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Improvement of U.S. 20
in
Sac, Calhoun and Webster Counties

Project Number
NHS-20-2(48)--19-81

ENVIRONMENTAL ASSESSMENT

U.S. Department of Transportation
Federal Highway Administration
and
Iowa Department of Transportation
Planning and Research Division
Office of Project Planning

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Daniel M. Mathis
For the Division Administrator
Federal Highway Administration

The following persons may be contacted for
additional information concerning this document:

H. A. Willard, Division
Administrator
U.S. Department of Transportation
PO Box 627
Ames, IA 50010
Telephone: 515-233-1664

Harry S. Budd, Director
Office of Project Planning
Iowa Department of Transportation
800 Lincoln Way
Ames, IA 50010
Telephone: 515-239-1391

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AMES, IOWA 50010

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I. INTRODUCTION

In 1990 Congress authorized special funding for the U.S. 20 corridor between Sioux City and Moorland for planning studies, design activities and right of way acquisition. The subsequent U.S. 20 Corridor Development Study (consultant study), contracted by the Iowa DOT and published in February 1993, studied seven alternatives for improving U.S. 20 between Sioux City and Moorland. The consultant study has provided a basis for location studies on this segment of U.S. 20. Also, this study concluded that an upgraded U.S. 20 facility across northwest Iowa would stimulate economic development in that area of the state.

The corridor preservation process has been initiated for the portion of U.S. 20 between Sioux City and Early.

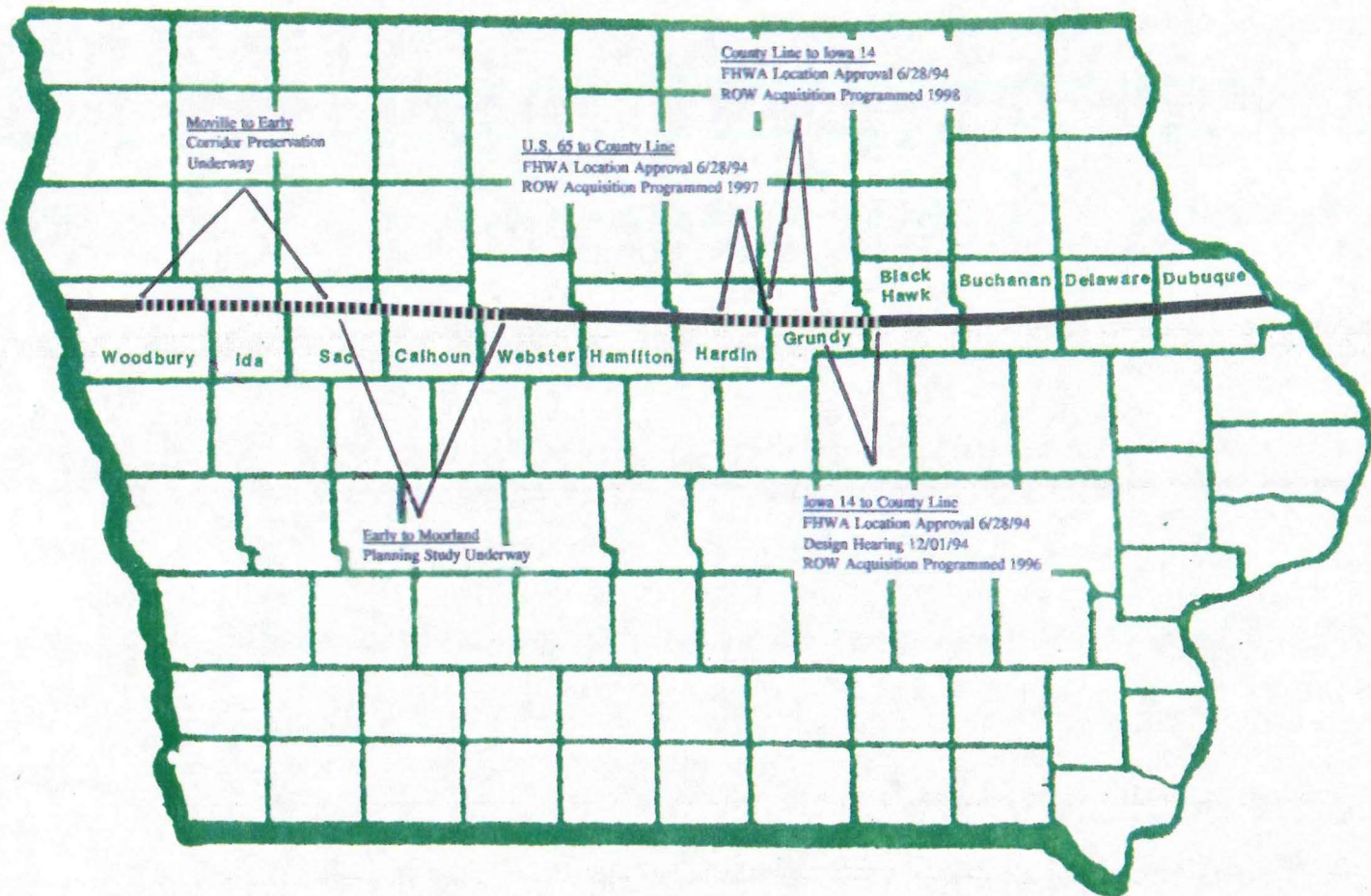
This environmental assessment (EA) discusses two proposed construction alternatives for U.S. 20 between Early and Moorland, both proposing to initially construct a two-lane highway and either buy or preserve four-lane right of way. These proposals are very similar to two of three proposals selected for detailed evaluation during the early phases of the consultant study. The no-build alternative has also been considered.

This 80-km (50 miles) U.S. 20 improvement, from Early to Moorland, is a link in the larger statewide upgrading of the U.S. 20 corridor, extending from Sioux City in the west to Dubuque in the east. Moreover, U.S. 20 statewide is part of the Commercial and Industrial Network of Highways (CIN), a 3700-km (2300 miles) system of interconnected highways targeted to provide high level traffic service to all parts of the state. The CIN feeds the Interstate System and together these routes carry 75 percent of Iowa's highway commerce. In addition, 80 percent of all Iowans live within 16 km (10 miles) of these highway systems.

The status of the upgrading of the U.S. 20 corridor across Iowa is shown in Figure 1.

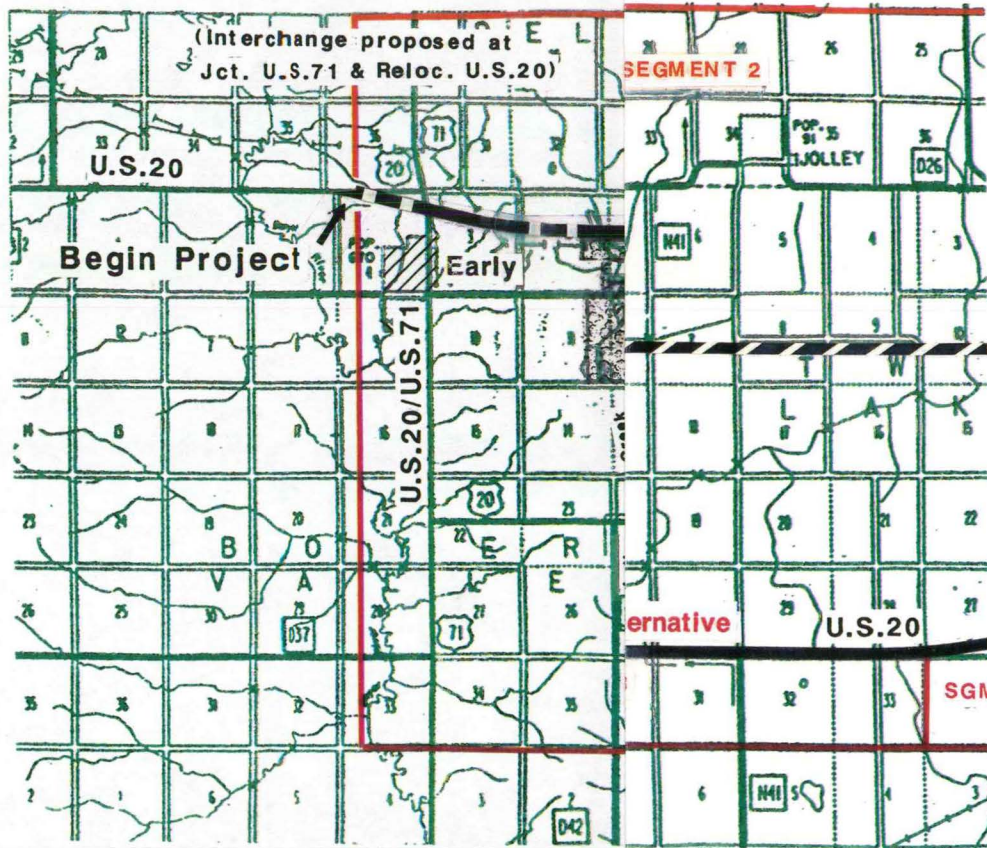
II. DESCRIPTION OF THE PROPOSED ACTION

The proposed U.S. 20 improvement being discussed in this document begins 1.4± km (0.9 mile) west of the north junction of U.S. 20 and U.S. 71, north of Early in Sac County, and continues easterly approximately 80 km (50 miles), crossing Calhoun County and ending at a point just northeast of Moorland in Webster County, where it ties into the existing section of relocated U.S. 20. (Refer to Figure 2, the project map.)



— Completed

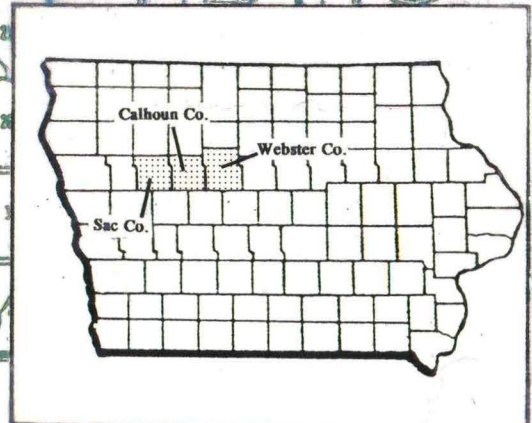
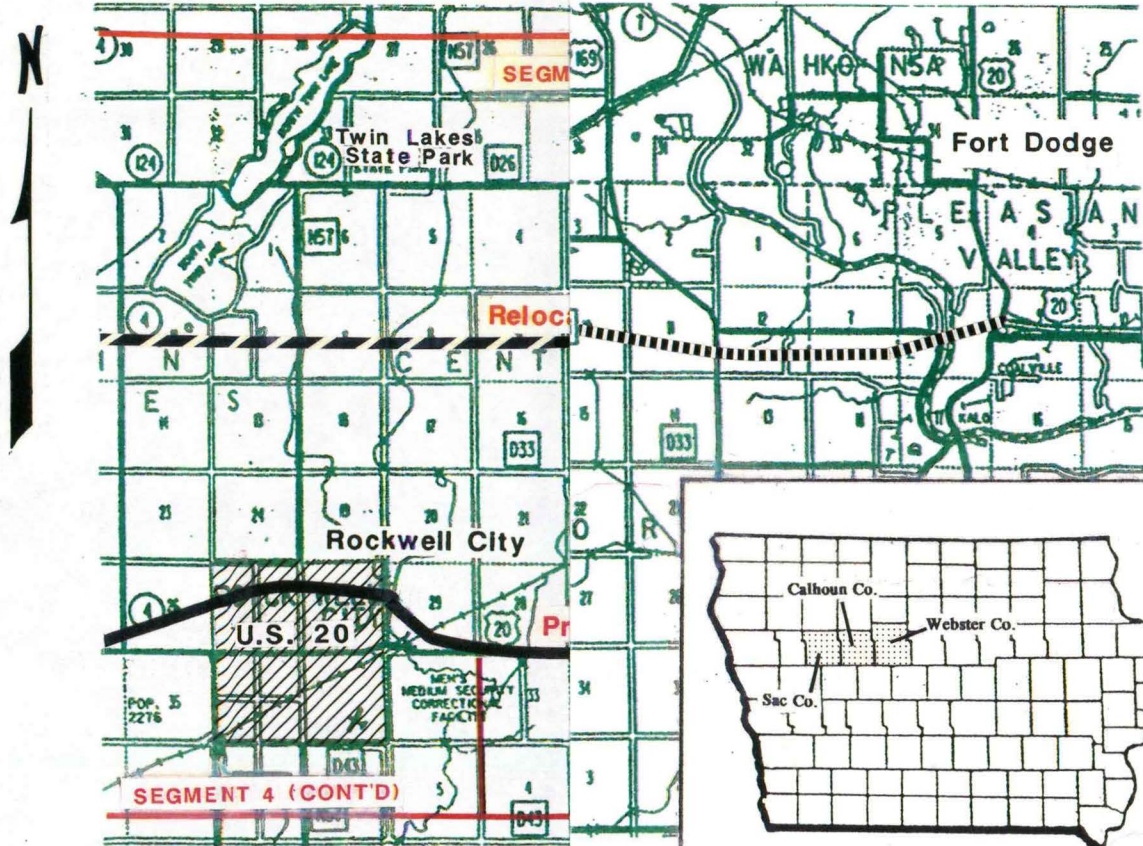
STATUS OF UPGRADING ALONG U.S. 20 CORRIDOR



U.S. 20

SAC -
CALHOUN -
WEBSTER
COUNTIES

PROJECT
MAP



LOCATIONS ARE APPROXIMATE

NOT TO SCALE

FIGURE 2

The two proposals being studied each begin with a 17.47±-km (10.86 miles) Common Alignment on relocation, combining northerly bypasses of Early and Sac City. From the end of the Common Alignment easterly, the two separate alternatives generally parallel one another, with the Relocation Alternative approximately 5.6 km (3.5 miles) north of present U.S. 20. The Present Alignment Alternative would ultimately bypass five communities located along U.S. 20 (Early, Sac City, Lytton, Rockwell City and Moorland).

It is proposed to initially construct a high standard two-lane roadway and either buy or preserve four-lane right of way along the proposed alignments.

Priority III access control standards are proposed throughout the project, allowing approximate 400-meter (one-quarter mile) spacing of access points.

III. PURPOSE AND NEED FOR PROJECT

The primary purpose of this project is to provide improved service and safety levels for existing U.S. 20 traffic, as well as provide for future transportation demands in the corridor. This facility will be an important link in Highway 20 which traverses Iowa east to west, from Dubuque to Sioux City. (See Figure 1.) This improved highway will form an important facet of Iowa's Commercial and Industrial Network of Highways. (The CIN is discussed earlier in Section I. Introduction.)

A. Present Facility

Figure 3 provides the pavement condition (including sufficiency ratings) and pavement history for U.S. 20 in the project area.

The three major categories which make up sufficiency ratings include the roadway's structural adequacy, motorist safety, and the capability of the roadway section to accommodate specific traffic volumes with a minimum of conflict. Ratings of 90-100 are classified as excellent; 80-89 are good; 65-79 are fair; 50-64 are tolerable; and 0-49 are poor.

Though pavement rehabilitation has been completed in the recent past on most of existing U.S. 20 and U.S. 20/71 within the project limits, 33 percent of the total mileage carries a continuity rating in the 'poor' range. An additional 54 percent falls into the 'fair' range. These low ratings are basically a result of

U.S. 20 and U.S. 20/71 being functionally classified as 'Freeway'. The existing two-lane roadway, frequent narrow shoulders, and inadequate drainage throughout combine with various other contributing factors which result in low ratings.

B. Traffic Data

Existing (1994) average daily traffic (ADT) volumes are shown in Figure 4. These current volumes range from 1860 to 7000 vehicles per day (vpd). Truck percentages range between 7 and 23 percent. The segment of U.S. 20 between Moorland and the Jct. U.S. 20/169 reflecting 1440 vpd with 32 percent trucks, which is outside the project area, is shown for informational purposes.

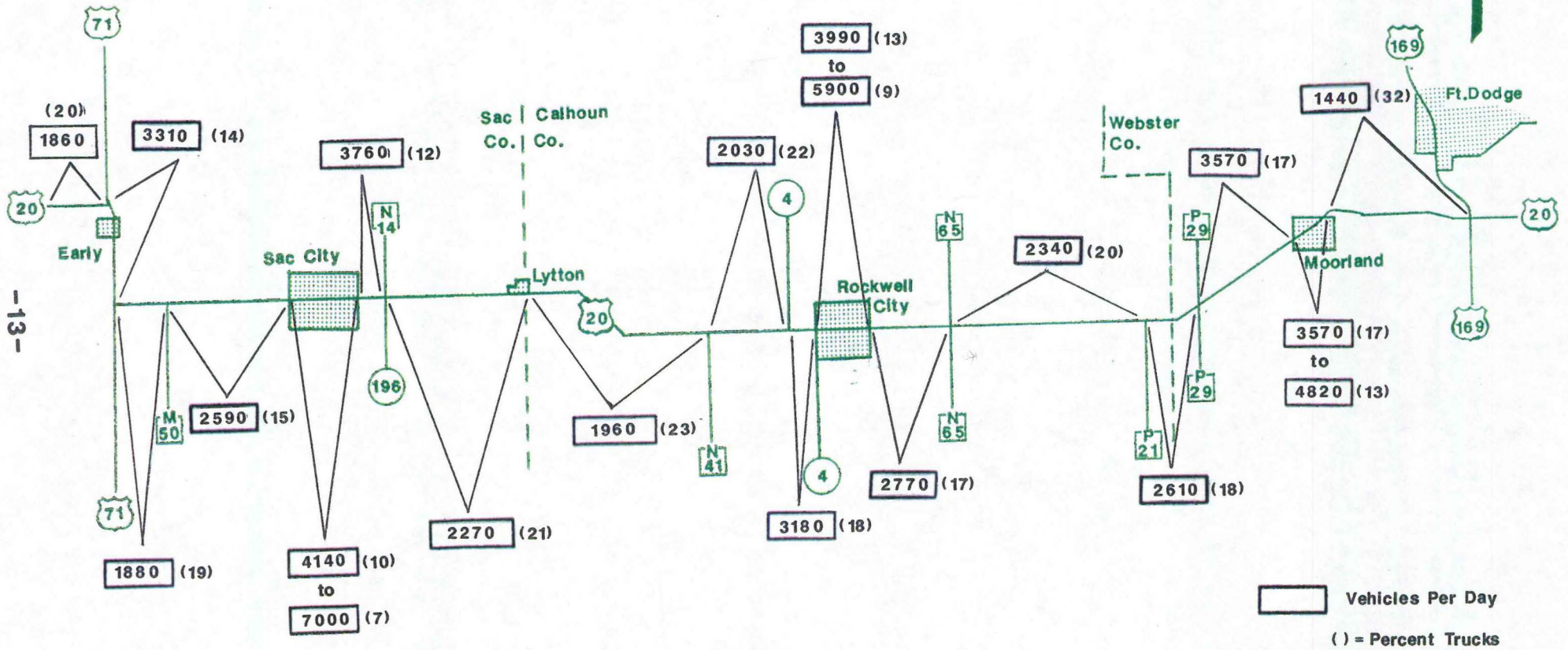
Forecast traffic volumes for the year 2020 and residual traffic are shown in Figures 5 and 6.

C. Accident Data

The following accident statistics for existing U.S. 20 within the study corridor were extracted from Iowa DOT files on reportable accidents (i.e. those of \$500 or more damages, a personal injury, or a fatality) and include data beginning January 1, 1989 and ending December 31, 1993. A breakdown of these accidents is shown in Figure 7.

In general, the accident rates are near or below the statewide rates. In the rural area between Rockwell City and Moorland, there were four fatal accidents involving seven fatalities during this five-year period.

1994 AVERAGE ANNUAL DAILY TRAFFIC VOLUMES



-13-

FIGURE 4

U.S. 20
 SAC-CALHOUN-WEBSTER COUNTIES

ESTIMATED YEAR 2020 AND RESIDUAL TRAFFIC VOLUMES

U.S. 20 SAC-CALHOUN-WEBSTER COUNTIES

RELOCATION ALTERNATIVE

Vehicles Per Day (% Trucks)

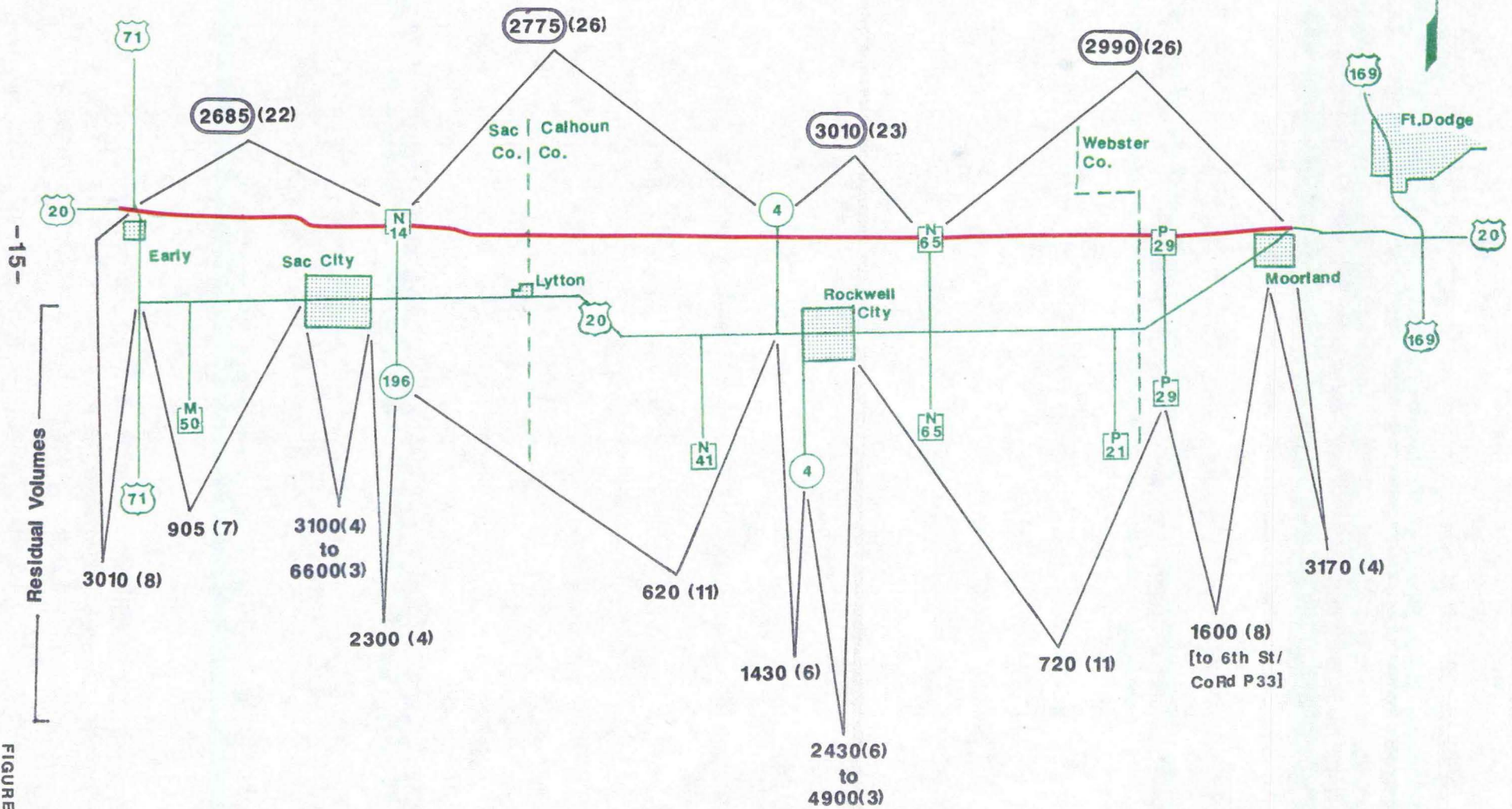


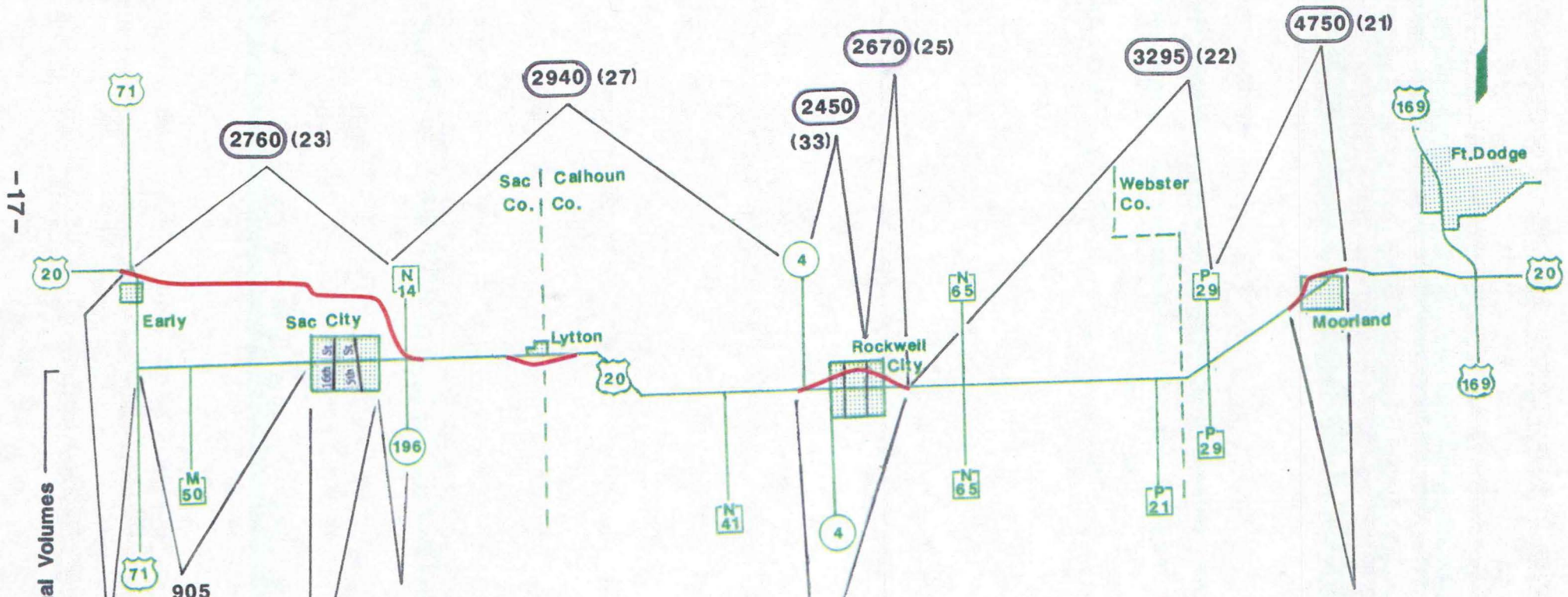
FIGURE 5

ESTIMATED YEAR 2020 AND RESIDUAL TRAFFIC VOLUMES

U.S. 20 SAC-CALHOUN-WEBSTER COUNTIES

PRESENT ALIGNMENT ALTERNATIVE

Vehicles Per Day (% Trucks)



-17-

Residual Volumes

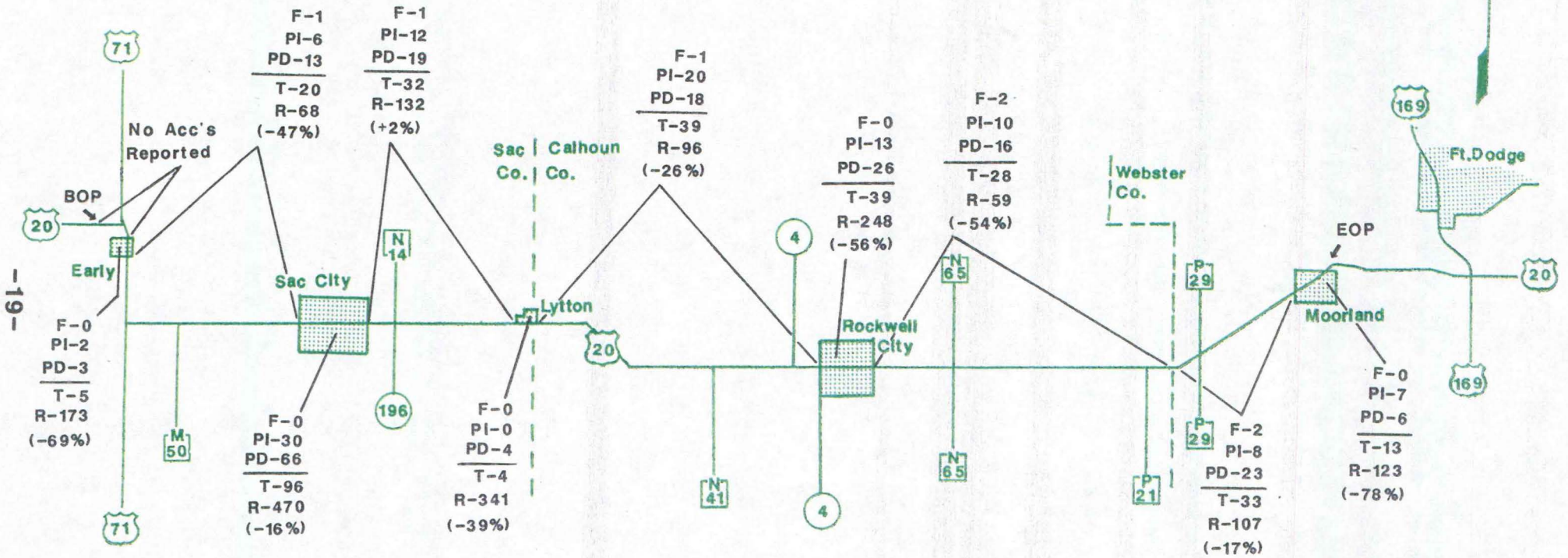
Sect.	VPD
to 16th St	3100 (4)
to 5th St	6600 (4)
to ECL	4350 (3)

Sect.	VPD
to 8th St	3000 (6)
to 1st St (CoRd N57)	4880 (4)
to ECL (CoRd D43)	3100 (5)
to Jet Reloc US-20	1165 (8)
Jet Reloc US-20 to E Jet IA-4 (WCL)	1380 (13)

Sect.	VPD
to Grand St (E Jet CoRd P33)	900 (11)
to Jet Reloc US-20	1900 (7)
Jet Reloc US-20 to 6th St (W Jet CoRd P33)	280 (6)

FIGURE 6

US 20 STUDY CORRIDOR REPORTABLE ACCIDENTS 1989 - 1993



LEGEND

- F = Fatal Accidents
- PI = Personal Injury Accidents
- PD = Property Damage Accidents
- T = Total Accidents
- R = Accident Rate Per 100M Vehicle Miles
- (%) = Percentage Above/Below Statewide Rate

Statewide Accident Rate: Rural Primary - 129 per HMVM
Municipal Primary - 559 per HMVM

FIGURE 7

TABLE 1

▪ Accident Data for U.S. 20
 ▪ (Rural and Municipal Accidents) ▪

Accident Totals by Type				Injuries/Fatalities			
	Rural	Municipal	Total		Rural	Municipal	Total
Fatal	7	0	7	Fatalities	10	0	10
Injury	56	52	108	Major Injury	11	1	12
Property	89	105	194	Possible Injury	48	38	86
Totals	152	157	309				

D. Summary of Purpose and Need

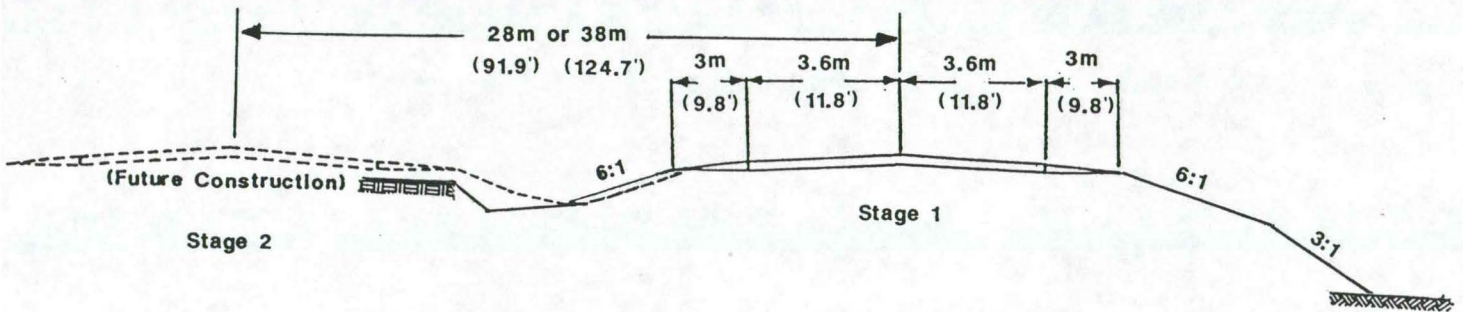
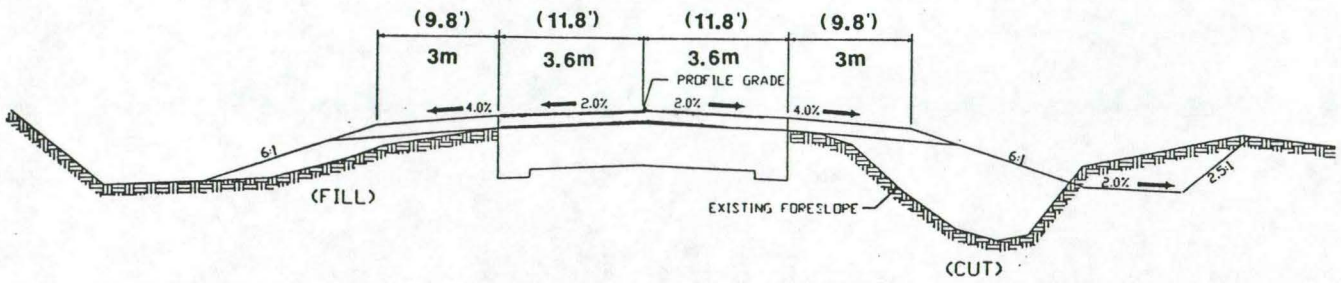
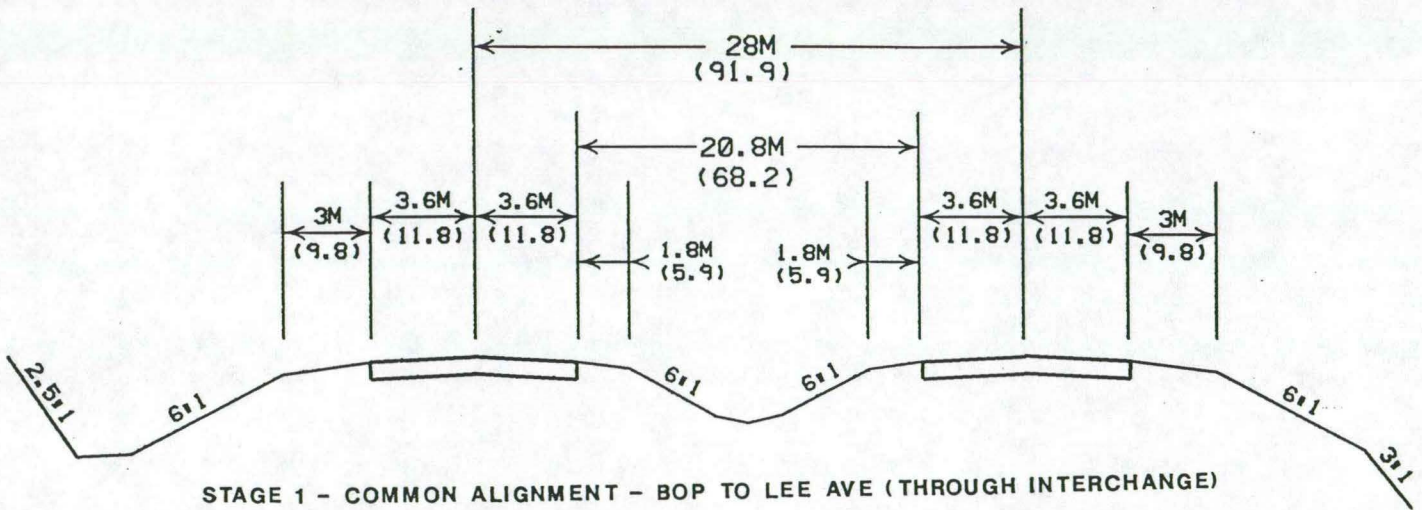
The proposed action is designed to meet existing and predicted surface transportation demands in the U.S. 20 study corridor by providing a modern, safe and efficient highway facility. The proposed Stage 1 construction for the Present Alignment Alternative would basically accomplish this via bypasses of the communities along the route, with the exception of Lytton where the alignment through town would be maintained. In addition, improvements to existing U.S. 20 where required would improve the service level and safety of the roadway overall. The Relocation Alternative proposes to improve the level of traffic service and access through the relocation of the new facility away from population centers which restrict free traffic flow.

Construction on this segment of U.S. 20 would provide one of the final links in the larger, statewide U.S. 20 improvement. Of equal importance, it is anticipated that this project will help to stimulate economic development in northwest Iowa by providing an upgraded facility with improved access as part of Iowa's Commercial and Industrial Network of Highways.

IV. ALTERNATIVES

The two construction proposals being studied in this environmental assessment each begin with a 17.47±-km (10.86 miles) Common Alignment on relocation, combining northerly bypasses of Early and Sac City. From the

TYPICAL CROSS SECTIONS
U.S. 20 SAC-CALHOUN-WEBSTER COUNTIES



(feet) English Equivalent

The high standard two-lane highway proposed for the remainder of the Common Alignment would ultimately serve eastbound traffic. Stage 2 construction, utilizing a 28-meter (92 feet) cross section, would provide two additional lanes for westbound traffic.

The Common Alignment reduces mileage through this area by 4.8± km (3.0 miles), eliminates the south junction of U.S. 20/71, improves travel time overall, and as a result, reduces the level of driver frustration associated with travel through town.

B. Present Alignment Alternative

As noted previously, the project begins with a 17.47±-km (10.86 miles) Common Alignment segment. The following discussion describes one of two separate construction alternatives proposed from that point easterly.

The Present Alignment Alternative, totaling 63.55± km (39.5 miles), has been divided into six segments for purposes of discussing the proposed construction concept and formulating estimated costs. Because existing U.S. 20 through the project area has received ACC overlay in recent years, Stage 1 improvements for the Present Alignment Alternative would generally entail shouldering, foreslope improvements and some reconstruction through substandard curves.

Estimated costs are outlined in Section IV-D.

Following is the proposed construction concept, for the Present Alignment Alternative, outlined by segment. Refer to Figure 2 and Topographic Plates 4-16.

Segment 1

Segment 1 [5.15± km (3.20 miles)] begins 1.8± km (1.1 miles) east of County Road M54 (the end of the Common Alignment), and curves south, continuing 3.1± km (1.9 miles) on a line 0.6± km (0.4 mile) east of the east corporate limits of Sac City, completing the proposed bypass of that community. (See Topographic Plate 4.) The alignment then angles southeasterly rejoining existing U.S. 20 just west of Cedar Creek and 2.2± km (1.4 miles) east of Sac City.

The high standard two-lane highway proposed in Stage 1 construction would ultimately serve eastbound traffic through this

80' x 44' bridge would be constructed over the branch of Camp Creek just east of Granite Avenue.

Segment 4

Segment 4 [8.28± km (5.15 miles)] begins at the west junction with Iowa 4, west of Rockwell City, proceeds northeasterly and easterly on relocation, then angles southeasterly to rejoin existing U.S. 20 approximately 1.4 km (0.9 mile) east of the community at Quinton Avenue. (See Topographic Plates 9 and 10.) Stage 1 would provide a high standard two-lane highway, which would ultimately carry westbound traffic. Stage 2 would add two 3.6-meter (12 feet) driving lanes south of the relocated highway, for eastbound traffic, utilizing a 28-meter (92 feet) cross section.

This proposed alignment routes traffic away from the downtown area, eliminating the delays and congestion associated with that built-up area.

An at-grade connection is proposed at Iowa 4. New bridges are proposed for this segment as follows:

- 150' x 44' bridge over drainage ditch just east of Preston Avenue (Stage 1) (Stage 2 - 150' x 40' bridge at this location for eastbound traffic)
- 170' x 44' bridge over the ICGRR (Stage 1) (Stage 2 - 170' x 40' bridge at this location for eastbound traffic)

Segment 5

Segment 5 [23.75± km (14.76 miles)] begins 1.4± km (0.9 mile) east of Rockwell City at Quinton Avenue in Calhoun County and follows present U.S. 20 east then northeasterly to just west of Moorland in Webster County. (See Topographic Plates 10 and 11 and 13-16.) Stage 1 would UAC the existing roadway. Access control would be UAC'd.

Stage 2 improvements would include shouldering and foreslope work, as well as 0.4± km (0.25 mile) of reconstruction at the curve just east of the Calhoun-Webster County line for improved horizontal alignment. Stage 2 would also provide two additional lanes south of U.S. 20, from the beginning of the segment east to Xenia

(Stage 1). (Stage 2 - 278' x 40' bridge at this location for westbound traffic)

C. Relocation Alternative

As noted previously, the project begins with a 17.47±-km (10.86 miles) Common Alignment segment. (Refer to Topographic Plates 1-3.) The following discussion describes one of two separate construction alternatives proposed from that point easterly.

The Relocation Alternative, totaling 57.41± km (35.68 miles), has been divided into three segments for purposes of discussing the proposed construction concept and formulating estimated costs. Refer to Figure 2.

Stage 1 construction would provide a high standard two-lane highway, which would ultimately carry eastbound traffic on a future four-lane facility. Stage 2 proposes that two additional lanes be constructed north of relocated U.S. 20 for westbound traffic. The proposed four-lane facility would utilize a 28-meter (92 feet) cross section.

Estimated costs are outlined in Section II-D. Proposed construction is outlined as follows.

Segment 1

Segment 1 [9.72± km (6.04 miles)] begins 1.8± km (1.1 miles) east of County Road M54 (the end of the Common Alignment) and proceeds 5.0± km (3.11 miles) easterly on relocated alignment along the quarter section line between 230th and 240th Streets, before angling southeasterly for 0.92± km (0.57 mile) as it crosses Cedar Creek. The remainder of Segment 1 on relocation follows the half section line easterly 3.55± km (2.21 miles) to Zeller Avenue/County Road N28 (the Sac/Calhoun County line). This alignment is generally parallel to and 3.2± km (2.0 miles) north of existing U.S. 20 as it passes north of Lytton. (Refer to Topographic Plates 4 and 5.)

Major structures are proposed for Segment 1 as follows:

Major structures proposed in Segment 2 are as follows:

- 120' x 44' bridge over Lake Creek, just east of Preston Avenue (Stage 1) (Stage 2 - 120' x 40' bridge at this location for westbound traffic)
- 330' x 44' bridge over CCPRR in Knierim (Stage 1) (Stage 2 - 330' x 40' bridge at this location for westbound traffic)
- 100' x 44' bridge over East Cedar Creek in Knierim (Stage 1) (Stage 2 - 100' x 40' bridge at this location for westbound traffic)

Segment 3

Segment 3 [9.56± km (5.94 miles)] begins at the Calhoun/Webster County line, 5.6 km (3.5 miles) north of existing U.S. 20, and continues easterly along the half section line to a point just northwest of Moorland. The proposed alignment then proceeds 2.3± km (1.4 miles) northeasterly, approaching the quarter section line and joins existing U.S. 20 (EOP). (See Topographic Plates 14-16.)

Stage 1 construction for Segment 3 would include a relocated at-grade "T" connection of the old highway to the south side of relocated U.S. 20, tying in at a point approximately 366 meters (1200 feet) east of the proposed railroad/local road overpass.

Major structures proposed for Segment 3 are as follows:

- 220' x 44' bridge over Spring Creek (Stage 1) (Stage 2 - 220' x 40' bridge at this location for westbound traffic)
- 278' x 44' bridge over Union Pacific RR/local road north of Moorland (Stage 1) (Stage 2 - 278' x 40' bridge at this location for westbound traffic)

The Relocation Alternative saves 6.1± km (3.8± miles) when compared to the Present Alignment Alternative, or 6.76± km (4.2± miles) when compared to existing U.S. 20. Additionally, the relocation proposal would provide a more direct route through the area, improving the level of service, reducing driver frustration

social and economic impacts generated by construction on new alignment, as well as avoiding the diversion of agricultural lands to transportation use.

Disadvantages of this option would include not providing a more desirable and direct connection with the existing segment of relocated U.S. 20 at Moorland. Additionally, inherent economic advantages associated with the location and design of an improved facility would be reduced, and the effectiveness of U.S. 20 as a safe and efficient transportation facility across Iowa would be limited.

F. Other Alternatives Studied

As outlined earlier in this document, the Corridor Development Study (CDS) evaluated seven alternatives including a no-build proposal, three alternatives which proposed two-lane improvements and three alternatives proposing four-lane improvements. The study did not address detailed alignment issues or detailed environmental impact issues, but rather it attempted to determine whether any highway improvement investment would be feasible and, thereafter, which of the alternatives might be most feasible.

This environmental assessment (EA) studies in detail two alternatives very similar to two of the original seven proposals in the CDS and the no-build alternative.

The remaining alternatives considered in the CDS are described briefly as follows:

Improved two-lane: proposed improvements to existing U.S. 20, such as passing lanes, spot reconstruction, left-turn lanes, widening granular shoulders throughout, improvements through communities, and some paving of county roads. No bypasses were included. Priority 3 access control was proposed.

Four-lane arterial: proposed a new four-lane facility on relocation with a 55 mph speed limit. The roadway was proposed to be built at grade with Priority 3 access control and no interchanges. Though this alternative was one of three proposals selected for detailed evaluation in the CDS, it was not developed further in the location/environmental phase of study due to the absence of forecast traffic volumes warranting a four-lane facility in the first stage of construction.

County	Community	Population
Sac	Early	649
	Sac City	2,516
	Lytton	320
Calhoun	Rockwell City	1,981
	Knierim	71
Webster	Moorland	209

The general population affected by the proposed improvement is predominantly caucasian. Because the proposed action is located in a rural portion of the state, there would be no neighborhoods or elderly, minority, ethnic or religious concentrations that would be impacted by construction activities.

Resident population in the project area has declined over the last 20 years. With population decline comes fewer job opportunities, out-migration by young people to find jobs, an aging population, etc. The following figures reflect this 20-year decline and the projected year 2010 population, by county, for the project area.

County	1970	1990	% Change	2010
Sac	15,600	12,316	-21.1%	11,028
Calhoun	14,300	11,495	-19.6%	10,300
Webster	48,390	40,312	-16.7%	34,993

Source: 1994 Statistical Profile of Iowa,
Dept. Econ. Devel.

Land use in the area is dominated by agriculture. Primary crops include corn, soybeans and hay. Livestock production centers on cattle and hogs. The following data reflects the predominance of land occupied by farms. (Iowa Facts, 1988 Edition)

assistance agents are employed by the state to explain all available options.

During a field review by DOT Office of Right of Way personnel in the spring of 1995, local contacts were made to ascertain the availability of current replacement housing in the area. At that time there were no rural properties listed with local realtors. Homes for sale in area towns totaled ten valued under \$25,000 and eight valued between \$32,500 and \$90,000. There were five building lots listed ranging from \$1,200 to \$8,000 in asking price. The rental market consisted of two two-bedroom apartments. There were a sufficient number of rental homes; however none were available at the time.

Access control would be purchased with both alternatives. With the exception of the full diamond interchange proposed at the junction with U.S. 71 north of Early, access along both proposed alignments would be provided at-grade at minimum 400-meter (one-quarter mile) locations. Though minimal at this level of access control, some out-of-distance travel may result for area residents, agricultural producers, and emergency vehicles in accessing and serving the area. While the primary purpose of access control is to provide a safer facility by limiting points of ingress and egress, it also follows that future roadside development within the corridor is controlled to a certain extent.

The construction of a high level two-lane U.S. 20 facility is anticipated to help create jobs and stimulate the declining economy of northwest Iowa by attracting new businesses and industry. Because of the deterioration of rail service, industry must depend more on the highway system to carry their commodities to market.

The primary beneficial impact of the proposed improvement would be the increase in operating safety and an improved level of service. Additionally, a high level two-lane facility would provide continuity with other completed and proposed U.S. 20 improvements across the state. (See Figure 1.) The construction of a higher volume highway facility may enhance not only the area's attraction for new business and industry, but also reduce travel time for commuters to area employment centers, shopping areas, and area colleges and universities. The improved access would make communities along the project corridor more attractive places in

TABLE 4

.....
 ■ Prime Farmland Evaluation ■

	Present Alignment Alternative				Relocation Alternative	
	Stage 1		Stage 2		Stage 1*	
	(Site A on form)		(Site B on form)		(Site C on form)	
	Hectares	Acres	Hectares	Acres	Hectares	Acres
Sac Co.						
Total	208	515	47	115	239	590
Prime	176	436	38	95	206	508
Calhoun Co.						
Total	113	280	159	393	349	862
Prime	100	245	145	357	304	751
Webster Co.						
Total	34	83	37	92	88	216
Prime	20	50	31	76	75	186
TOTALS						
Project	355	878	243	600	676	1668
Prime	296	731	214	528	585	1445

* Stage 2 of the Relocation Alternative does not involve right of way acquisition.

B. Secondary Impacts

Secondary impacts are precipitated as a result of highway construction and are evident as changes in land use near the relocated highway. Secondary impacts could also comprise industrial or commercial development outside the immediate project corridor as a result of an improved transportation system. Typically, new highways tend to generate development in the vicinity of interchange locations, where good accessibility creates a prime location for business or industry (with the resulting increase in land values and potential for replenishing any lost taxes due to right of way takings). Secondary impacts may also result from encouraging the location of expansion of

bypasses are economically and socially desirable, and represent a stimulus for regional economic development.

In predicting secondary impacts, the studies cited above and past experience with bypassed communities in Iowa indicate that potential adverse impacts would be minimal and limited to the short term. The enhanced climate for regional economic growth provided by improved traffic flow and greater community access would result in offsetting economic gains that would, over the long term, represent a positive economic influence on area commerce.

C. Environmental Impacts

1. Air Quality

Transportation related air quality is not considered an issue on the U.S. 20 project because of the rural and open nature of the project corridor and the moderate traffic volumes expected. Air quality benefits of an efficient modern highway and the impacts of adding new emissions where none now exist are both very minor air quality effects within the project study corridor and should not be a consideration in alternative selection.

Like the remainder of Iowa, the highway project location is in an area where the State Implementation Plan for maintaining the national ambient air quality standards does not include transportation control measures; therefore the current conformity rules established by the Clean Air Act Amendments of 1990 do not apply to the U.S. 20 project.

2. Noise Impacts

Due to the rural nature of the U.S. 20 corridor, concentrated noise sensitive land use that would require special abatement features is not present. Traffic noise impacts would occur on the Relocation Alternative as isolated rural farmsteads which are not now affected by highway traffic noise. In such instances where rural homes remain near the new highway a noise impact occurs in the form of a substantial increase over existing noise levels. In such cases the impact must be accepted as an unavoidable environmental cost of the project and is regarded as a

northerly and 4.8± km (3.0 miles) southerly from Kiowa Marsh.

The location of the Common Alignment skirts the northern boundary of Kiowa Marsh avoiding physical impacts to the area itself. Because the Indian Creek drainage area, as described previously, is environmentally sensitive in its entirety, impacts resulting from the proposed improvement will be monitored as project development progresses and needed mitigation will be coordinated with DNR. The intent is to avoid encroachment on Kiowa Marsh during project construction.

Further discussion concerning Kiowa Marsh is included in Section V, E, Wetland Impacts.

- McDonald Greenbelt is a public recreation area owned by Sac County and overseen by the Sac County Conservation Board. (See Topographic Plate 3.) Located approximately 2.4 km (1.5 miles) north of Sac City (just west of Rolfe Avenue), this 42-hectare (104 acres) parcel covers 1.6± km (1.0 mile) north to south and 0.4± km (0.25 mile) east to west. (See Figure 2.) The area is used for primitive camping, canoeing, horseback riding, hiking, cross-country skiing, stream fishing, and hunting.

To avoid impacting this area, the Common Alignment segment passes approximately 0.4 km (0.25 mile) south of the McDonald Greenbelt southerly limits.

- Lubeck Woods public recreation area, is owned by Sac County and overseen by the Sac County Conservation Board. (See Topographic Plate 3.) This triangular shaped 18-hectare (45 acres) area follows an abandoned rail bed and is located 0.4± km (0.25 mile) north of Sac City, near Rolfe Avenue. The area is used for primitive camping and hunting.

The Common Alignment segment passes approximately 1.3 km (0.8 mile) north of Lubeck Woods, avoiding impacts to the area.

extensive naturally wooded areas would be affected by the project.

Possible prairie remnants at railroad corridors to be crossed and along existing U.S. 20 were investigated and found to exhibit a limited natural prairie character. Representative prairie species identified include slough grass, big blue stem, common prairie milkweed, big tooth sunflower, yellow coneflower, Canada wildrye, stiff goldenrod, and heath aster. No protected plant species were identified. The railroad corridor adjacent to existing U.S. 20 southwest of Moorland would not be encroached upon because the new U.S. 20 lanes would be placed on the opposite side of the highway. A very limited prairie element does occur on this side of U.S. 20, as a result of wind aided seed dispersal from the railroad side.

No other natural prairie and upland areas are encountered by the U.S. 20 project.

4. Biodiversity

Highway construction is often associated with the removal of natural areas and a reduction in biodiversity by insertion of a transportation corridor through woodlands, wetlands or even pasturelands that, if left undisturbed, might revert to a native prairie character. With the growing awareness of the value of such natural areas and their relative scarcity compared to cultivated farmland, today's highway engineers try to utilize existing highway right of way to the maximum extent possible. When new transportation corridors are required, such as the U.S. 20 Relocation Alternative, they are located such that effects on natural areas are avoided or minimized.

Because of this desire to avoid natural areas, construction of highway bypasses around Iowa cities, towns and communities, and construction of highways on new location, usually affects Iowa cropland. This conversion of cultivated areas to transportation use can frequently result in enhanced biodiversity. The monoculture of planted crop is replaced by a transportation corridor two-thirds of which is a permanent ground cover that includes native grasses. This grassy zone between the highway itself and the

marshes were a primary feature of the original landscape of the U.S. 20 corridor.

In most of the study corridor, artificial drainage systems such as field tile and dredged ditches have been required to allow cultivation of crops on a dependable schedule. Such drainage of these natural wetlands has resulted in a healthy farm-based economy in the study area with benefits extending beyond the livelihoods of generations of individual farm families. In this manner the study area is a small sample of a large portion of north central Iowa that has benefited from the large scale conversion of natural wetland to agricultural production.

Under current national wetland regulatory policy, most of the area traversed by the U.S. 20 study corridor is defined as prior converted cropland that was manipulated by man-made drainage before 1985. These areas are not regulated as wetlands under existing national policy.

There are natural drainageways, including the Raccoon River and several smaller waterways that would be crossed that meet the jurisdictional wetland definition. Such areas are unavoidable and the very minor effect of U.S. 20 crossing these linear wetlands is not considered an important impact upon the local wetland resource base.

One major wetland area within the U.S. 20 study corridor has been preserved and is in public ownership. Kiowa Marsh is located just east of Early near the west project terminus. This area is a 232-hectare (579-acre) palustrine wetland extending for approximately 1.7 miles in the wide and shallow Indian Creek waterway. The Common Alignment of both U.S. 20 construction alternatives is proposed to cross Indian Creek adjacent to and north of the publicly-owned area. A box culvert is proposed at this crossing and approximately five acres of privately-owned wetland would be consumed by the highway construction. Standard contemporary erosion control techniques would protect the downstream marsh from sedimentation during construction activity and prior to establishment of permanent roadside vegetation.

Other smaller natural wetland areas in the form of prairie potholes and waterways would no doubt be encountered along

Responses from governmental agencies who were contacted during the early coordination process revealed no obvious or major concerns regarding potential hazardous waste sites in the vicinity of the corridor.

8. Water Quality Impacts/River and Floodplain Crossings

The proposed project would require the construction of new bridges as outlined within each segment description in Section IV, Alternatives and as reflected on the topographic plates. A minor channel change is proposed on the Relocation Alternative at Drainage Ditch No. 65 near South Twin Lake to protect the stability of the roadway. On the Present Alignment Alternative, a minor channel change is proposed for Drainage Ditch No. 66 northeast of Rockwell City. A third proposed channel change, common to both alternatives and located near the end of the project at Spring Creek in Moorland, may be needed to better accommodate the new structures proposed for the Spring Creek crossing. Culverts would be utilized at all other creeks and drainageways traversed by the project. Drainage issues have been coordinated with the DOT Preliminary Bridge staff. Necessary permits from the Iowa Department of Natural Resources would be obtained when precise design stage information is developed.

Standard construction specifications would assure that erosion during construction would be controlled to minimize sedimentation into receiving waters. A fast growing stabilizing crop and permanent roadside seeding which includes native grass species will minimize erosion after grading operations are completed.

Webster County participates in the National Flood Insurance Program (NFIP) and is thus required by state and federal statutes to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These regulations must be applied to all development in the floodplain of a regulated area, including the proposed highway improvements. Sac and Calhoun Counties do not participate in the NFIP.

Floodplain studies for the proposed U.S. 20 alignments were completed in consultation with the Federal Emergency

TABLE 5

Summary of Anticipated Project Impacts and Costs

Impact	Present Alignment Alternative			Relocation Alternative		
	Stage 1	Stage 2	Total	Stage 1	Stage 2	Total
<u>Right of Way</u> Hectares (acres)	355 (878)	243 (600)	598 (1478)	676 (1668)	None	676 (1668)
<u>Prime Farmland</u> Hectares (acres)	296 (731)	214 (528)	510 (1259)	585 (1445)	None	595 (1445)
<u>Displacements</u>	3 acreages/farmsteads 1 business	7 acreages/farmsteads 1 business 1 church	10 acreages/farmsteads 2 businesses 1 church	1 acreage/farmstead	None	1 acreage/farmstead
Estimated Costs	\$35,250,000	\$53,130,000	\$88,380,000	\$52,950,000	\$45,390,000	\$98,350,000
<u>Jurisdictional Wetlands</u>	Anticipated conversion of jurisdictional wetlands for either alternative would be generally proportionate to the proposed right of way to be acquired. Overall the jurisdictional wetlands impact is not seen as a critical factor in route selection on this project.					
<u>Proposed Channel Changes</u>	1 Drainage Ditch No. 66 northeast of Rockwell City. 2. Spring Creek in Moorland near end of project.			1. Drainage Ditch No. 65 near South Twin Lake. 2. Spring Creek in Moorland near end of project.		
<u>Noise/Air</u>	Minor Impacts (involvement with greatest number of residences)			Minor Impacts		
<u>Natural Areas, Woodland & Prairies</u>	Common Alignment portion, which is part of both alternatives, does not encroach on Kiowa Marsh, McDonald Greenbelt, or Lubeck Woods physical properties. Sparsely wooded uplands are encountered at highway crossing of Raccoon River where minimal encroachment is anticipated. Limited natural prairie (no protected plant species) at railroad corridors crossed by both alternatives.					
	--			<ul style="list-style-type: none"> • Skirts southernmost limits of South Twin Lake (Twin Lakes State Park) public recreation area. • Generally speaking, overall impacts to natural areas are inherently greater for a new alignment on relocation than one which follows an existing roadway. 		
<u>Cultural Resources</u>	Stage 2 construction would require acquisition of a church which is potentially historic. Phase I survey to be completed.			Potential for archaeological sites exists in vicinity of Cedar Creek. Phase I survey to be completed.		
<u>Hazardous Waste</u>	Responses from governmental agencies contacted during early coordination revealed no obvious or major concerns.					
<u>Utilities</u>	Existing natural gas pipeline in Sac County is not impacted. Any other adjustments to existing utilities within corridor would be coordinated with local companies to maintain essential services during construction. Generally speaking, overall impacts to utilities are inherently greater for an improvement on present alignment than for a relocation alignment.					

Mayor, Sac City
Mayor, Early
Mayor, Knierim
Mayor, Moorland

* Indicates response was received. See Appendix D.

B. Public Coordination

Following the February 1993 publication of the Corridor Development Study (See Section I. Introduction.), the Iowa DOT participated, in November 1993, in a public information meeting, sponsored by the Highway 20 West Association, to answer questions and receive input on the proposed U.S. 20 improvement.

Since that time, DOT staff have on several occasions attended regular meetings of the Highway 20 West Association, at their request, to keep them updated on the DOT's progress on the project.

In June 1995 DOT staff held five informational meetings to inform local government officials regarding the progress on U.S. 20 studies. These meetings provided a forum for local officials to offer input at a point early on in the process. These meetings were as follows:

June 5, 1995 - Rockwell City, City Council Meeting
June 6, 1995 - Rockwell City, Calhoun County Board of Supervisors
June 6, 1995 - Sac City, Sac County Board of Supervisors
June 26, 1995 - Sac City, City Council Meeting
June 27, 1995 - Fort Dodge, Webster County Board of Supervisors

This document will be made available to all appropriate federal, state and local agencies for review and comment. These responses from reviewing agencies will be considered during further development of the project. Notification of the time and place of the public hearings for the project will be announced at the time this environmental assessment is made available for public review.

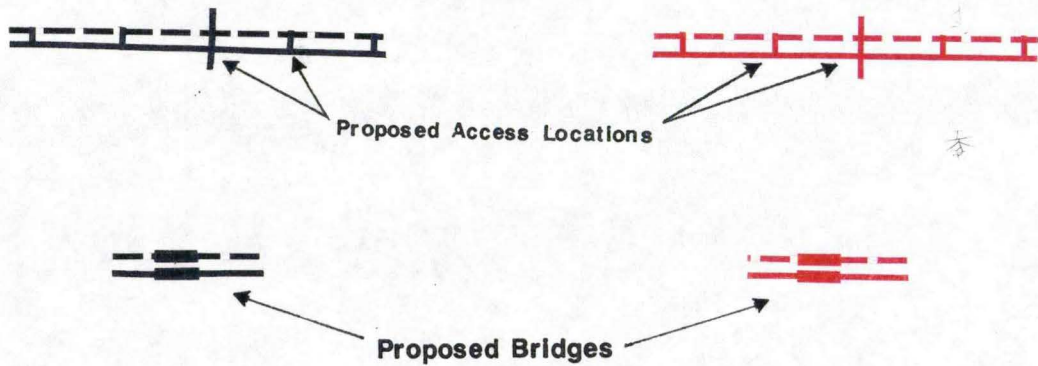
APPENDIX A - TOPOGRAPHIC PLATES 1-16

LEGEND - TOPOGRAPHIC PLATES

Proposed Construction: (Solid lines represent Stage 1 construction.)
 (Broken lines represent Stage 2 construction.)
 Segment locations for each alternative are shown on the following page.

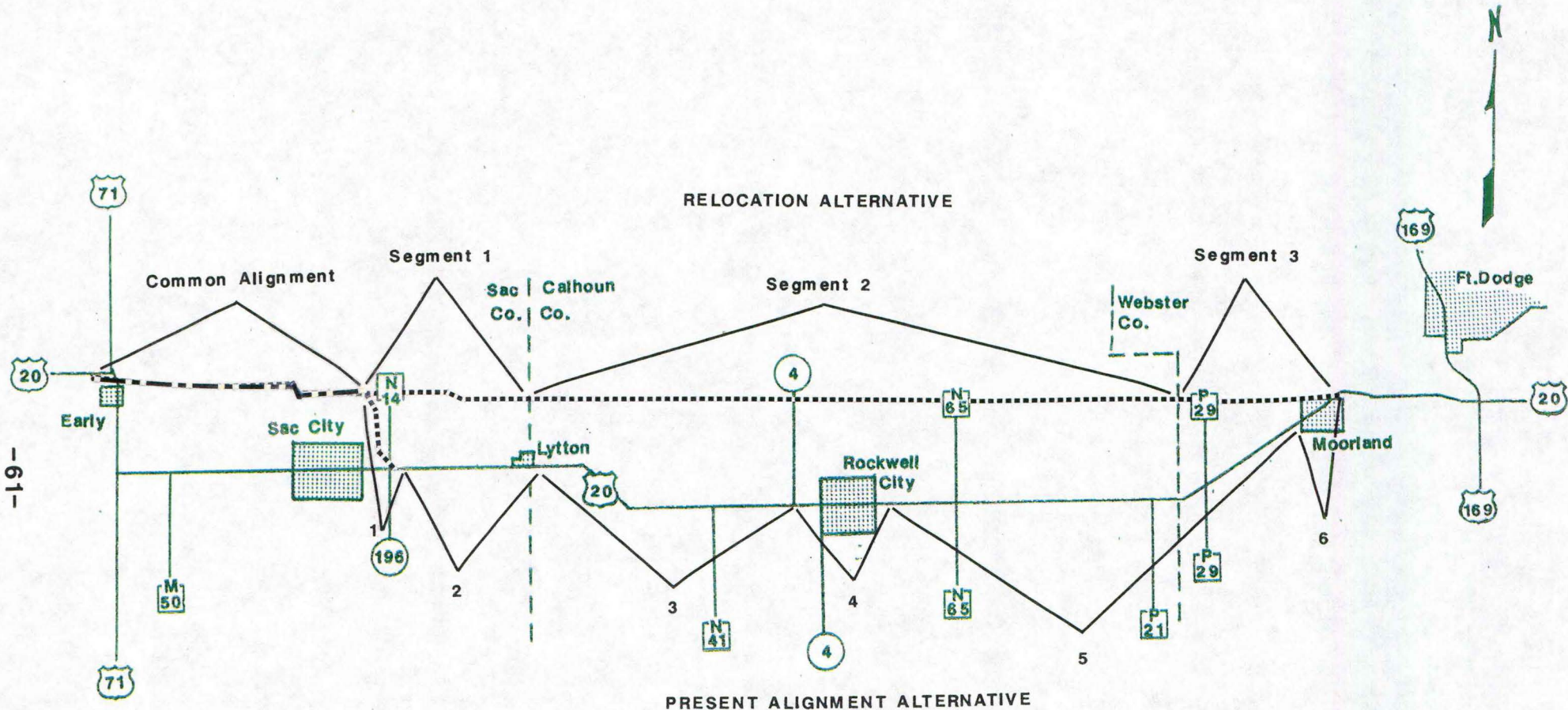
Common Alignment and Relocation Alternative

Present Alignment Alternative

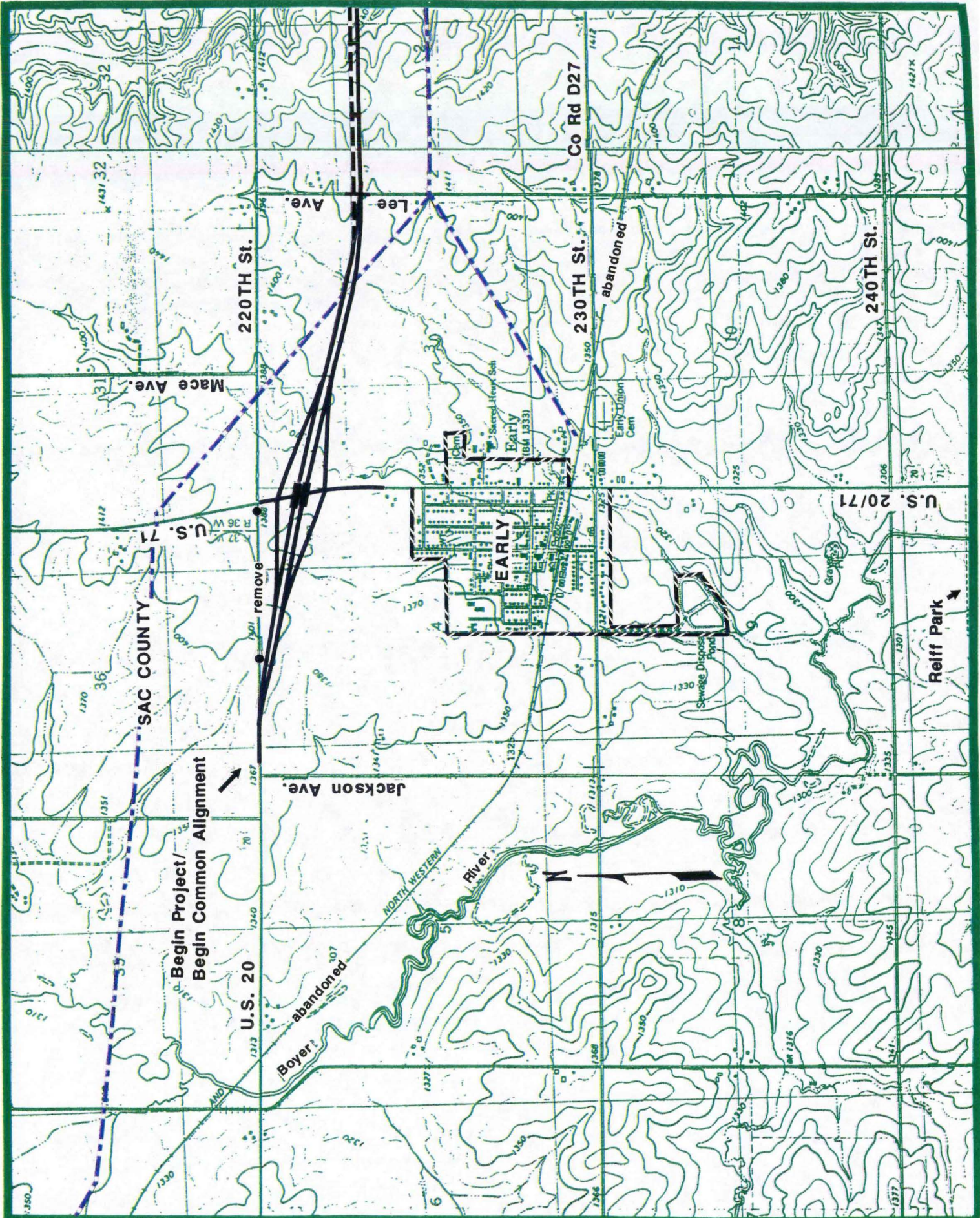


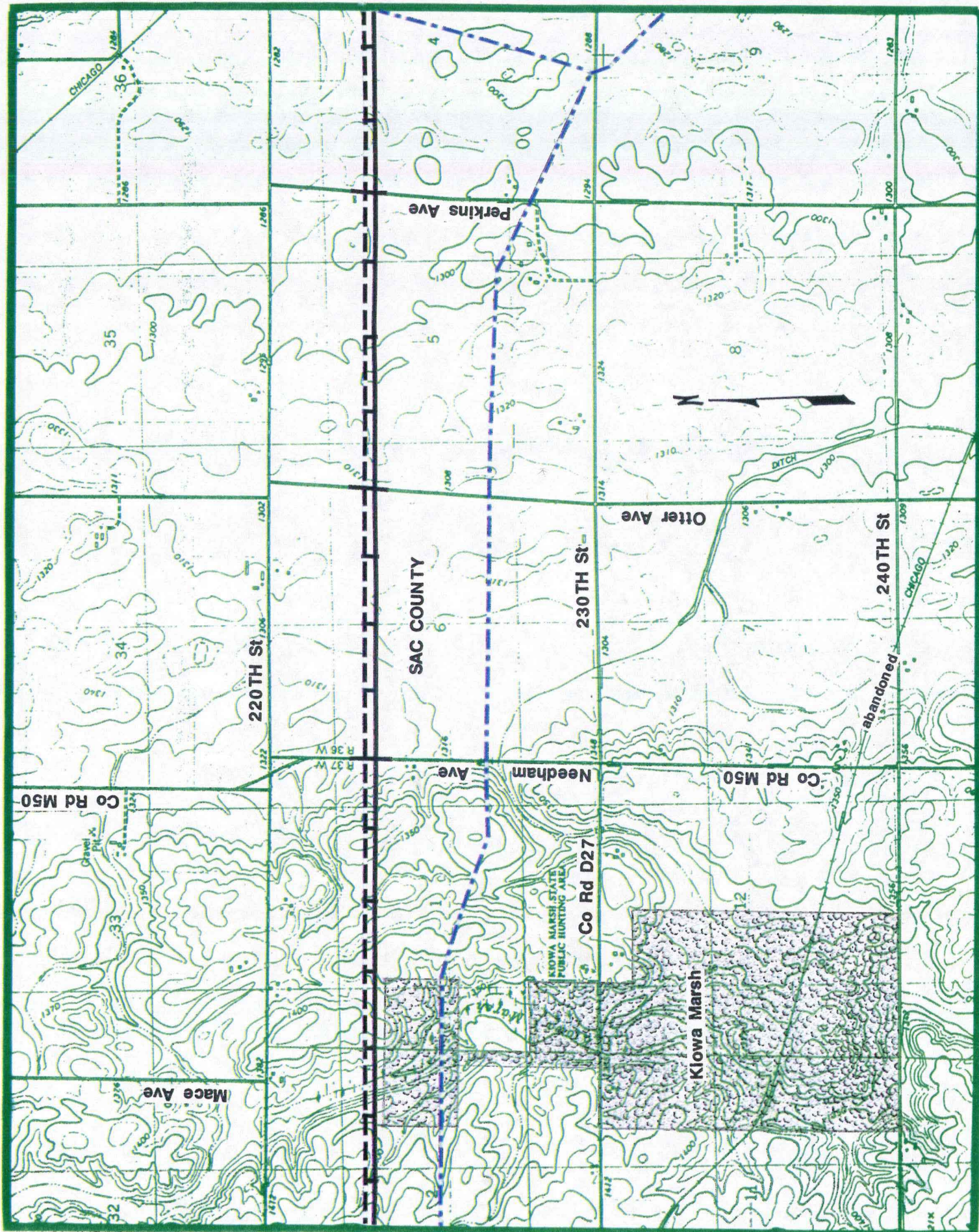
- Natural Gas Line, Sac County
- Proposed Channel Change
- Approximate Corporate Limits
- Proposed Displacements
- Proposed Road Closures

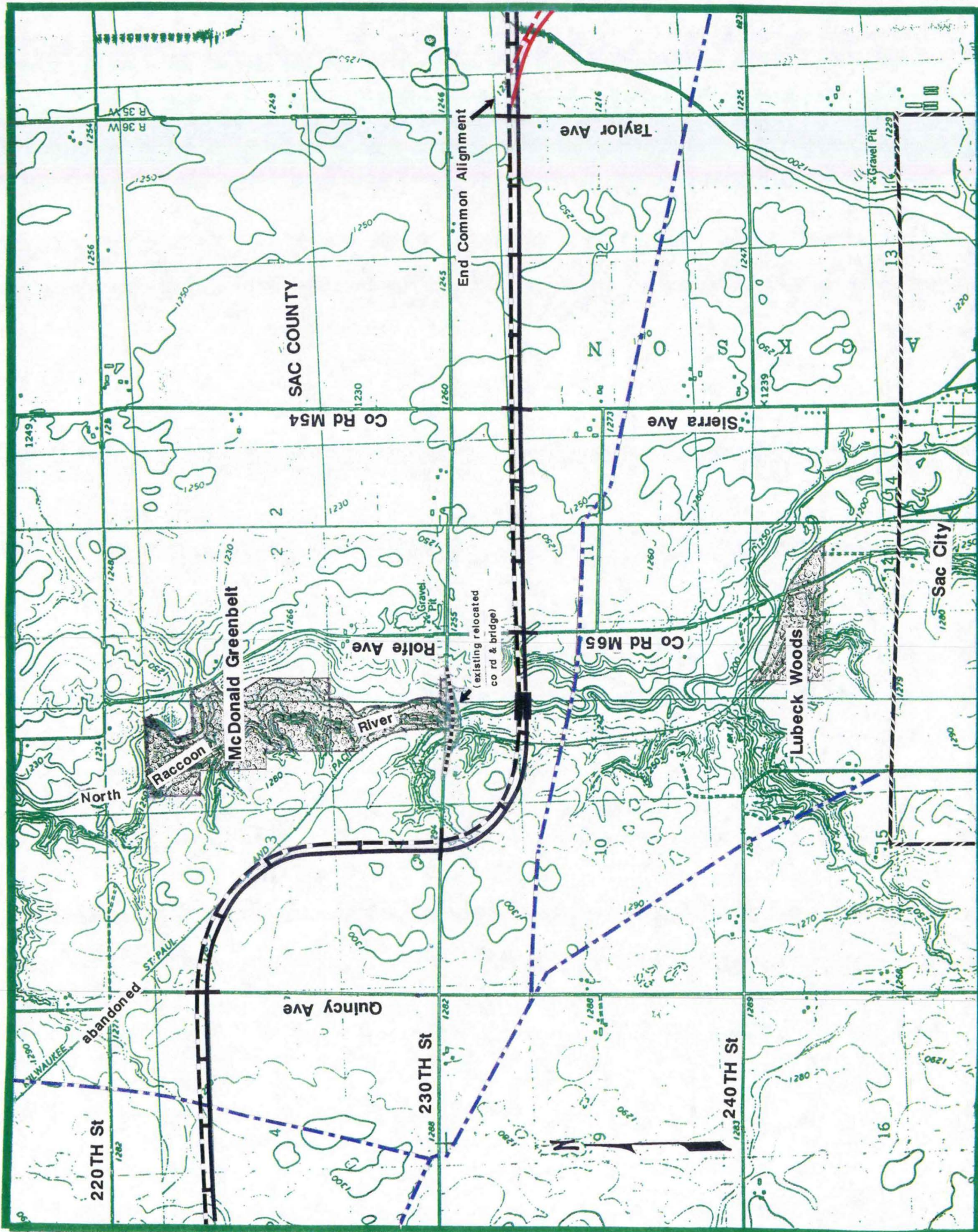
NOTE: THE ABOVE SYMBOLS REPRESENT APPROXIMATE LOCATIONS AND ARE NOT TO SCALE

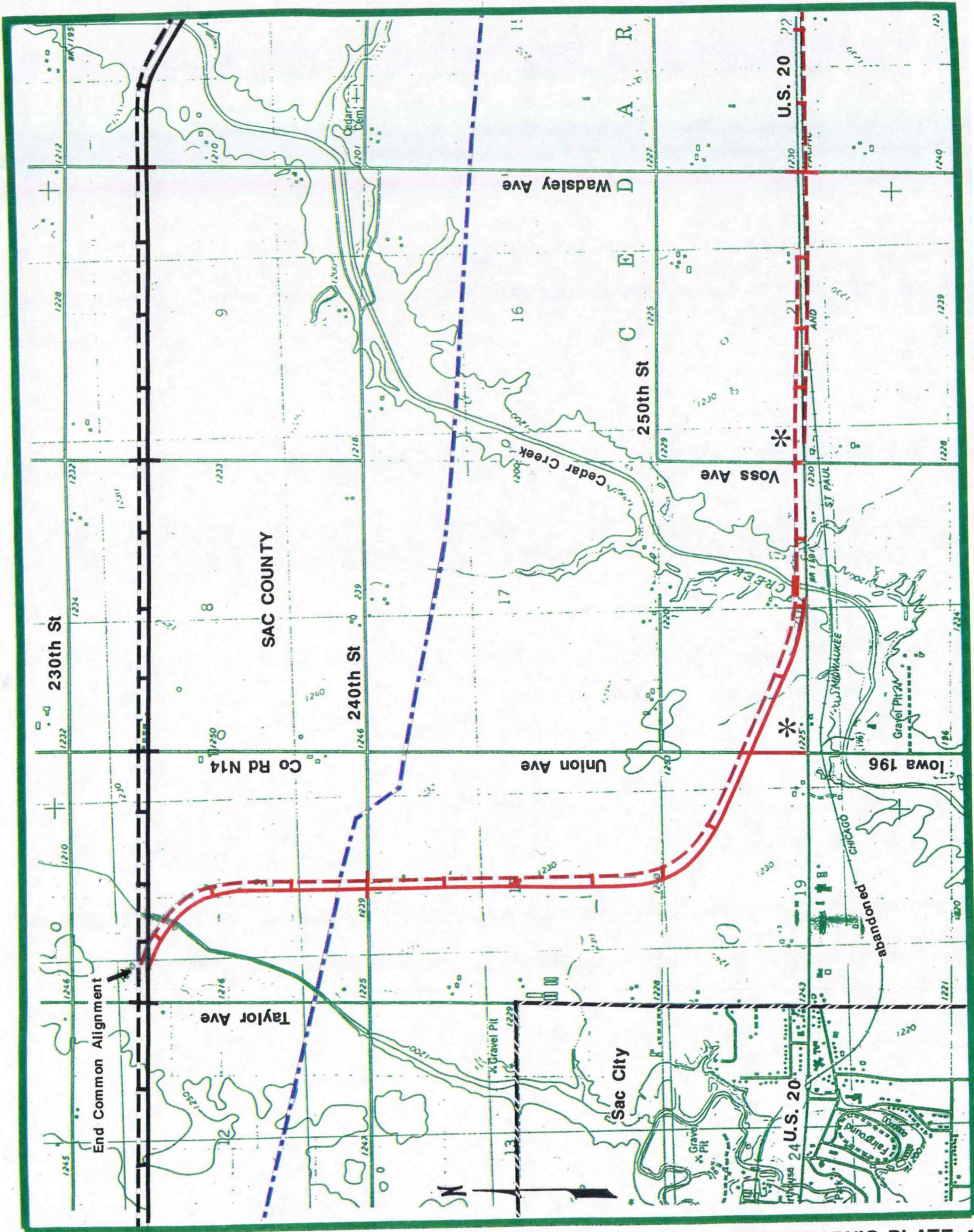


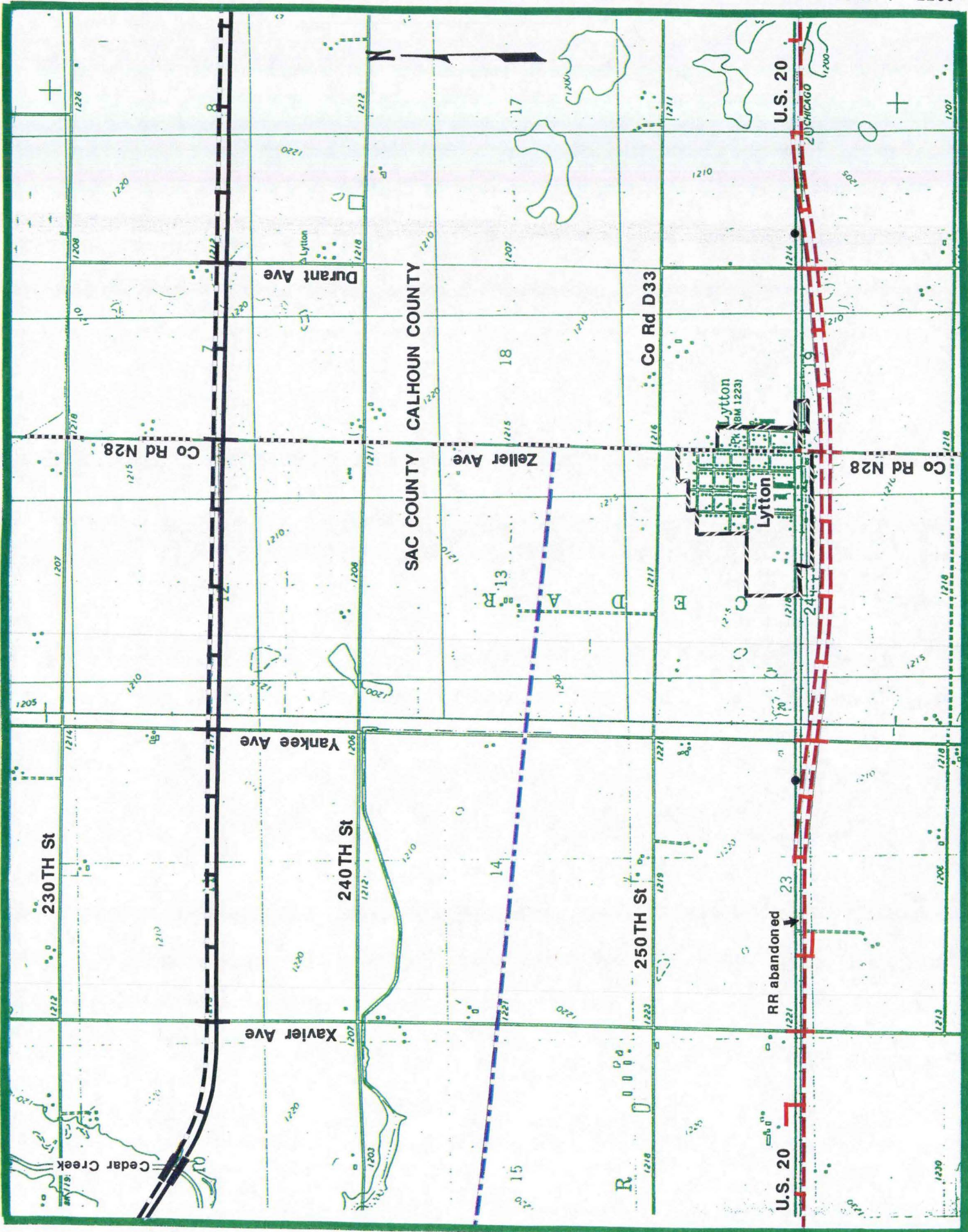
ALTERNATIVE SEGMENT BREAKS

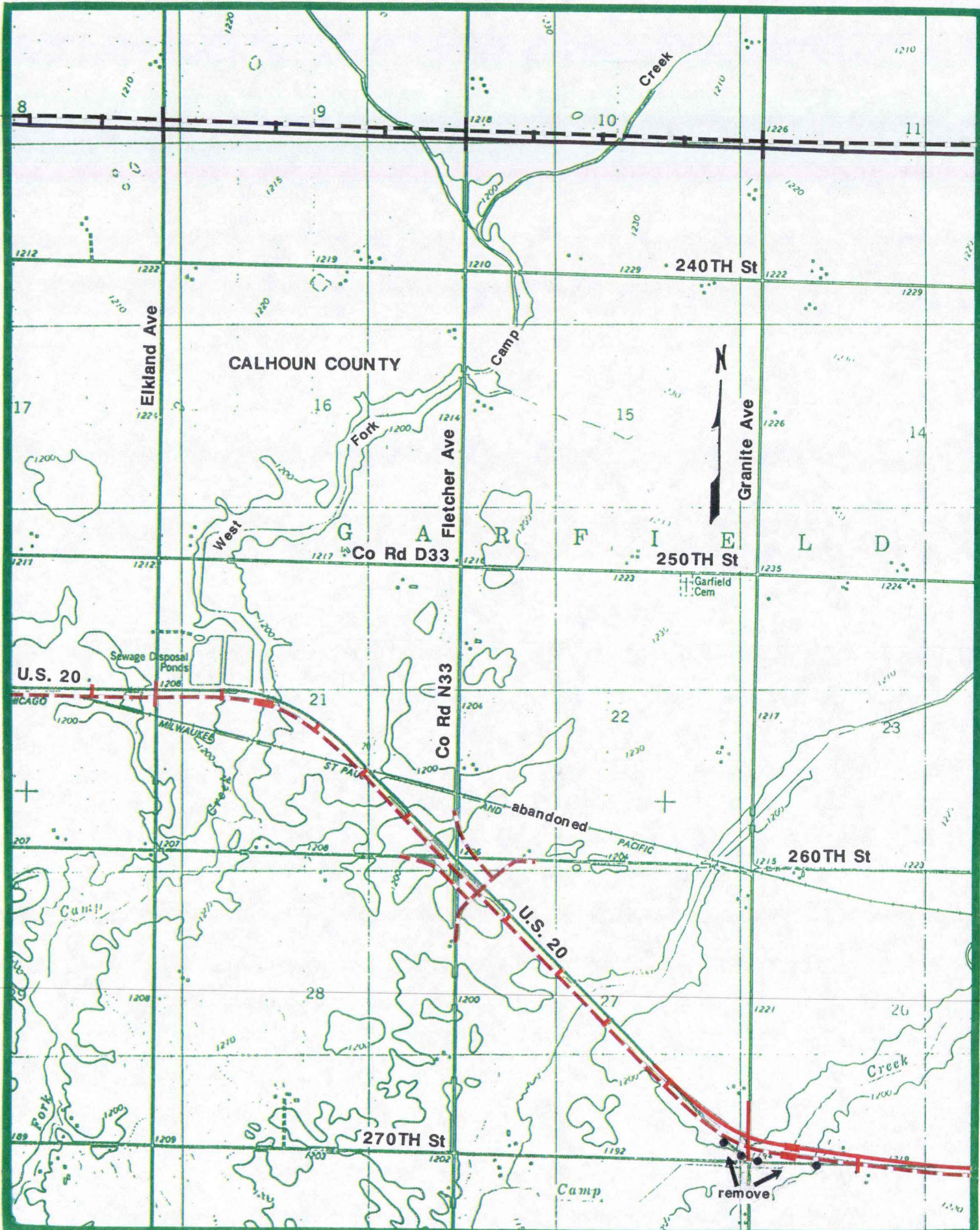


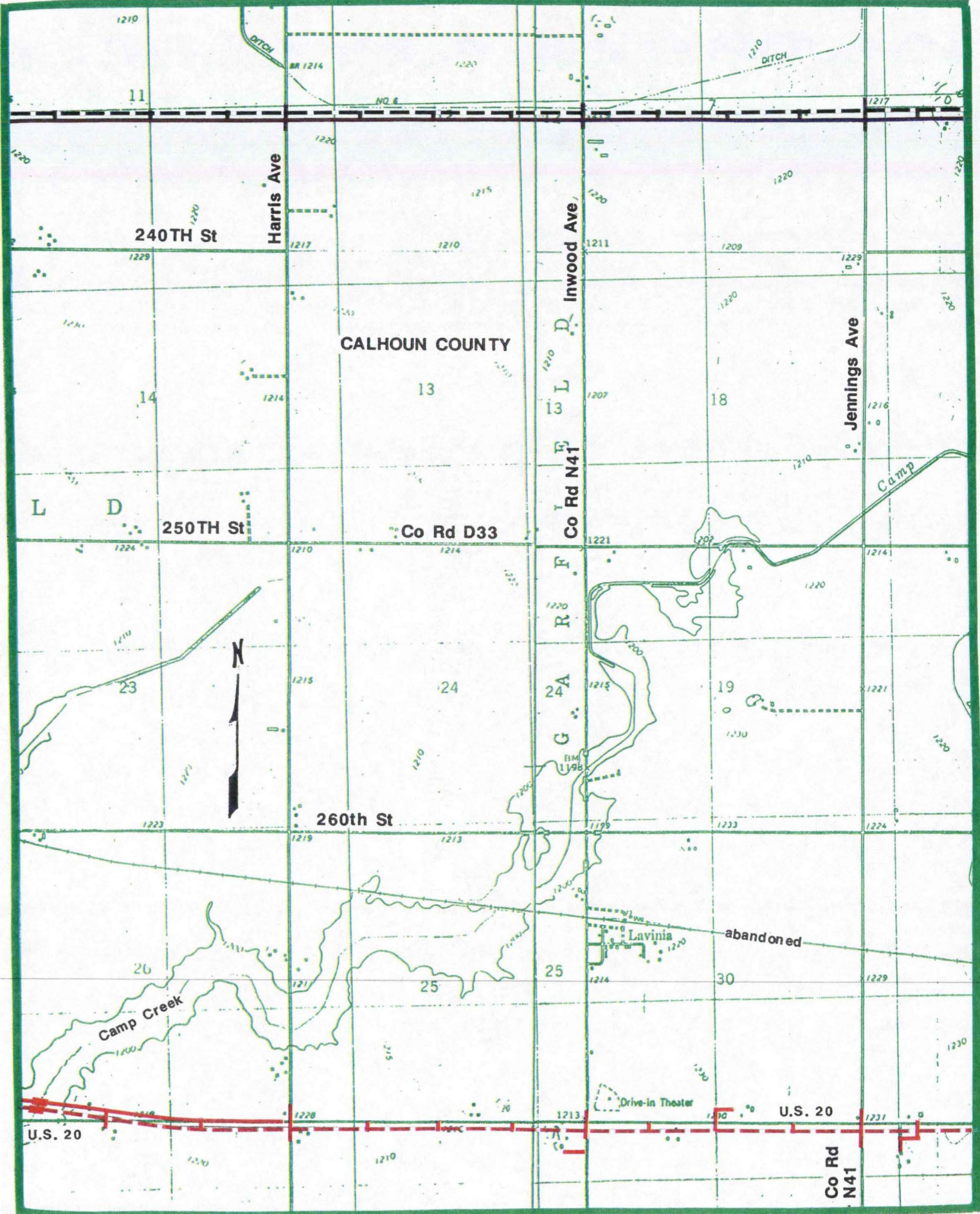


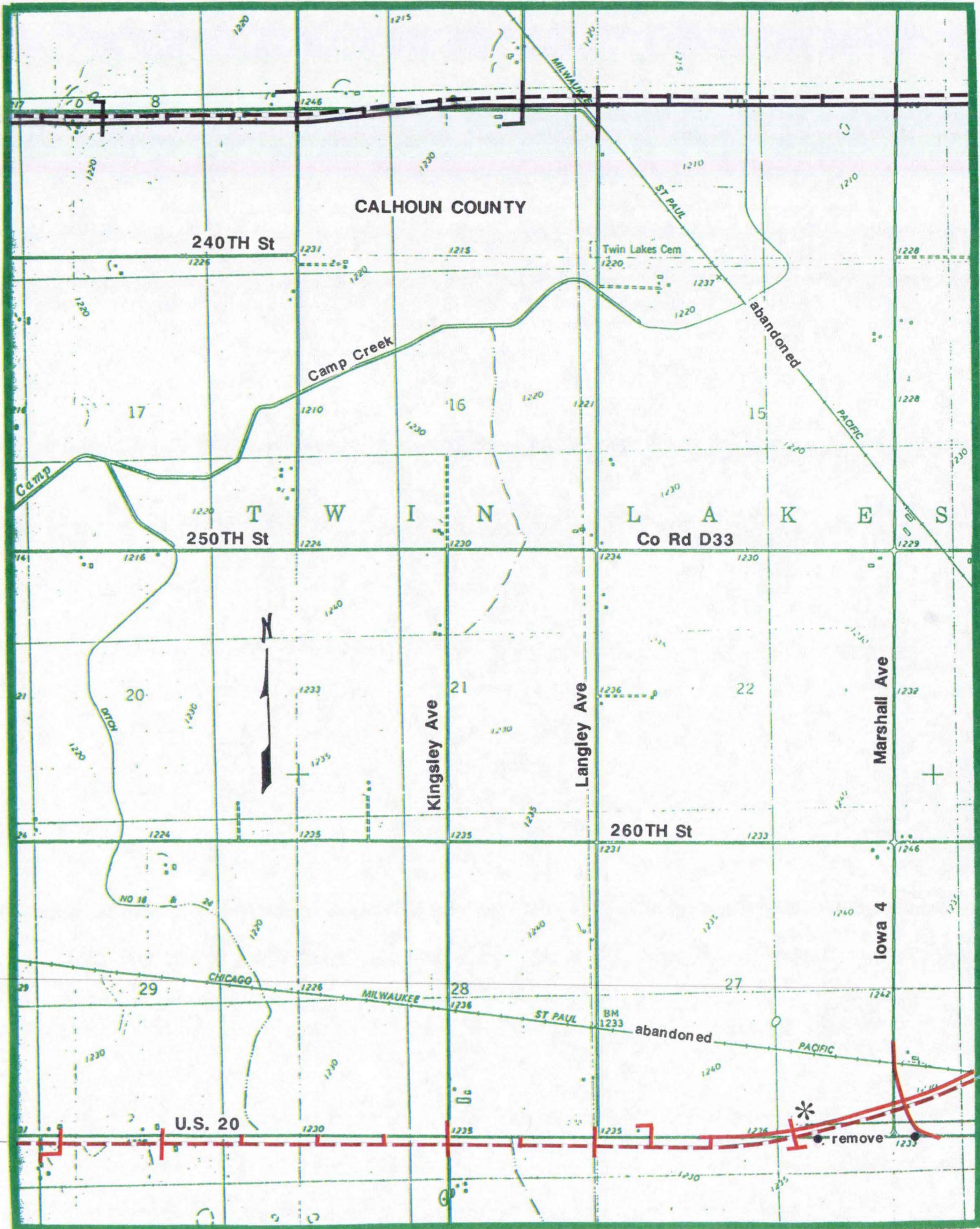


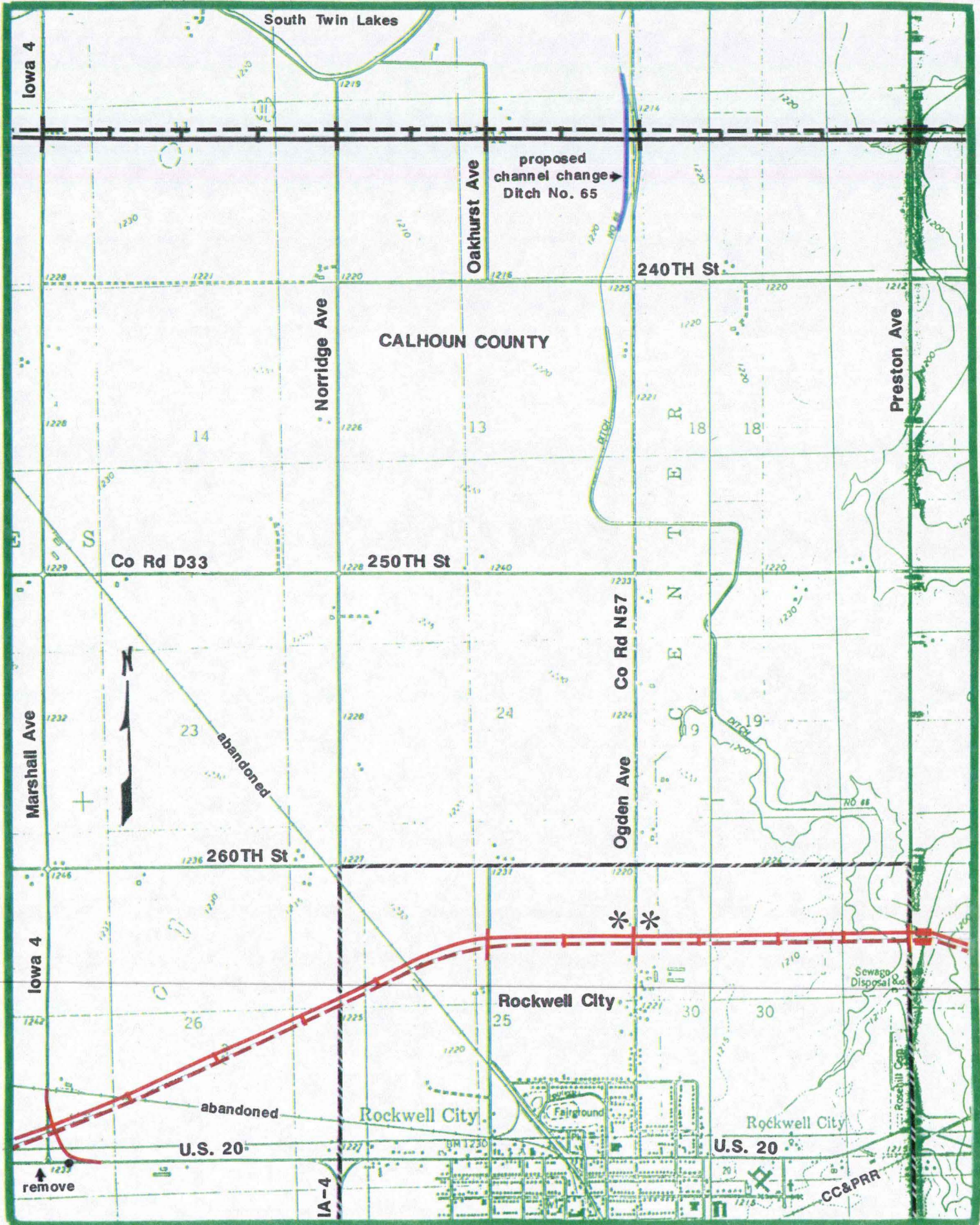


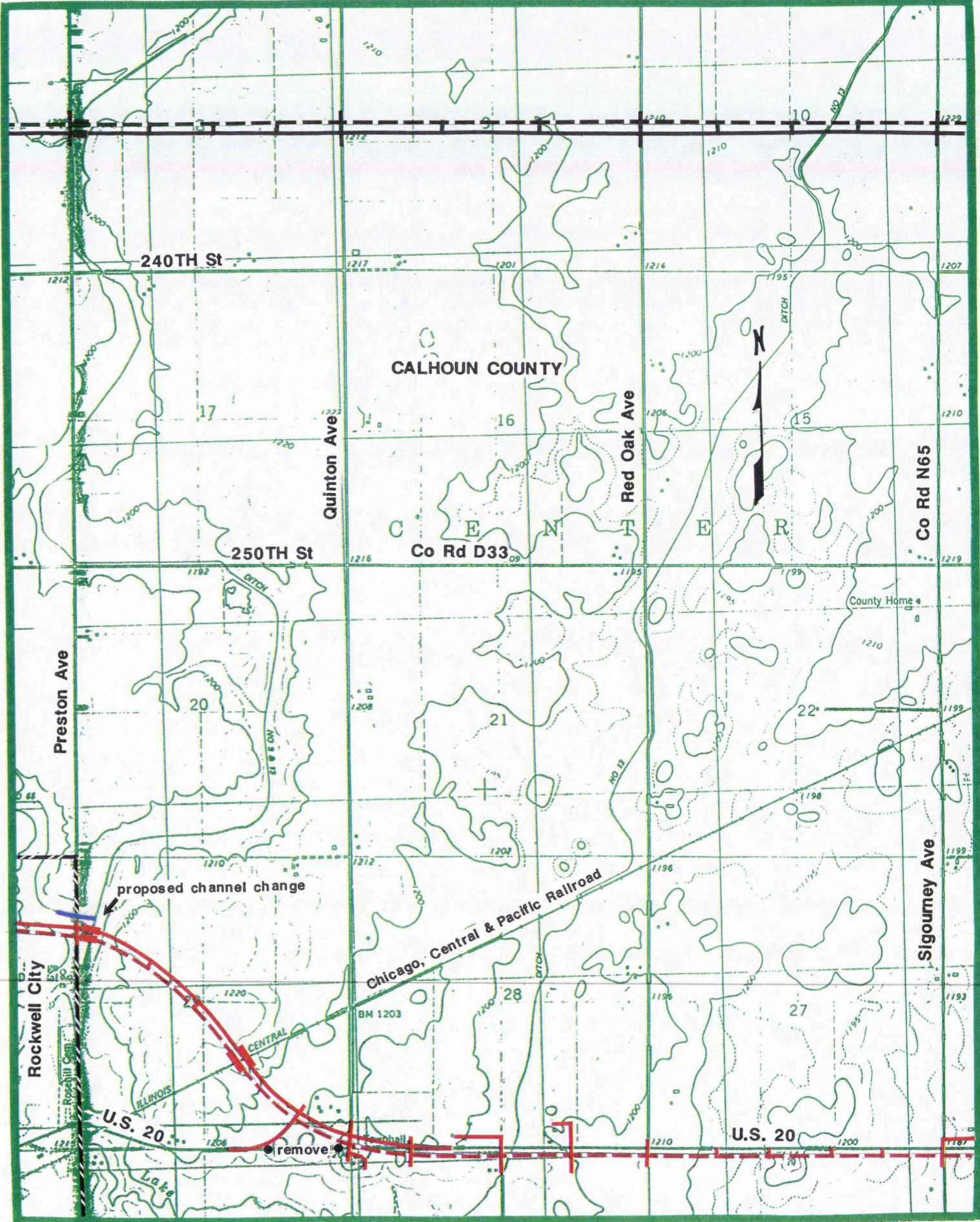


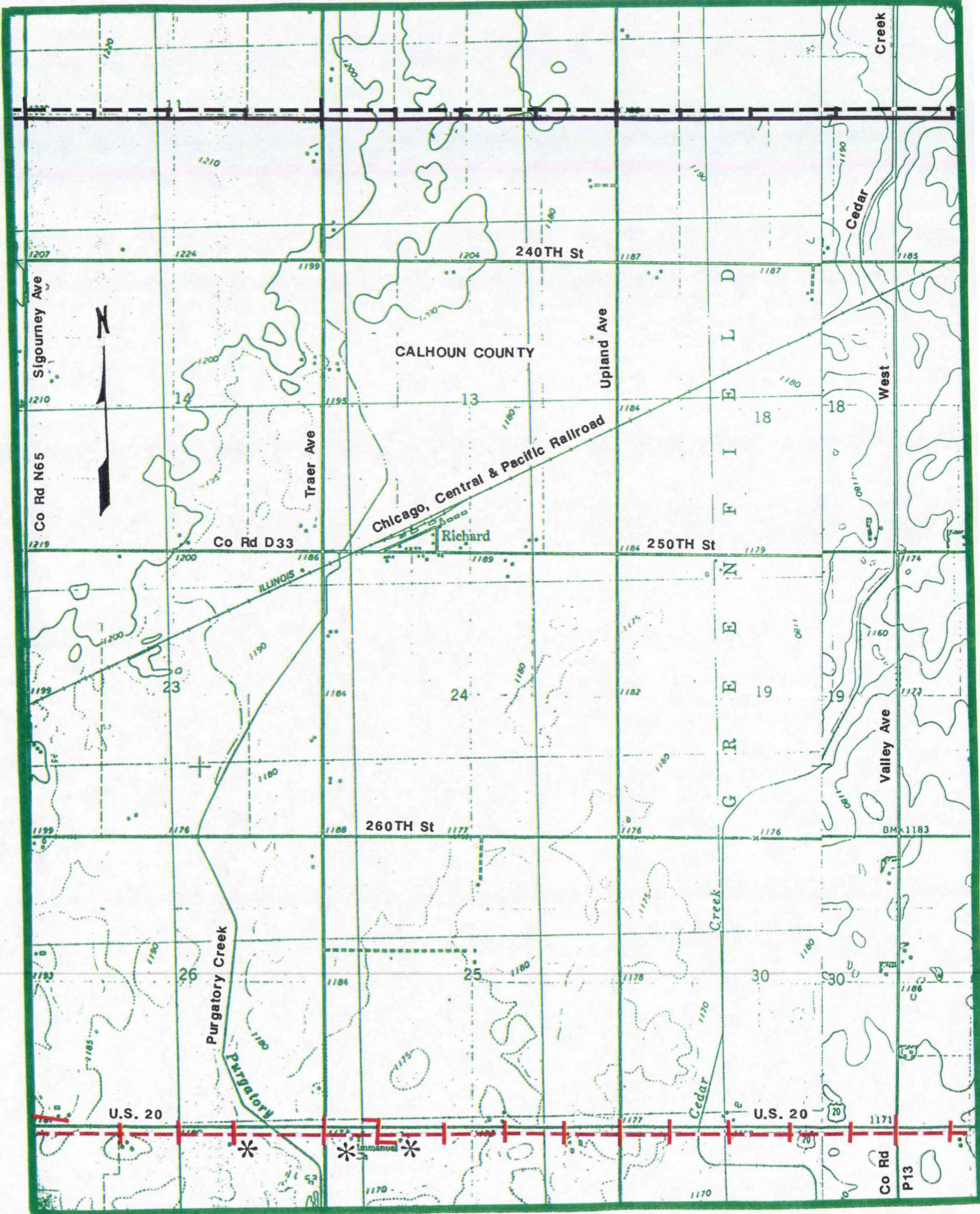


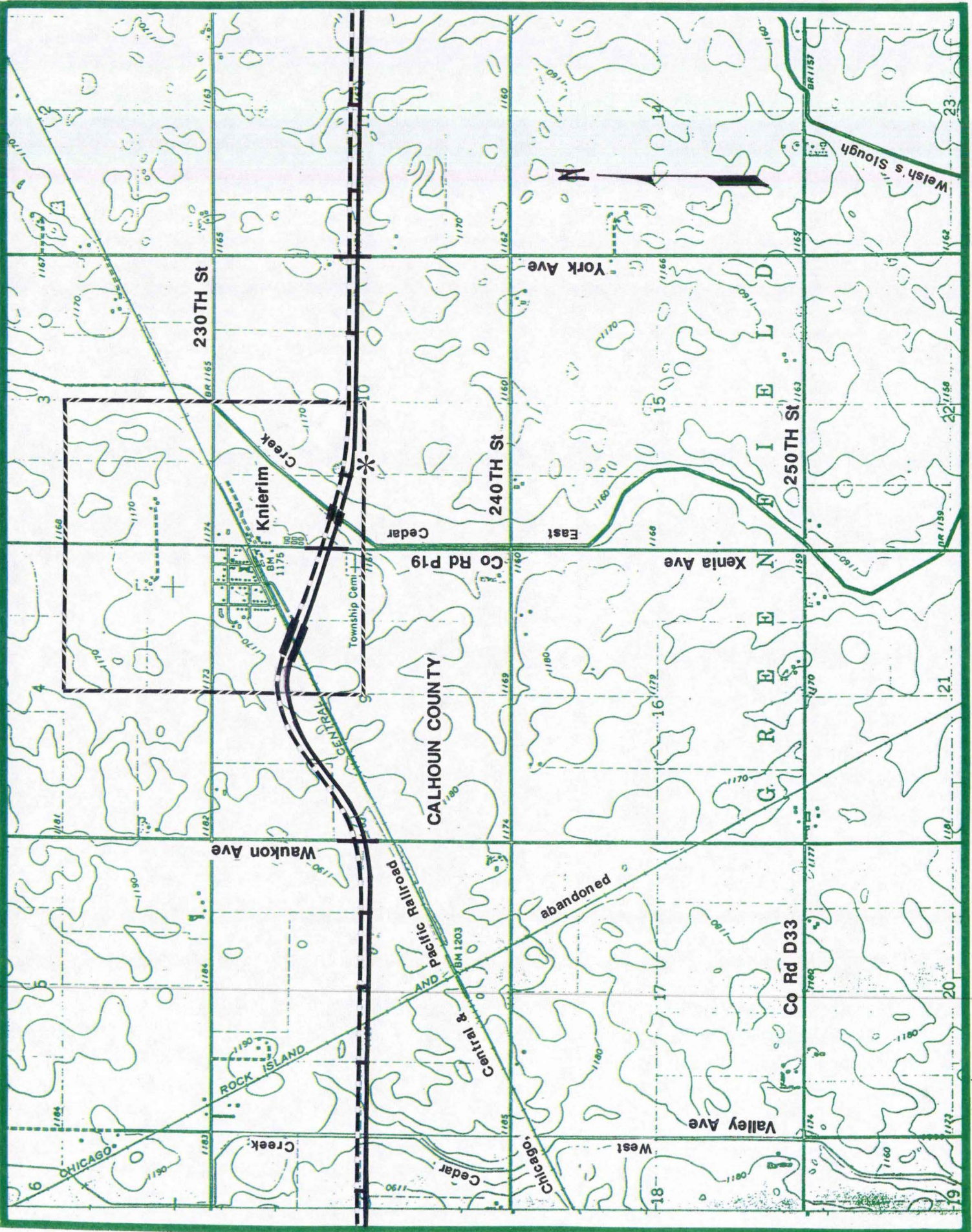


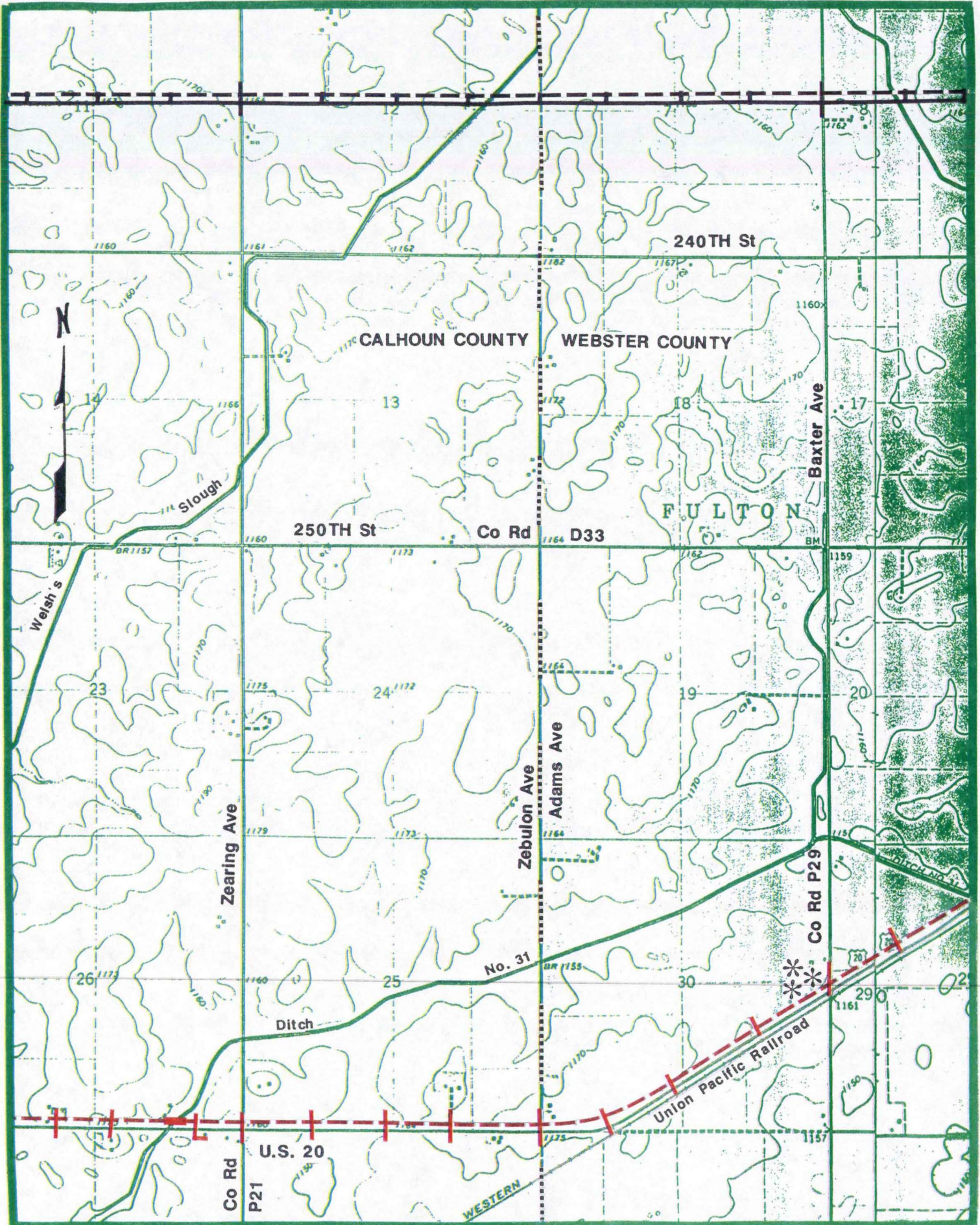


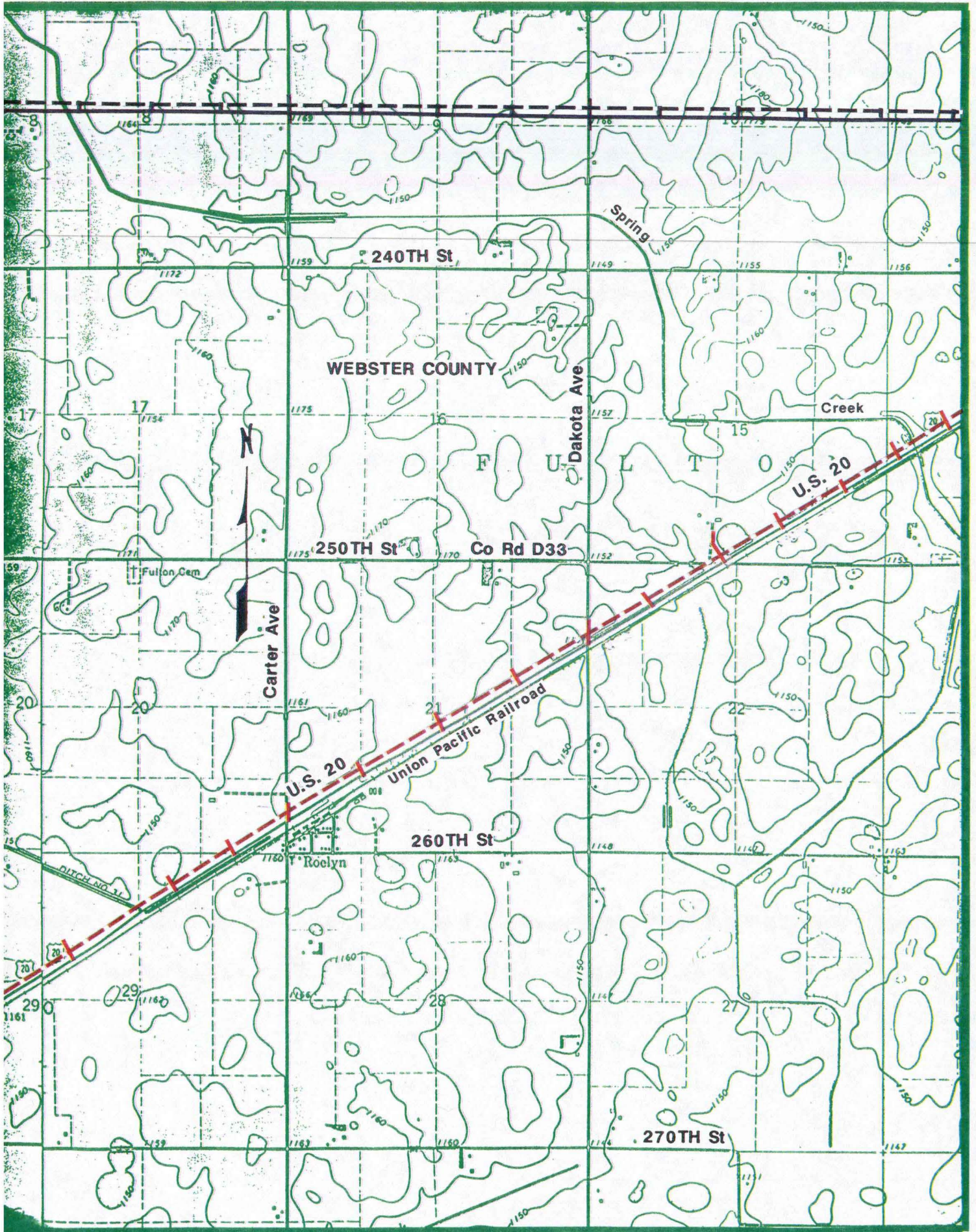


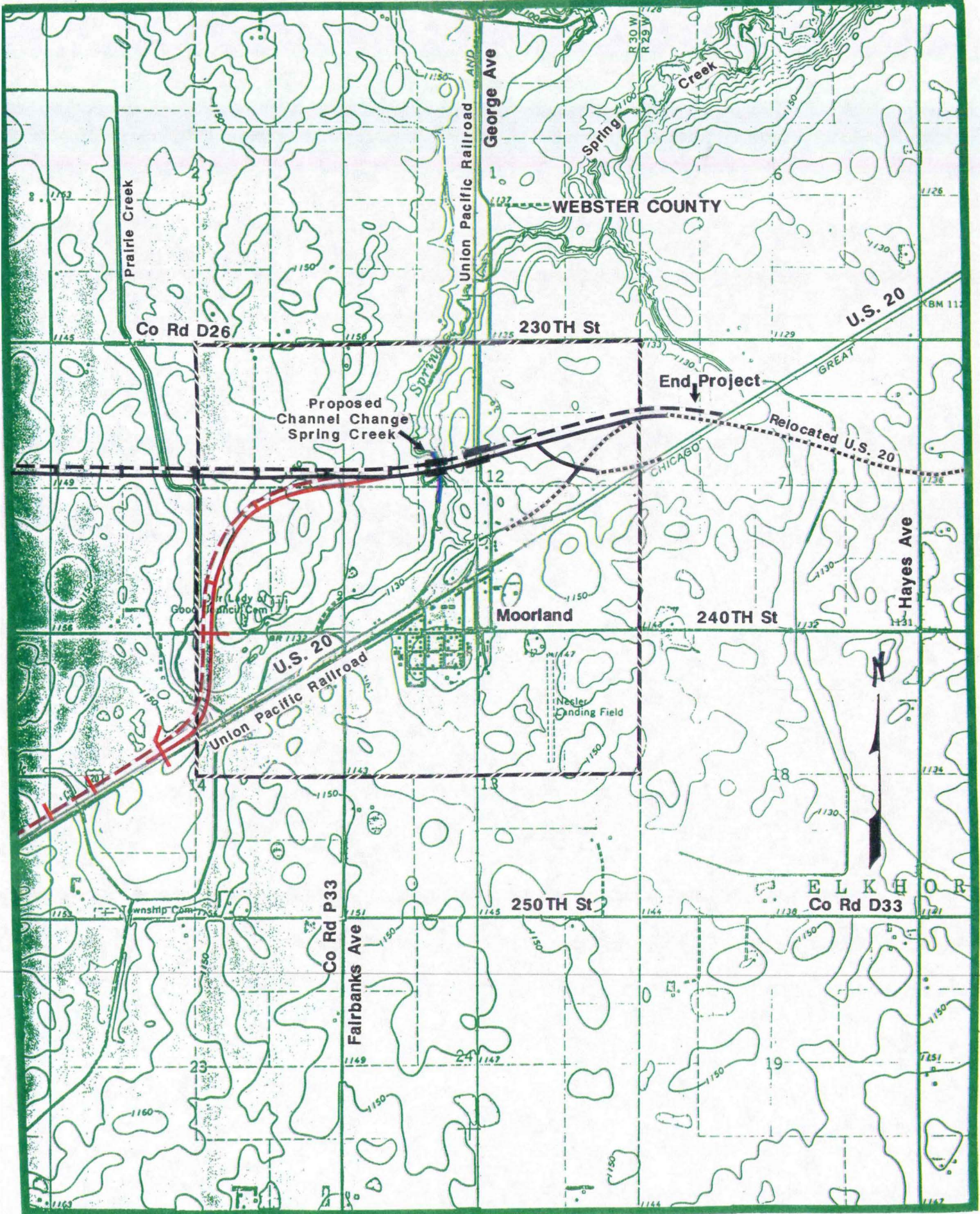












APPENDIX B - FARMLAND CONVERSION IMPACT RATING FORMS

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request July 1995			
Name Of Project U.S. 20 Early to Moorland		Federal Agency Involved Federal Highway Administration			
Proposed Land Use Highway		County And State Calhoun County			
PART II (To be completed by SCS)		Date Request Received By SCS July 29, 1995			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated 295	Average Farm Size 354
Major Crops/ Corn	Farmable Land In Govt. Jurisdiction Acres: 360,449	%88.3		Amount Of Farmland As Defined in FPPA Acres: 311,935	
Name Of Land Evaluation System Used Calhoun County	Name Of Local Site Assessment System None-FPPA	Date Land Evaluation Returned By SCS September, 1995			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		280	393	862	
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site		280	393	862	
PART IV (To be completed by SCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		245.1	357.4	750.5	
B. Total Acres Statewide And Local Important Farmland		—	—	—	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		0.076	0.107	0.235	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		80.2	79.2	61.7	
PART V (To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		73.0	74.9	78.8	
PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))		Maximum Points			
1. Area In Nonurban Use	15	15	15	15	
2. Perimeter In Nonurban Use	10	10	10	10	
3. Percent Of Site Being Farmed	20	20	20	20	
4. Protection Provided By State And Local Government	20	0	0	0	
5. Distance From Urban Builtup Area	N/A	—	—	—	
6. Distance To Urban Support Services	N/A	—	—	—	
7. Size Of Present Farm Unit Compared To Average	10	10	10	10	
8. Creation Of Nonfarmable Farmland	25	3	3	3	
9. Availability Of Farm Support Services	5	5	5	5	
10. On-Farm Investments	20	20	20	20	
11. Effects Of Conversion On Farm Support Services	25	2	2	2	
12. Compatibility With Existing Agricultural Use	10	1	1	1	
TOTAL SITE ASSESSMENT POINTS	160	86	86	86	
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	73.0	74.9	78.8
Total Site Assessment (From Part VI above or a local site assessment)		160	86	86	86
TOTAL POINTS (Total of above 2 lines)		260	159.0	160.9	164.8
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Reason For Selection:					

APPENDIX C - TRAFFIC NOISE ANALYSIS FORM

APPENDIX D - COMMENT LETTERS

Sac County Board of Supervisors

Sac County Court House

100 N. West State Street
Sac City, Iowa 50583

Phone (712) 662-7401

July 28, 1995

RECEIVED
OFFICE OF PROJECT PLANNING

AUG 2 1995

7/31
HB
FYI
DUT
RECEIVED
JUL 31 1995
DARREL FERGUSON

Dear Sir:

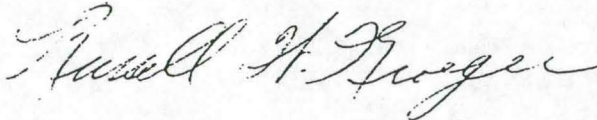
The Supervisors of Sac County and the majority of the people whom we represent support a four lane Highway through our county.

The preference of placement of the Highway is on the half mile line and closer to the towns.

Economic development depends on good roads for old and new business.

Thank you for your support now, as well as in the past.

Sac County Supervisor,
Russell Kroeger





TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF ECONOMIC DEVELOPMENT
DAVID J. LYONS, DIRECTOR

June 2, 1995

TO: Darrell Hayes
Iowa Dept. of Natural Resources

Title of Attached Material: Sac/Calhoun/Webster Cos.
NHS-20-2(48)--19-81

Received from: Iowa Department of Transportation

Deadline Date: June 16, 1995

The attached material has been submitted for review under the Iowa Intergovernmental Review System. It is being sent to you to determine if your agency has an interest in the proposal and decides to submit comments. The comments must reach the clearinghouse by the deadline date shown above. If this does not permit sufficient time, please telephone the clearinghouse at 515/242-4719 in order to have the review period extended. If you have comments, please return this letter and indicate that fact.

If you have any questions concerning this review, call Steve McCann at 515/242-4719.

- 1. Comments concerning the above-named review are attached. *letter to IDOT attached*
- 2. Our agency would prefer to talk to the applicant or submitting agency prior to submitting comments to the federal agency. The clearinghouse will arrange for such a meeting.
- 3. We have no reason to comment on this proposal.

Signed: *Darrell Hayes*
Telephone: *6/26/95 / 281-8625*



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Rock Island Field Office (ES)
4469 - 48th Avenue Court
Rock Island, Illinois 61201

COM: 309/793-5800
FAX: 309/793-5804

June 26, 1995

RECEIVED
OFFICE OF PROJECT PLANNING
JUN 29 1995

Ms. Margaret Westvold
Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa 50010

Dear Ms. Westvold:

This responds to your letter of May 30, 1995, requesting our comments on your plans for the improvement of U.S. 20 in Sac, Calhoun, and Webster Counties in Iowa. An environmental assessment is being prepared for the project which begins 0.9 mile west of the N Jct. U.S. 71, north of Early, and continues easterly approximately 50 miles to just northeast of Moorland.

To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service information concerning any species, listed or proposed to be listed, which may be present in the area of a proposed action. Therefore, we are furnishing you the following list of species which may be present in the concerned area:

<u>Classification</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Habitat</u>
Endangered	Bald eagle	<i>Haliaeetus leucocephalus</i>	Breeding,
Threatened	Prairie bush clover	<i>Lespedeza leptostachya</i>	Dry to mesic prairies with gravelly soil
Threatened	Western prairie fringed orchid	<i>Platanthera praeclara</i>	Mesic to wet prairies

The endangered bald eagle (*Haliaeetus leucocephalus*) is listed as potentially breeding in Sac and Webster Counties in Iowa. During the winter, this species feeds on fish in the open water areas created by dam tailwaters, the warm water effluents of power plants and municipal and industrial discharges, or in power plant cooling ponds. The more severe the winter, the greater the

Ms. Margaret Westvold

3.

Thank you for the opportunity to provide comments early in the planning process. If you have any additional questions or concerns, please contact Heidi Woerber of my staff.

Sincerely,

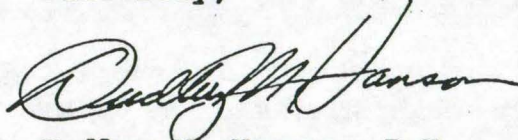
Wayne A. Fischer
for Richard C. Nelson
Field Supervisor

HW:sjg

e. You should contact the Rock Island Field Office of the U.S. Fish and Wildlife Service to determine if any federally listed endangered species are being impacted and, if so, how to avoid or minimize impacts. The Rock Island Field Office address is: 4469 - 48th Avenue Court, Rock Island, Illinois 61201. Mr. Rick Nelson is the Field Supervisor. You can reach him by calling 309/793-5800.

No other concerns surfaced during our review. Thank you for the opportunity to comment on your proposal. If you need more information, please call Mr. Randy Kraciun of our Environmental Analysis Branch, telephone 309/794-5174.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dudley M. Hanson".

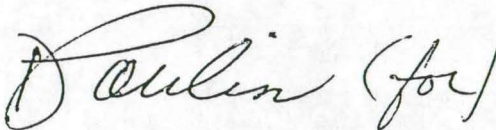
Dudley M. Hanson, P.E.
Chief, Planning Division

Three federally threatened species may occur along the project route; Mead's milkweed (Asclepias meadii, state endangered), western prairie fringed orchid (Platanthera praeclara, state threatened), and prairie bush clover (Lespedeza leptostachya, state threatened). These species are all found in prairie habitats and can tolerate varying degrees of disturbance, such as grazing or occasional vehicle traffic. Prairie bush clover, in particular, can survive on prairie remnants and permanent pasture and can recolonize nearby sites. If native prairie is to be disturbed by the project, surveys should be done for these species.

If it appears that you will disturb potential habitat of these species, you should contact the U.S. Fish and Wildlife Service. Their office at Rock Island may be reached at (309) 793-5800.

Thank you for the opportunity to review and comment on this proposed relocation and alignment. If you have any questions in regard to this letter, please contact Darrell Hayes in this office at 515/281-8675.

Sincerely,

A handwritten signature in cursive script, appearing to read "L. Wilson (for)".

LARRY J. WILSON, DIRECTOR
IOWA DEPARTMENT OF NATURAL RESOURCES

cc: U.S. Fish & Wildlife Service, Rock Island, IL
Mr. Michael Mahn, IDNR Wildlife Biologist

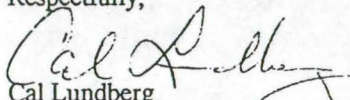
LJW:dlh

- 1) Celotex Corp., RR 4, Fort Dodge - CERCLA consideration closed in 1982.
- 2) Jerry Dischler Spraying Service, 1/4 mile west of Moorland - CERCLA consideration closed in 1985.
- 3) Ft. Dodge Laboratories, 800 5th St. NW, Ft. Dodge - CERCLA consideration closed in 1983.
- 4) Iowa Beef Processors, Inc., 1525 O Ave., Ft. Dodge - CERCLA consideration closed in 1989.
- 5) Iowa-Illinois Gas & Electric Co., 637 S. 22nd St., Ft. Dodge - CERCLA consideration closed in 1985.
- 6) Schmitt's Oil Service, 32nd St., Ft. Dodge - deferred to RCRA in 1989.
- 7) Webster Co. Landfill, RR 1, Ft. Dodge - CERCLA consideration closed in 1984.

This is the extent of the list of sites which might be within the corridor indicated on the map you submitted. Please realize that this list does not cover all sites which might be involved in the Federal RCRA program or sites which might be regulated under the underground storage tank program, run by the IDNR.

If you have any questions, please feel free to call me at 515/281-7040.

Respectfully,


Cal Lundberg
Environmental Specialist

6/14/95 cy in Rev R



Federal Emergency Management Agency

Region VII
911 Walnut Street, Room 300
Kansas City, MO 64106

JUN 12 1995

Harry S. Budd, Director
Office of Project Planning
Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa 50010

JUN 14 1995

Dear Mr. Budd:

This is in response to Margaret Westvold's correspondence dated May 30, 1995 which requested preliminary comments for the improvement of U.S. Highway 20 in Sac, Calhoun and Webster Counties.

Only Webster County (unincorporated areas) has been identified with a Flood Insurance Rate Map (FIRM) and participates in the National Flood Insurance Program (NFIP). Communities that participate in the NFIP are required by State and Federal statutes to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These regulations must be applied to all development in the floodplain of a participating community, including development undertaken by a State agency.

For the purpose of demonstrating compliance with floodplain management regulations, IDOT can either comply with community requirements by obtaining a "Record of Coordination-Floodplain Management" form or receive a State floodplain development permit from the Department of Natural Resources (DNR).

Our office would emphasize that IDOT obtain all appropriate permits. If there are further questions, please contact Ross Richardson of my staff at (816) 283-7005.

Sincerely,

Ronald L. McCabe
Ronald L. McCabe, Chief
Community Mitigation Branch

cc: Bill Cappuccio, Iowa DNR

STATE LIBRARY OF IOWA



3 1723 02101 8346