential monitoring activities at the fill site with EPA - Because of the clean nature of the fill material, no monitoring activities are planned.

7. STATEMENT AS TO CONTAMINATION OF FILL MATERIAL IF FROM A LAND SOURCE (40 CFR 230.5(d))

The fill material would be commercially purchased and would consist of clean rock, gravel, sand, and concrete. Minnesota Department of Transportation approved borrow sites would be used.

8. DETERMINE MIXING ZONE

Determination of a mixing zone is not applicable. Because the discharged seepage water would be of the same quality as the receiving water, no significant impacts are expected. The seepage water discharge may cause some increased turbidity, but this impact would be minor.

INDEX REFERENCES AND APPENDIXES
(Alternative 1C, TII 169/60 over Blue Earth River)

<u>Subjects</u>	<u>Environmental Impact Statement</u>	<u>Main Report (References Incorporated)</u>	<u>Report Appendixes and Technical Reports (References Incorporated)</u>
Affected Environment	p. EIS-15	Frontispiece pp. 8-24	Tech. Reports 1-7
Air Quality	p. EIS-22	pp. 17-20	--
Alternatives	p. EIS-10	pp. 26-51	--
Areas of Controversy	p. EIS-6	--	--
Comparative Impacts of Alternatives	p. EIS-14	pp. 35-39,52	--
Displacements	p. EIS-17	pp. 37,52	Tech. Report 4
Environmental Effects	p. EIS-19	pp. 39-51	Tech. Reports 1-7
Environmental Conditions	p. EIS-15	pp. 8-24	Tech. Reports 1-7
Historic Properties	p. EIS-18	p. 23	Tech. Report 5
List of Preparers	pp. EIS-2&3	--	Tech. Report 1
Major Conclusions and Findings	p. EIS-6	pp. 54-55	--
Need for and Objectives of Action	p. EIS-9	pp. 1,3,7,24	--
Neighborhoods	p. EIS-17	pp. 9-10,29,36, 37,40,47,52	Tech. Report 4
Noise	p. EIS-18	pp. 17-20,43,44 49	Tech. Report 3
Parks and Recreation	--	pp. 23, 47	Tech. Report 4
Planning Objectives	p. EIS-9	p. 7	--
Plans Considered in Detail	p. EIS-12	pp. 39-55	Appendix A

INDEX REFERENCES AND APPENDIXES (Cont.)
(Alternative 1C, TH 169/60 over Blue Earth River)

<u>Subjects</u>	<u>Environmental Impact Statement</u>	<u>Main Report (References Incorporated)</u>	<u>Report Appendixes and Technical Reports (References Incorporated)</u>
Plans Eliminated from Further Study	p. EIS-10	pp. 28-39	Appendix A
Public Concerns	p. EIS-9	p. 7	Appendix C
Public Involvement	p. EIS-25	pp. 3,44,51	Appendix C
Public Involvement Program	p. EIS-25	p. 3	Appendix C
Public Views and Responses	pp. EIS-29-30	pp. 3,44,51	Appendix C
Receiptipients of EIS	p. EIS-26	--	--
Relationship to Environmental Requirements	p. EIS-7	--	--
Required Remaining Coordination	p. EIS-26	--	--
Significant Concerns	pp. EIS 17-19	pp. 7-24	Tech. Reports 1-7
Study Authority	p. EIS-9	p. 1	--
Summary	p. EIS-6	--	--
Tiering	p. EIS-7	--	--
Traffic Service and Safety	pp. EIS 19-24	pp. 10-17,27,29-33 42,49,36,37, 38-42,	Tech. Report 1
Unresolved Issues	p. EIS-6	--	Appendix B
Water Resources	pp. EIS-18,23	pp. 22,39,46	Tech. Reports 2,6
Without Conditions	p. EIS-11	pp. 24-25	--

FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER

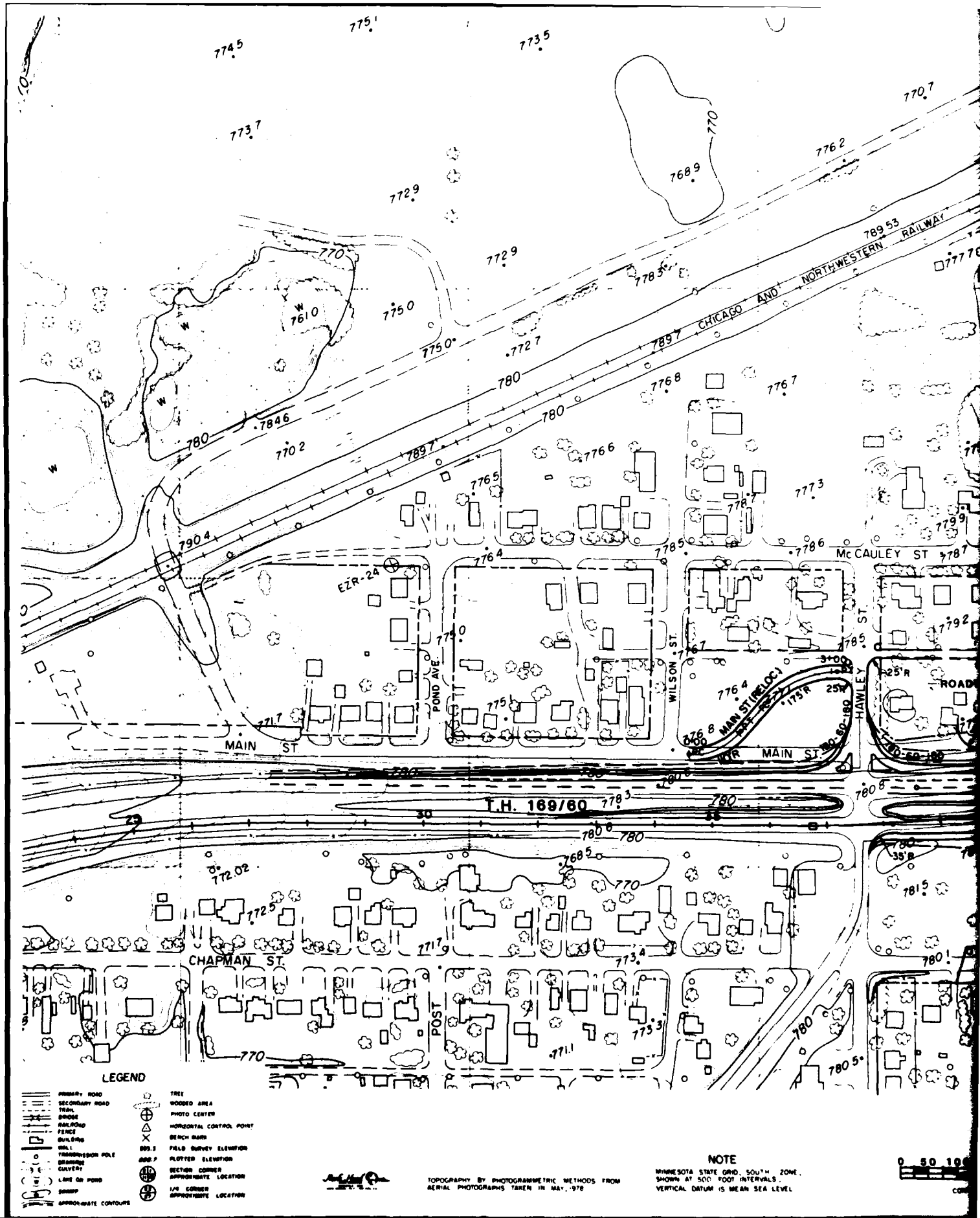
DESIGN MEMORANDUM NO. 8 - PART I (Location Study)
AND
DRAFT SUPPLEMENT II TO THE FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
BRIDGE RELOCATIONS

TRUNK HIGHWAY 169 AND 60
OVER THE BLUE EARTH RIVER BETWEEN
MANKATO AND LE HILLIER

APPENDIX A
PLANS, PROFILES, AND TYPICAL CROSS SECTIONS

TABLE OF CONTENTS

<u>Plate</u>		<u>Page</u>
A-1 to A-4	Plan and Profile, Alternative 1B	A-1
A-5 to A-8	Plan and Profile, Alternative 1C	A-5
A-9	Typical Cross Sections, Alternative 1B	A-9
A-10	Typical Cross Sections, Alternative 1C	A-10



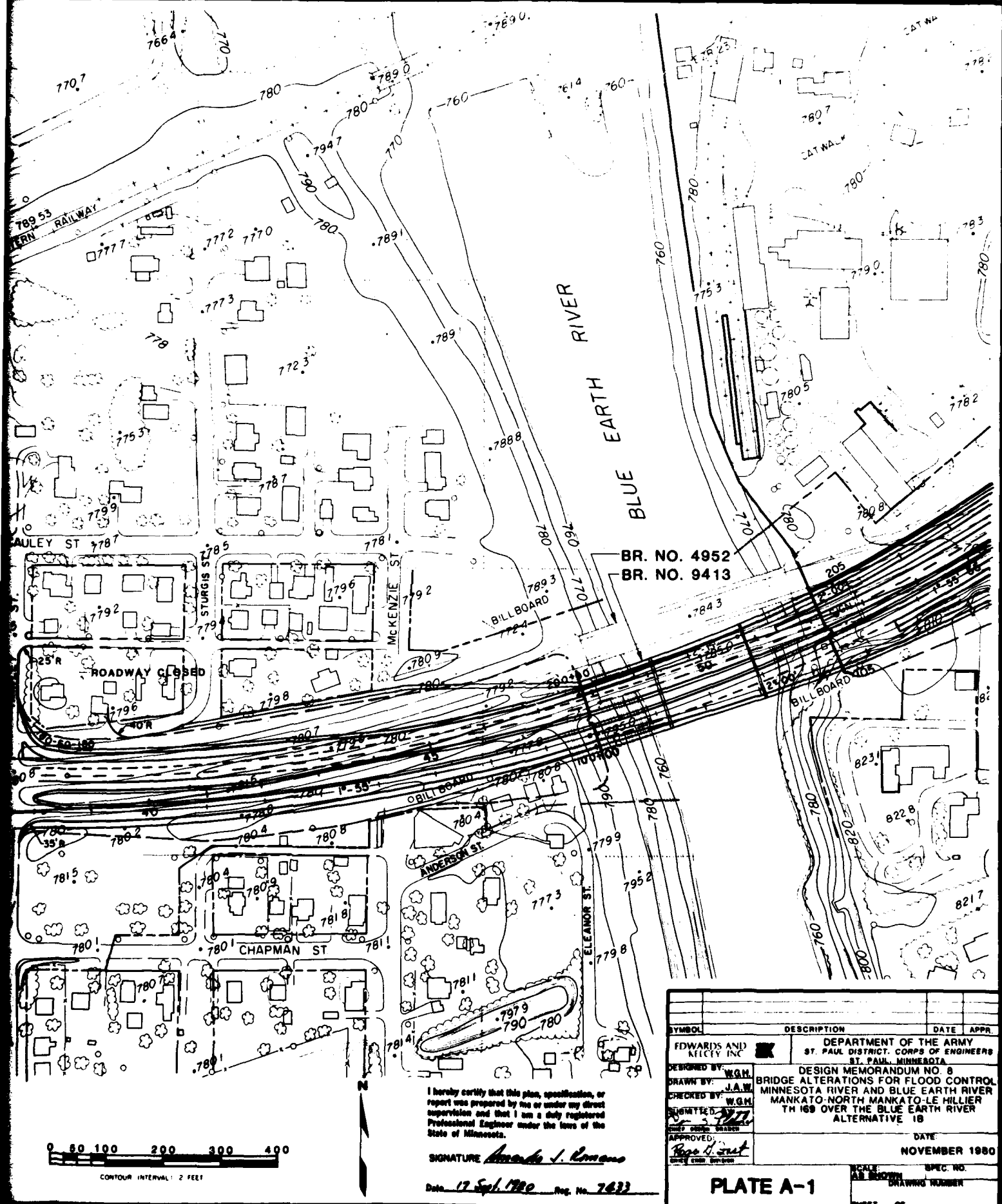
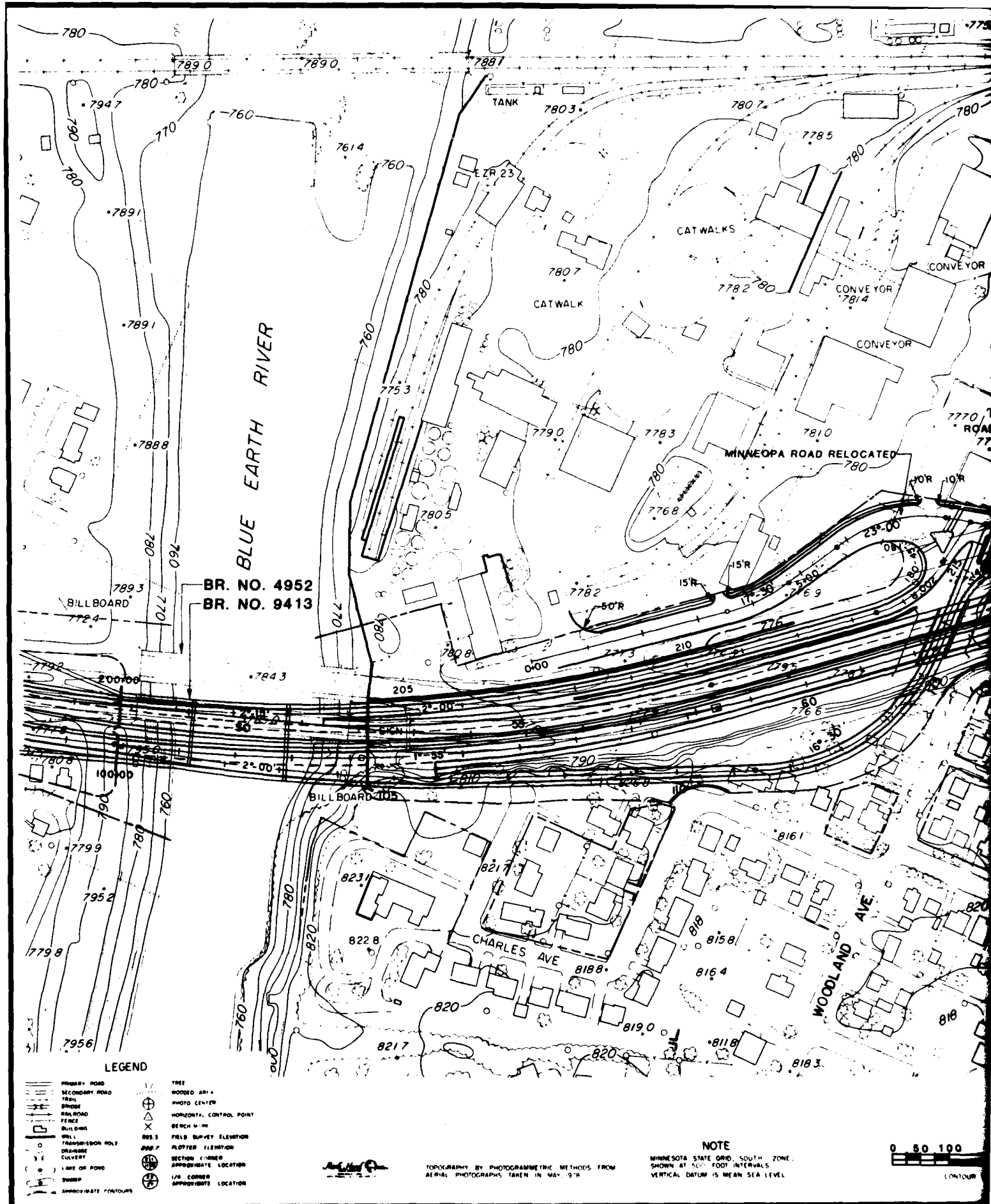
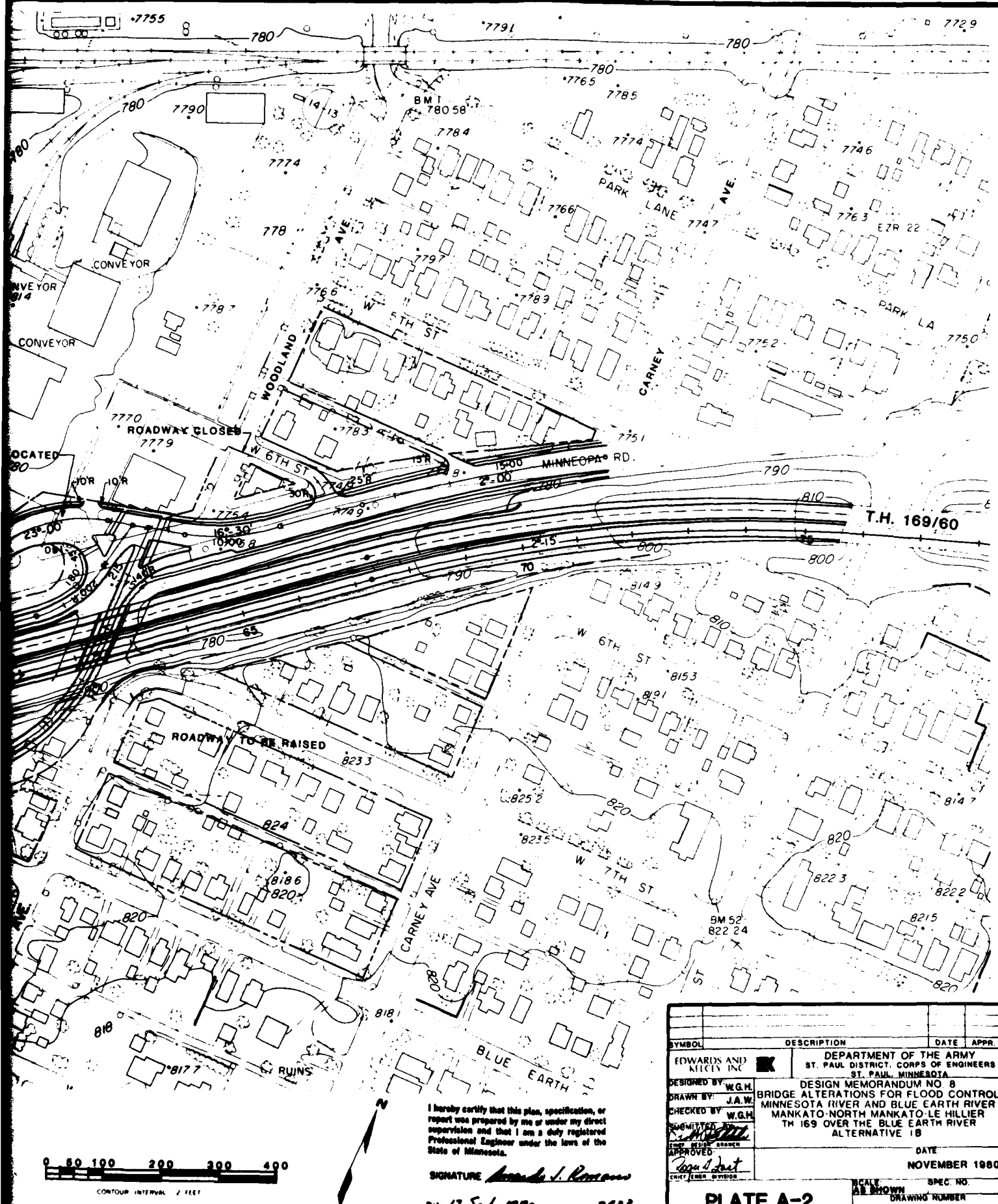


PLATE A-1





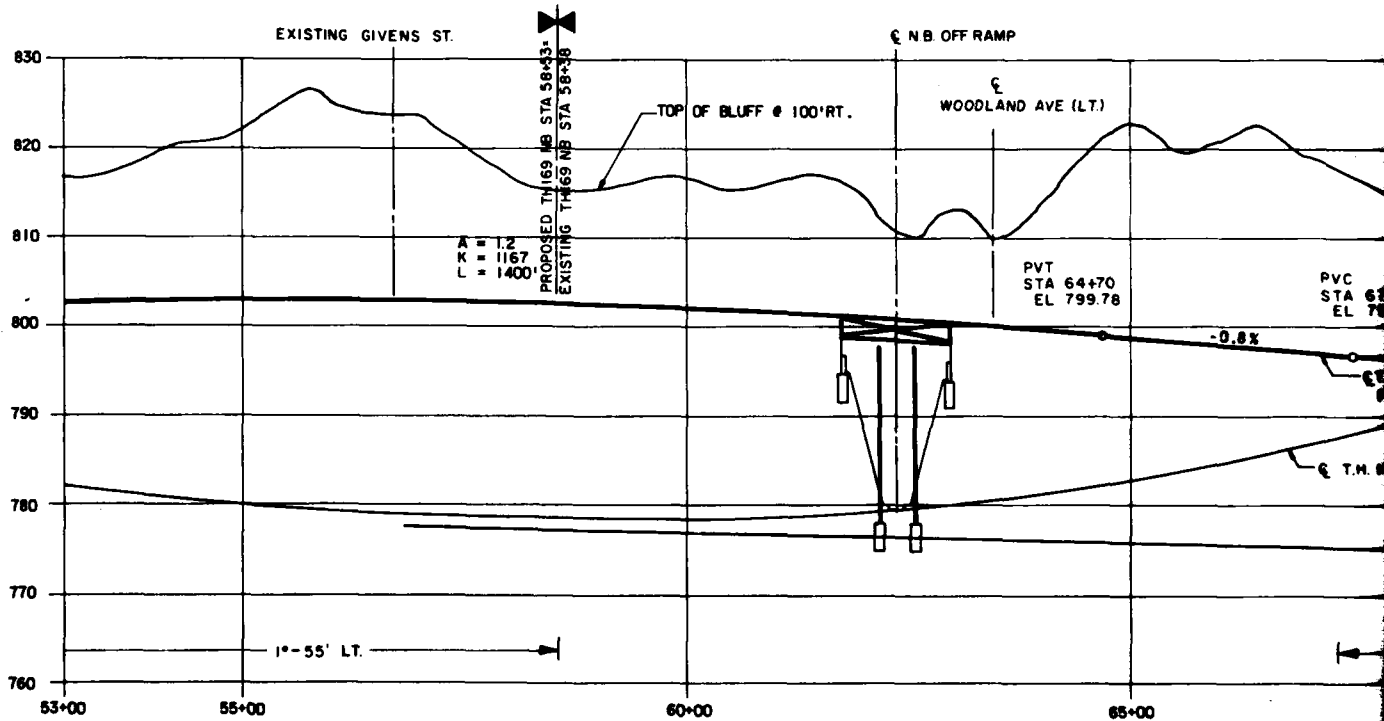
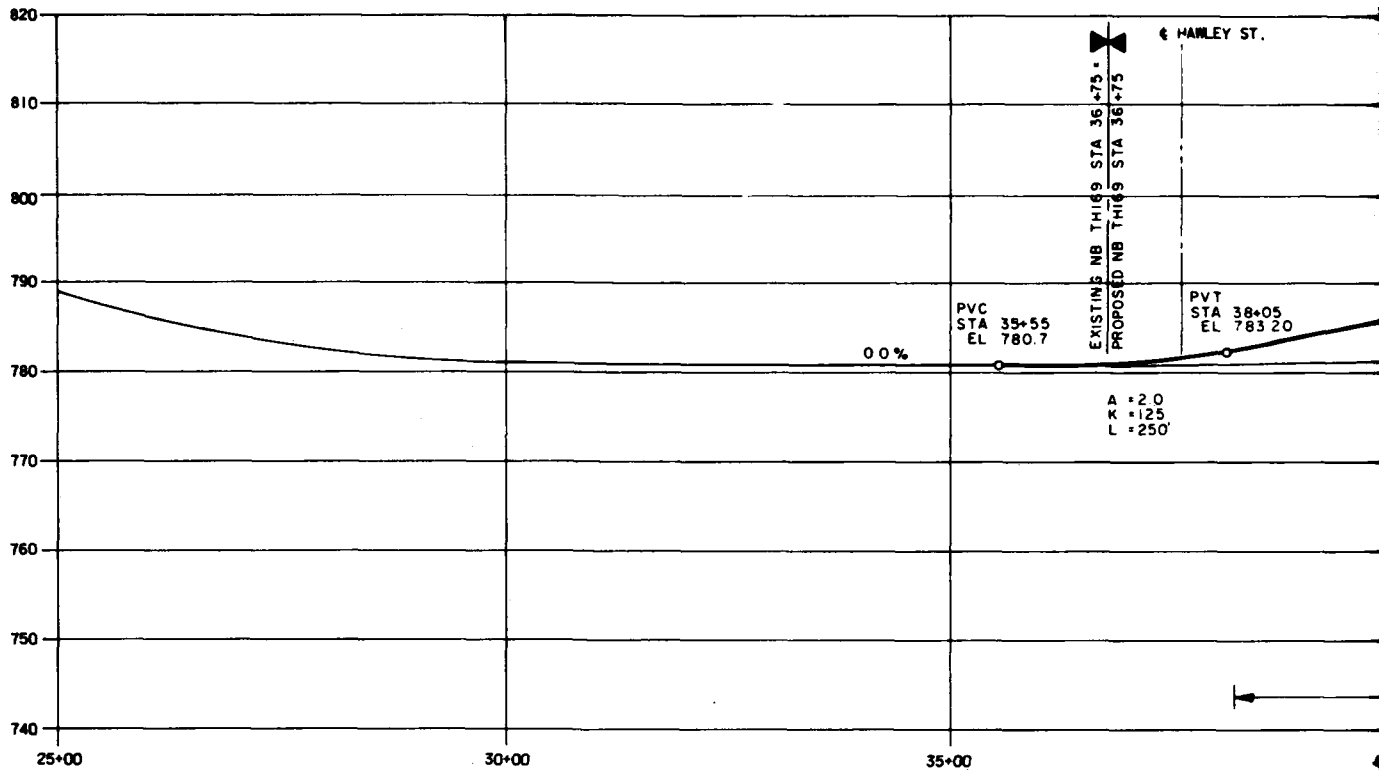
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE *Armando J. Roman*

Date *17 Sep 1980* Reg. No. *7483*

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELCEY INC	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: <i>[Signature]</i>	MANKATO NORTH MANKATO LE HILLIER		
APPROVED: <i>[Signature]</i>	TH 169 OVER THE BLUE EARTH RIVER		
CHIEF ENGINEER	ALTERNATIVE 1B	DATE	
		NOVEMBER 1980	
		SCALE	SPEC. NO.
		AS SHOWN	DRAWING NUMBER
			SHEET OF

PLATE A-2



LEGEND

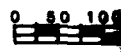
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| SECONDARY ROAD | WOODED AREA |
| TRAIL | PHOTO CENTER |
| BRIDGE | HORIZONTAL CONTROL POINT |
| RAILROAD | BENCH MARK |
| FENCE | FIELD SURVEY ELEVATION |
| BUILDING | PLOTTER ELEVATION |
| WELL | SECTION CORNER |
| TRANSMISSION POLE | APPROXIMATE LOCATION |
| DRAINAGE CULVERT | 1/8 CORNER |
| LAKE OR POND | APPROXIMATE LOCATION |
| SWAMP | |
| APPROXIMATE CONTOURS | |



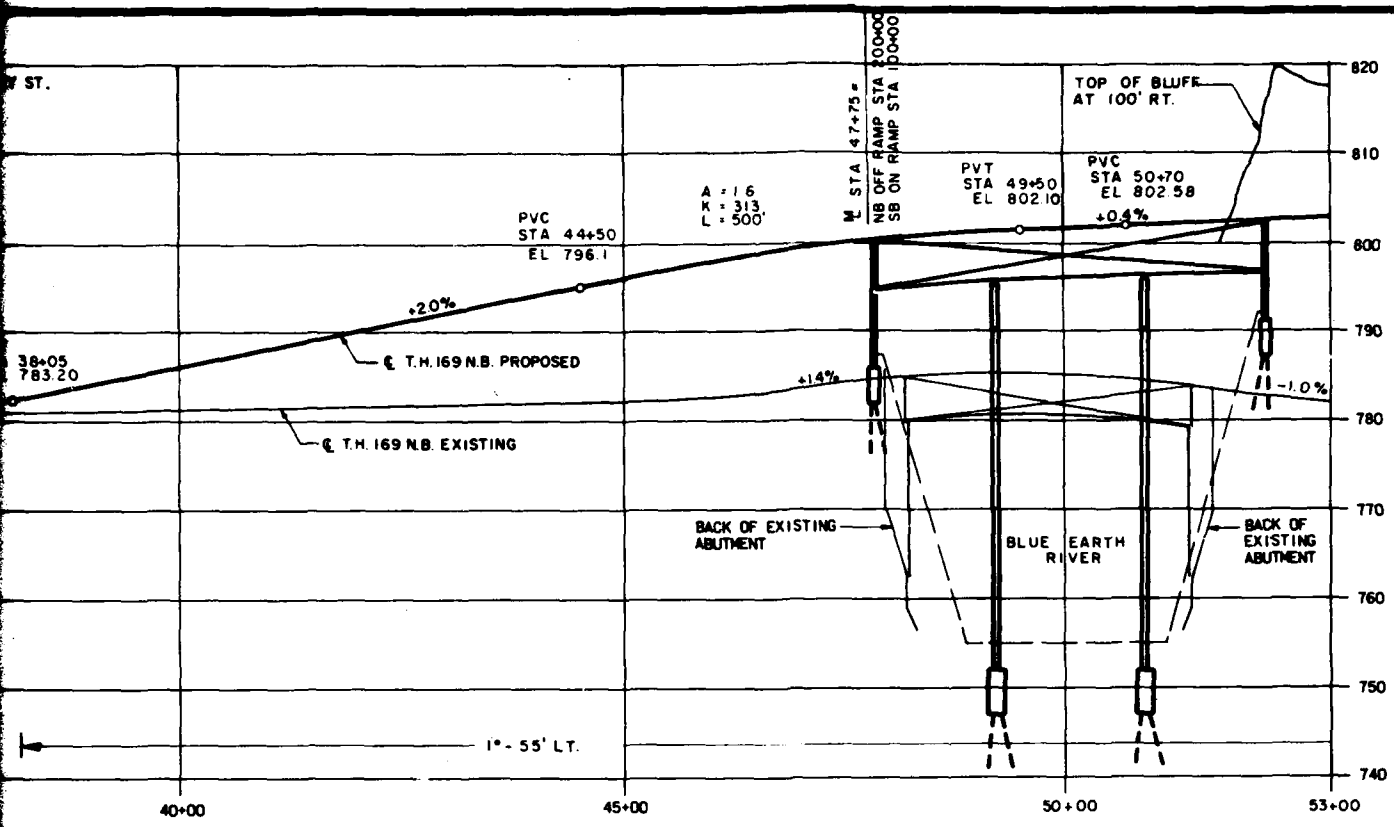
TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

NOTE

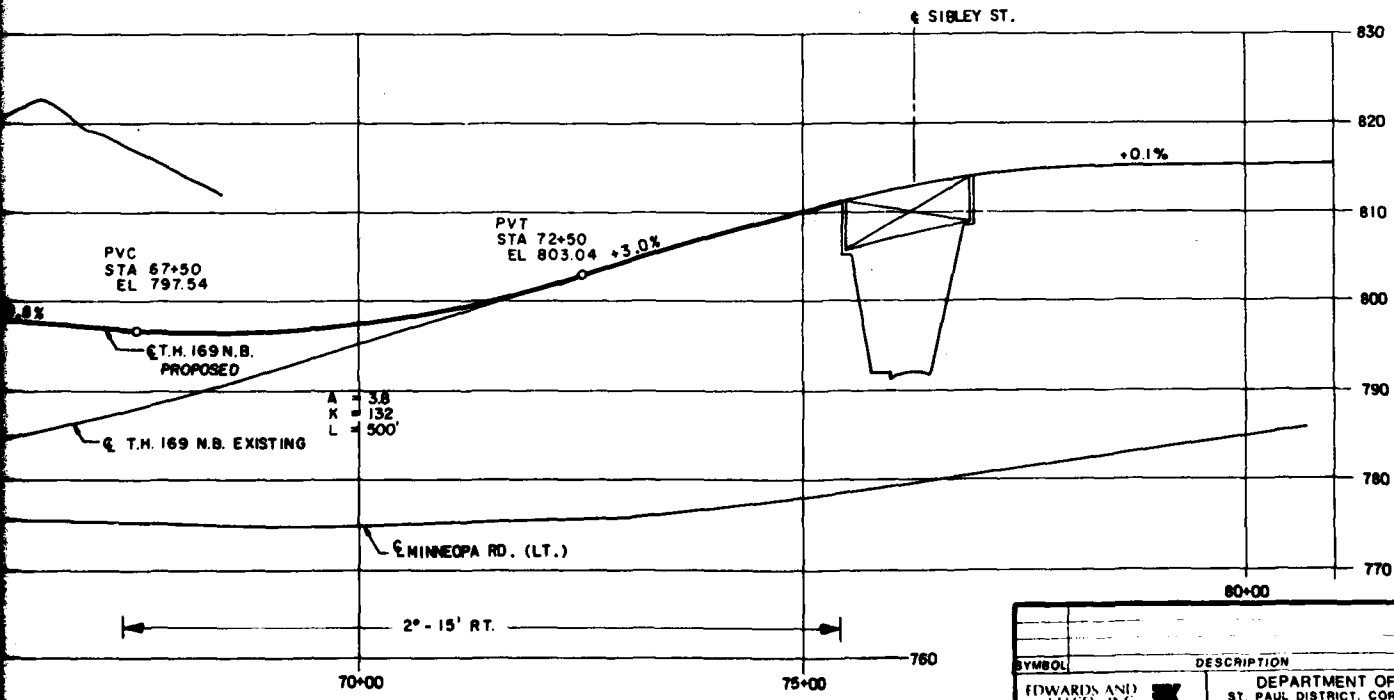
MINNESOTA STATE GRID, SOUTH ZONE
SHOWN AT 500' FOOT INTERVALS
VERTICAL DATUM IS MEAN SEA LEVEL



T.H. 169 N.B.



T.H. 169 N.B.



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

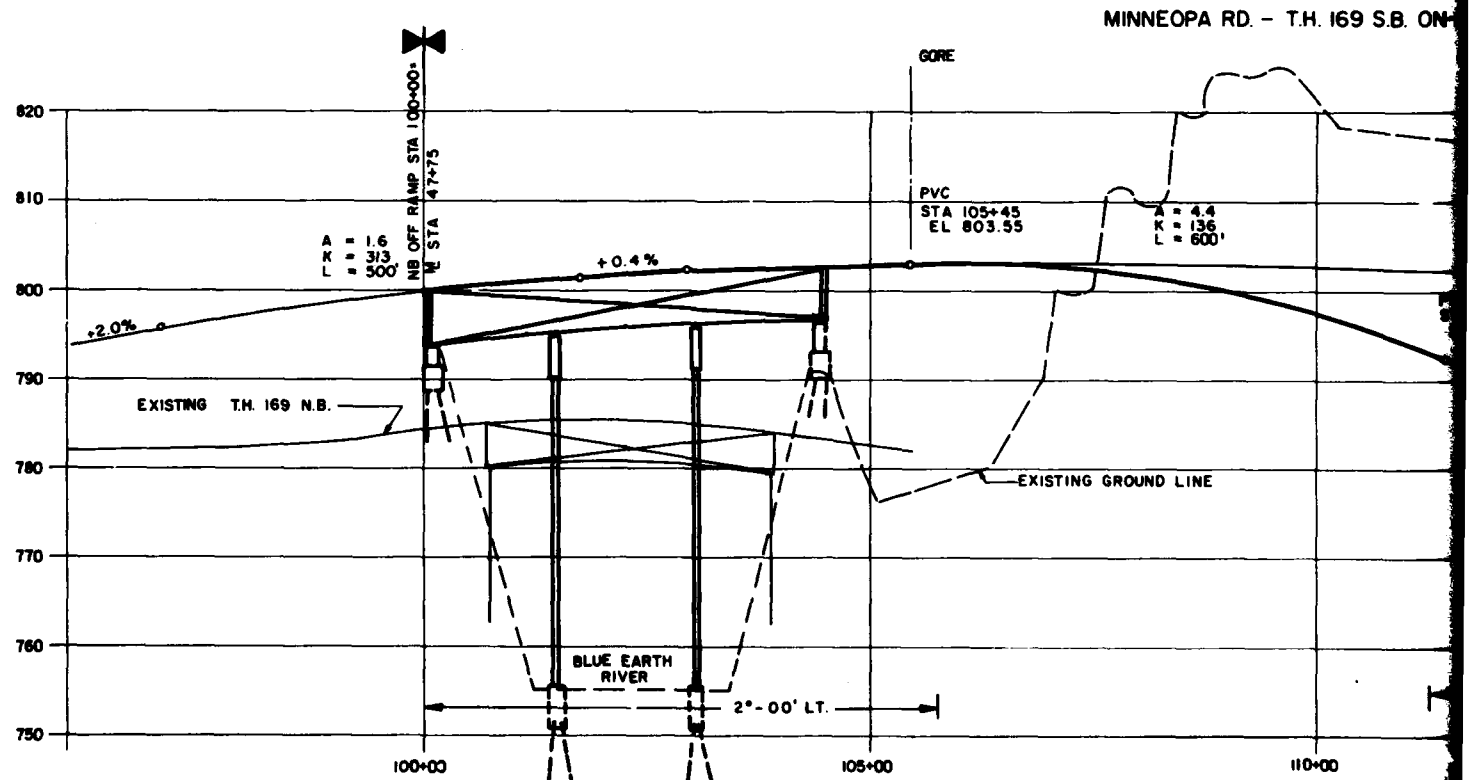
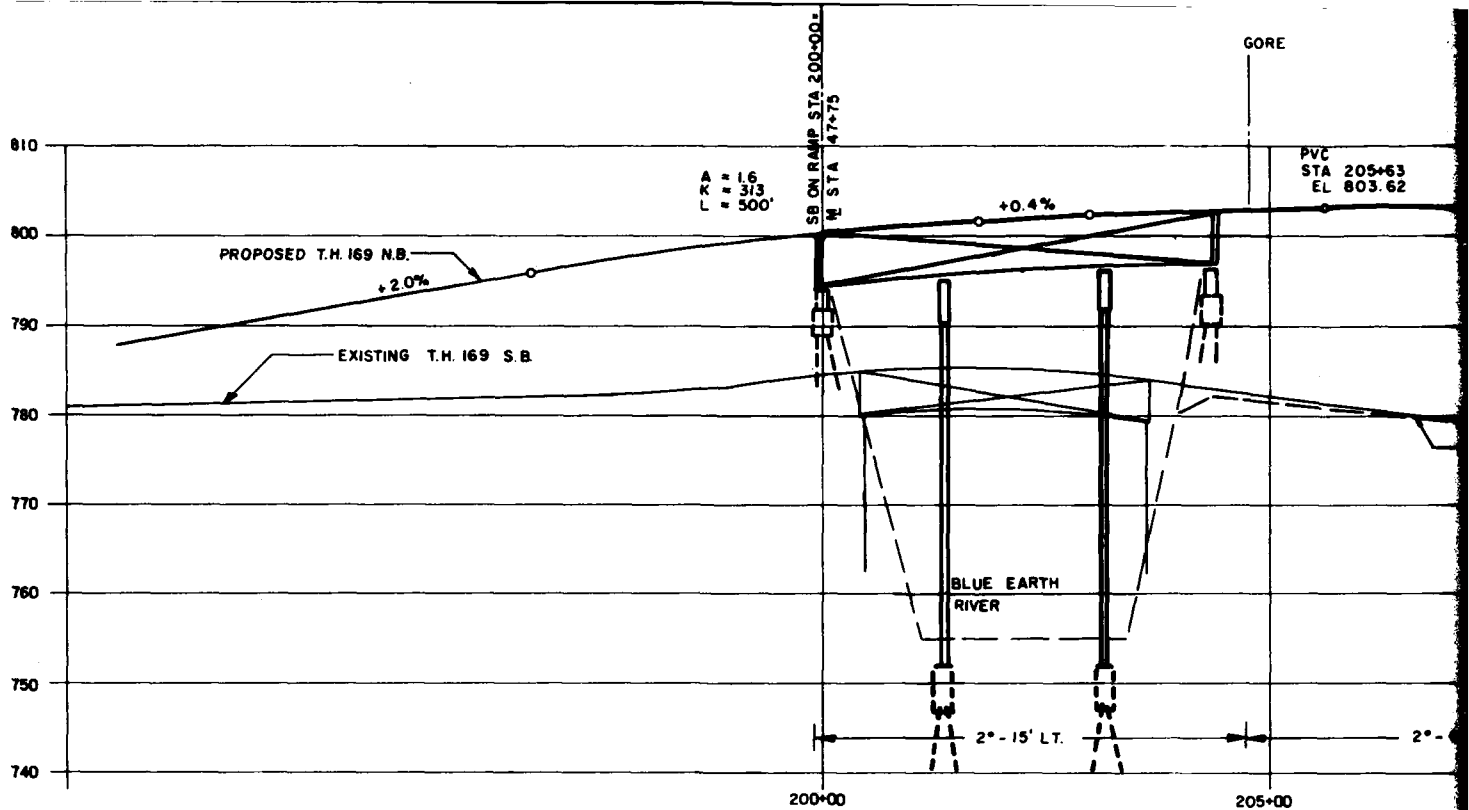
SIGNATURE *Armando J. Romano*

Date *17 Sep 1980* Reg. No. *7633*

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KITCH INC	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
	MANKATO-NORTH MANKATO-LE HILLIER		
	TH 169 OVER THE BLUE EARTH RIVER		
	ALTERNATIVE 1B		
APPROVED		DATE	
<i>Barry J. Jost</i>		NOVEMBER 1980	
SCALE	SPEC. NO.		
AS SHOWN	DRAWING NUMBER		

PLATE A-3





LEGEND

	PRIMARY ROAD		TREE
	SECONDARY ROAD		WOODED AREA
	TRAIL		PHOTO CENTER
	BRIDGE		HORIZONTAL CONTROL POINT
	RAILROAD		BENCH MARK
	FENCE		FIELD SURVEY ELEVATION
	BUILDING		PLOTTED ELEVATION
	WALL		SECTION CORNER
	TRANSMISSION POLE		APPROXIMATE LOCATION
	GRASSLAND		1/4 CORNER
	CULVERT		APPROXIMATE LOCATION
	LAKE OR POND		
	SWAMP		
	APPROXIMATE CONTOURS		

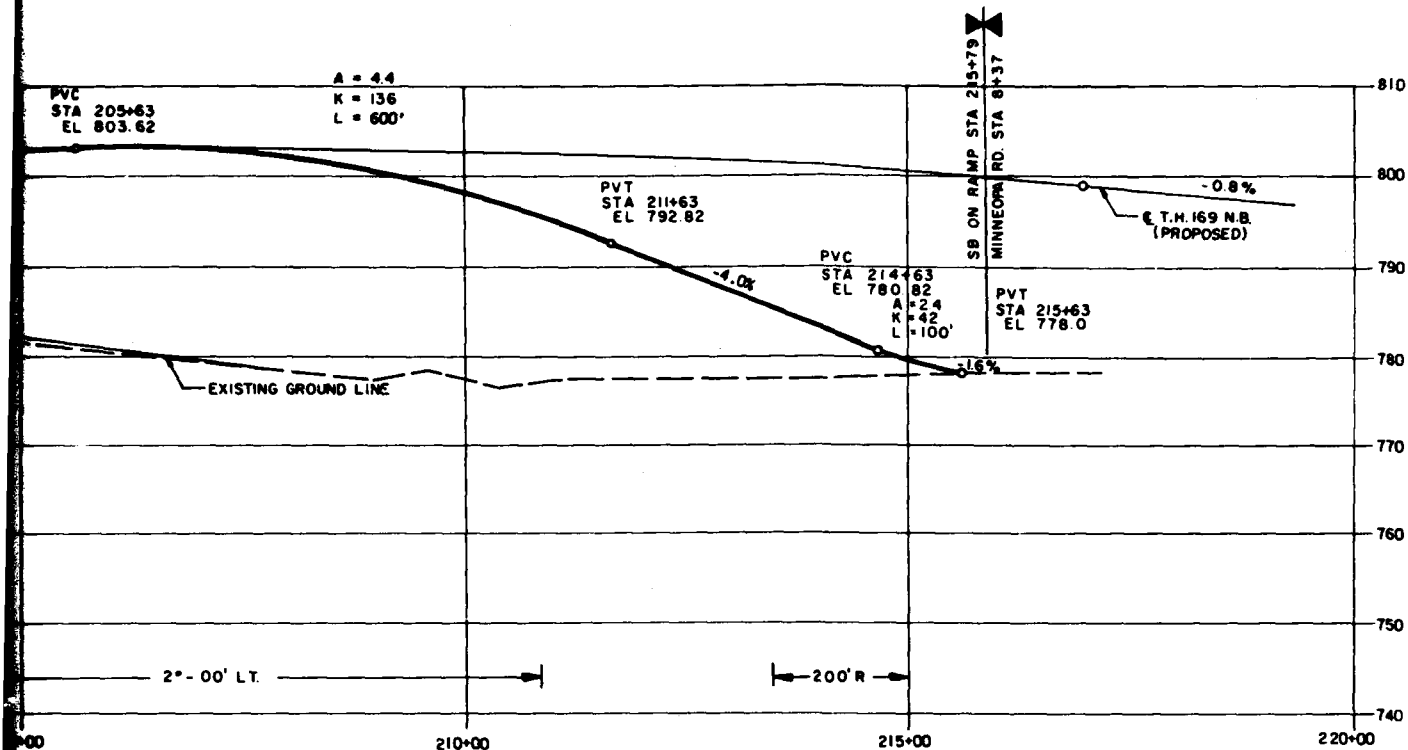
TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

NOTE

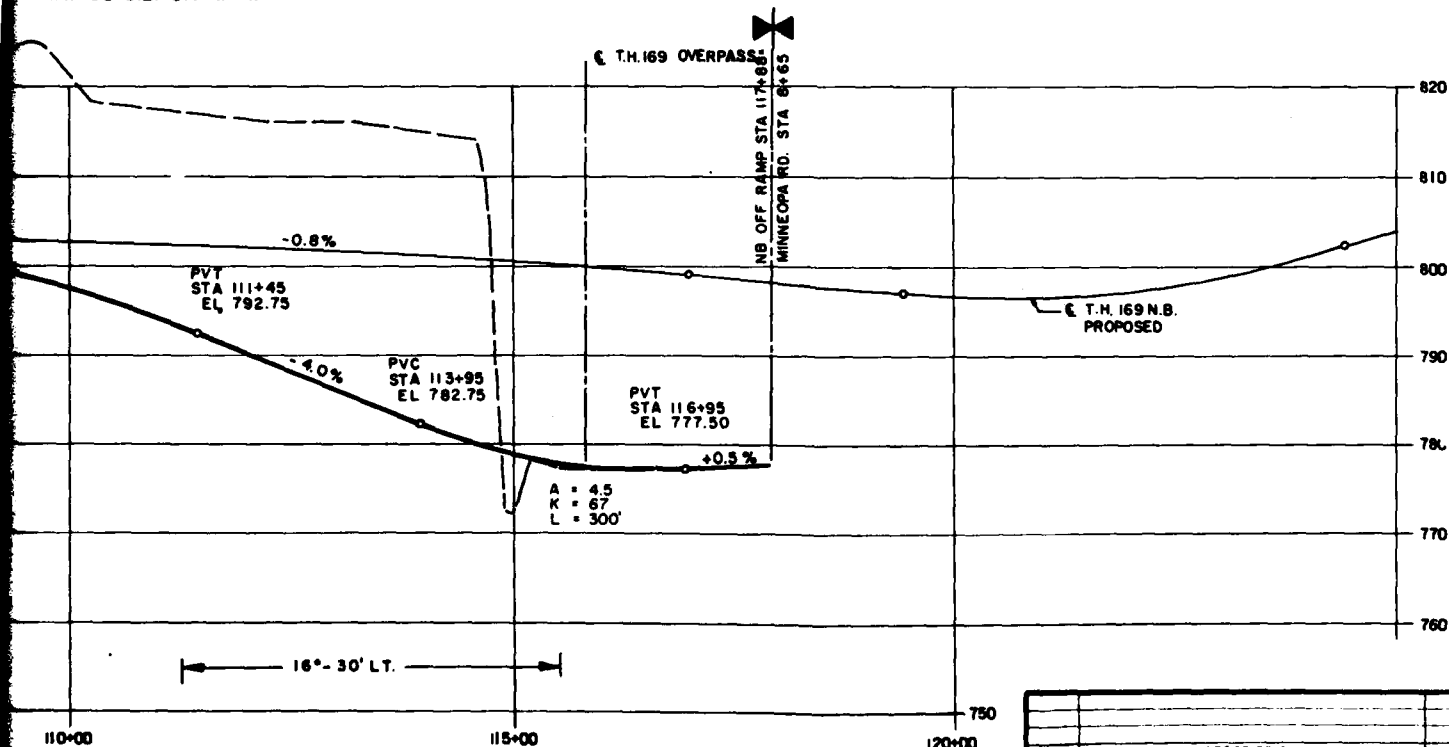
MINNESOTA STATE GRID, SOUTH ZONE,
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL

0 50 100

CONT



T.H. 169 S.B. ON-RAMP

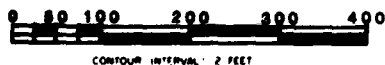


MINNEOPE RD. OFF RAMP

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

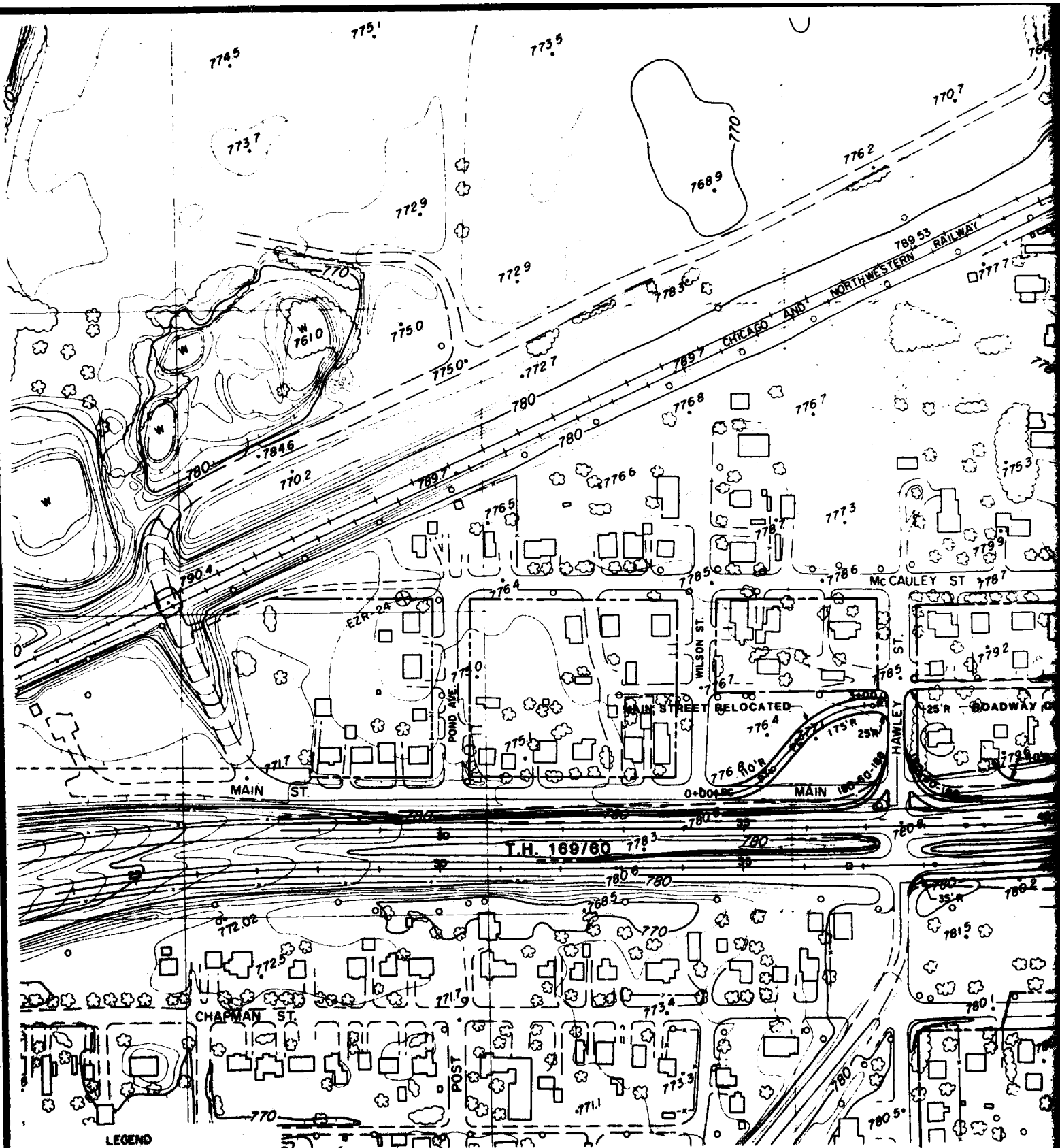
SIGNATURE *Edward J. Rasmussen*

Date *12 Sep. 1980* Reg. No. *2623*



SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
	MANKATO-NORTH MANKATO-LE HILLIER		
	TH 169 OVER THE BLUE EARTH RIVER		
	ALTERNATIVE 1B		
APPROVED: <i>Ben J. [Signature]</i>	DATE: NOVEMBER 1980		
	SCALE: AS SHOWN	SPEC. NO.	
		DRAWING NUMBER	
		SHEET OF	

PLATE A-4



LEGEND

- | | | | |
|--|----------------|--|--------------------------|
| | PRIMARY ROAD | | SPOT ELEVATION |
| | SECONDARY ROAD | | HORIZONTAL CONTROL POINT |
| | WATER | | BENCHMARK |
| | BUILDING | | FIELD SURVEY STATION |
| | FENCE | | PLOTTED ELEVATION |
| | BOUNDARY LINE | | SECTION CORNER |
| | TELEPHONE POLE | | APPROXIMATE LOCATION |
| | LINE OF SIGHT | | LIGHT LOCATION |
| | CONTOUR LINE | | APPROXIMATE CONTOUR |



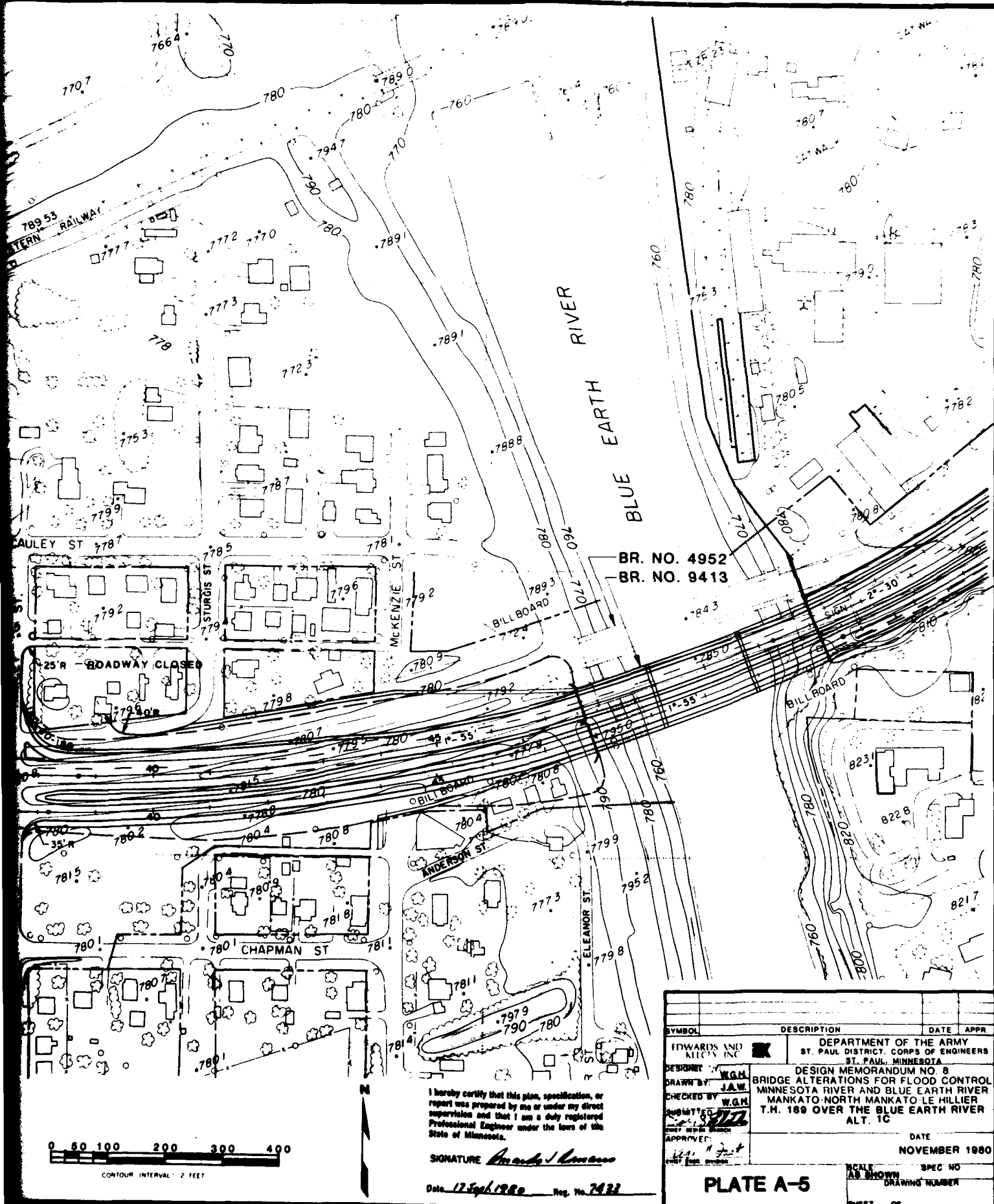
TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

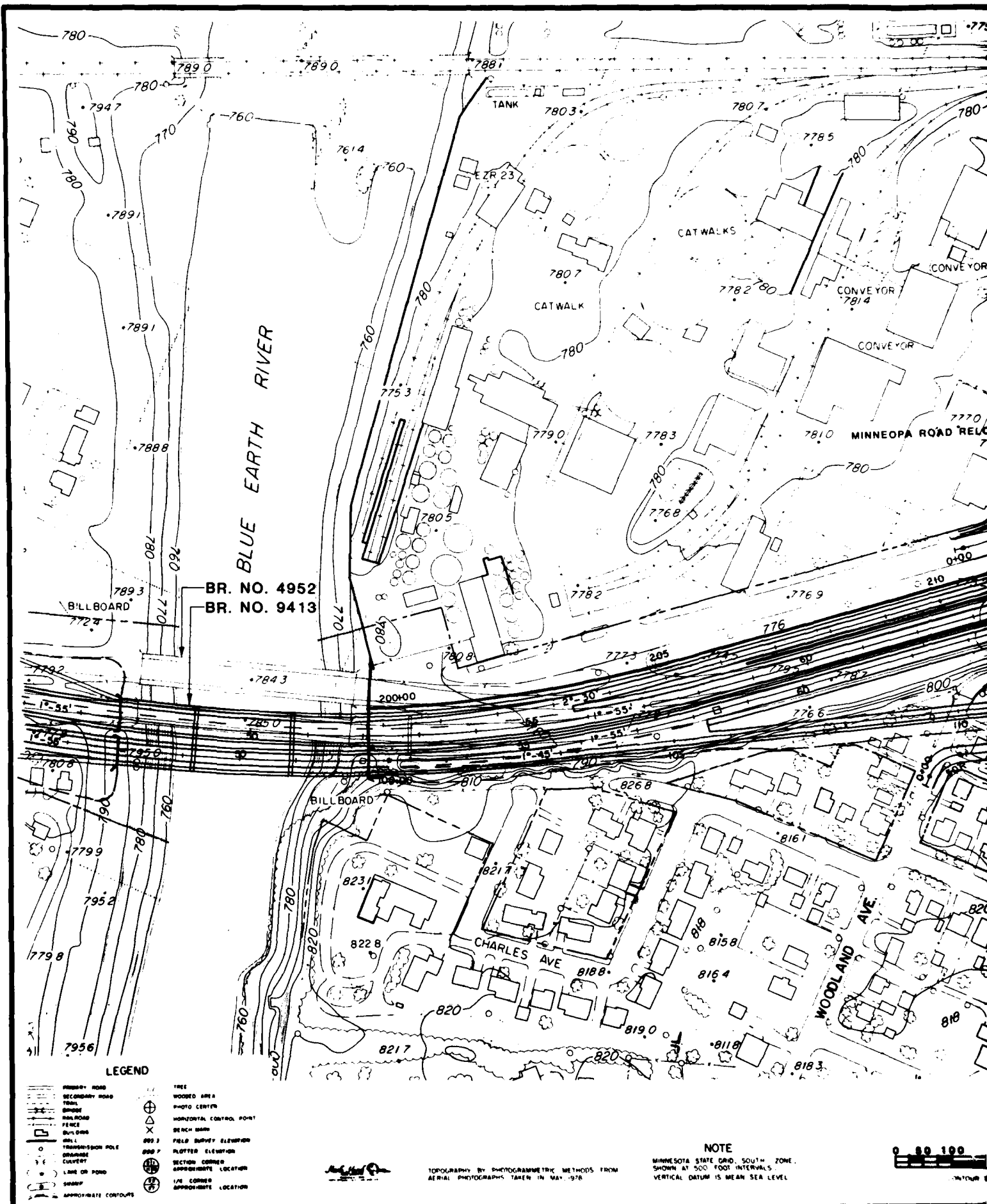
NOTE

MINNESOTA STATE GRID, SOUTH ZONE, SHOWN AT 500 FOOT INTERVALS. VERTICAL DATUM IS MEAN SEA LEVEL.

0 50 100

CONTOUR





BR. NO. 4952
BR. NO. 9413

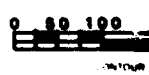
LEGEND

- | | |
|----------------------|--------------------------|
| PRIMARY ROAD | TREE |
| SECONDARY ROAD | WOODED AREA |
| TANK | PHOTO CENTER |
| RAILROAD | HORIZONTAL CONTROL POINT |
| FENCE | BENCH MARK |
| BUILDING | FIELD SURVEY ELEVATION |
| WELL | PLASTER ELEVATION |
| TRANSITION POLE | SECTION CORNER |
| GRASSY CULVERT | APPROXIMATE LOCATION |
| LINE ON POND | 1/4 CORNER |
| SHORE | APPROXIMATE LOCATION |
| APPROXIMATE CONTOURS | |

NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL

TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978



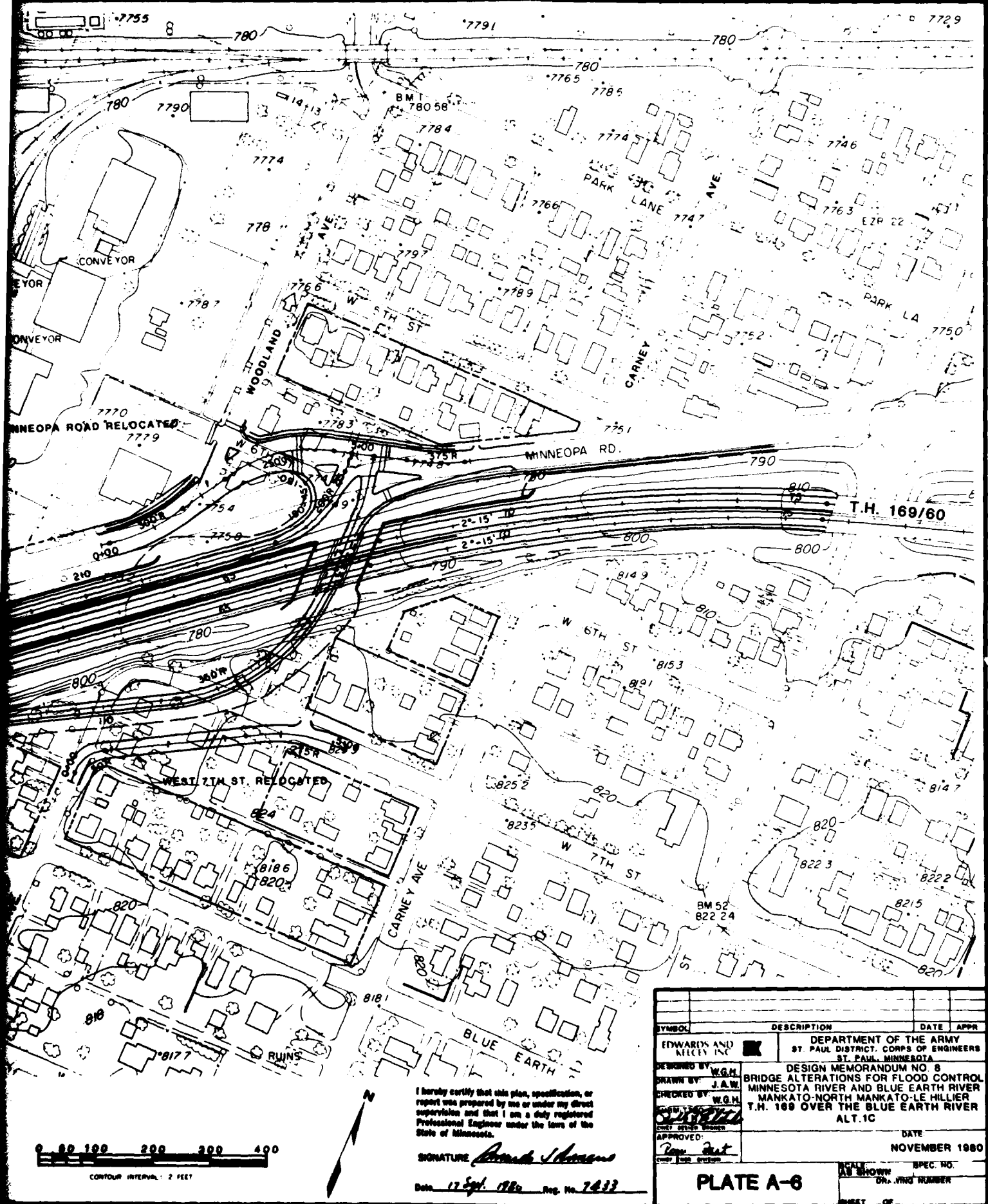
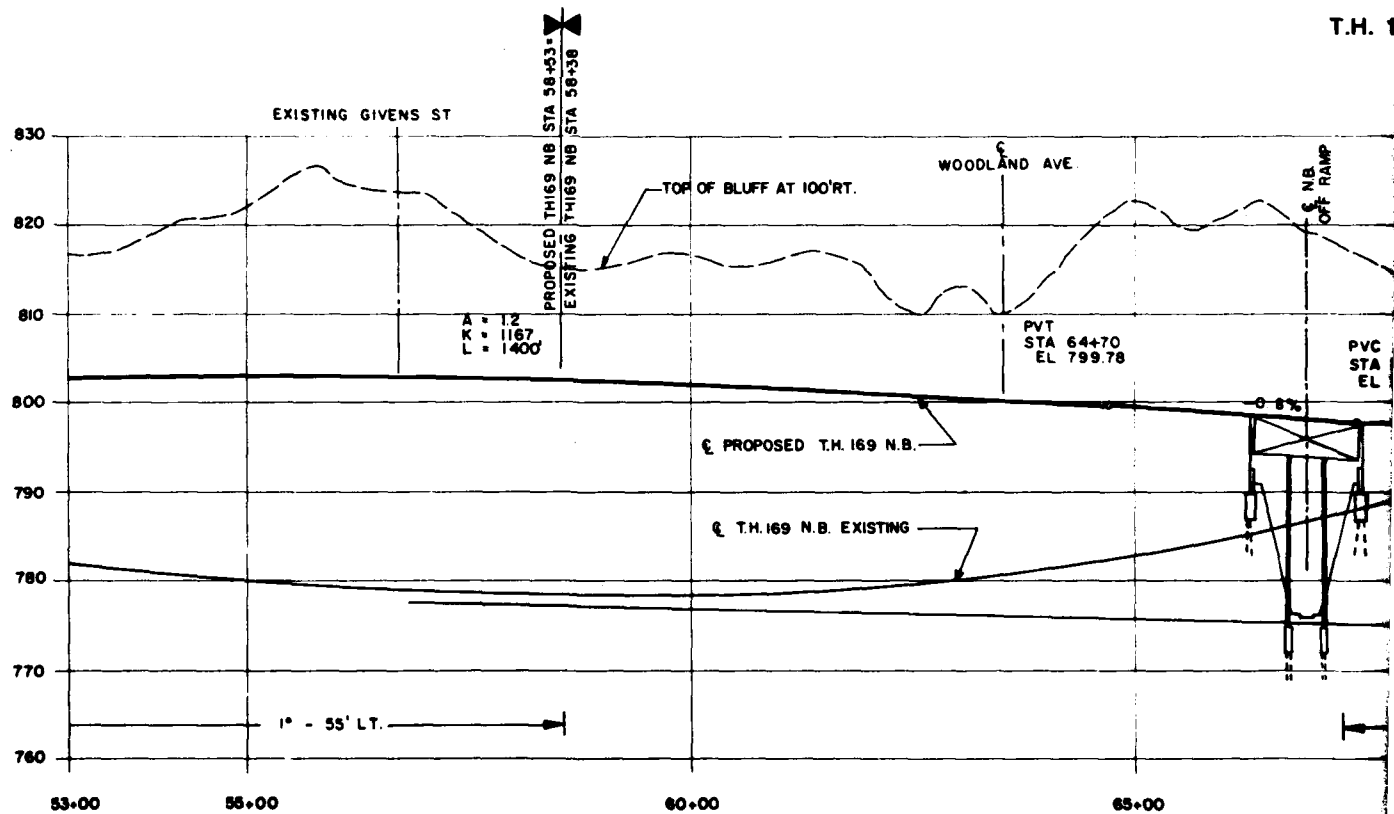
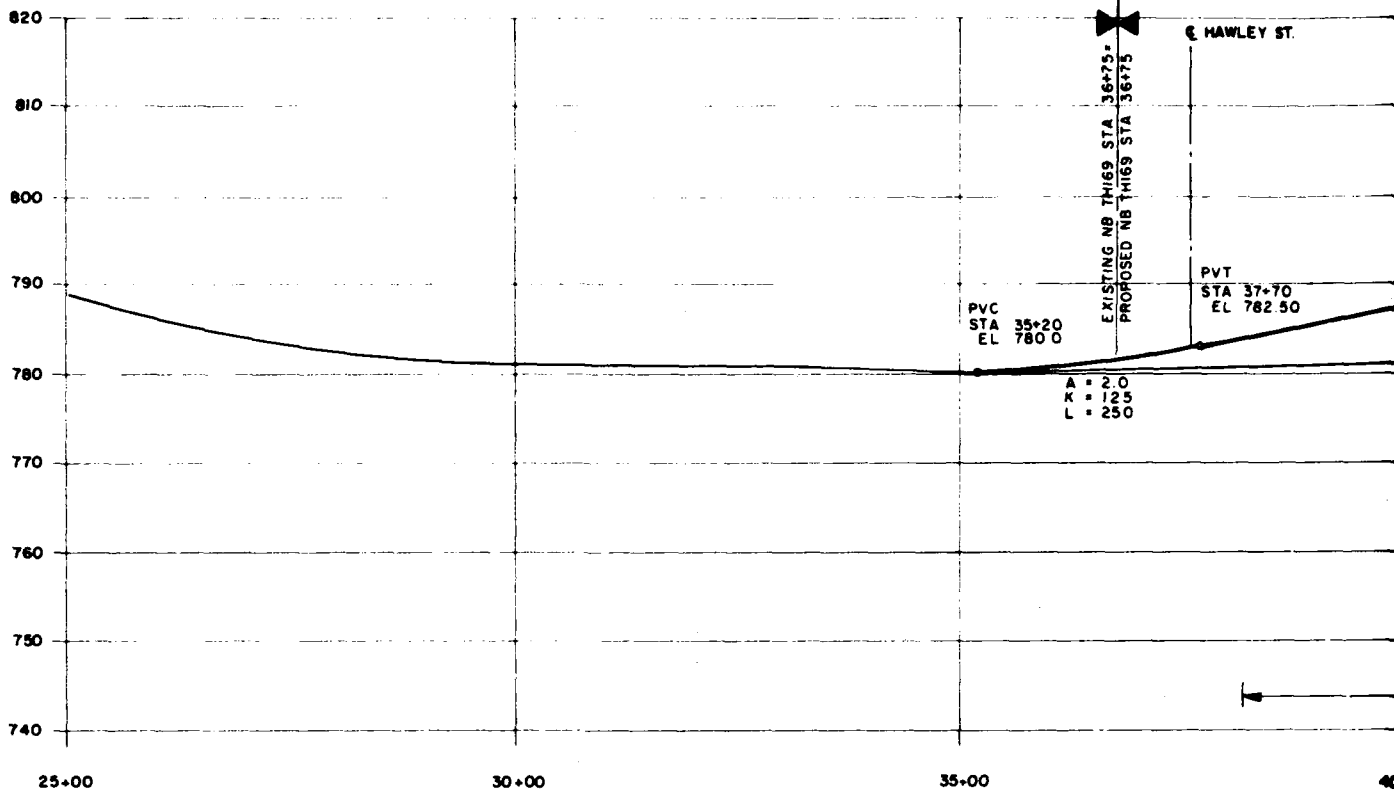


PLATE A-6



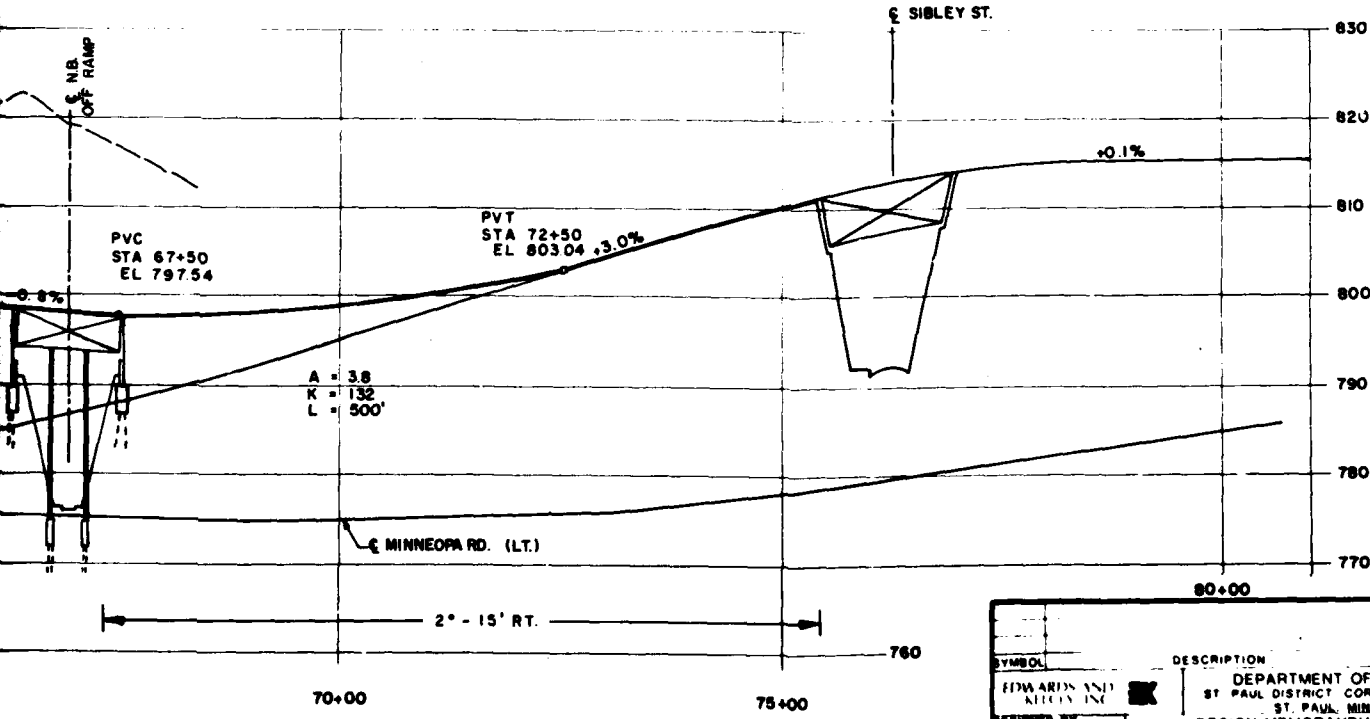
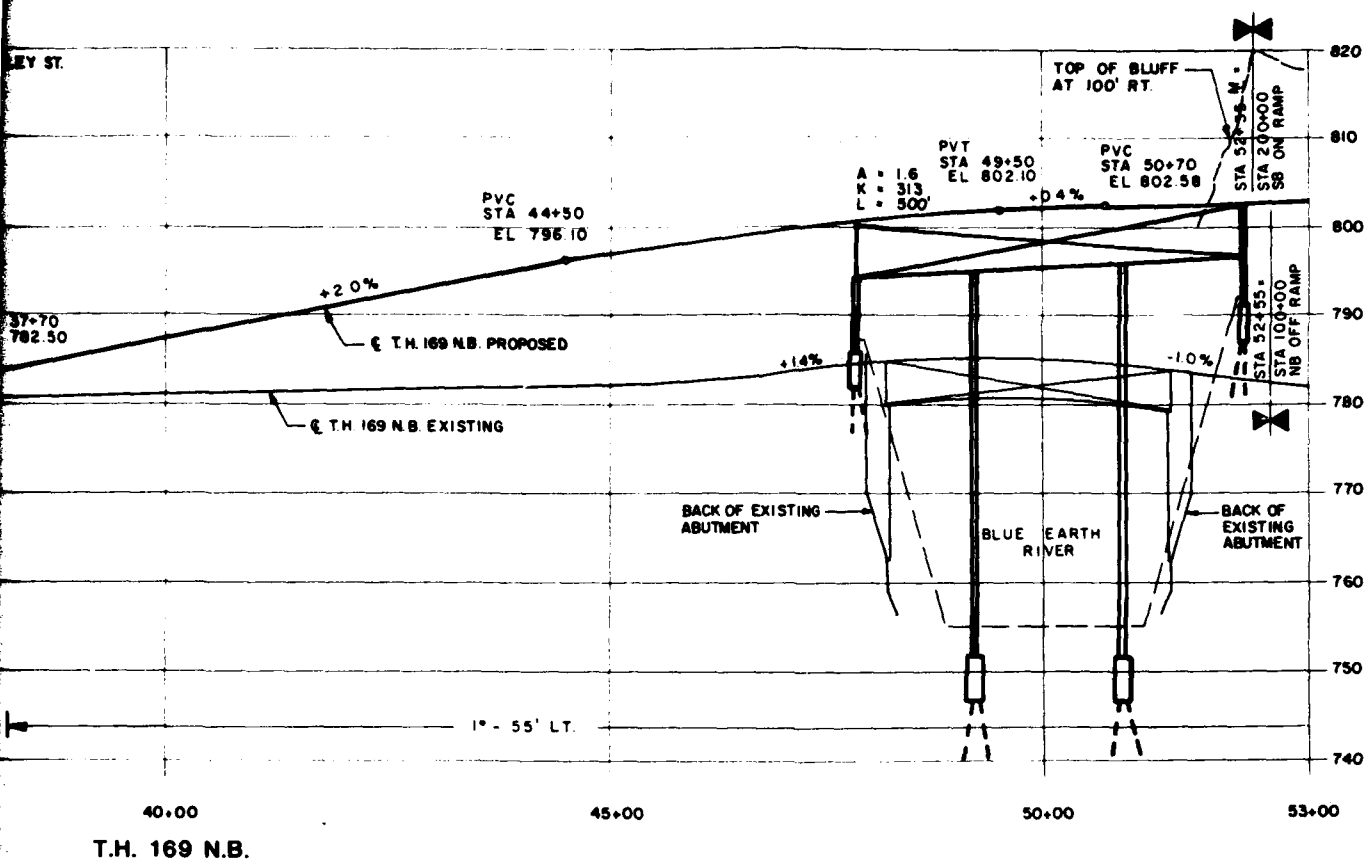
53+00
LEGEND

65+00
T.H. 169 N.B.

PROPOSED	EXISTING
1" = 55' LT.	1" = 55' LT.
2" = 110' LT.	2" = 110' LT.
3" = 165' LT.	3" = 165' LT.
4" = 220' LT.	4" = 220' LT.
5" = 275' LT.	5" = 275' LT.
6" = 330' LT.	6" = 330' LT.
7" = 385' LT.	7" = 385' LT.
8" = 440' LT.	8" = 440' LT.
9" = 495' LT.	9" = 495' LT.
10" = 550' LT.	10" = 550' LT.
11" = 605' LT.	11" = 605' LT.
12" = 660' LT.	12" = 660' LT.
13" = 715' LT.	13" = 715' LT.
14" = 770' LT.	14" = 770' LT.
15" = 825' LT.	15" = 825' LT.
16" = 880' LT.	16" = 880' LT.
17" = 935' LT.	17" = 935' LT.
18" = 990' LT.	18" = 990' LT.
19" = 1045' LT.	19" = 1045' LT.
20" = 1100' LT.	20" = 1100' LT.
21" = 1155' LT.	21" = 1155' LT.
22" = 1210' LT.	22" = 1210' LT.
23" = 1265' LT.	23" = 1265' LT.
24" = 1320' LT.	24" = 1320' LT.
25" = 1375' LT.	25" = 1375' LT.
26" = 1430' LT.	26" = 1430' LT.
27" = 1485' LT.	27" = 1485' LT.
28" = 1540' LT.	28" = 1540' LT.
29" = 1595' LT.	29" = 1595' LT.
30" = 1650' LT.	30" = 1650' LT.
31" = 1705' LT.	31" = 1705' LT.
32" = 1760' LT.	32" = 1760' LT.
33" = 1815' LT.	33" = 1815' LT.
34" = 1870' LT.	34" = 1870' LT.
35" = 1925' LT.	35" = 1925' LT.
36" = 1980' LT.	36" = 1980' LT.
37" = 2035' LT.	37" = 2035' LT.
38" = 2090' LT.	38" = 2090' LT.
39" = 2145' LT.	39" = 2145' LT.
40" = 2200' LT.	40" = 2200' LT.
41" = 2255' LT.	41" = 2255' LT.
42" = 2310' LT.	42" = 2310' LT.
43" = 2365' LT.	43" = 2365' LT.
44" = 2420' LT.	44" = 2420' LT.
45" = 2475' LT.	45" = 2475' LT.
46" = 2530' LT.	46" = 2530' LT.
47" = 2585' LT.	47" = 2585' LT.
48" = 2640' LT.	48" = 2640' LT.
49" = 2695' LT.	49" = 2695' LT.
50" = 2750' LT.	50" = 2750' LT.
51" = 2805' LT.	51" = 2805' LT.
52" = 2860' LT.	52" = 2860' LT.
53" = 2915' LT.	53" = 2915' LT.
54" = 2970' LT.	54" = 2970' LT.
55" = 3025' LT.	55" = 3025' LT.
56" = 3080' LT.	56" = 3080' LT.
57" = 3135' LT.	57" = 3135' LT.
58" = 3190' LT.	58" = 3190' LT.
59" = 3245' LT.	59" = 3245' LT.
60" = 3300' LT.	60" = 3300' LT.
61" = 3355' LT.	61" = 3355' LT.
62" = 3410' LT.	62" = 3410' LT.
63" = 3465' LT.	63" = 3465' LT.
64" = 3520' LT.	64" = 3520' LT.
65" = 3575' LT.	65" = 3575' LT.
66" = 3630' LT.	66" = 3630' LT.
67" = 3685' LT.	67" = 3685' LT.
68" = 3740' LT.	68" = 3740' LT.
69" = 3795' LT.	69" = 3795' LT.
70" = 3850' LT.	70" = 3850' LT.
71" = 3905' LT.	71" = 3905' LT.
72" = 3960' LT.	72" = 3960' LT.
73" = 4015' LT.	73" = 4015' LT.
74" = 4070' LT.	74" = 4070' LT.
75" = 4125' LT.	75" = 4125' LT.
76" = 4180' LT.	76" = 4180' LT.
77" = 4235' LT.	77" = 4235' LT.
78" = 4290' LT.	78" = 4290' LT.
79" = 4345' LT.	79" = 4345' LT.
80" = 4400' LT.	80" = 4400' LT.
81" = 4455' LT.	81" = 4455' LT.
82" = 4510' LT.	82" = 4510' LT.
83" = 4565' LT.	83" = 4565' LT.
84" = 4620' LT.	84" = 4620' LT.
85" = 4675' LT.	85" = 4675' LT.
86" = 4730' LT.	86" = 4730' LT.
87" = 4785' LT.	87" = 4785' LT.
88" = 4840' LT.	88" = 4840' LT.
89" = 4895' LT.	89" = 4895' LT.
90" = 4950' LT.	90" = 4950' LT.
91" = 5005' LT.	91" = 5005' LT.
92" = 5060' LT.	92" = 5060' LT.
93" = 5115' LT.	93" = 5115' LT.
94" = 5170' LT.	94" = 5170' LT.
95" = 5225' LT.	95" = 5225' LT.
96" = 5280' LT.	96" = 5280' LT.
97" = 5335' LT.	97" = 5335' LT.
98" = 5390' LT.	98" = 5390' LT.
99" = 5445' LT.	99" = 5445' LT.
100" = 5500' LT.	100" = 5500' LT.

NOTE
MINNESOTA STATE GRID SYSTEM ZONE
SHOWN AT 1" = 100' INTERVALS
VERTICAL DATUM S. MEAN SEA LEVEL

0 50 100



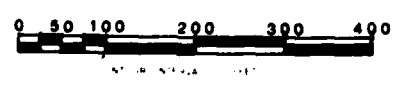
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

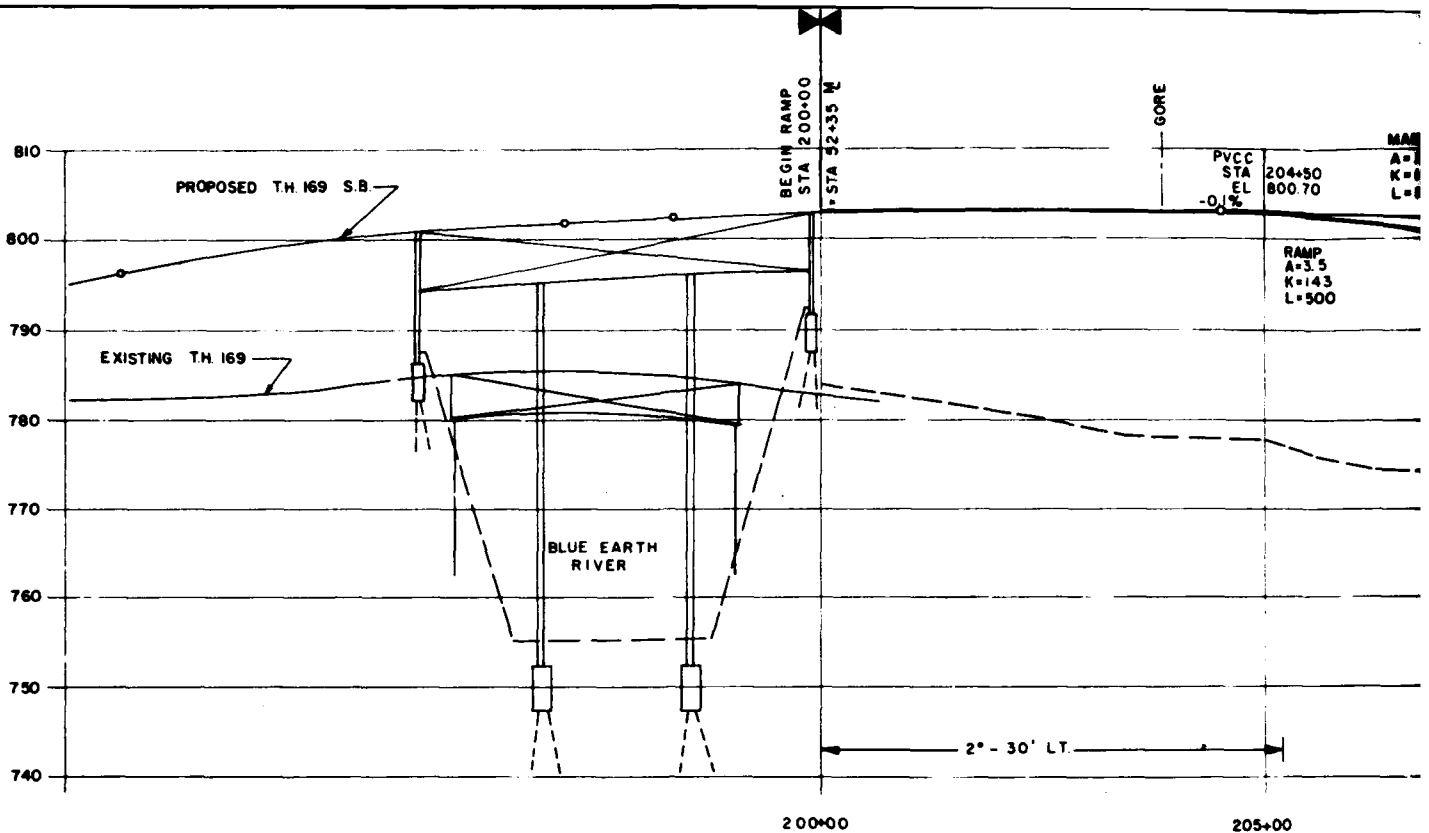
SIGNATURE *Donald J. Romano*

Date *17 Sep. 1980* Reg. No. *7492*

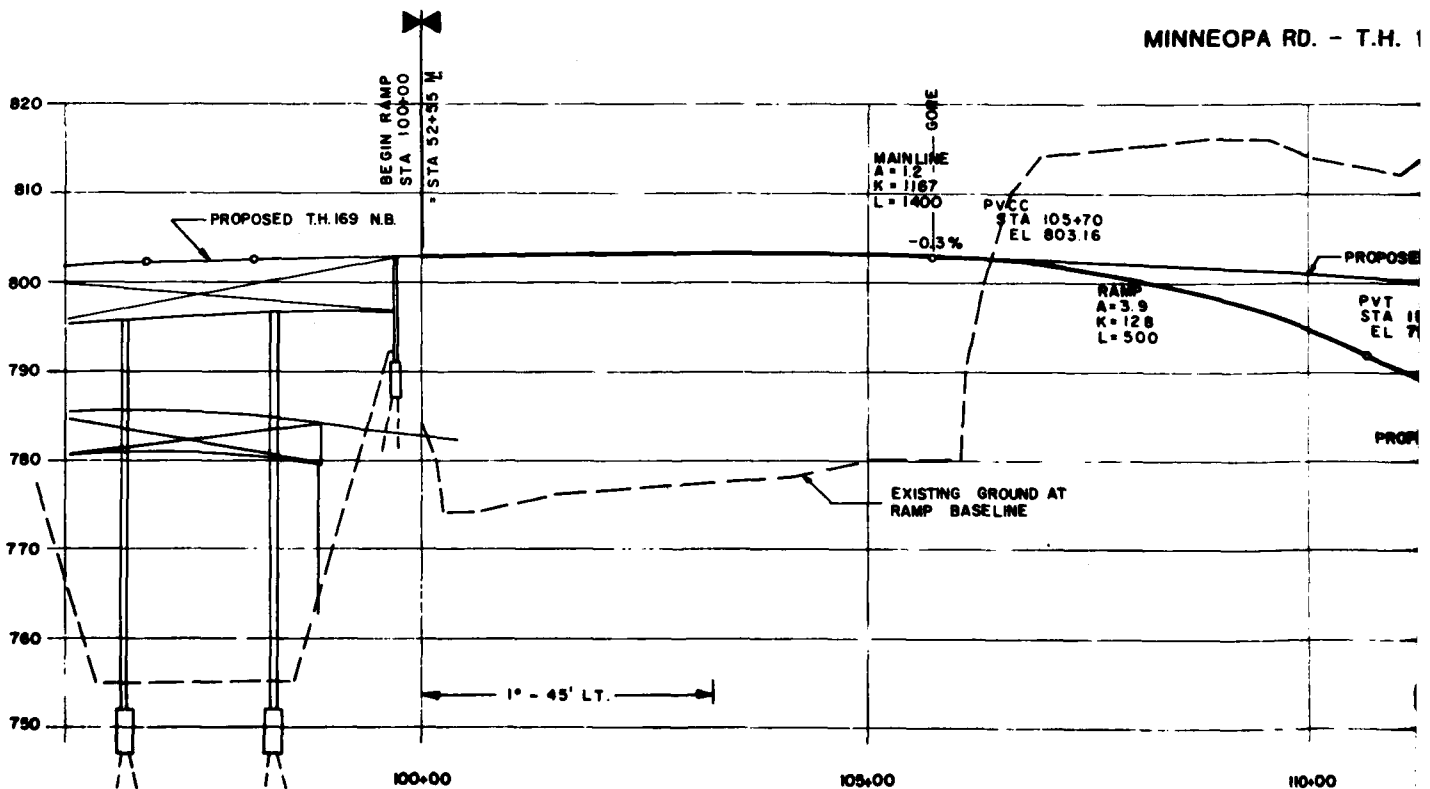
SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELLEY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY W.S.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY W.S.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED <i>Ben H. [Signature]</i>	MANKATO NORTH MANKATO LE HILLIER		
	TH 169 OVER THE BLUE EARTH RIVER		
	ALTERNATIVE 1C		
	DATE		
	NOVEMBER 1980		
	SCALE AS SHOWN	SPEC NO	
	DRAWING NUMBER		

PLATE A-7





MINNEOPA RD. - T.H. 1



T.H. 169 - MINNEOPA

LEGEND

- | | |
|-------------------------------|---------------|
| PROPOSED ROAD | 1" = 45' LT. |
| EXISTING ROAD | 2" = 30' LT. |
| PROPOSED BRIDGE | 3" = 30' LT. |
| EXISTING BRIDGE | 4" = 30' LT. |
| PROPOSED FENCE | 5" = 30' LT. |
| EXISTING FENCE | 6" = 30' LT. |
| PROPOSED DITCH | 7" = 30' LT. |
| EXISTING DITCH | 8" = 30' LT. |
| PROPOSED ELEVATION | 9" = 30' LT. |
| EXISTING ELEVATION | 10" = 30' LT. |
| PROPOSED SECTION CORNER | 11" = 30' LT. |
| EXISTING SECTION CORNER | 12" = 30' LT. |
| PROPOSED APPROXIMATE LOCATION | 13" = 30' LT. |
| EXISTING APPROXIMATE LOCATION | 14" = 30' LT. |

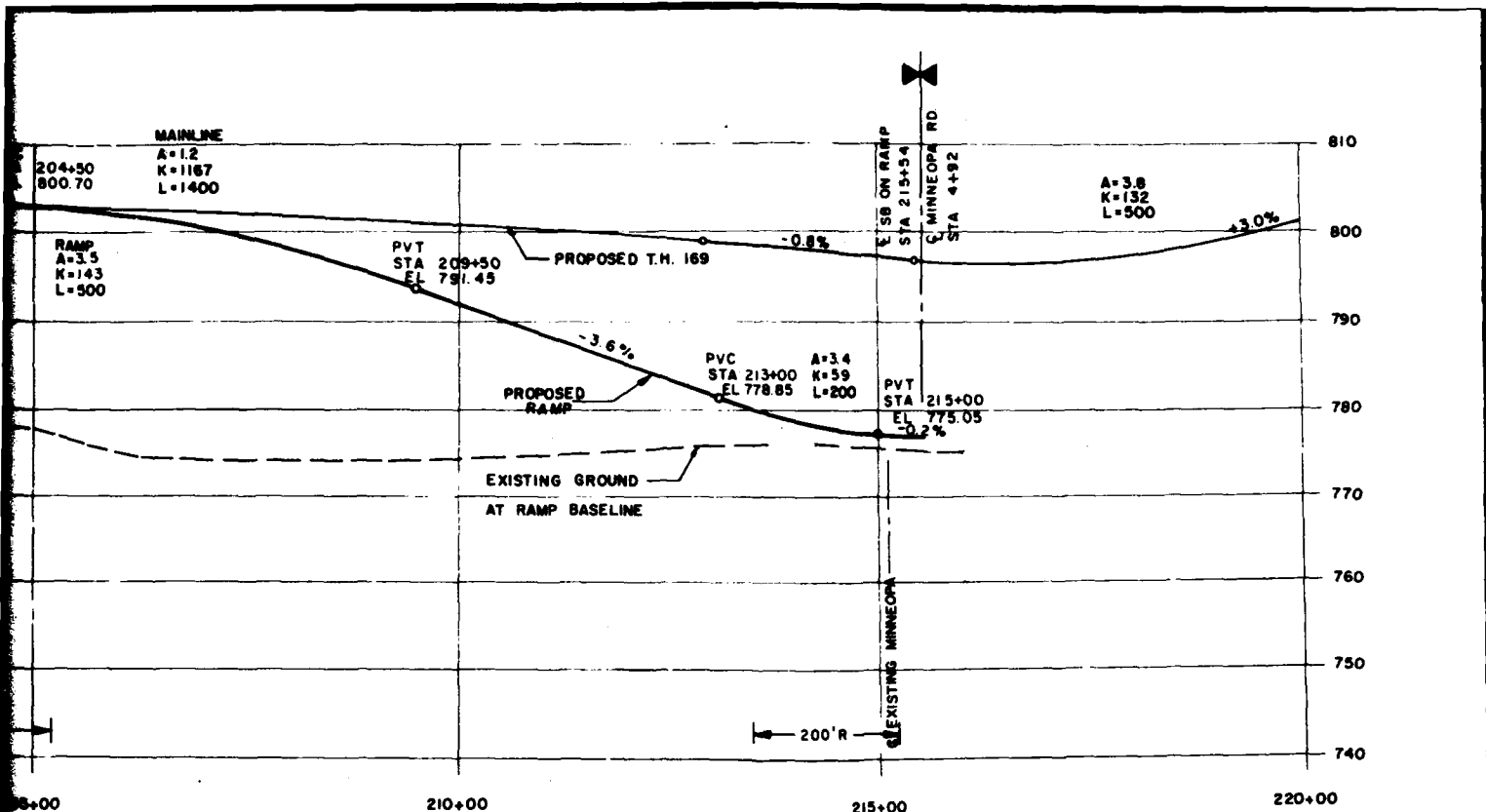


TOPOGRAPHY BY PHOTOGRAPHIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN IN 1961, 1970

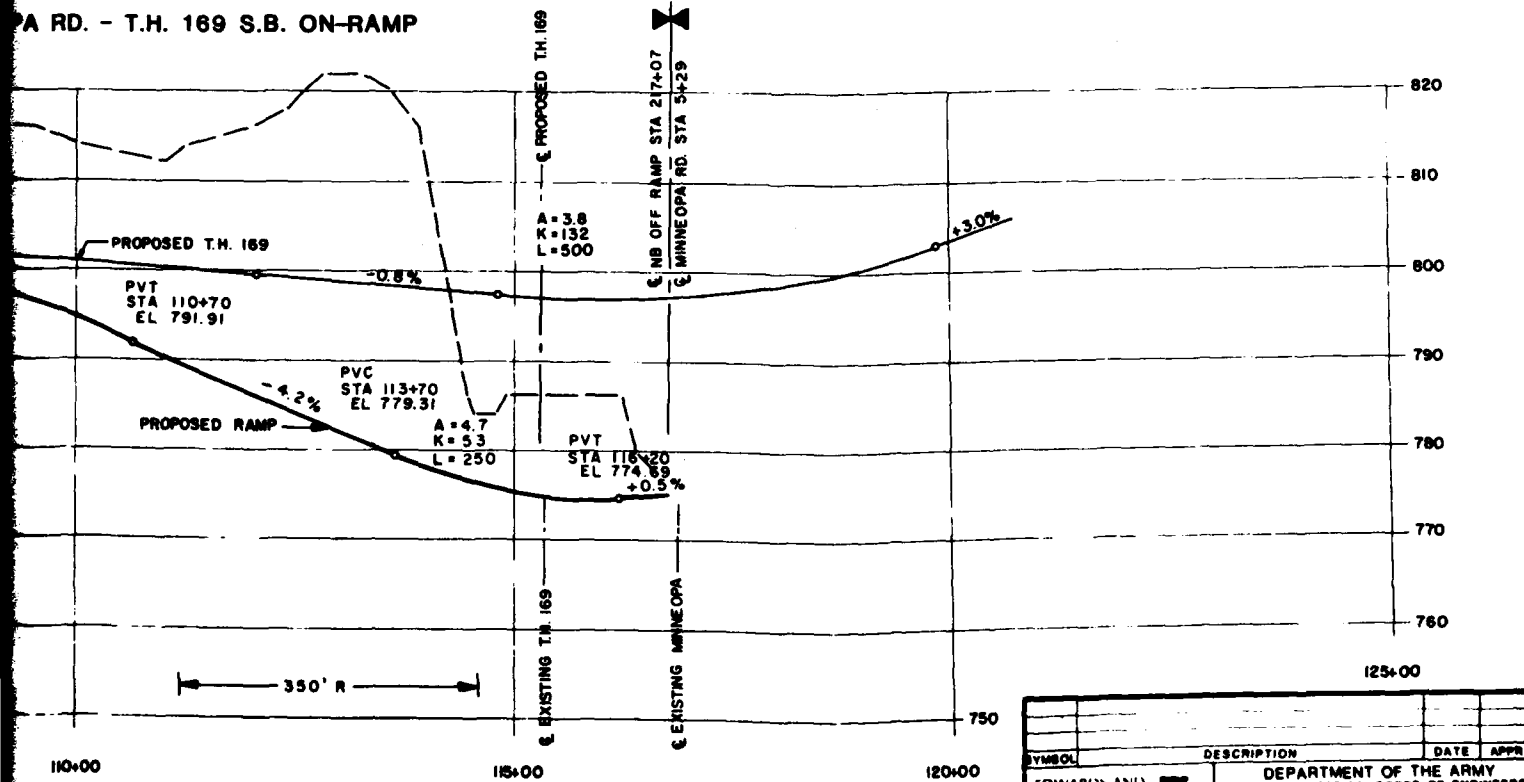
NOTE

MINNESOTA STATE GRID, SOUTH ZONE. SHOWN AT 500' FOOT INTERVALS. VERTICAL DATUM IS MEAN SEA LEVEL.

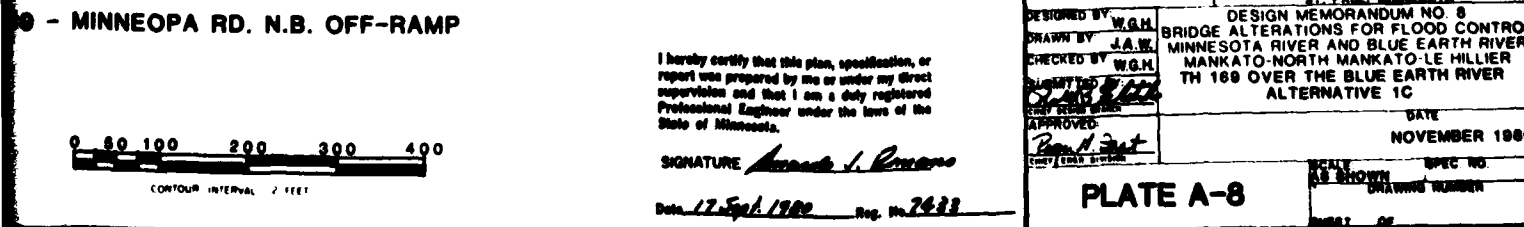




PA RD. - T.H. 169 S.B. ON-RAMP



MINNEOPA RD. N.B. OFF-RAMP



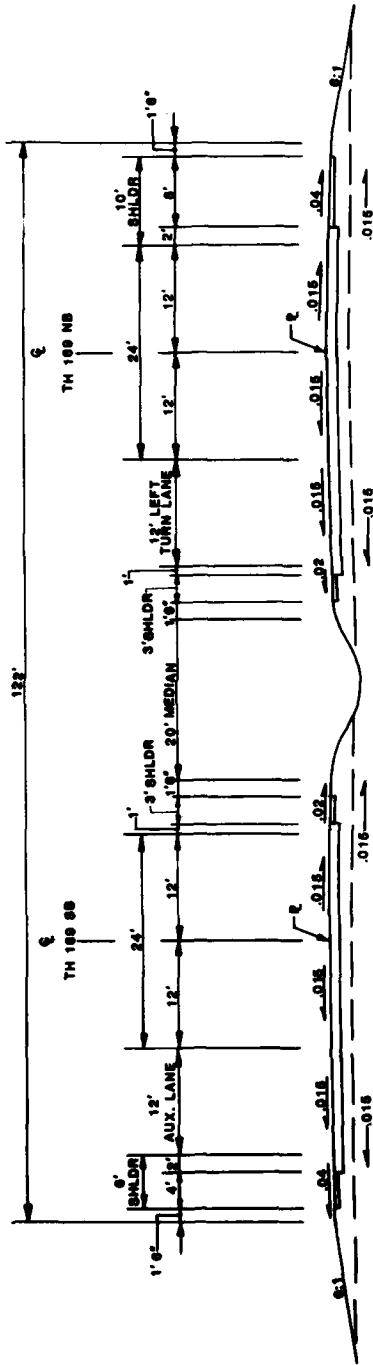
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE *James I. Romano*

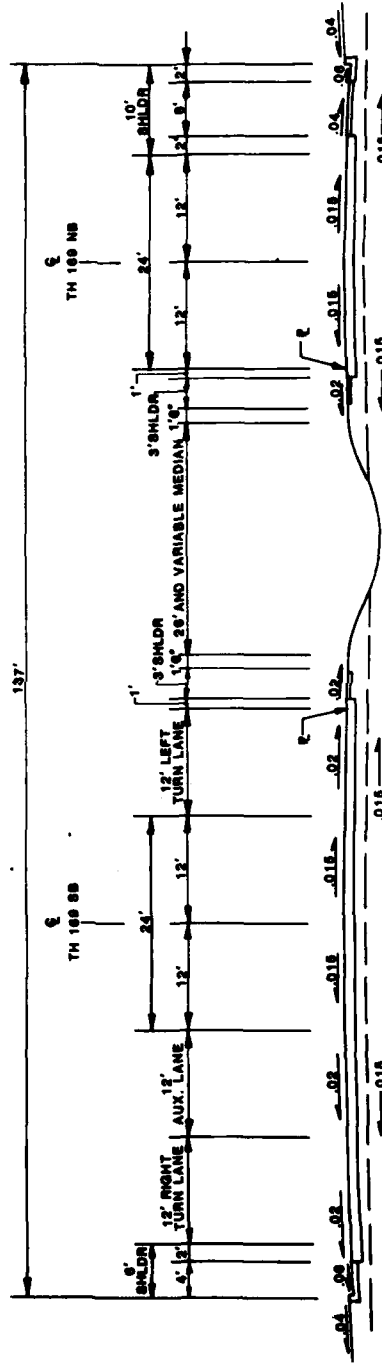
Date *17 Sep 1980* Reg. No. *7422*

SYMBOL		DESCRIPTION		DATE	APPR
EDWARDS AND KELLY INC		ST PAUL DISTRICT, CORPS OF ENGINEERS			
DESIGNED BY <i>W.G.H.</i>		ST. PAUL, MINNESOTA			
DRAWN BY <i>J.A.W.</i>		DESIGN MEMORANDUM NO. 8			
CHECKED BY <i>W.G.H.</i>		BRIDGE ALTERATIONS FOR FLOOD CONTROL			
APPROVED BY <i>Ben A. Jett</i>		MINNESOTA RIVER AND BLUE EARTH RIVER			
DATE		MANKATO-NORTH MANKATO-LE HILLIER			
		TH 169 OVER THE BLUE EARTH RIVER			
		ALTERNATIVE 1C			
		DATE			
		NOVEMBER 1980			
		SCALE			
		AS SHOWN			
		SPEC NO.			
		DRAWING NUMBER			
		SHEET OF			

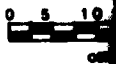
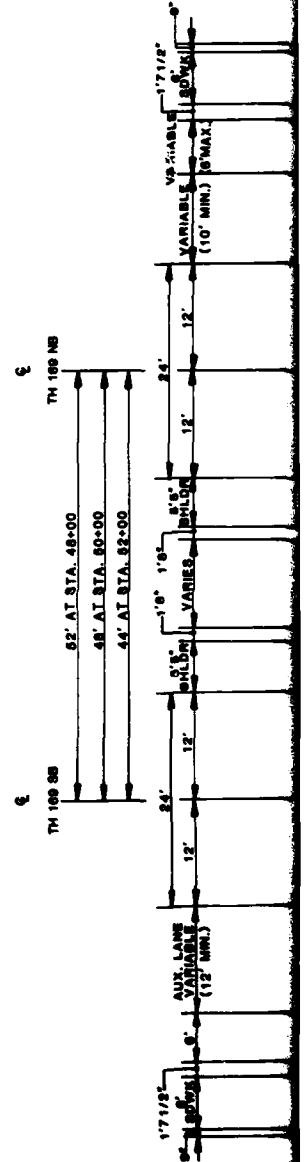
PLATE A-8

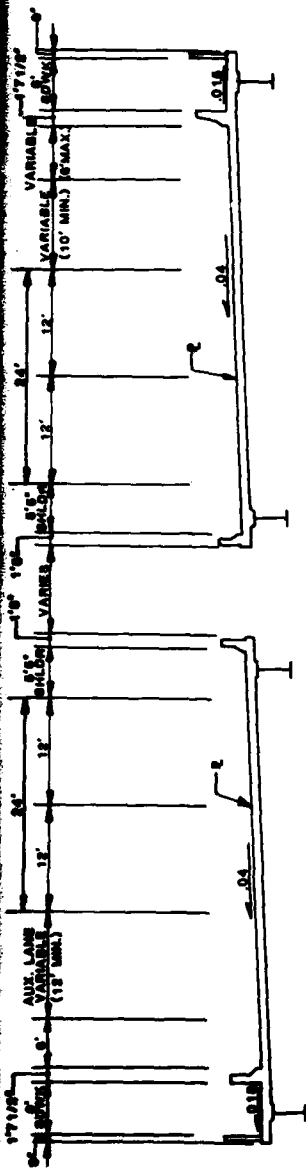


STA. 36+50

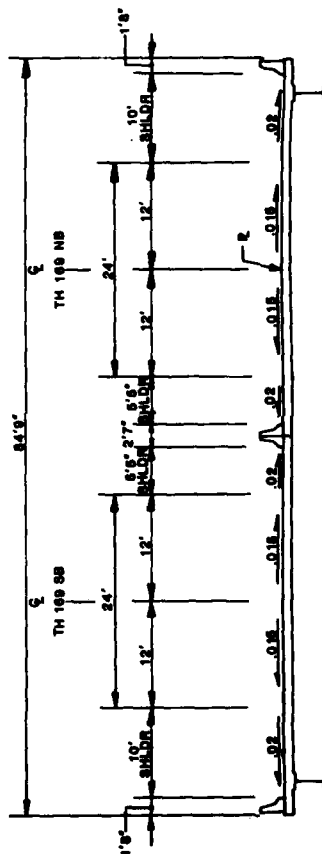


STA. 40+00

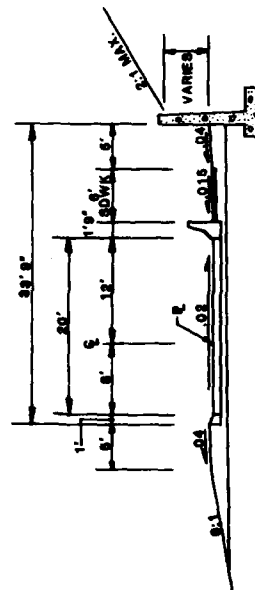




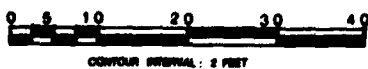
STA. 50+00



STA. 62+50



TYPICAL RAMP SECTION

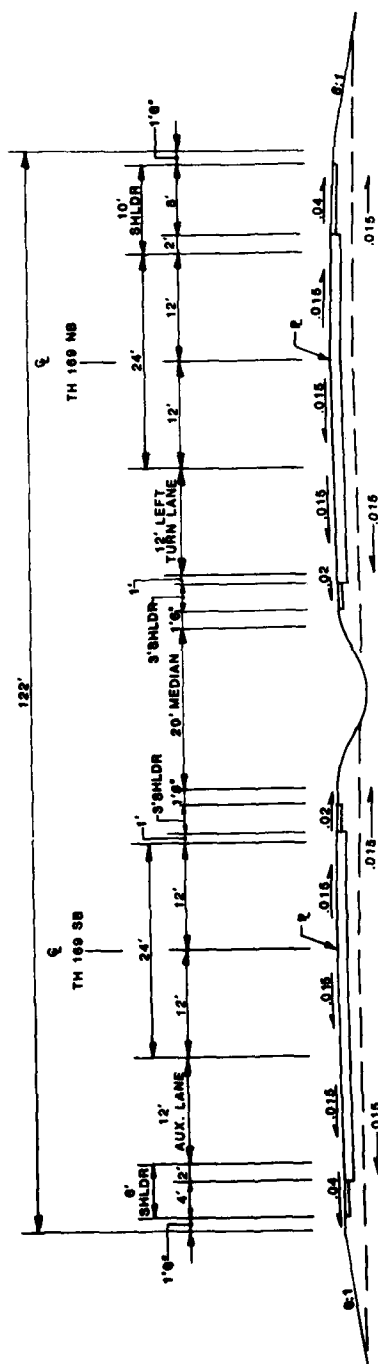


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

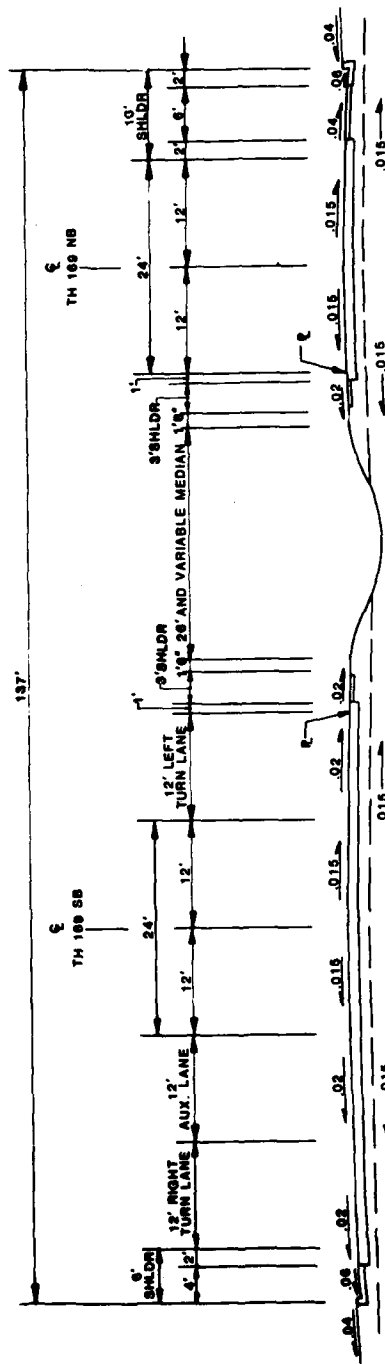
SIGNATURE *Amadeo J. Roscoe*

Date *12 Sept 1980* Reg. No. *7421*

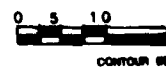
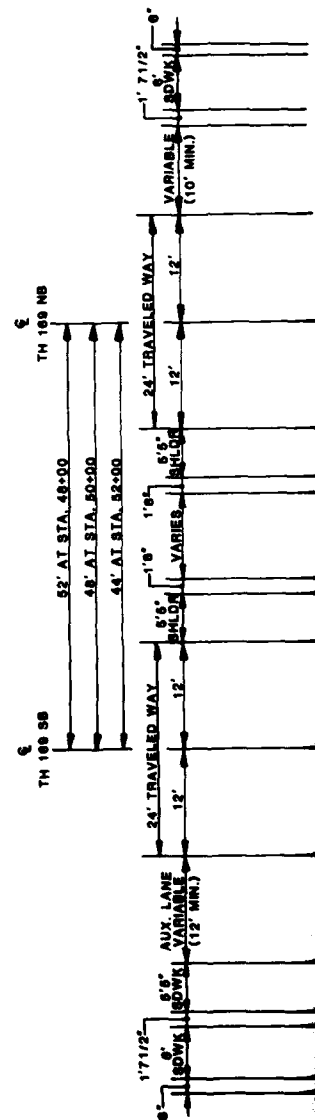
SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: <i>W.S.M.</i>	DESIGN MEMORANDUM NO. 8		
DRAWN BY: <i>J.A.R.</i>	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: <i>W.S.M.</i>	MINNESOTA RIVER AND BLUE EARTH RIVER		
	MANKATO NORTH MANKATO LE HILLIER		
	TH 168 OVER BLUE EARTH RIVER		
	ALT. 18		
APPROVED: <i>Boyd</i>	TYPICAL SECTIONS	DATE	NOVEMBER 1980
	PLATE A-9		



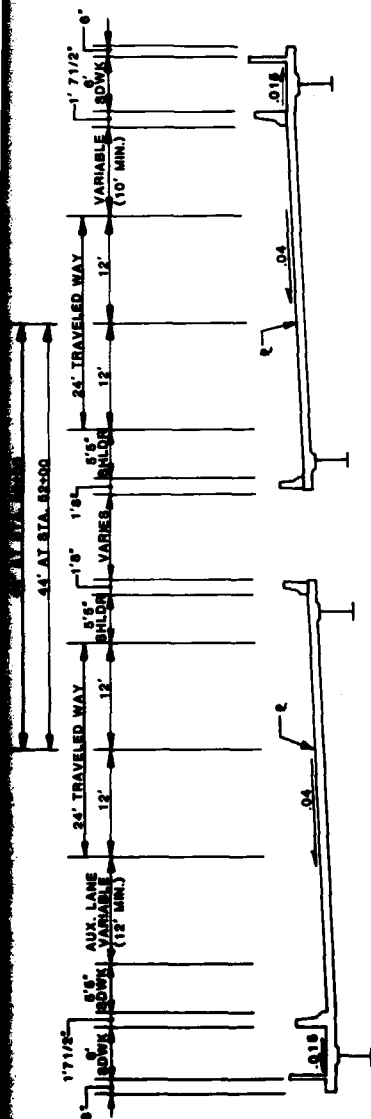
STA. 36+50



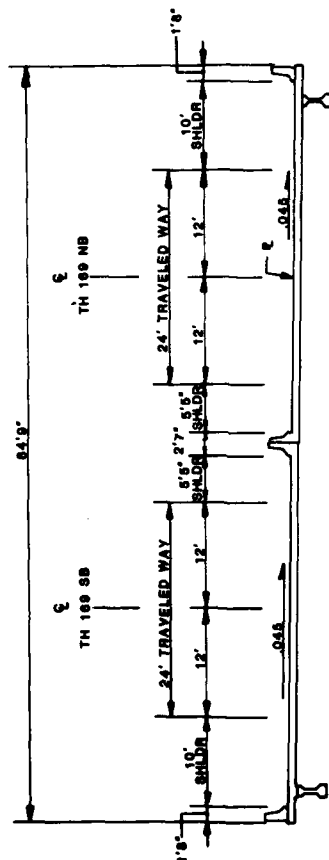
STA. 40+00



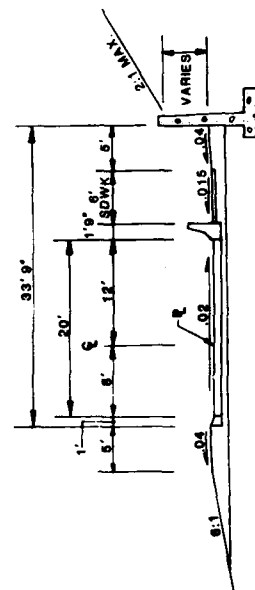
CONTOUR 60



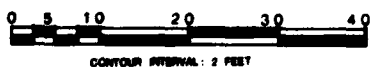
STA. 50+00



STA. 67+00



TYPICAL RAMP SECTION



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE *Armando J. Roman*

Date *12 Sept 1980* Reg. No. *7483*

SYMBOL		DESCRIPTION		DATE		APPR	
EDWARDS AND KELCEY, INC.		DEPARTMENT OF THE ARMY ST. PAUL DISTRICT CORPS OF ENGINEERS ST. PAUL, MINNESOTA					
DESIGNED BY: <i>W.G.H.</i>		DESIGN MEMORANDUM NO. 8					
CHECKED BY: <i>J.A.W.</i>		BRIDGE ALTERATIONS FOR FLOOD CONTROL					
APPROVED BY: <i>W.G.H.</i>		MINNESOTA RIVER AND BLUE EARTH RIVER					
SUBMITTED BY: <i>W.G.H.</i>		MANKATO NORTH MANKATO LE HILLIER					
APPROVED BY: <i>W.G.H.</i>		TH 189 OVER BLUE EARTH RIVER					
APPROVED BY: <i>W.G.H.</i>		ALT. 1C					
APPROVED BY: <i>W.G.H.</i>		TYPICAL SECTIONS		DATE		SPEC NO.	
APPROVED BY: <i>W.G.H.</i>		NOVEMBER 1980					
APPROVED BY: <i>W.G.H.</i>		SCALE		AS SHOWN		DRAWING NUMBER	
APPROVED BY: <i>W.G.H.</i>		PLATE A-10					
APPROVED BY: <i>W.G.H.</i>							

FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER

DESIGN MEMORANDUM NO. 8 - PART 1 (Location Study)

AND

DRAFT SUPPLEMENT II TO THE FINAL
ENVIRONMENTAL IMPACT STATEMENT
FOR
BRIDGE RELOCATIONS

TRUNK HIGHWAY 169 AND 60
OVER THE BLUE EARTH RIVER BETWEEN
MANKATO AND LE HILLIER

APPENDIX B
DETAILED COST ESTIMATES

TABLE OF CONTENTS

<u>Table</u>		<u>Page</u>
B-1	Detailed Cost Estimate, Alternative 1B	B-1
B-2	Detailed Cost Estimate, Alternative 1C	B-5

APPENDIX B
DETAILED COST ESTIMATES

Detailed estimates of project construction costs and land and right-of-way costs based on October 1980 levels are given in Tables B-1 and B-2.

Table B-1. DETAILED COST ESTIMATE. Alternative 1B

Item	Unit	Quantity	Unit Cost	Total Estimated Cost
<u>Federal First Costs</u>				
<u>Roadway Items</u>				
Bridge demolition	LS	1	\$334,000.00	\$334,000.00
<u>Site Preparation</u>				
Clearing	Tree	6	100.00	600.00
Grubbing	Tree	6	80.00	480.00
Building Removal	LS	1	16,000.00	16,000.00
Curb and Gutter Removal	LF	1,000	2.25	2,250.00
Sidewalk Removal	SY	83	3.50	290.00
Concrete Pavement Removal	SY	1,500	4.00	6,000.00
Bituminous Pavement Removal	SY	1,000	2.50	2,500.00
TOTAL SITE PREPARATION				\$28,000.00
<u>Excavation</u>	CY	44,285	1.70	75,000.00
<u>Borrow</u>	CY	232,000	3.75	870,000.00
<u>Pavement, Lighting and Signing</u>				
Concrete Pavement	SY	26,610	22.00	585,420.00
Bituminous Pavement	SY	8,471	9.25	78,360.00
Paved Shoulder	SY	11,336	9.25	104,860.00
Sidewalk	SY	1,622	23.40	37,960.00
Curb and Gutter				
B624	LF	10,060	7.30	73,440.00
Ramp	LF	4,440	6.50	28,860.00
Median (island)	SY	2,780	29.00	8,620.00
Traffic barrier	LF	2,070	39.00	80,730.00

TABLE B-1. DETAILED COST ESTIMATE. Alternative 1B (Cont.)

Item	Unit	Quantity	Unit Cost	Total Estimated Cost
<u>Federal First Costs (Continued)</u>				
<u>Pavement, Lighting and Signing (Cont'd)</u>				
Lighting - highway				
Highway (2-3 lanes)	Rd-Sta	88	\$ 3,000.00	\$264,000.00
Ramp	Rd-Sta	21	1,875.00	39,380.00
Marking - Highway				
Highway (lane)	LA-Sta	160	17.50	2,800.00
Ramp	LA-Sta	16	17.50	280.00
Signs - Highway				
Road signs, type C	Rd-Sta	88	26.00	2,290.00
Major road signs, type A	Each	5	6,250.00	31,250.00
Overhead signs	Each	1	31,250.00	31,250.00
TOTAL PAVEMENT, LIGHTING AND SIGNING				\$1,369,500.00
<u>Drainage</u>				
Highway catch basin	Rd-Sta	28	1,040.00	29,120.00
15" RCP, C1. V	Rd-Sta	28	650.00	18,200.00
30" RCP, C1. V	Rd-Sta	28	3,900.00	109,200.00
Ramp catch basin	Rd-Sta	23	1,040.00	23,920.00
18" RCP, C1. V	Rd-Sta	23	2,860.00	65,780.00
Street catch basin	Rd-Sta	14	1,040.00	14,560.00
15" RCP, C1. V	Rd-Sta	14	650.00	9,100.00
18" RCP, C1. V	Rd-Sta	14	2,860.00	40,040.00
48" RCP, C1. V	LF	400	130.00	52,000.00
42" RCP, C1. V	LF	800	85.00	68,000.00
36" RCP, C1. V	LF	251	72.00	18,070.00
Manholes	Each	7	390.00	2,730.00
Adjust manholes	Each	20	65.00	1,300.00
Special catch basin	Each	1	6,500.00	6,500.00
TOTAL DRAINAGE				\$459,000.00
<u>Sanitary Sewers</u>				
8" VCP extra strength	LF	300	28.60	8,580.00
Manholes	Each	3	390.00	1,170.00
Adjust manholes	Each	10	65.00	650.00
Adjust services	Each	10	130.00	1,300.00
TOTAL SANITARY SEWERS				\$ 12,000.00

TABLE B-1. DETAILED COST ESTIMATE. Alternative 1B (Cont.)

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Estimated Cost</u>
<u>Federal First Costs (continued)</u>				
<u>Retaining Walls</u>				
Reinforced earth	SF	37,667	22.50	848,000.00
<u>Water Systems</u>				
6" Ductile iron pipe	LF	0	26.00	0
Noise Abatement	SF	16,000	10.00	160,000.00
<u>Maintenance of Way</u>				
Sheet piling	SF	7,425	10.00	74,250.00
Bituminous pavement and base	SY	7,055	8.90	62,790.00
Borrow	CY	3,000	3.10	9,300.00
Flagmen	LS	1	88,000.00	88,000.00
Temporary signing	LS	1	25,000.00	25,000.00
TOTAL MAINTENANCE OF WAY				\$259,000.00
<u>Miscellaneous Roadway Items</u>				<u>\$310,000.00</u>
TOTAL ROADWAY ITEMS				\$ 4,724,000.00
<u>Bridges</u>				
Roadway grade separations	Job	Sum		452,500.00
Highway river structures	Job	Sum		<u>3,527,500.00</u>
TOTAL BRIDGES				<u>3,980,000.00</u>
TOTAL ROADWAY AND BRIDGES				<u>\$ 8,704,000.00</u>
<u>Force Accounts</u>				
Northern States Power	Job	Sum		78,000.00
Minnesota Gas Co.	Job	Sum		50,000.00
Mankato Citizens Telephone	Job	Sum		<u>31,000.00</u>
TOTAL FORCE ACCOUNTS				\$ 159,000.00

TABLE B-1. DETAILED COST ESTIMATE. Alternative 1B (Continued)

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Estimated Cost</u>
<u>Federal First Costs (Cont'd)</u>				
<u>Contingencies</u>				\$1,307,000.00
TOTAL CONSTRUCTION COSTS				\$10,170,000.00
<u>Engineering and Design</u>				409,000.00
<u>Supervision and Administration</u>				701,000.00
<u>Lands and Rights-of-Way</u>				
Easement & fee titles lands	LS	1	275,000.00	275,000.00
Relocation costs	LS	1	100,000.00	100,000.00
Acquisition and admini- stration (17 tracts)	Each	17	6,000.00	102,000.00
Contingencies				55,000.00
TOTAL LANDS AND RIGHTS-OF-WAY				\$ 532,000.00
TOTAL FEDERAL FIRST COSTS				\$11,812,000.00
<u>Non-Federal First Costs</u>				
<u>City of Mankato, provision for future water and sewer crossings</u>				1,000.00
TOTAL FEDERAL AND NON-FEDERAL FIRST COSTS				\$11,813,000.00

TABLE B-2. DETAILED COST ESTIMATE. Alternative 1C

Item	Unit	Quantity	Unit Cost	Total Estimated Cost
<u>Federal First Costs</u>				
<u>Bridge Demolition</u>	Job	Sum	\$334,000.00	\$334,000.00
<u>Site Preparation</u>				
Building removal	LS	1	25,600.00	25,600.00
Sidewalk removal	SY	150	3.50	520.00
Concrete pavement removal	SY	1620	4.00	6,480.00
Bituminous pavement removal	SY	600	2.50	1,500.00
TOTAL SITE PREPARATION				\$ 34,000.00
<u>Excavation</u>	CY	47,143	1.70	80,000.00
<u>Borrow</u>	CY	232,400	3.75	872,000.00
<u>Pavement, Lighting and Signing</u>				
Concrete pavement	SY	28,706	22.00	631,530.00
Bituminous pavement	SY	9,437	9.25	87,290.00
Paved shoulder	SY	10,281	9.25	95,100.00
Sidewalk	SY	4,222	23.40	98,800.00
Curb & Gutter				
B624	LF	16,143	7.30	117,840.00
Ramp	LF	5,720	6.50	37,180.00
Median (island)	SY	1,182	29.00	34,280.00
Traffic barrier	LF	2,066	39.00	80,570.00
<u>Lighting - Highway Mainline</u>				
(2-3 lanes)	Rd-Sta	92	3,000.00	276,000.00
Ramp	Rd-Sta	23	1,875.00	43,120.00
<u>Marking - Highway Mainline</u>				
(lane)	LA-Sta	2,110	17.50	36,920.00
Ramp	LA-Sta	15	17.50	260.00
<u>Signs Highway Mainline</u>				
Road signs (type C)	Rd-Sta	89	26.00	2,310.00
Major roadside signs (type A)	Each	5	6,250.00	31,250.00
Overhead signs	Each	1	31,250.00	31,250.00
TOTAL PAVEMENT, LIGHTING AND SIGNING				\$1,604,000.00

TABLE B-2. DETAILED COST ESTIMATE. Alternative 1C. (Cont'd)

Item	Unit	Quantity	Unit Cost	Total Estimated Cost
<u>Federal First Costs (Cont'd)</u>				
<u>Drainage</u>				
Catch basin	Rd-Sta	33	1,040.00	34,320.00
15" RCP, C1. V	Rd-Sta	33	650.00	21,450.00
30" RCP, C1. V	Rd-Sta	33	3,900.00	128,700.00
Ramp catch basin	Rd-Sta	28	1,040.00	29,120.00
18" RCP, C1. V	Rd-Sta	28	2,860.00	80,080.00
Street catch basin	Rd-Sta	7	1,040.00	7,280.00
15" RCP, C1. V	Rd-Sta	7	650.00	4,550.00
18" RCP, C1. V	Rd-Sta	7	2,860.00	20,020.00
S-Form				
48" RCP, C1. V	LF	400	130.00	52,000.00
42" RCP, C1. V	LF	900	85.00	76,500.00
36" RCP, C1. V	LF	200	72.00	14,400.00
Manholes	Each	6	390.00	2,340.00
Adjust manholes	Each	8	65.00	520.00
Special catch basin	Each	1	6,500.00	6,500.00
TOTAL DRAINAGE FACILITIES				\$478,000.00
<u>Sanitary Sewers</u>				
8" VCP extra strength	LF	300	28.60	8,580.00
Manholes	Each	3	390.00	1,170.00
Adjust manholes	Each	10	65.00	650.00
Adjust services	Each	10	130.00	1,300.00
TOTAL SANITARY SEWERS				\$ 12,000.00
<u>Retaining Walls</u>				
Reinforced earth	SF	39,110	22.50	880,000.00
<u>Water Systems</u>				
6" Ductile iron pipe	LF	600	26.00	16,000.00
Noise Abatement	SF	16,000	10.00	160,000.00

TABLE B-2. DETAILED COST ESTIMATE. Alternative 1C. (Cont'd)

Item	Unit	Quantity	Unit Cost	Total Estimated Cost
<u>Federal First Costs (Cont'd)</u>				
<u>Maintenance of Way</u>				
Sheet piling	SF	6,605	10.00	66,050.00
Bituminous pavement (and base)	SY	6,935	8.90	61,720.00
Borrow	CY	5,970	3.10	18,510.00
Flagmen	LS	1	87,500.00	87,500.00
Temporary signing	LS	1	25,000.00	25,000.00
TOTAL MAINTENANCE OF WAY				\$ 259,000.00
<u>Miscellaneous Roadway Items</u>				331,000.00
TOTAL ROADWAY ITEMS				\$5,060,000.00
<u>Bridges</u>				
Roadway grade separations	Job	Sum		\$ 452,500.00
Highway river structures	Job	Sum		2,669,000.00
TOTAL BRIDGES				\$3,122,000.00
TOTAL ROADWAY & BRIDGES				\$8,182,000.00
<u>Force Accounts</u>				
Northern States Power Co.	Job	Sum		78,000.00
Minnesota Gas Co.	Job	Sum		49,400.00
Mankato Citizen Telephone Co.	Job	Sum		31,200.00
TOTAL FORCE ACCOUNTS				\$ 159,000.00
<u>Contingencies</u>				1,227,000.00
TOTAL CONSTRUCTION COSTS				\$9,568,000.00
<u>Engineering and Design</u>				376,000.00
<u>Supervision and Administration</u>				659,000.00

TABLE B-2. DETAILED COST ESTIMATE. Alternative 1C. (Cont'd)

Item	Unit	Quantity	Unit Cost	Total Estimated Cost
<u>Federal First Costs (Cont'd)</u>				
<u>Lands and Rights-of-Way</u>				
Easement & Fee Title Lands	Job	Sum		\$ 419,000.00
Relocation Costs	Job	Sum		141,000.00
Acquisition & Administration (19 tracts)	Each	19	6,000.00	114,000.00
Contingencies				<u>84,000.00</u>
TOTAL LANDS AND RIGHTS-OF-WAY				\$ 758,000.00
TOTAL FEDERAL FIRST COSTS				\$11,361,000.00
<u>Non-Federal First Costs</u>				
City of Mankato First Cost				1,000.00
<u>Provision for Water and Sanitary Costs</u>				
TOTAL FEDERAL AND NON-FEDERAL FIRST COSTS				<u>\$11,362,000.00</u>

FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER

DESIGN MEMORANDUM NO. 8 - PART I (Location Study)

AND

DRAFT SUPPLEMENT II TO THE FINAL
ENVIRONMENTAL IMPACT STATEMENT

FOR

BRIDGE RELOCATIONS

TRUNK HIGHWAY 169 AND 60
OVER THE BLUE EARTH RIVER BETWEEN
MANKATO AND LE HILLIER

APPENDIX C
PUBLIC VIEWS AND RESPONSES

TABLE OF CONTENTS

INTRODUCTION	<u>Page</u> C-2
PUBLIC INFORMATION PROGRAM	C-2
Information Office	C-2
Newsletters	C-6
Media Coverage	C-6
Public Information Meetings	C-6
Interviews with Citizens Directly Affected by Potential Property Takings	C-8
Presentations to Interested Civic Organizations	C-8
INTERAGENCY COORDINATION	C-8
State and Federal Agencies	C-8
Counties and South Bend Township	C-8
Others	C-9
COMMENTS AND RESPONSES	C-10
COMMUNICATIONS	C-10
Newsletters	C-11
Correspondence	C-23
News Clippings	C-26
State and Federal Agency Contacts	C-33

LIST OF TABLES

<u>No.</u>		<u>Page</u>
C-1	Log of Meeting and News Media Contacts, Bridge Relocation Information Office	C-3
C-2	News Media	C-7
C-3	Attendance at State and Federal Agency Briefings	C-9

APPENDIX C

PUBLIC VIEWS AND RESPONSES

INTRODUCTION

C.1 The views of the public were actively solicited throughout the study. Individuals, groups, civic organizations, and governmental agencies were brought into the study process through a broadly based public information program.

C.2 Specific elements of the program included:

- a. Information office
- b. Periodic newsletters
- c. News media coverage
- d. Public information meetings
- e. Interviews with citizens directly affected by potential property acquisitions
- f. Presentations to interested civic organizations
- g. Workshops for City Councils, and other city government, Minnesota Department of Transportation (Mn/DOT) and Corps of Engineers (COE) staff.

C.3 The overall public information program covered the entire project i.e., the three separate bridge locations. This appendix covers in detail the Trunk Highway 169/60 (TH 169/60) bridges over the Blue Earth River between Mankato and Le Hillier, and a general description of the overall public participation process of the entire study.

C.4 Interagency coordination was accomplished through written correspondence and briefings. This procedure established a cooperative working relationship between the several public and private agencies having direct responsibilities in the study area. Copies of correspondence exchanged are included in the Communications section below.

PUBLIC INFORMATION PROGRAM

Information Office

C.5 A public information office was maintained at 209 South Second Street, Room 208, Northwestern Office Building, Mankato for a period of 44 weeks, from September 1978 through July 1979. It will open again during the month in which the public hearing is held.

C.6 This office was staffed with a full time secretary and a part-time information officer. The information officer, in addition to answering questions directed to the office, attended civic meetings and made presentations to various boards and committees; was interviewed by newspapers, radio and TV; provided news releases; and participated in the public information meetings. The log of these meetings and news media contacts are noted in Table C-1.

C.7 Current and up-to-date plans were available at the office for public use. The office also distributed the newsletter and maintained a mailing list. It also logged in all project related phone calls and visits, which included 87 telephone calls and 158 office visits. The most frequent inquiries were made by individuals who were directly affected. The log of these inquiries is on file at the Corps of Engineers, St. Paul District Office.

TABLE C-1

LOG OF MEETING AND NEWS MEDIA CONTACTS
BRIDGE RELOCATION INFORMATION CENTER

<u>October 1978</u>		<u>Time</u>
10	Blue Earth County Board Meeting	9:00 am
	Mankato City Council Meeting	7:00 pm
	South Bend Township Board Meeting	8:00 pm
13	Coffee Break Program KEYC-TV	9:15 am
16	North Mankato City Council Meeting	7:00 pm
	Taped conversation with KEEZ-FM radio for next day broadcast (17th)	
19	Discussion with reporter of Mankato Free Press	--
	Calls from Free Press on traffic study	
23	Nicollet County Board Meeting	9:00 am
<u>November</u>		
1	City of Mankato Personnel Meeting	9:00 am
6	South Bend Township Board Meeting	8:00 pm
13	Tape recording by KEEZ-FM radio	--
14	Tape recording by KYSM-AM radio	--

November (Cont'd)Time

15	Public Information Meeting (Regional Library)	--
16	Reporter from Mankato Free Press	--
30	Reporter from KEYC-TV - taped	--

December

6	Meeting with Mn/DOT (Mankato)	--
18	Meeting with Mn/DOT (St. Paul)	--

January 1979

2	Interview with KEYC-TV	--
3	Information Meeting (Roosevelt School)	--
4	Reporter for KYSM-AM radio - taped	--
15	Free Press reporter	--
19	Mankato Chamber of Commerce Transportation Committee Meeting	--
22	Reporter for KEEZ-FM radio - taped	--
24	Informational meeting (North Mankato Jr. High)	--
29	Consultant Wetmore explaining Main St. alternatives to dinner meeting of combined city councils of Mankato and North Mankato	--

February

13	Meeting of Corps Office in St. Paul	--
14	Meeting at Mn/DOT (Mankato)	--

February (Cont'd)Time

16	Chamber of Commerce Transportation Committee Meeting	--
28	Presentation to Exchange Club (Century Club, North Mankato)	12:00 Noon

March

16	Chamber of Commerce Transportation Committee Meeting	--
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April

4	Consultant presentation at Regional Law Enforcement Center (Mankato) attended by staff personnel from Corps, Mn/DOT central and district offices, Cities of Mankato and North Mankato, Federal Highway Administration (FHWA), Chicago and Northwestern Transportation Co. (CNW) and Honeymead Company	--
18	Reporter from KEEZ-FM radio - taped	--
20	Chamber of Commerce Transportation Committee Meeting	--

May

6	Radio stations calling about Saturday's meeting with the City Councilors	--
24	KEYC-TV program - On Air Live	9:30 am
25	Chamber of Commerce Transportation Committee Meeting	10-12 am
30	Information Meeting (Roosevelt School)	--
31	Information Meeting (West High)	--

JuneTime

15	Chamber of Commerce Transportation Committee Meeting	10-12 am
18	Kiwanis Club noon meeting	--

July

20	Chamber of Commerce Transportation Committee Meeting	10-12 am
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Newsletters

C.8 Four project newsletters were mailed to approximately 2,100 individuals, organizations and agencies. Approximately 100 additional copies were distributed and made available at the information office, public libraries and city halls. The first newsletter was mailed in November 1978, the second in December 1978, and the third in May 1979. The fourth was sent in November 1979. All were mailed or distributed at least one week in advance of the public information meetings dates. Copies of each newsletter are included in the Communications section of this appendix.

Media Coverage

C.9 In addition to the 10 radio and TV events in which the information officer participated, extensive coverage was given the project by the Mankato Free Press. The majority of this coverage, however, centered on the controversial Main Street Bridge. Copies of these articles are included under Communications section. A list of area-wide news media is given in Table C-2.

Public Information Meetings

C.10 Three public information meetings were held. Approximately 85 persons attended the first meeting, which was held on 15 November 1978, at the Minnesota Valley Regional Library, Mankato. At this meeting the project goals and objectives were presented along with background information leading up to the project study. The scope of work to be performed was provided regarding the flood protection project requiring major alterations of existing conditions at the bridge sites. The initial concerns and attitudes of those attending were heard and recorded for later use. The dominant concern of this meeting had to do with the location and site of the Main Street Bridge replacement, and the corridor width to be studied at the TH 169/60 site over the Blue Earth River.

TABLE C-2
NEWS MEDIA

Blue Earth County

MANKATO FREE PRESS
418 South Second Street
Mankato, MN 56001
(625-4458)

KEEZ-FM RADIO
227 East Main
Mankato, MN 56001
(345-4646)

KTOE RADIO
Highway #14 East - P. O. Box 1420
Mankato, MN 56001
(345-4537)

MSU REPORTER
Box 38 - Student Union
Mankato State University
Mankato, MN 56001
(389-1776)

Nicollet County

KYSM AM-FM Radio
1807 Lee Boulevard
North Mankato, MN 56001
(345-4673)

KEYC-TV
1570 Lookout Drive
North Mankato, MN 56001
(387-7905)

ST. PETER HERALD
311 South Minnesota Avenue
St. Peter, MN 56082
(931-4520)

KRBI RADIO
1031 Grace Street
St. Peter, MN 56082
(931-3220)

C.11 The second meeting, pertaining to TH 169/60 site over the Blue Earth River, was held on 3 January 1979 at Roosevelt Elementary School. About 80 people attended this meeting. During this meeting, all the alternatives that had been developed to date were presented and comments on each of the alternatives recorded. Concern was voiced about whether the bridges really had to be raised or whether they could be left as they are. Another questioned whether other parts of the flood control project would be finished before the bridge alterations were accomplished. Other issues and concerns by those in attendance included noise, pedestrian river crossing, property acquisitions and loss of homes.

C.12 The third meeting, attended by about 80 people, was held at Roosevelt Elementary School on 30 May 1979. At the time of this meeting the proposed alternatives had been narrowed down to two (1B and 1C). These were presented in detail along with summaries of the impacts of each. At this meeting concerns were voiced about noise coming from the proposed elevation and alterations of TH 169/60. Other issues voiced were about right-of-way acquisition and relocation procedures. Concern was also expressed about industrial expansion and trucking in the neighborhood. Copies of the transcripts of these meetings are on file in the Corps of Engineers, St. Paul District Office and copies of the information handouts for the 15 November 1978

and 24 January 1979 meetings are given under Communications section. Additional copies of the third newsletter were available for information at the 30 May meeting.

Interviews With Citizens Directly Affected by Potential Property Acquisitions

C.13 In conjunction with the evaluation of social impacts, relocations, and right-of-way costs, the owner or renter of every property affected by a potential property acquisition was contacted either in person or by telephone. This process afforded the opportunity to inform these people about the project and to hear their concerns directly and individually. A few, particularly owners of commercial property, were interviewed several times during the course of study.

Presentations to Interested Civic Organizations

C.14 The information officer made presentations to the Mankato Chamber of Commerce Transportation Committee, the Exchange Club, and the Kiwanis Club as indicated in his log of contacts.

INTERAGENCY COORDINATOR

C.15 The Minnesota Department of Transportation (Mn/DOT), the City of Mankato, the Minnesota Historical Society and the Chicago and North Western Transportation Company (CNW) were contributors and participants to this study. Coordination with other agencies are described below.

State and Federal Agencies

C.16 All State and Federal agencies having an interest in the project were contacted early in the study by letter with a request to designate a liaison person. Those designated and copies of replies received are included under Communications section.

C.17 On 13 February 1979, the Consultants' study team and the Corps staff presented two briefings to State and Federal agencies on project progress, project setting, environmental concerns and the alternatives being considered for study. During these briefings no State or Federal representative expressed any concerns beyond those presented. Agencies represented at these briefings are listed in Table C-3. In addition to these direct contacts, all agencies were kept informed by the periodic newsletters.

Counties and South Bend Township

C.18 The Boards of Blue Earth and Nicollet Counties and South Bend Township (Le Hillier) were kept informed of the study through the

periodic newsletter and through presentations to the Boards by the project information officer.

TABLE C-3

ATTENDANCE AT STATE AND FEDERAL AGENCY BRIEFINGS
13 February 1979

Minnesota

Department of Transportation, Highways
Department of Transportation, Railroad Operations
Pollution Control Agency
Department of Agriculture
Water Resources Board
Department of Economic Development
Department of Health

United States

Environmental Protection Agency
Department of Interior, Geological Survey
Department of Interior, Fish and Wildlife Service
Department of Agriculture, Soil Conservation Service
Department of Commerce, Economic Development
Administration
Department of Housing and Urban Development

Others

C.19 All of the private utility companies in the area were informed of the project. They participated in providing information on their plant and in estimating the costs of adjustments. The companies contacted were:

Northwestern Bell Telephone Co.
215 E. Hickory
Mankato, MN 56001

Minnegasco
2400 N. Front Street
Mankato, MN 56001

Northern States Power Co.
2nd and Lime Streets
Mankato, MN 56001

Interstate Power Company
Amboy, MN 56010

Mid-Communications, Inc.
221 E. Hickory
Mankato, MN 56001

Minnesota C.A.T.V., Inc.
228 S. Front Street
Mankato, MN 56001

Mankato Citizens Telephone Co.
221 E. Hickory Street
Mankato, MN 56001

COMMENTS AND RESPONSES

C.20 Copies of comments received and responses thereto are given under Communications section, below.

COMMUNICATIONS

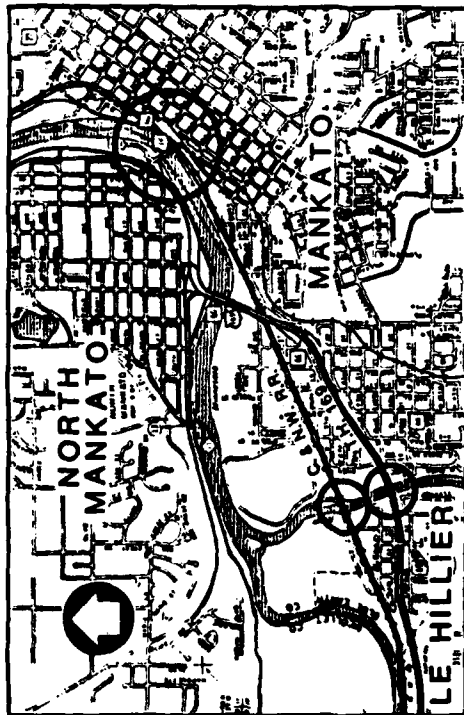
C.21 Copies of newsletters, correspondence exchanges, news clippings, and a list of State and Federal agencies contacted follows:

NEWSLETTERS

Bridge Relocation

November, 1978

Number 1, Mankato - N. Mankato - LeHillier



LOCATION: The circled sections show the three study areas under consideration for the bridge relocation and alteration study.

Bridge Relocation Study Begins

The St. Paul District Corps of Engineers has announced the start of a comprehensive study to determine the best location for a new Main Street Bridge over the Minnesota River; the replacement or raising of the two Trunk Highway 169 Bridges over the

Blue Earth River; and the two Chicago and North Western Transportation Co. Bridges over the Blue Earth River. All bridges must be raised or replaced to provide adequate channel capacity for flood control.

Bridge Relocation Newsletter

REMINDER

To encourage early and continuing community participation, a public meeting has been scheduled for:

- November 15, 1978, 7:30 P.M.
- Minnesota Valley Regional Library.
- Front & Main Streets, Mankato.

Please join us so that your ideas and concerns can be included in the initial planning stages of this project.

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The editorial content of the Community Newsletter is the responsibility of the staff of Edwards and Kelsey, Inc. Consultants. The newsletter is prepared and distributed by the Bridge Relocation Information Office and published under the auspices of the St. Paul District, Corps of Engineers.

Information Office Address:

Bridge Relocation - Information Office
Room 208, Northwestern Office Bldg.
209 South Second Street
Mankato, Minnesota 56001
Or call 507-387-7860

SCOPE

Eberhardt and Kelsey, Inc. of Minneapolis, assisted by Riata Carroll Miller Associates, Inc. of Mankato, and Braun Engineering Testing Co., Minneapolis, will examine the engineering, social, economic, and environmental aspects of raising or replacing the structures.

The present Main Street Bridge, built in 1916, is inadequate for two reasons. The present structure cannot handle present peak traffic volumes without considerable congestion. Secondly, the roadway on the bridge is well below the projected Corps' design flood levels. A new bridge will be required.

The T.H. 169 Bridges and the two railroad bridges over the Blue Earth River are also below projected flood levels. This study will determine if it is best to modify or replace these structures.

POTENTIAL IMPACTS

With the proposed bridge alterations the potential exists for impacts of varying degrees to air quality, noise levels, water resources, regional and local development, displacement of people and businesses, wildlife and waterfowl habitat, park and recreational facilities, and traffic patterns. These impacts will be investigated and the extent of the impact will be addressed in an Environmental Impact Statement.

COMMUNITY INVOLVEMENT

The principal aims of the studies are to develop river and railroad crossings that adequately meet the needs of the people they are designed to serve. The Corps of Engineers is planning a comprehensive Community Involvement Program, to go hand-in-hand with its engineering studies.

Bridge Relocation Study Procedure

CONSULTANT STUDY ELEMENTS

- Data Collection
- Identification of alternatives
- Assessment of alternatives in terms of:
 - Planning considerations
 - Traffic service needs
 - Engineering considerations
 - Environmental factors
- Presentation of findings (Preliminary report)
- Draft Environmental Impact Statement
- Review and evaluation of agency and public comments
- Final recommendations (Final Report)
- Final Environmental Impact Statement

COMMUNITY PARTICIPATION

- Continuous public involvement is provided for through:
 - The Information Office
 - A periodic Newsletter
 - Periodic public meetings
 - Group discussions with responsible community groups as requested
- Public Hearing

letter is to obtain as much community reaction and opinion as possible. If you would like to express your ideas concerning the project, or have any questions you want answered, please contact the office.

TRAFFIC STUDIES

Origin-Destination Surveys were conducted at each of the four existing river crossings in the Mankato, North Mankato, and Le Hillier areas, supplemented by traffic counts at intersections in the vicinity of each river crossing. This information will be used to assess the probable impacts on traffic circulation patterns during and after construction. Emphasis will be placed on maintaining safe and convenient access to existing and planned developments while minimizing circulation of traffic through sensitive areas.

The project staff and survey crews wish to express their gratitude for the willing cooperation of the motoring public who responded to the questionnaires that we passed out during these surveys.

OTHER STUDIES

The study objectives are to consider two specific requirements:

- Meet year 2000 traffic needs, and
- Compatibility with Corps of Engineers on-going flood control works.

In conjunction with these requirements, other studies such as roadway surveys, bridge inspections and environmental investigation of the rivers are now in progress.

INFORMATION OFFICE

As of October 2, 1978, the St. Paul District, Corps of Engineers, has opened the project Information Office in Room 208, Northwestern Office Building, 209 South Second Street, Mankato.

The office will be open from 8:00 a.m. to 4:00 p.m., five days each week.

The public is cordially invited to visit the office or phone 387-7860 during business hours. The Corps hopes that interested persons will take advantage of the Information Office, to call, write, or stop by, to keep up-to-date on latest project developments.

COMMUNITY NEWSLETTER

This is the first issue of a newsletter to report the progress of the Bridge Relocation Studies. These newsletters will be mailed periodically to residents and businesses in the study areas.

While the mailing list is meant to be as complete as possible, some names may have been missed. If you didn't receive a copy, or know of someone whose name should be added, please call or write the Information Office.

The purpose of the office and news-

BRIDGE RELOCATION
PUBLIC INFORMATION MEETING

November 15, 1978

Regional Library, Mankato

C-14

STUDY AREA

This comprehensive study when completed will determine the best location for a new Main Street Bridge over the Minnesota River; the replacement or raising of the two T.H. 169 Bridges over the Blue Earth River, and the replacement or raising of two Chicago and North Western Transportation Co. Bridges over the Blue Earth River. All bridges at these three sites must be raised or replaced to provide adequate channel capacity for flood control.

INFORMATION OFFICE

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NEWSLETTER

A newsletter will be published and mailed periodically to residents and interested persons. A mailing list has been prepared. While this list is meant to be as complete as possible, some names may have been missed. If you didn't receive a copy, or know of someone who should be on the list, please let us know. Call or write the Information Office.

Written and oral comments are welcomed and we urge you to contact us.

It is the intent and desire of the St. Paul District, Corps of Engineers, to provide the means through which all interested parties may have an opportunity to participate in the process of determining what should be done at the three sites, noted on the map.

The Corps of Engineers has initiated this meeting tonight, as one of the means to present information pertaining to planned transportation needs in and for your community.

Usually, this function is carried out and conducted by the Department of Transportation, but because of the uniqueness of this project, Congress has placed this project under the control of the Corps of Engineers. However, the project will follow guidelines and procedures formulated by the Minnesota Department of Transportation.

We seek your views, and urge you to ask questions on any subject pertaining to this project.

PLANNING AND DEVELOPMENT PROCEDURES

Briefly, any highway planning and development process involves three major phases:

Phase I - Systems Planning
Phase II - Location Planning
Phase III - Project Development

Phase I establishes and analyzes the need for a facility on a regional basis and within a designated area or corridor; Phase II includes the location study, draft environmental impact statements, corridor public hearings and final EIS; Phase III involves preliminary and final design, design public hearings, right-of-way acquisitions and construction. Therefore, tonight's subject falls under the Location Planning Phase.

STUDY OBJECTIVES

The primary purpose of this study will be to provide flood protection. Another objective is to select alternatives that will best meet the transportation needs of the local communities for the year 2000, while considering such items as socio-economic and community impacts, engineering requirements, traffic service and safety, project and road-user costs, the environment, and aesthetics. The proposed solution to be compatible with the Corps of Engineers' on-going flood control works.

EDWARDS AND KELCEY, INC.



Bridge Relocation

Mankato - N. Mankato - LeHiller

Number 2

December, 1978

Bridge Relocation Study



The flood of 1951 prompted local citizens to travel to Washington to ask for help with flood control.

bridges to provide the standard project flood protection but without the dam. Plan 2 was ultimately adopted after it was determined by the Corps that the dam was uneconomical to construct.

The firm of Edwards and Kelcey, Mpls., has been retained by the Corps to study the alternatives and prepare the necessary reports and documents for locating and designing the new high bridges.

A meeting was held in November to inform and receive citizen comments on the progress and development of these studies. Additional meetings are planned. Please see the back page for location and time.



During high water, ice and debris caught behind the Main Street Bridge dam up the Mankato River and cause further flooding.

WHAT IT'S ALL ABOUT

After the flood of 1951 a delegation of Mankato and N. Mankato citizens went to Washington to ask for help to protect the Cities from further flooding by the Minn. and Blue Earth Rivers. The Dept. of the Army was directed to study the problem and plan for flood protection.

Two plans were proposed. Plan 1 was a combination of flood walls and levees for an 80 year flood occurrence (comparable to the 1965 flood) and the Blue Earth River dam. These would have provided the standard project flood protection for Mankato, N. Mankato and LeHiller. Plan 2 involved the construction of flood barriers (retaining walls and levees) and the raising of

Bridge Relocation Newsletter

REMINDER

To encourage the continuing community participation, two public meetings have been scheduled for:

January 3, 1979 at 7:30 p.m.
Roosevelt School
W. 6th and Oatonna, Mankato

...

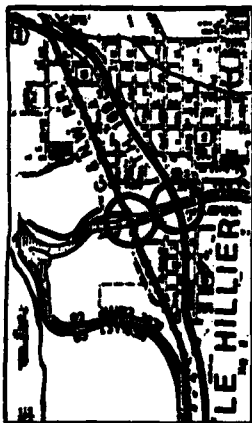
January 24, 1979 at 7:30 p.m.
North Mankato Junior High School
Corner of Range & Garfield, N. Mankato

Information Office Address:

Bridge Relocation - Information Office
Room 208, Northwestern Office Bldg.
209 South Second Street
Mankato, Minnesota 56001
Monday thru Friday from 8:00 a.m. to 5:00 p.m., or call (507) 387-7860

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C. & N.M. RAILROAD BRIDGES OVER BLUE EARTH RIVER

The following alternatives have been selected for study with regard to raising or relocating the bridges and tracks over the Blue Earth River. Alternatives include the Woodland Avenue bridge at the entrance to Sibley Park.

1. Raise both bridges on present alignment.

- 2.A. Raise Mainline north track. Stub and south track for storage, and retain present Woodland Avenue entrance to Sibley Park.

- 2.B. Raise Mainline north track. Stub and south track for storage, and replace Woodland Avenue bridge between Woodland and Carney Avenues.

- 3.A. Raise Mainline north track on new alignment slightly north of existing tracks. Stub and both existing tracks for storage, retain and modify existing Woodland Avenue bridge entrance to Sibley Park.

- 3.B. Raise Mainline north track on new alignment slightly north of existing tracks. Stub and both existing tracks for storage, and replace Woodland Avenue bridge between Woodland and Carney Avenues.

These alternatives will be presented for discussion at the next information meeting on January 3, 1979.

ALTERNATIVES

T.M. 169 OVER THE BLUE EARTH RIVER

The following alternatives have been selected for study with regard to raising or relocating the bridges and roadway over the Blue Earth River.

- 1.A. Existing Roadway Alignment, with provisions for on and off ramps to Minnesota Road to and from the south.

- 1.B. New Road Alignment slightly south of existing bridges, with provisions for on and off ramps to Minnesota Road to and from the south.

- 2.A. Existing Roadway Alignment, with northbound off-ramp to Sibley St. and a southbound on-ramp from Minnesota Road.

- 2.B. New Roadway Alignment, slightly south of existing bridges, with northbound off-ramp to Sibley St. and a southbound on-ramp from Minnesota Road.

- 3.A. River bridges on existing alignments with modifications to the Park Lane Interchange.

- 3.B. River bridges on new alignments with modifications to the Park Lane Interchange.

These alternatives will be presented for discussion at the next public information meeting on January 3, 1979.

MAIN STREET BRIDGE ALTERNATIVES

Four alternatives to replace and relocate the present Main Street Bridge will be presented at the January 24th meeting. The alternative locations are:

- 1.A. Belgrade to Mulberry
- 1.B. Belgrade to Main
2. Range to Cherry-Warren
3. Monroe to Madison

1ST PUBLIC MEETING

The first public information meeting of the Menkato Bridge Relocation Project was held Wednesday, November 15, 1978, at the Minnesota Valley Regional Library, Menkato, MN. Approximately 85 persons were in attendance.

Bob Penniman, of the St. Paul District Corps of Engineers, presented the opening remarks and stated the purpose of the meeting and Corps' involvement in the project.

Marty Romano, of Edwards and Kelcey, Inc., introduced members of the project staff to the audience and narrated a slide presentation giving an overall view of the project area and the scope of the project.

Tom Wetmore, of Edwards and Kelcey, Inc., reported to the audience on the proposed four alternative bridge locations for the new Main Street Bridge and the necessity to raise the twin Highway #169 bridges over the Blue Earth River and the nearby railroad bridges.

Opportunity was given to the audience to ask questions and voice opinions. Some citizens gave their opinions on certain alternatives and discussion followed regarding the fact that all alternatives will be given equal consideration when studies along with the environmental and traffic study data.

HOMEOWNERS & BUSINESSMEN SURVEY

Homeowners and businessmen who would be affected by bridge relocation and construction are being interviewed. It is necessary to gather data to determine which option for a proposed new bridge to link Menkato and North Menkato will have the most beneficial effect on its surrounding area.

Some of the questions will pertain to business hours, parking facilities, condition and value of buildings, ship or rental agreements, type of business, number of employees and payroll earnings. All information will be held confidential.

The survey will continue until all the zones involved have been covered. It should be noted however that being interviewed does not mean that any specific location has been selected.

ENVIRONMENTAL STUDIES

A team of natural environmentalists led by Dr. Henry Quade of the Environmental Studies Institute at Menkato State Univ. has been actively gathering information about potential impacts to the water quality and plant life related to any proposed bridge construction. Water chemistry and analysis has been supplemented with information from the Minn. Pollution Control Agency and the U.S. Geological Survey. The team is analyzing samples to determine the level of existing pollutants that might be disturbed during construction. Also, the team is responsible for determining whether there are any "rare or endangered species" of wildlife, or plantlife. Planners and engineers for the project will then use the findings to lessen impact to the river during construction phases.

C. & N.W. RAILROAD BRIDGES OVER BLUE EARTH RIVER

The following alternatives have been selected for tonight's discussion with regard to raising or relocating the C & N.W. Railroad bridges and tracks over the Blue Earth River. Alternatives also include the Woodland Avenue bridge at the entrance to Sibley Park.

1. Raise both bridges on present alignment.
- 2.A. Raise Mainline north track. Stub and south track for storage, and retain present Woodland Avenue entrance to Sibley Park.
- 2.B. Raise Mainline north track. Stub and south track for storage, and replace Woodland Avenue bridge between Woodland and Carney Avenues.
- 3.A. Raise Mainline north track on new alignment slightly north of existing tracks. Stub and both existing tracks for storage, retain and modify existing Woodland Avenue bridge entrance to Sibley Park.
- 3.B. Raise Mainline north track on new alignment slightly north of existing tracks. Stub and both existing tracks for storage, and replace Woodland Avenue bridge between Woodland and Carney Avenues.

COMMUNITY INVOLVEMENT

Extensive material has been and will continue to be collected and assembled regarding such items as property ownership, community

services, existing and proposed land use, recreational and aesthetic points of interest, ecology, population and economic data, soils information, and existing and projected traffic volumes.

Governmental agencies, civic organizations and people living within and near the study areas will be contacted and encouraged to express their view as to which option is best for the community.

INFORMATION OFFICE

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The office will be open from 8:00 a.m. to 4:00 p.m., five days each week.

You are cordially invited to visit the office or phone 387-7660 during business hours. The Corps hopes that interested persons will take advantage of the Information Office, to call, write, or stop by, to keep up-to-date on latest project developments.

NEWSLETTER

A newsletter is published and mailed periodically to residents and interested persons. A mailing list has been prepared. While this list is meant to be as complete as possible, some names may have been missed. If you didn't receive a copy, or know of someone who should be on the list, please let us know. Call or write the Information Office.

Written and oral comments are welcomed and we urge you to contact us.

EDWARDS AND KELCEY, INC.

MANKATO, NORTH MANKATO, LE HILLIER BRIDGE RELOCATION PUBLIC INFORMATION MEETING

January 3, 1979

Roosevelt School, Mankato

The Corps of Engineers, in conjunction with the Minnesota Department of Transportation, has initiated the informational meetings to provide you the opportunity to participate in the process of determining the location of the proposed new Main Street Bridge, the T.H. 169 Bridges and the C & N.W. Bridges over the Blue Earth River.

Tonight's meeting is the second of a series of information meetings scheduled during the development of this study. The first meeting was used primarily to introduce and to inform you of the proposed study.

At this meeting, the study corridors were defined and the goals and objectives explained: to provide flood protection and to select alternatives that will best meet the transportation needs of the local communities for the year 2000, while considering such items as social, economic and community impacts, engineering requirements, traffic service and safety, project and road-user costs, the environment, and aesthetics. The proposed solution to be compatible with the Corps of Engineers' on-going flood control works.

ALTERNATIVES

Tonight we will present and discuss alternatives for two sites: T.H. 169 over the Blue Earth River and C. & N.W. Railroad Bridges over the Blue Earth River. The alternatives to replace and relocate the present Main

Street Bridge will be presented at the January 24th meeting at North Mankato Jr. High School.

T.H. 169 OVER THE BLUE EARTH RIVER

The following alternatives have been selected for tonight's discussion with regard to raising or relocating the T.H. 169 Bridges and roadway over the Blue Earth River.

- 1.A. Existing Roadway Alignment, with provisions for on and off ramps to Minnesota Road to and from the south.
- 1.B. New Road Alignment slightly south of existing bridges, with provisions for on and off ramps to Minnesota Road to and from the south.
- 2.A. Existing Roadway Alignment, with northbound off-ramp to Sibley Street and a southbound on-ramp from Minnesota Road.
- 2.B. New Roadway Alignment, slightly south of existing bridges, with northbound off-ramp to Sibley St. and a southbound on-ramp from Minnesota Road.
- 3.A. River bridges on existing alignments with modifications to the Park Lane Interchange.
- 3.B. River bridges on new alignments with modifications to the Park Lane Interchange.



REMINDER

To encourage the continuing community participation, two public meetings have been scheduled.

On Wednesday, May 30, 1979 at 7:30 p.m. at Roosevelt School Gymnasium, W. 6th and Oatonna, Mankato, the CNW Railroad and T.H. 169 bridges over the Blue Earth River will be discussed.

On Thursday, May 31, 1979 at 7:30 p.m. at Mankato West High School Cafeteria, the Main Street bridge relocation will be discussed.

Doors will be opened at 4:00 p.m. prior to each meeting to afford an opportunity to view the plans.

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Information Office Address:

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Room 208, Northwestern Office Bldg.
209 South Second Street
Mankato, Minnesota 56001
Monday thru Friday from 8:00 a.m. to 5:00 p.m., or call (507) 387-7860

Information Meetings Scheduled

Public Information meetings will be held on May 30 and 31 to present descriptive data and hear comments on the alternative bridge relocations which have been developed to meet the requirements of the ongoing flood control project. On Wednesday, May 30, at 7:30 p.m. at the Roosevelt School in West Mankato the T.H. 169 and CNW R.R. bridges over the Blue Earth River will be discussed. On Thursday, May 31, at 7:30 p.m. in the Mankato West High School cafeteria, the discussion will deal with the Main St. bridge relocation. To afford more opportunity for studying the plans and asking questions, the doors will be opened at 4:00 p.m. prior to each meeting.

Since presenting the preliminary alternatives in January, data collection has been completed, alternative designs have been refined and impacts have been analyzed. Extensive data has been compiled and analyzed describing costs and social, economic and environmental impacts of each of the alternatives. These data are summarized in the following pages. Additional data of interest to the public will be discussed at the public meetings. To aid in the decision process the public is encouraged to offer its comments on the relative impacts and desirability of the various alternatives, as well as to supply additional factual information it considers important to the selection of the best alternatives.

PROJECT SCHEDULE

Following the information meetings all of the impacts and public comments will be evaluated. The preferred alternatives will be identified and presented for formal public and official comment in the Draft Environmental Impact Statement which is planned to be circulated early this autumn. During the period of this review, about mid autumn, a formal public hearing on the project will be held. Following the public hearing the Final Environmental Impact Statement containing the recommended alternatives will be filed. Upon approval of the Final Environmental Impact Statement, design studies and hearings will be conducted for the selected alternatives. After approval of the design studies, right of way acquisition and preparation of construction plans will begin. Construction is presently expected to begin in 1983. In brief, the schedule is as follows:

Public Information Mtgs.	- May 30 & 31, 1979
File Draft Environmental Impact Statement	- September 1979
Public Hearing	- November 1979
File Final Environmental Impact Statement (FEIS)	- January 1980
FEIS Approval	- Spring 1980
Design Studies & Hearings	-
Right of Way Acquisition and Construction Plans	- 1981-1982
Start Construction	- 1983

TH 169 OVER THE BLUE EARTH RIVER



NUMBER OF ALTERNATIVES REDUCED

At the public information meeting on Jan. 3, 1979 reconstruction of the Part Lane interchange with T.H. 169 was shown as an alternative for the bridge over the Blue Earth River. The ensuing study and evaluation has determined that the reconstruction of the Part Lane interchange would not provide the required traffic service. Therefore reconstruction of the Part Lane interchange is not an alternative under this project.

Alternative 2A and 2B, previously shown, included a northbound off ramp from T.H. 169 to Sibley Street. In spite of lower construction costs favoring these alternatives, the neighborhood impacts and traffic hazards associated with this ramp make these alternatives less desirable than others being studied.

Comparison of earlier Alternatives 1A and 1B indicates that 1B could be built in at least one construction season less time than 1A because the 1B river bridge could be built all at once, whereas, the 1A river bridge would have to be built sequentially one-half at a time. This savings in construction time reduces the traffic interruptions during construction significantly and produces the benefits of the improvements earlier. 1B would have slightly more right of way damage, but a lower total cost than 1A and it is felt that 1B is the more desirable alternative.

Refinement of Alternative 1B showed that operational and cost advantages could be obtained by locating the ramp intersection with Minnesota Rd. slightly easterly of the 1B location at the expense of additional right of way damages and neighborhood traffic impacts. This alternative is presented for consideration as Alternative 1C.

COMPARISON OF TH 169 ALTERNATIVES 1B AND 1C

	1B	1C
CONSTRUCTION COST	\$ 8,878,000	\$ 8,221,000
RIGHT OF WAY COST	\$ 460,000	\$ 655,000
TOTAL COST	\$ 9,338,000	\$ 8,876,000
HOUSEHOLDS DISPLACED	10	12
NUMBER OF BUSINESSES DISPLACED	0	1
NUMBER OF EMPLOYEES	0	4
OTHER IMPACTS	0	1

Both alternatives eliminate the existing hazardous intersection.

Acceleration and deceleration lanes better located with respect to T.H. 169 profile, river bridge and Hawley St. than under 1B.

Both alternatives would produce a slight noise increase over levels that are currently above standard. Abatement appears practicable in W. Mankato, but not in Le Hillier.

Bridge Relocation

Mankato - N. Mankato - LeMillier
Number 4
November, 1979

Bridge Relocation
Newsletter

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Public Hearing Rescheduled

The Federal Council on Environmental Quality recently changed its regulations for the preparation of Environmental Impact Statements. Because of these changes, it became necessary to revise the Environmental Impact Statement being prepared for the bridge relocations for the Mankato-N. Mankato-Le Millier Flood Control Project. These changes will require extra time for the preparation of the necessary reports. As a result, the project schedule has been changed and the filing of the Draft Environmental Impact Statement and the Public Hearing have been rescheduled to next Spring.

PROJECT SCHEDULE

The impacts of the alternatives and the public comments are being evaluated. Three alternatives are being considered at the Chicago and Northwestern Railroad crossing over the Blue Earth River, two at the T.H. 169/40 crossing over the Blue Earth River and two for the replacement of the Main Street Bridge over the Minnesota River. These were described in the May newsletter and were presented and discussed at the public information meetings May 30 and 31, 1979.

The preferred alternatives will be identified and presented for formal public and official comment in the Draft Environmental Impact Statement, which is planned to be circulated in the early Spring. During the period of this review, about mid Spring 1980, a public hearing on the project will be held. Following the public hearing, the Final Environmental Impact Statement containing the recommended alternatives will be filed. Upon approval of the Final Environmental Impact Statement and filing of the Record of Decision, design studies and hearings will be conducted for the selected alternatives. After approval of the design studies, right-of-way acquisition and preparation of construction plans will begin. Construction is presently expected to begin in 1983. In brief, the schedule is as follows:

File Draft Environmental Impact Statement	March 1980
Public Hearing	April 1980
File Final Environmental Impact Statement (FEIS)	June 1980
FEIS Approval & Record of Decision	Fall 1980
Design Studies & Hearings	1980-1981
Right-of-Way Acquisition	1981-1982
Start Construction	1983

INFORMATION OFFICE

Because of the delay that has occurred, the project information office has been temporarily closed. However, it will be reopened after the Draft Environmental Impact Statement is filed and will be open during the period surrounding the Public Hearing. An announcement will be made at the time of this reopening. In the interim, questions and comments may be addressed to Rieke Carroll Muller in Mankato; P. O. Box 66, Mankato, MN 56001 or telephone (507)625-4428.

The editorial content of the Community Newsletter is the responsibility of the staff of Edwards and Kelcey, Inc., Consultants. The newsletter is prepared and distributed by the Bridge Relocation Information Office and published under the auspices of the St. Paul District, Corps of Engineers.

CORRESPONDENCE

877 Woodland Ave.
Mankato, Minn. 56001
May 18, 1979

Bob Paulson
Army Corps of Engineers
Port Office Building
St. Paul, Minn. 55101

Sir:

My home is one of the homes that will be "flooded" with Plan L-88, on the Bridge elevation change across the Blue Earth River, near the Honeywood Plant in Mankato.

I stopped in to see Mr. Odie Borge in the "Corps" Mankato Office, in our discussion of Corps Policies etc. we found there were some questions Mr. Borge was unable to answer questions that will quite probably come up at the meeting May 20th at the Roosevelt School.

It is my plan to attend the May 20th meeting, but I could much appreciate a reply letter concerning the following questions.

One: Your estimate of time before I can know whether my home will be taken; is a final decision on which Proposed Plan will be used.

Two: After the FINAL decision is made concerning which Plan is going to be used, how long would you estimate before my home would be evaluated and a Purchase Offer made to me?

Three: Will the Evaluation of my home be on a free discussion basis with the Corps Evaluators; will he be able to give me a Firm Offer at the end of the discussion, or will a recommendation go to the St. Paul Office and the Offer come to me by Mail?

Four: Many floating around have it that the Corps, by Law, gives a Hardship or Inconvenience Payment, and uses a guideline formula to arrive at this Hardship Payment. In some literature I have on Minn. Dept of Trans. relocation assistance, it discusses the D.O.T. approach to a Relocation Allowance over and above the Home Evaluation. I would surely appreciate any comments you could make concerning relocation.

Five: How long after a Purchase Offer has been made by the Corps—assuming price agreement—would it be before Payments would be made?

Six: Referring to \$ 50 Could an Advance Draw be made on the Purchase Offer to assist the Home-owner in purchasing a different home?

Seven: Is the Original Home-owner authorized to buy the home back and save it to a new site—if so — how much time does he have?

That seems to be all of my specific questions. Please make my additional comments you feel are pertinent, and send me any informational material you feel could be helpful to me.

If it makes any difference, I am now 63 and a retiree.

Thank you very much for your time, your answers to the questions you are able to answer at this stage of "Plan Development", and my Informational Material you are able to send me.

cc -- my file

Tsk 612-725-7568

*Respectfully,
Don L. Campbell*
Don L. Campbell
877 Woodland Ave.
Mankato, Minn. 56001

See response next page.

Bob Penzance
Army Corps of Engineers
Post Office Building
St. Paul, Minn. 55101

Sir:

I received this May 30, 1979 meeting on the Bridge Relocation in Wanketo, Minn. is an informational meeting -- not an official "hearing", but I feel we affected Property-Owners are deserving of answers to questions that will have a definite impact on our future.

Also, I feel this letter, and my letter of May 13, 1979, should be filed as a part of the Official Minutes of the meeting.

It was stated in the Bridge Location Newsletter, Number 3, May 1979 that the Projected Acquisition date was 1981-1982. Is there any possibility of the date being earlier? The fact that the possibly affected Home-Owners are in a Potential Acquisition Status puts them in a Status-Que as far as any possible sale by anyone wishing to do so.

Now for a series of questions that need answering, as I see it.

1. Will the Evaluation (Appraisal) be on a free Market?

discussion basis?

A. Present projected costs for Right-of-Way acquisition for Alternative LC is \$455,000 -- about \$49,500 each for the 12 properties involved. Does that include Hardship (Inconvenience) payments?

2. Assuming the Market is free, will the Appraiser be authorized to give a "free" offer, or must the Appraisal go to St. Paul?

A. Assuming the Appraisal must go to St. Paul, does the Home-Owner merely get a "Notice-of-Value" in the Mail, or can he have further discussion --- in Wanketo?

B. Is the Home-Owner authorized to purchase his own Home from the Corps -- to possibly be moved to a new Site.

3. Concerning any Hardship (Inconvenience) Payments:

A. How does the Corps arrive at it?

B. What is the Corps' Policy on difference in Interest Rates on an old loan and a new loan?

C. What about Interest Costs if a Home is paid for, and the Home-Owner has to borrow to buy?

D. Does the fact a Home-Owner is Retired have any bearing on the determination of amount of Payment?

E. Is the 2-3 years (1981-82) time lapse till Acquisition Payment calculated into the amount of the "Hardship" Payment?

F. Does the Corps Policy permit an "Advance Draw" after Appraisal, assuming a payment agreement? If so, how soon can it be used?

I realize any of these questions are a repetition of questions in my May 18, 1979 letter, but I feel the Property-Owners need the answers at an Informational Meeting such as this meeting on May 30, 1979.

It is regrettable that you were unable to answer the questions of my May 18, 1979 letter, and could send only the Bridge Location Newsletter, Number 3, dated May, 1979.

Thank you for any information this letter can lead to.

Sincerely,
David Campbell
Don H. Campbell
807 Woodland Ave.
Wanketo, Minn. 56001

cc -- my file

Mr. Campbell's questions and concerns were addressed at the 30 May 1979 public information meeting and also discussed with him personally at the meeting.

NEWS CLIPPINGS

Office to explain bridge changes

Edwards and Kelcey, Inc., a Minneapolis consulting firm, will establish a Mankato office to publicly discuss changes concerning bridges over the Minnesota and Blue Earth rivers in connection with the Mankato-North Mankato-Le Hillier flood control project.

The office will explain the options to local citizens and listen to the citizen's ideas, according to a statement released today by the U.S. Army Corp of Engineers, which is in charge of the flood-control project.

Objectives are to determine the best location for the Main Street bridge over the Minnesota River, the replacement or raising of the two Highway 169 bridges over the Blue Earth River and two Chicago Northwestern railroad bridges over the Blue Earth River.

The consulting firm will organize public information meetings and hearings. It will also prepare an environmental impact statement, expected to be completed in about a year.

Anyone wishing to receive a newsletter and announcements from the firm concerning the bridges should write Amardo J. Romano, P.E., project director, Edwards and Kelcey, Inc., 4930 W. 77th St., Minneapolis, 55435.

Sibley Park-area residents disturbed over traffic, noise

By KEN BRADY

Free Press Staff Writer

Sibley Park is deteriorating at an alarming rate, according to seven residents of Mound Avenue near the park, who met at a public hearing Wednesday to discuss plans for park use.

The citizens complained to David Sears, superintendent of the City Parks and Forestry Department, of problems stemming from softball games and special events, such as outdoor concerts, at the park.

"It used to be a quiet family park," said June Leef, 601 Mound Ave., who has lived near the park for 35 years. "Now the kids go to North Mankato. I feel it's (Sibley Park) becoming

a college playground." She said it's impossible to enjoy a leisurely stroll through the park because in warmer months it is crowded with young people sunbathing, playing with dogs and throwing Frisbees.

Fifth Ward city councilman Bruce Paradis, who attended the meeting, said the continuing development of Hiniker Pond could relieve some of the problem from the other parks, especially Sibley. Hiniker Pond development is generally geared toward young people.

SEARS OUTLINED a number of planned improvements for the park, including resurfacing the road and walkways, which would reduce problems

from dust raised by vehicles. This would also include a number of additional speed bumps to ensure slower traffic flow. Resurfacing is expensive, Sears said, but the city feels it well worth the cost.

Sears said he expects development of the West Sibley Park area to be complete in 1981. This would be a camping and picnic area that would also alleviate some overcrowding. Development there is continuing with assistance from a small state grant, Sears said, and he is hoping for more state assistance before the project is complete.

One major complaint shared by all neighbors present at the meeting was the problem with excess traffic. Keith Petersen, administrator for the Mankato Lutheran Home, located next to the park, is particularly concerned for the 68 residents of the home.

"The big problem, as far as we're concerned, is the park department jokers (employees) who drive 40 miles per hour down Mound," he said. "We're concerned one of the residents will get killed. I have a couple of residents who don't see too well. I also have some who can get confused."

TRAFFIC PROBLEMS reportedly intensify during special events at the park that draw large crowds. Residents complained that traffic moves

slowly on Mound Avenue during special events such as outdoor concerts or the annual raft race. Some residents wondered out loud what would happen if an ambulance or fire truck were called to the Lutheran Home or the park, in such circumstances.

Residents said parking, noise, litter and people drinking to excess are all problems during special events. Petersen said litter was a major problem for the Lutheran Home, and that it is directly related to special events at the park.

During the last two years, only one of the special events presented any litter problem, Sears said. This is because

since then the city has required event sponsors to deposit money that will be returned only if the park is cleaned up after the event. Residents replied that this didn't stop people from littering on Mound Avenue.

Paul Horrisberger, administrator of Eclipse, a crisis intervention center, spoke out in favor of the special events.

Eclipse sponsors the annual People's Fair, a fundraiser for the organization. He said Eclipse is a community organization that helps between 800 and 1,000 people a month. He sees this as using a community facility, the park, to raise money for a community organization. He considers such activity as legitimate use of the park.

The People's Fair, which consists of music and crafts exhibits, is family entertainment, Horrisberger said, and is not just for college-aged people.

ECLIPSE HAS handled the fair more professionally every year, he said, and as a result, problems have lessened each year. Eclipse plans to again ask

ing speeds until Tate at night.

The noise is annoying and the traffic dangerous, the residents said. And like the special events, softball tournaments also bring litter with them, the residents said.

Sears said the situation will be somewhat better this year because some games and tournaments will be transferred to other softball diamonds in the city, particularly Jaycee Park near Balcerzak Drive.

PARADIS, HIMSELF a softball player, questioned whether there should be any softball diamonds at all at Sibley Park. There is plenty of land that could easily be turned into softball diamonds besides the scenic Minnesota River shoreline, he said.

"It seems to me to be a waste to put three softball diamonds on one of the most beautiful spots in the county," he said.

Corps of Engineers plans to discuss bridge options

A public meeting will be held Jan. 5, 7:30 p.m., at the University of Maryland, College Park, to discuss the Corps of Engineers' plans for the reconstruction of the Chesapeake and Delaware Canal bridge. The meeting is part of a 24-million study on the bridge, which is being conducted by the Corps of Engineers, U.S. Army Corps of Engineers, and the U.S. Army Corps of Engineers, U.S. Army Corps of Engineers, and the U.S. Army Corps of Engineers.

The Corps of Engineers is planning to discuss the bridge options with the public. The meeting is part of a 24-million study on the bridge, which is being conducted by the Corps of Engineers, U.S. Army Corps of Engineers, and the U.S. Army Corps of Engineers.

For more information call the Corps of Engineers at 202-755-1000.

Bridge, dike options threaten homes

Some homes in southwest Manassas would probably have to be demolished under bridge and dike options, according to a study released by the U.S. Army Corps of Engineers, U.S. Army Corps of Engineers, and the U.S. Army Corps of Engineers.

The study, which is part of a 24-million study on the bridge, is being conducted by the Corps of Engineers, U.S. Army Corps of Engineers, and the U.S. Army Corps of Engineers.

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view in April, along with further consideration of a new Main Street Bridge site.

The following alternatives were proposed to reconstruct the bridge near Honeywood Products Co.:

1. Maintain existing roadway alignment, with an elevated off-ramp to the highway (Main Street) and a new bridge structure.

2. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

3. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

4. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

5. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

6. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

7. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

8. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

9. Keep the existing roadway alignment, with a northbound off-ramp to Sibley Park and a southbound on-ramp from Main Street.

Bridge hearings next week

Public hearings on relocation of Mankato area bridges in conjunction with the flood control project on the Minnesota and Blue Earth rivers have been scheduled for the nights of May 30 and 31, the U.S. Army Corps of Engineers has announced.

The public may comment on proposed sites for the C&NW Railroad Bridge and Highway 169 twin-bridge over the Blue Earth River at 7:30 p.m., Wednesday, Roosevelt School Gymnasium, W. Sixth and Owatonna streets, Mankato.

On Thursday at 7:30 p.m. at the Mankato West High School

Gymnasium, 51 Park Lane, the Main Street Bridge relocation will be discussed.

Doors will be opened at 4 p.m. prior to each meeting to permit the public to review alternative plans for each bridge.

Information gathered from the hearings will be included in an environmental impact statement, on which the Corps will base its decision on bridge locations.

More information is available from the bridge information office, Room 208, Northwestern Office Building, 209 S. Second St., 357-7880.

Citizens make noise over noise at bridge hearing

By David S. Armstrong
San Francisco Staff Writer

A bridge engineer was asked today what he thought of the noise at a hearing on the proposed new bridge over the San Francisco Bay.

The engineer, who has been working on the bridge for several months, said he thought the noise was "a little bit loud."

The hearing was held at the San Francisco Convention Center, where the bridge is being built.

The bridge is being built by the San Francisco Bay Area Rapid Transit District, which is the agency responsible for the bridge's construction.

The bridge is being built as part of a larger project to improve the San Francisco Bay Area's transportation system.

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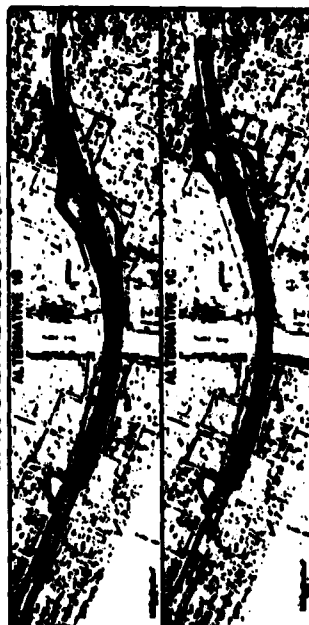
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TH 100 OVER THE BLUE EARTH RIVER



2 options for twin-bridge

Two bridge alternatives have emerged from several months of study and have been considered for the replacement of the Highway 100 bridge over the Blue Earth River.

The alternatives are a twin-bridge and a single-bridge with a central section.

The twin-bridge alternative would consist of two separate bridges, each with two lanes of traffic.

The single-bridge alternative would consist of a single bridge with a central section that would be used for emergency vehicles.

The twin-bridge alternative would be built on the same site as the existing bridge.

The single-bridge alternative would be built on a new site, adjacent to the existing bridge.

The twin-bridge alternative would be built on the same site as the existing bridge.

The single-bridge alternative would be built on a new site, adjacent to the existing bridge.

The twin-bridge alternative would be built on the same site as the existing bridge.

The single-bridge alternative would be built on a new site, adjacent to the existing bridge.

The twin-bridge alternative would be built on the same site as the existing bridge.

The single-bridge alternative would be built on a new site, adjacent to the existing bridge.

STATE AND FEDERAL AGENCY CONTACTS

Letter and project map sent to the following:

United States

Department of the Army, Corps of Engineers
Department of the Interior, Fish and Wildlife Service
Department of the Interior, Bureau of Sport Fisheries and Wildlife
Department of the Interior, National Park Service
Department of the Interior, Heritage Conservation and Recreation
Service
Department of the Interior, Geological Survey, Water Resources
Department of Commerce, Economic Development Administration
Department of Agriculture, Soil Conservation Service
Department of Transportation, Federal Highway Administration
Department of Transportation, Federal Railroad Administration
Department of Housing and Urban Development
Environmental Protection Agency
Water resources Council, Upper Mississippi River Basin Commission
Advisory Council on Historic Preservation
Department of Transportation, Urban Mass Transit Administration
Department of Transportation, Coast Guard

Minnesota

Department of Transportation
Department of Natural Resources
Department of Agriculture
Department of Economic Development
Department of Public Safety
Department of Public Service
Department of Health
Historical Society
Pollution Control Agency
Water Resources Board
State Planning Agency
Environmental Quality Board
Energy Agency

APPENDIX D

GLOSSARY OF TERMS

1. Standard Project Flood (SPF): The highest water surface resulting from the most severe possible flood that can reasonably occur under the most severe hydrological and climatic conditions.
2. Design Memorandum No. 8 - Part I (Location Study) and three Draft Supplements II-III-IV to the Final Environmental Impact Statement consists of three volumes: One volume for the TH 169/60 over the Blue Earth River, one for the Chicago and North Western Transportation Company (CNW) bridge over the Blue Earth River, and one for the TH 60 (Main Street) bridge over the Minnesota River.
3. Freeboard: The difference in elevation between the highest water surface and top of flood barrier; or in the case of a bridge -- the lowest member of the bridge should clear the design flood stage (usually by three feet) or the highest water surface, for the passage of ice and debris.
4. dba: A unit for measuring the volume of a sound. Sound is measured in units of decibels (db) or more commonly in units of dba. The "A" weighted scale, found to compare well with human reaction to sound and noise annoyances. An L_{10} represents the noise measurement that is exceeded 10% of the time; L_{50} -- 50% of the time.
5. Standard Metropolitan Statistical Area (SMSA): A U.S. Census statistical area comprised of a county containing a city of 50,000 or more, plus any contiguous socially and economically related counties. The concept of an SMSA is to present census-related statistical data.
6. Pasquall-Gifford Stability Classification (SC): A measure of the hydrostatic equilibrium of the atmosphere. Stability can be classified into groups denoted by letters of the alphabet. Class D refers to neutral conditions, A-C to unstable, and E-F to stable. Pollutant dispersion is increasingly greater as the stability decreases (i.e., from F toward A).

DA
FIL