

**PROJECT APPLICATION
AND
FEASIBILITY REPORT
FOR**

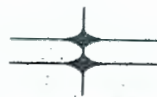
**CREEK BANK AND STREAMBED STABILIZATION
AND FLOOD CONTROL**

**SPRING CREEK LOWER WATERSHED
DAWSON COUNTY, NEBRASKA**

**CENTRAL PLATTE
NATURAL RESOURCES DISTRICT**

TSA PROJECT NO. 1155A-04

MAY 1980



THE SCHEMMER ASSOCIATES INC.

ARCHITECTS • ENGINEERS • PLANNERS

OMAHA

DAVENPORT

ORLANDO

PROJECT APPLICATION

AND

FEASIBILITY REPORT

SPRING CREEK LOWER WATERSHED

DAWSON COUNTY, NEBRASKA

Sponsored by:

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
COUNTY COMMISSIONERS OF DAWSON COUNTY
CITY OF LEXINGTON

Prepared by:

THE SCHEMMER ASSOCIATES INC.

With Assistance
from:

U.S. DEPARTMENT OF AGRICULTURE,
SOIL CONSERVATION SERVICE

MAY 1980

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PROJECT APPLICATION AND CHECK SHEET

PROJECT APPLICATION & CHECK SHEET		Dawson County, Nebraska	Form 02
Mail to: Administrative Coordinator Nebraska Resources Development Fund Nebraska Natural Resources Commission 4th Floor - State Office Building 301 Centennial Mall South Lincoln, Nebraska 68509	1/Name and address of Applicant's Authorized Representative: Mr. Ronald Bishop, General Manager Central Platte Natural Resources District 116 West 4th Street Grand Island, Nebraska 68801		

2/Cover Letter (ATTACH) 1

3/Description of goals and purpose of Project:

The purpose of the Spring Creek Lower Project is to provide flood control to the City of Lexington, Nebraska, and to the agricultural lands along Spring Creek. The improvements include a levee system and channel modification. The goal of the levee system is to prevent urban damage from all storms up to a 100-year event at Lexington. The goal of the channel improvements is to prevent agricultural damage from all storms up to a 2-year event. This project will also decrease bank erosion and provide streambed stabilization.

4/Statement of Urgency of Need:

The project is needed as soon as possible to prevent the extensive flood damages that have been experienced in the past. This project also has immediate need to eliminate the annual, or more frequent than annual, flooding in the lower reaches of the creek.

5/Statement Relative to Availability of Funds from Other Sources:

There are no current funds available from other sources.

6/Demonstrate Ability to Acquire Necessary Land & Water Rights (If Applicable):

Dawson County and the city of Lexington under joint sponsorship have acquired perpetual easements for 52% of the needed land along the length of the project. See Figure 1 for a mapping of easements already obtained. Land rights not obtained to date may be acquired by the granting of more easements by the property owners or through the use of eminent domain granted to the District by Section 2-3234 of the Nebraska Reissued Revised Statutes of 1943. See Appendix A for the referenced statutes. Individual easement documents are on file at the CPNRD office. No water rights will be necessary for this project. However, permits from the U.S. Army Corps of Engineers, the Department of Water Resources, etc. will be applied for when final design is completed for the various phases of the project.

The Central Platte Natural Resource District's legal authority for implementing flood control projects for Spring Creek Lower is described in Sections 2-3229 and 2-3231 of the Nebraska Reissued Revised Statutes of 1943. See Appendix B for the referenced statutes. The District's board of directors, acting under the authority just described, passed a resolution at their March 27, 1980 meeting authorizing a request for financial assistance from the Nebraska Resources Development Fund. See Appendix C for a copy of the above referenced resolution.

8/General Discussion of Alternative Plans Considered (continue on separate sheet if required):

Various alternative plans were considered for this project:

The channel improvements were analyzed by dividing the watershed into two major categories. The categories are Spring Creek Lower and Spring Creek Upper. Spring Creek Lower is from the Platte River to approximately 2 miles above Lexington. Spring Creek Upper begins approximately 2 miles above Lexington and ends at the base of the sandhills in northern Dawson County. The categories were then evaluated for the feasibility of designing channel improvements to carry the runoff from a 2-year, a 5-year and a 10-year frequency event. The findings of the evaluation revealed a 2-year channel design for Spring Creek Lower was the most economically feasible solution.

Following the selection of the 2-year channel improvement design, the location of the levee system was considered. Three primary locations were evaluated. In addition, modifications to one of the primary locations was also studied. As a result of the evaluating, the selection of a levee system immediately adjacent to the south bank of Spring Creek was determined to be most feasible and desirable.

9/Outline of Initial Development and Project Background:	(ATTACH) <u>2</u>
10/Demonstration of Area Public Support for the Project:	(ATTACH) <u>3</u>
11/Technical Feasibility	(ATTACH) <u>4</u>
12/Economic Feasibility	(ATTACH) <u>5</u>
13/Financial Feasibility	(ATTACH) <u>6</u>
14/Environmental Feasibility	(ATTACH) <u>7</u>
15/Legal Data	(ATTACH) <u>8</u>

16/Acknowledgment: I hereby attest to the fact that the above project does not conflict with any other existing Nebraska State Land and/or Water Plan and that the data contained herein are true and correct to the best of my knowledge and belief and that the filing of this Project Proposal has been duly authorized by the Governing Body of the applicant.

June 30, 1980

Date

Central Platte Natural
Resources District

Signature (Print or type)

Signature (Sign)

Authorized Applicant

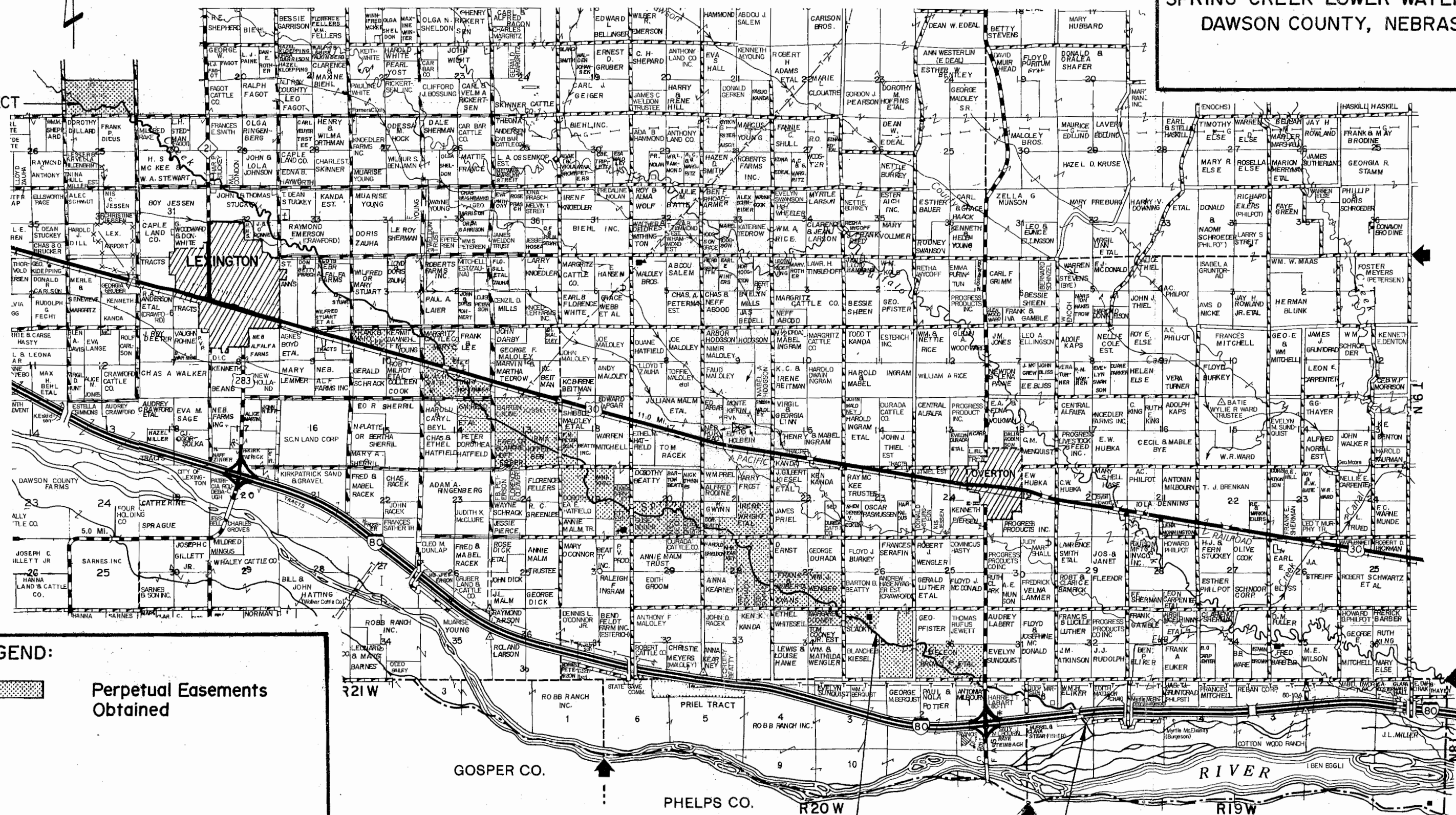
FIGURE 1

LAND RIGHTS

SPRING CREEK LOWER WATERSHED
DAWSON COUNTY, NEBRASKA

No Scale

END PROJECT



Base Map prepared by
Western Cartographers, South Sioux City, Nebraska

ATTACHMENT 1
COVER LETTER

CENTRAL PLATTE NATURAL RESOURCES DISTRICT

116 West 4th Street
Grand Island, Nebraska 68801
Phone (308) 382-4495

June 30, 1980

Mr. Dayle E. Williamson
Nebraska Natural Resources Commission
4th Floor - State Office Building
301 Centennial Mall South
Lincoln, NE 68509

Dear Mr. Williamson:

The Central Platte Natural Resources District is hereby submitting a project application for financial assistance on the Spring Creek Lower Project Area to the Nebraska Resources Development Fund of the Nebraska Natural Resources Commission. The application is for a grant of \$2,739,475 to help finance the development and construction of a flood control project in the Spring Creek Lower watershed.

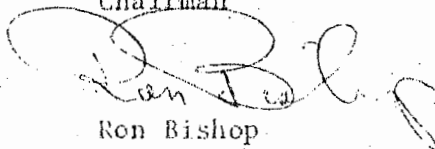
The District's authorized representative is Mr. Ronald Bishop, General Manager of the District. Any correspondence necessary may be addressed to him at 116 West 4th Street, Grand Island, NE 68801.

The District held an official public hearing as required by law and by the Nebraska Resources Development Fund Rules and Regulations on January 29, 1980 at Lexington, Nebraska. The hearing was held at 1:30 p.m. in the Dawson County 4-H Building. Minutes from the hearing are included as a part of this application.

Sincerely,



John Jefferson
Chairman



Ron Bishop
General Manager and
Authorized Representative

ATTACHMENT 2

OUTLINE OF INITIAL DEVELOPMENT
AND PROJECT BACKGROUND

The Spring Creek Watershed is located in Dawson and Custer Counties, Nebraska. The headwaters of Spring Creek are located approximately 8 miles west of Callaway, Nebraska, and flows southeasterly where it converges with the Platte River near Overton, Nebraska. The entire watershed is comprised of approximately 268.7 square miles. The watershed is shown in Figure 2.

The land use in the Spring Creek Watershed is as follows:

<u>Crop Type</u>	<u>Acres</u>	<u>Percent</u>
Row Crops	55,879	32.5
Small Grain	7,906	4.6
Alfalfa	39,397	22.9
Pasture and Range	58,693	34.1
Woodland	1,822	1.1
Urban Land	1,475	0.9
Farmsteads	1,544	0.9
Roads	3,962	2.3
Water	324	0.2
Transmission Lines, Railroad, Feedlots, Wasteland and Others	958	0.6
Total	171,960	100.0

Of the total acreage, cropland constitutes about 60 percent of the present land use in the watershed. The lower portion of the watershed is extensively irrigated by canal networks and deep wells.

Floodwater damage to crops, other agricultural properties, roads, bridges and the City of Lexington are the principal watershed problems. The entire channel improvement project on the Spring Creek Lower Watershed will prevent the flooding of agricultural lands up to a 2-year event and the levee system will provide protection from urban flooding in Lexington up to a 100-year event.

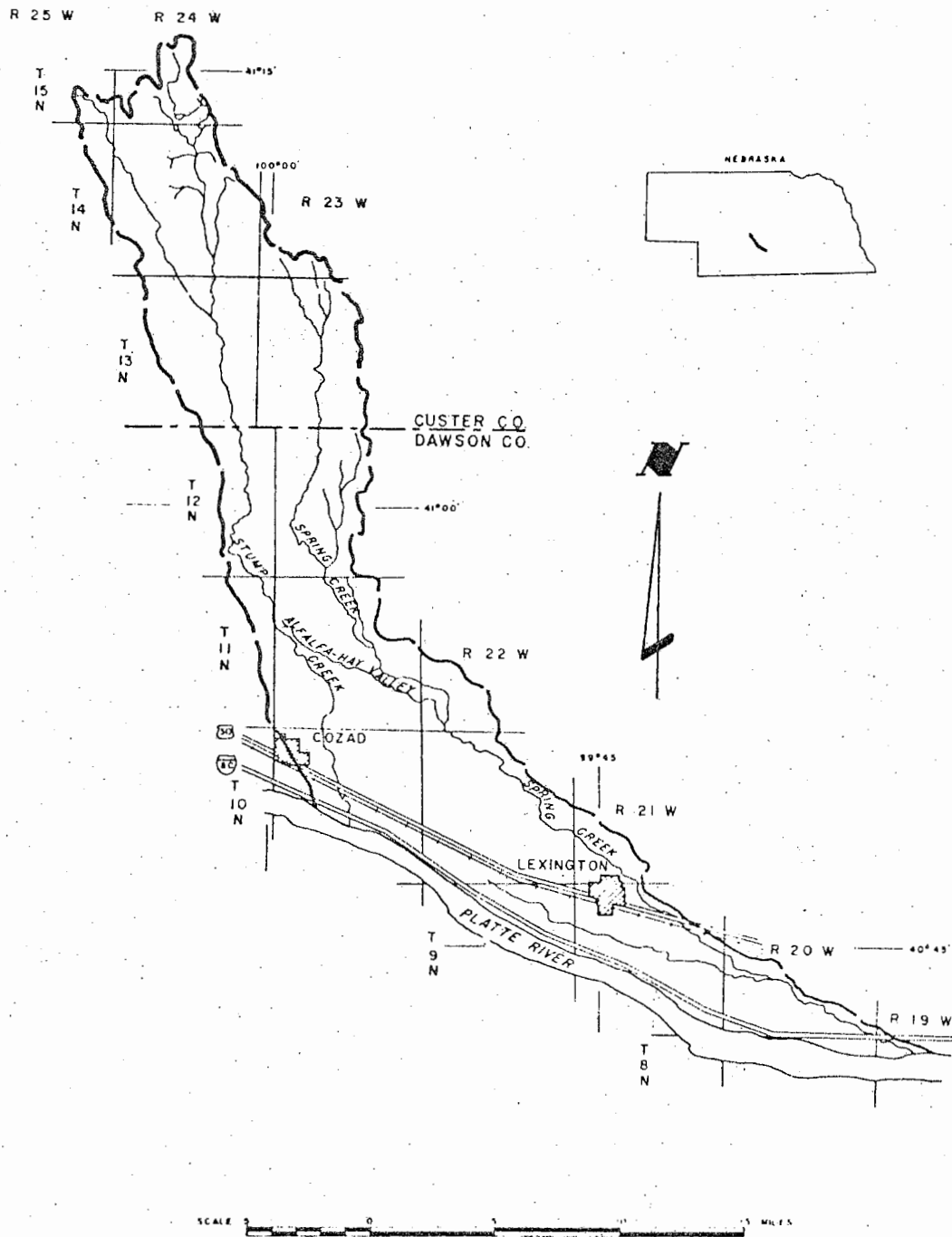
The size of the project dictates that construction be staged. The lower segments of Spring Creek will be constructed first with succeeding stages following consecutively upstream. The exact breakdown of stages will be determined at the time of final design; however, a maximum construction period of 6 years is anticipated.

The cost for implementing the Spring Creek Lower Watershed project is estimated to be \$3,652,634. The application for financial assistance requests \$2,739,475, or 75% of the total construction cost and engineering. The remaining 25% of the project cost will be shared by the participating local sponsors.

FIGURE 2

PROJECT LOCATION MAP

SPRING CREEK WATERSHED



ATTACHMENT 3

DEMONSTRATION OF AREA PUBLIC SUPPORT
FOR THE PROJECT

Public support for this project is a continuation of the concerns of the local citizenry regarding the flooding of Spring Creek. A major factor contributing to the support was the flood of 1947, which was one of the worst on record.

Widespread public support for a flood control project was illustrated in 1965 when an application for P.L. 566 funding assistance was prepared and submitted. The application was supported and sponsored by the Custer County Soil and Water Conservation District, the Dawson County Soil and Water Conservation District, the City of Lexington and the County Commissioners of Dawson County. Since the project was initiated support has remained firm from the City of Lexington and Dawson County. The local Soil and Water Conservation Districts were replaced by the Central Platte Natural Resources District which supports and is cosponsor for the project. Another display of support for the project was the formation of the Spring Creek Citizen's Committee in 1977. This group is composed of citizens who reside in Lexington and along Spring Creek who are concerned about flooding and the associated damages.

The above indications of public support are a matter of record and are on file with the Nebraska Natural Resources Commission as a part of the original application for P.L. 566 funding assistance.

Included in this attachment are additional items to lend support for the project. The public hearing for the application for Resources Development Funds was attended by 35 individuals. The minutes of the public hearing and proof of publication are included as Attachment 3A. Letters from citizens are also included as Attachment 3B.

ON THE
SPRING CREEK LOWER (WATERSHED)
FLOOD CONTROL PROJECT

Smith	Jack Stuckey	Dave Stenberg
	Nis Jessen	Floyd Purinton
	Jack Heaton	Warren Bierman
	Dean Stuckey	Francis Fagot
	Wilbur Margritz	Peter Hatfield
	Neil Woodward	K.F. Dannehl
	Joel German	Don Stearley
	A. W. Shepard	Garry Donnelson
	Doyle W. Howell	Carol Tilson
	Bob Coroway	William Stewart
	Jeff McDermott	Harold Kopf
	Jerry Adamson	Gene Stoklasa

in the feasibility study on the Spring Creek Lower Flood Control
led to order.

ber of the Board of Directors of the Central Platte Natural
d shall serve as presiding officer over the hearing.

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g Creek Lower, Dawson County, Nebraska.

s shall be given an opportunity to appear, testify and or file
support on the Spring Creek Watershed Lower proposal.

siding officer, nor the hearing examiner have any power, acting
tion involving a final determination from these proceedings.
be taken by the Board of Directors of the District.

all upon Gene Stoklasa who will act as hearing examiner and
nduct of the hearing.

Harold. I'm passing around an attendance list. I'd appreciate
sign your name and put where you're from, your address or town
of record here where you're from.

this is a public hearing on Spring Creek Lower. I thought I
over some history on Spring Creek. I'm going to skip some dates
little background as to why we're here today.

you can recall this, back in 1965 a watershed work plan was
eral program called The Public Law 566, Small Watershed Program.
11 flood retarding structures, about 35 miles of channel
system. About in '70 or '71 there was a major reduction in
at that time reevaluation of the benefits regarding a levee
it in Lexington on down was infeasible. So about in '76 local
plan with 11 structures above Lexington to include 6 structures
and the channel improvements. After about 1976 there were a
the city, in the rural area that still felt there was a tre-
type of flood protection around the city of Lexington and on

PUBLIC HEARING
ON THE
SPRING CREEK LOWER (WATERSHED)
FLOOD CONTROL PROJECT

ATTACHMENT 3A

Attendance:

Frank B. Snyder
Greg Peterman, Smith & Smith
Harvey Clatanoff
Marvin O. Loschen
Arlond Garratt
F. B. (Hap) Peterson
James G. O'Donnell
Everett Hagan
David L. Jandeheur
Pamela Broughton
Clifford Bossung

Jack Stuckey
Nis Jessen
Jack Heaton
Dean Stuckey
Wilbur Margritz
Neil Woodward
Joel German
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Bob Coroway
Jeff McDermott
Jerry Adamson

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Floyd Purinton
Warren Bierman
Francis Fagot
Peter Hatfield
K.F. Dannehl
Don Stearley
Garry Donnelson
Carol Tilson
William Stewart
Harold Kopf
Gene Stoklasa

OPENING

This public hearing on the feasibility study on the Spring Creek Lower Flood Control Project is hereby called to order.

I am Harold Kopf, member of the Board of Directors of the Central Platte Natural Resources District and shall serve as presiding officer over the hearing.

The purpose of this hearing is to hear all parties regarding the proposed works of improvements on Spring Creek Lower, Dawson County, Nebraska.

All interested persons shall be given an opportunity to appear, testify and or file written objections or support on the Spring Creek Watershed Lower proposal.

Neither myself as presiding officer, nor the hearing examiner have any power, acting alone, to take any action involving a final determination from these proceedings. Any action taken will be taken by the Board of Directors of the District.

At this time I will call upon Gene Stoklasa who will act as hearing examiner and will assist in the conduct of the hearing.

TESTIMONY

Stoklasa: Thank you Harold. I'm passing around an attendance list. I'd appreciate it if all of you would sign your name and put where you're from, your address or town so we have some type of record here where you're from.

As Harold did mention this is a public hearing on Spring Creek Lower. I thought I would very shortly go over some history on Spring Creek. I'm going to skip some dates but I'll give you a little background as to why we're here today.

Back, I think many of you can recall this, back in 1965 a watershed work plan was developed under a federal program called The Public Law 566, Small Watershed Program. In that plan there was 11 flood retarding structures, about 35 miles of channel improvement in a levee system. About in '70 or '71 there was a major reduction in federal assistance and at that time reevaluation of the benefits regarding a levee and channel improvement in Lexington on down was infeasible. So about in '76 local sponsors amended the plan with 11 structures above Lexington to include 6 structures and delete the levee and the channel improvements. After about 1976 there were a lot of people within the city, in the rural area that still felt there was a tremendous need for some type of flood protection around the city of Lexington and on

agricultural lands downstream to the Platte River. So there was a citizen's group established to act kind of as a go between on seeing what could be formulated to develop some type of a plan for flood protection. On that citizen's group was city reps, and county, landowners, I'm sure a lot of you sitting here today are on this citizen's group, and the Natural Resources District, to see if we could come up with some type of a feasible plan that would resolve some of the flooding problems in Lexington and on the agricultural lands. We as a District, The Central Platte NRD, did go ahead and hire an engineering firm out of Omaha, NE to take a look at some feasibility and economic type situations on Spring Creek. At the same time, we are thinking of funding, who is going to pay for such improvements. We did apply to a state agency for funding. We did look at this on a very feasible measure and found that we possibly may have an economic type works and improvement here on Spring Creek. So we did apply and they did instruct us to go ahead and prepare some type of an engineering study on Spring Creek Lower. Now in our funding, 75% of the engineering and 75% of the construction costs would be paid through some state funding. 25% of that would have to come through the local sponsors.

So this is about where we're at now. Like I say this is a very feasible type study. We're bringing to you some ideas regarding the city of Lexington, some ideas on channel improvement downstream and upstream from the city of Lexington. So with me today I have Jeff McDermott, he's from Schemmer & Associates and Jerry Adamson, who is also from Schemmers, they're from Omaha and they're the ones that prepared this engineering study so with that I guess, Jerry, I'll let you take off.

Jerry Adamson: Thank you Gene. As Gene indicated we're the consulting firm out of Omaha, Schemmer & Associates, my name is Jerry Adamson and Jeff McDermott is here and he's the chief engineer who is working on this project.

Starting back from the beginning on this, we started looking at Spring Creek as a whole project all the way from the Platte River up to the structures. We looked at it just from the standpoint of channel improvements the first time through, and going back, the State of Nebraska in calculating, some people call it the cost benefit ratio, some people call it rate of return, the State of Nebraska goes by rate of return, this is a determining factor telling you whether the project is feasible to construct or not feasible to construct and in going through the early analysis of the channel by itself the benefits that could be received by channel improvements, a widening of the channel, a clearing, a straightening of the channel did not offset or make it financially feasible with just the channel improvement alone based upon the benefits received by crop and pasture. Now crop and pasture damages are those damages from flood waters that would flood into agricultural fields and destroy crops, put in sediment, erosion, take away land out of productivity for any period of time that would reduce the value of the crops to raised on that. What we found was, that along Spring Creek, we made the early on find that 90% of this is in agricultural use not in pasture and that's conservative, it's more like 96% in round figures today. It was in primarily irrigated corn, it was almost all irrigated, there was some sorghum in there and some other crops but irrigated corn seemed to be the big one. Even with prices of the corn, and the prices are calculated over the average of this county the last 5 years, we take an average, these numbers are given to us by the NE Natural Resources Commission they have a guideline set up that gives us pricing on this, so by going back and calculating the acres of damages caused by flooding from Spring Creek, we were able to arrive at a number which converts to benefits if you take that damage away. In doing this we ran it back against and compared it to the construction costs or channel improvements and we found that the rate of return was a negative number which means the benefits we would receive do not outway the costs of construction and improvements. According to the State

guidelines, any project that is considered a negative project is not fundable, they will not cost share. So we started looking at how other approaches could be made and we looked at Spring Creek all the way up approximately 24 miles from the mouth of the Platte northward. Just past Lexington we found a point on the channel itself that we found a break even point and that was approximately a mile west of Prossers. At this point we could receive the maximum or the most crop and pasture benefits and not pick up greater construction costs. However also at that point we still found that channel improvements were not able to make a positive rate of return so we started looking at the city of Lexington and this map that we're looking at here shows the flood limits, the flood projected limits based upon a 10, the yellow is a 10 year, the green is a 25 year event, the blue is a 50 year event and the orange is a hundred year event. This shows the limits approximately from 2½ miles north and west of Lexington down to Highway 30. Now this map just covers the Lexington area and thereabouts. This shows the flooding limits that would be expected in those different events and the areas that they would cover. We found that the hundred year event in the orange comes down just east of Grant street and runs all the way to Highway 30 where at Highway 30 it's picked up and taken across and then flows back into Spring Creek. To the north you can see, it comes just north of 20th Street up in the new area here and then on up to Spring Creek. This limit line shows the areas that we could take into consideration all the areas along the creek up here are in crop and pasture so calculated the loss of crop values and arrived at certain benefits and then compared those to the construction costs. In doing the urban study we looked at the urban damages that could be in here if we could control the urban damages that could result as a hundred year flood went through, or a 50 year flood, or a 25 year flood, then we compared that back against the costs of construction. The project then becomes a feasible or positive project and what I mean by that is the cost or the amount of damages that occur in Lexington as an urban community far outweigh the damages here, if we convert it after benefits, those benefits far outweigh the cost of constructing the improvements along Lexington. Therefore we can contribute some of the benefits received here in the lower sections of the channel improvements and the upper sections to offset some of the construction costs. This is the only way this project becomes a positive project by including the urban benefits or picking up the urban benefits in the city of Lexington.

The next step was to determine what event we're going to look at and we looked at three events. By this I'm saying is that the channel improvements would be set up on the basis of different events, whether it could handle a two year event, a five year event, ten year event, etc. Of course realizing that as you get up, a two year event would be your minimum event, a five year event would be next, and then a ten year event. As you start to get up in the different year events that means that that creek channel would be able to handle say a two year event versus a five year event or a ten year storm. As you start to increase in handling that passing you start to increase the dollar amount of construction because you have a wider creek channel. Therefore we looked at the two, five and ten and we found that the ten was a negative rate of return in Lexington. We found that the five year event was very very minimal at most and a two year event gave us the best rate of return. So therefore we eliminated the five and ten and started pursuing a two year channel improvement. So what we've come up with here at this point, from the mouth at the Platte all the way up to approximately a mile west of Prosser's, the channel would be developed to a two year storm event. Therefore any event that would occur in excess of two years would still have flooding but it would reduce from what it is

today down. By that we're showing here the existing flood lands so if you improved the channel and you put in some other improvements, some bridges, road crossings and such this line could give you your. This is what we see today and by adding these improvements it would reduce it down somewhat.

Next we started looking at how we could take and protect the urban damages or protect the urban community of Lexington, what means we would have. And in a previously done survey they had talked about a levee or a berm in the community. We started with three alternate solutions, we ended up with about five that we looked at and we're here today with four of those. What I'd like to do now is show you how we came up with the locations, why we came up with the locations where we did and then a little bit on what the levees are going to look like, I think that's important.

This is the Unintelligible document we submitted. It breaks down some of those things so you can follow along in this. This breaks down a levee location and levee location one. I think I'll have Jeff explain some of the statistics about this, some of the advantages and disadvantages of this. Jeff.

Jeff McDermott: Good afternoon, my name is Jeff McDermott, I work with Jerry at Schemmer & Associates and as Jerry mentioned we looked at a protection of the city of Lexington from flooding and the way to accomplish this was to install a levee system. So what we did was prepare primarily three levee locations. This first one you're looking at here, levee location one. It begins along 13th Street east of Taft, continues to Taft where we'll probably have to raise the road about 2½ feet, continue then northwesterly passing Monroe and continuing on up to the urbanized area here by the irrigation canal continuing north. What this levee location is primarily doing is skirting the city limits as close as possible, crossing Highway 21, then rejoining the irrigation lateral at this point over here. As you can read in the handout, levee location one is approximately 2 miles long and has an average height of 3½ feet.

Adamson: I think what you'd want to look at here in comparing these, the existing limits on the one that I am holding in my right hand show with no improvements. With the levee improvements proposed on number 1, scheme 1, you can see how they alter a change. If the flooding is moved a little bit to the north and east and it also becomes a little bit deeper in some areas. The addition of some of the yellow, green and blue lines in this area are indicating definite increases. So what we've done here is that we've protected, as you can see, we took all the lines off the city of Lexington and completely skirted, provided protection for Lexington. However we did move some of the water to the north and east and we got a little bit deeper in depth. And one other thing on this one, this will preclude development to the north and to the east as far as urbanization will go in this levee because the land on the other side of the levee didn't fall within the hundred year flood plan which would not be that successful for building.

McDermott: Levee location two is a position whereby the creek or the levee would begin again at 13th Street, hug the Spring Creek along the south bank, run up to Taft Street, across Taft and still continue along the south bank of Spring across the county road here, across Highway 21. At this point we considered two alternate routes. The first was to come down to the county road and continue along the county road until it would die out or continue along Spring Creek up to this end of the section and continue west to the north-south county road. This levee location would involve raising Taft, this county road and Highway 21. As you read in the handout again, levee location 2 is approximately 3 miles long, would have an average height of 3 feet. Levee location 2 again is along here comes down to the

county road and continues to this point. Levee location 2A is still this original location but at this point it continues on further west at this end of the section then westward again. That location is approximately $3\frac{1}{2}$ miles long and has an average height of 3 feet. Once again this levee location is protecting the entire city of Lexington from the urban flooding. But notice between the banks of Spring Creek up to the one hundred year flood line, the orange line, go clear to that, the one hundred year flood line in the existing position. What that's done is move the water further to the north and in this what we are doing is preparing the area here and the area there. As you see the orange line is moved further to the north which indicates the one hundred year flood line has moved in a northerly direction and also has increased the water depth in this area. All this water is not on the south side anymore but it is diverted to the north side of Spring Creek.

Adamson: One other thing I think we might note here is a look at this and taking some pretty rough figures on it and it would increase the damages on the northeast side by approximately 80 acres. Now that's a rough number that we just arrived by doing some quick calculations but we're increasing it by 80 acres here, however we picked up all the land area north and east of Lexington city proper that would have no water. It would be protected within the hundred year flood. So we're trading one side to the other side.

McDermott: This board portrays levee location three. Levee location three is basically an intermediate position between levee one, which follows along through here, stays close to the northern edges of Lexington, and levee location two which was hugging the south bank of Spring Creek. So this is basically an intermediate location, here again it has to cross Taft Street, across up Highway 21 and follow along this east-west county road on the south side until it can die out. Once again in the handout it's listed as having approximate length of $2\frac{1}{2}$ miles and average height of $3\frac{1}{2}$ feet.

Adamson: I think one thing that's clear here is that we've looked at the levee location one, that's closest to the city right on the city limit lines today, levee location two and two A, right on the south bank of Spring Creek and levee location three is an intermediate point, halfway point. We're trying to find and determine if there was a difference rate of return wise. And in going into that, the next step after this was done was to calculate rate of return based upon the actual benefits received versus construction costs, including operation and maintenance, and the rates of return are given on sheet four of the handout. They are for location 1, levee location 1, which is right next to the city of Lexington the rate of return is $2\frac{3}{4}$ percent. Levee location 2, the first one going up and coming down right at the county road was $2\frac{1}{2}$ and location 2A was also $2\frac{1}{2}$, 2 and 2A does not change the rate of return although it changed the levee location. Levee location 3 was back to $2\frac{3}{4}$. We found that the additional footage for levee along the south would actually bring this down to $2\frac{1}{2}$ percent, we're losing about $\frac{1}{4}$ percent by running it the extra length and the length of the intermediate did not change from the one right next to Lexington. So the rate of return then indicates that this is a positive project. It would be acceptable to submit for funding and it shows that the channel and urban improvements would be a feasible undertaking at this point in time. Now there are two things, one thing especially I think that is important to point out at this point. We do have considerable land rights, conservatively, we're saying 60% of the land rights necessary right now from the mouth of Spring Creek up to this point. We may have a little bit more than that but conservatively speaking --

Audience: You're talking about easements?

Adamson: Easements right, which would be land rights, land rights are easements. We have made the assumption that all, based upon these rates of return, all land rights would cost the sponsor zero dollars. That would be that everyone would be willing to participate in this without having the input of who would not and the actual dollar figure we could not come back and calculate a rate of return. This rate of return would be reduced if monies had to be paid out for land right acquisition or easement acquisition for the balance of this. The only other thing I have at this point is the construction costs of course vary considerably but we also are looking at the berm or the levee location. Now we would be looking for excavation for that from a nearby source, it would have to be a nearby source. If we have to truck dirt in from an excessive distance away then the rate of return would also go down, so we're looking for a nearby source for dirt. That was the other assumption that was made early on this without knowing specifically today where all the dirt would come from. Now there have been some indications that we might be able to get some dirt from as close as a mile and from as far away as 12 miles. So that would make it fluctuate a little bit but we're making the assumption early on that we will have adequate dirt to come with to build a levee location in a selected area which ever one that might be.

Audience: How much dirt would you have coming out of the canal itself?

Adamson: Around Lexington the channel itself has been improved to a two year storm so there would be no excess dirt in the Lexington area. It would have to be trucked up from the lower sections, brought down from these sections or hauled in and that would also depend on the consistency of the soils, whether they were proper to use for levee construction or not. But then again we would not be able to utilize any along here because the channel right next to Lexington has already been improved, the channel improvements would be done on the other side of Lexington.

Stoklasa: Jerry could you touch on what would take place downstream from Lexington, the bridges and this type of thing?

Adamson: On this, downstream from Lexington, we have taken a preliminary design of the channel downstream.

Audience: Is there a map on this one?

Adamson: No there is no map on this one. What it amounts to is we have to cover probably half the room with all the maps we put together UNINTELLIGIBLE because it is quite lengthy. We do have one map that shows the entire channel and this is very small scale but the blue line represents the channel improvement. Basically this is Lexington here and this black dotted line is the cutoff point that we are stopping just west of Prosser's. It would go all the way down to the mouth of the Platte River right here all this in through here, approximately 20, 24 miles, somewhere in that neighborhood. Now we had to come up with conservative or what we considered realistic numbers for construction costs. There was an alinement that was originally worked out a few years ago with some landowners adjacent to this and we took that alinement instead of working with everyone at this point in time to find out if it was a feasible project or not, we took that alinement to take our calculations off of. And this was done a few years ago so the only thing would be is we'll be straightening some channel in some places, taking out some of the kinks, cleaning the channel where there is a lot of debris that's actually causing some flooding and then modifying the channel as far as the shape itself. Now Jeff why don't you explain what some of the different widths and depths would be in the channel.

McDermott: What we have proposed is increasing the channel capacity from Platte River on up to Highway 30 to probably approximately UNINTELLIGIBLE CFS. At that

flow we'd be needing a 45 foot bottom channel with also a 5 foot depth with 3 to 1 side steps.

Adamson: Now CFS is cubic feet per second, that's the flow of the water that would be running off on that.

McDermott: The approximate length in there is $13\frac{1}{2}$ miles. But Highway 30 is the end of our project. We would be increasing channel capacity for around 550 cubic feet per second approximately 6.8 miles and channel section there we'd have a 25 foot bottom and also have a 5 foot depth. The channel size was based upon keeping the velocity of 2 to $2\frac{1}{2}$ feet per second in this area so we wouldn't cause any erosion and also not to cause any sediment.

Adamson: One of the problems we have in this bottom or in this channel itself is the channel is so flat that the problem we have here is not basically, in some cases it is erosion, but the major problem is sedimentation buildup, the lack of flow down through there. So we want to keep the water moving so we don't get the sediment buildup but we also don't want to increase it to the point that it's going to be eroding. Also the creek bottom itself, we do not have a lot of room to play with because there is a water table up in there so we just can't go up there and start cutting the thing out, we'd get into a problem with water table. So channel would have to improve from the mouth. In the beginning the early construction phasing would have to come from the mouth at the Platte in a northward direction. So phase one would be done down in the lower sections first and moved on up toward Lexington. We can't do it at Lexington first and move down from the standpoint then we would increase, we would be improving channels and trying to funnel in back down into a small channel, which would create a lot of problems at that point, also backwater. So therefore any construction would be moving from the Platte in a northerly direction. That would also go for the levee and improvement at Lexington and that will have to be constructed as the project moves up.

McDermott: I'd like to point out that the levee that we described and talked about is going to have a ten foot top on it and have three to one side stairs.

Adamson: Basically it's a 30 foot bottom, 10 foot top, maximum height for any of the alternates would be $3\frac{1}{2}$ feet.

McDermott: And as we described with the improving of the channel from the Platte on northwesterly and by doing such we would have to get into some bridge removal and replacements, 11 bridges are at this site. We anticipate removing and replacing 8 bridges and those bridges which are still feasible or useful, we would build a concrete velocity chute. It would increase the velocity from the water chutes, have a higher velocity. By building concrete velocity chutes we are allowing a higher velocity and by that way not causing erosion on the bridge undermining UNINTELLIGIBLE.

Adamson: So those number were all calculated into this, removing of 8 bridges and velocity chutes for 11 other bridge locations. Anything else Gene that you wanted?

Stoklasa: I don't think so. Okay I realize we hit you a little fast with this. Are there any questions or any comments? Like I say this is a very prefeasible type of situation. We brought out several ideas. You may keep in mind when we do go in for funding, we are going to have to have some type of a recommended plan before they'll even consider this type of a project. The citizen's group has taken a look at this and has pretty much looked at, I think it was levee location 2 as far as the citizen's group is concerned. So with that I think I'll just throw it out. If anybody's got any questions or some comments. The only thing that I would ask is

that you do state your name prior to doing so.

Clifford Bossung: My name is Clifford Bossung. I think you have a letter from Mr. Stewart.

Stoklasa: Yes we do.

Bossung: On this Number 2?

Stoklasa: Yes

Bossung: I want to go along with him on that. This of the ponding of water at that particular spot on that dam or on the dike whatever it must be, you understand what I mean? I just don't think that that's feasible for that particular area east. I think your cost of the land would be more than what it would take in there it would probably swallow between about 30 and 40 acres in there. It won't drain a half inch rain in that.

Stoklasa: I think what this gentleman is saying is that the water flows in a southeasterly direction. We do have a levee system here that protects these two homes here and cuts back and goes along this east-west county road and I think the area that Mr. Stewart, which owns this property is concerned with, is this area right in here.

Bossung: That's right.

Stoklasa: That's what you're referring to?

Bossung: Right. I think under the circumstances I doubt if he would go along with any easement at all in that particular flood.

Adamson: One of the things we looked at on that was and that's the two way option. And that would be continuing on up along the south bank of Spring Creek, coming across the half section line, hooking into the county road here. That would push the water from Spring Creek a little bit to the north but not too much at that point.

Bossung: No problem on that.

Adamson: And then it would restrict all the flow into this area here. We looked at it from at this point and continuing on up here but we have some other problems. It's kind of like a domino effect when you move from one point you have to watch what you do upstream because you're changing things upstream. By doing this, this water then would have to run uphill to get back to Spring Creek or would not be able to dissipate. If we could move it across here, we do not have the same, we have the same elevations, but we have a lot shorter area to come across to get back where it could come back into Spring Creek.

Bossung: Well I would almost pretty well say that Mr. Stewart would go along with that kind of a setup, with the dikes, with your 2A dikes.

Stoklasa: He has indicated that in his letter.

Adamson: I don't believe Mr. Stewart has seen 2A as yet.

Stoklasa: NO.

Bossung: He hasn't seen 2A but he and I talked about it yesterday so I'm sure he's aware of it.

Stoklasa: I appreciate your comments.

Bossung: There is one other comment I want to bring into being here and I voiced it to Jerry there before the meeting. Where the dike moves across between property owners there, there is a natural drain coming down from the north, coming across that into the Stewart property and on down to the road and that's what drain come in on UNINTELLIGIBLE down there across there. So I don't know what you might possibly run into but the property owner to the north is a UNINTELLIGIBLE.

Adamson: We'd have to take a look at that and see how that can be handled there.

Bossung: You understand what I mean?

Adamson: Yes, I understand, there is a natural sway

Bossung: I would rather bring that up right now rather than have it hit you some place else down the line.

Adamson: No, I understand.

Bossung: I owned that place for about 22 years now and I pretty well know the lay of it.

Harold Kopf: One thing I think it would be good for you to kind of explain a little bit because this is sort of a new proposal of having the dike along the edge of the creek and what would happen to the north, like to the cemetery and to the clinic and to the Bierman property and there's about 3 or 4 places that

Adamson: Allright what we've got here is, as we put the dike or the levee along the south side of Spring Creek, the water that normally had an opportunity to spread out, as you can see here, down into the leaches of Lexington will no longer be able to do that. That water will not just build up there, it will flow with least resistance, therefore, it will flow to the north east. By doing that we are going to be increasing from this drawing the existing one, you can see that we are just barely touching the vet clinic property. Here we're going completely, the vet clinic property would become into the hundred year flood plain. So we've moved the water that far, it's a quarter of a mile there. Also along Spring Creek we can see down in through here we're very close to the creek channel, we have actually moved it back out farther. The cemetery, we just barely touched the southwest corner of the cemetery and this one we're going to take about the bottom fourth of the cemetery, it would be in the hundred year flood plain. Now there are some things, also the depths in here would be increased by approximately we calculated in some areas near the spring, from near Spring Creek, the depths would increase about a foot and a half in the hundred year flood. Now the depths would vary according to event and it would also vary at the location you are looking at. We looked at it at one spot and took a profile across the area and increase that profile a foot and a half. The other thing we need to look at here too is first of all, we do not want to flood the cemetery. Therefore there would have to be some diking or something around the cemetery. As you notice the cemetery and the vet clinic are on the out reaches of the hundred year flood line. The outer line in water depths are

very shallow. We're talking probably less than 6 inches. So therefore it would not take much for an improvement to be put around there to protect those a six inch high mound of dirt would probably take care of the flooding that could possibly get to those in a hundred year event. What this does by shifting the levee up close to Spring Creek it does force more water to the north and east and that would mean putting more agriculture ground here under water at a greater depth

Bossung: Do I understand you to say there's about 80 acres in that?

Adamson: Approximately, that's a rough figure and it's not been calculated to the exact acre but there is about 80 acres that would be affected and that would stretch from the actual flooding limits would come right back into Spring Creek down here after we get to the end of the levee. So it's from about this point all the way up to where the levee would end.

Bossung: What would happen by taking that down the road down the country road right straight across there, those four homes to the north UNINTELLIGIBLE?

Adamson: Right now it's my understanding that these homes would be high enough they feel. However the homes on the east side of the road we've checked with some field data and it looks like they would have considerable water and they would be UNINTELLIGIBLE.

Bossung: I was afraid of that.

Adamson: So that was one of the reasons why it was taken down at this point and across to protect these residences in here. By bringing it on up here we do not pick up any more residences but we do pick up some agriculture ground. There is some other homes out here and I'm not familiar with the names so I know Mr. Stuckey lives in here somewhere but it's east on the county road from Stuckey's there is a home right here and it does fall within the hundred year flood plain at this point in time. It would still remain in the hundred year flood plain if the improvement was put at the levee except there would be a deeper water elevation so it could sustain more damage. That would be for any of the homes that would be in this hundred year flood plain. And it appears that there is only one unless there is someone living just south of this point.

Stoklasa: There is a new one down there I believe.

Bossung: Bierman's is south of the cemetery.

Adamson: That one would be on the outer reaches and I'm saying that the water getting at that point would probably be no more than 6, 7 inches and could be protected.

Warren Bierman: I'm Warren Bierman. I'll speak now at that there on that point and I also got a question up there too later on. You mentioned what the background on the cemetery with our place borders it to the south.

Adamson: At this point in time we would want to protect the cemetery or residence from damage if that comes to mind first there might be another solution but that comes first.

Bierman: There's another problem that natural grain kind of north, a mile section through, no move over to Casters right there north of the cemetery, that grain through there, that's where the water comes down from the north past the cemetery and backs up cause it can't go in the creek. Two years ago when we had that couple of days there was about a foot of water in the cemetery that time.

Stoklasa: Because of ice?

Bierman: Yes because of ice.

Adamson: One of the other things that we've looked at, we're working primarily with Spring Creek, this is an irrigation canal and the only problem with an irrigation canal always is that there could be some flooding from that in cases where the ice jamming is jammed up.

Bierman: It's not an irrigation canal that's just a plain draw that runs through there and that water comes up that road.

Adamson: On this one here?

Bierman: Yes it comes right down the road crosses there at that corner and comes on down south and drains into the creek. When the creek is high it can't get away.

Clifford Bossung: That goes around the east side of the cemetery doesn't it?

Bierman: No it comes right down the road. It goes both ways it goes around the high and it also goes around the road.

Bossung: Yes it goes both ways.

Adamson: That's an overflow from this?

Bierman: Backs clear up over west out behind the feedlot it comes out in there

Bossung: It comes clear in behind the feedlot up there now huh?

Bierman: So if you're going to back water up, your're going to compound that problem to the north.

Adamson: We've looked at if we are going to be entering another flood or into another watershed area and this one right here - is this by any chance is called Mud Creek?

Bierman: I don't know what it's called.

Bossung: I don't know. Do you know Jack?

Jack: What?

Bossung: That draw that's a

Jack: No.

Adamson: Because the hundred year flood does cross that up here just, it would be southeast of Prosser's. It does cross that and it does, it would have a tendency to carry water flow with Spring Creek when Spring Creek's flooding. There is a chance that that could be eliminated at this point. There's a couple of holes up there that it gets through and it looks like there's, I don't know if it's a man made dike or not, it appears there's been an attempt to pile some dirt up there to keep the flooding from the north and east. And there's a couple of places where that could get through and it does raise and that's where the hundred year flood would go through. If those were stopped off, it would confine that where this close to the hundred year limit has to be down in here you can see there is quite a ways from Spring Creek water so any water that would be entering into this drainage area would be coming from up in here. And I think you would have to address that at that point. I think we could handle it up in here, it was acceptable to build kind of a high spot on the other side so there would be in essence a protective structure on the north side of Spring Creek backwater.

Bossung: You're talking within Prosser's, the feedlot, or are you talking

Adamson: No actually it's right through here in the area that looks like it's right through. And it's very close you can see that this area is parallel to Spring Creek. And as Spring Creek overflows it flows into that, of course that just like this irrigation canal through town here when it goes into Spring Creek that just acts as a lateral to Spring Creek, it floods Spring Creek floods, it floods too and it will carry it on down here.

Bierman: In your comments you mentioned that cemetery in the southwest corner is in approximately 6 inches of water.

Adamson: At the outer limit this line right here presents a hundred year flood. It is the outer limit on that and we would expect that to be very shallow and not exceeding 6 inches and it would not be there very long too. It would be there the least of any water because it has the shortest distance to reside or pull back in the channel.

Bierman: Our home is built up it comes to the ground level of the cemetery.

Adamson: Yes it may not be in jeopardy. It lies in the hundred year flood plain if your home is built up the only thing is if you have a basement, your basement may become wet and I don't know what your lateral system is for your septic system because sometimes you get groundwater and it will take that and back up into your

Bierman: Like I say our water comes right now is from the ditch.

Adamson: Does that have water flowing in it all year around?

Bierman: No just when a heavy rain comes up.

Bossung: That water gets into that on the west side on the road west of Prosser's and it goes across the road and gets into that irrigation lateral, the one on the other side.

Bierman: The one higher up.

Bossung: Right there right in there.

Adamson: That's where it actually jumps out and there's also an irrigation canal that comes down here and the water will flow down into this irrigation canal. That's one thing I might point out, this irrigation canal on the south side of that irrigation canal there is an already made berm and that will withhold a hundred year flood so we do not, this is the flood limit however this thing will carry water at capacity as the same as Spring Creek but it will not allow water in the back side of Lexington because of the natural berm right now. That was destroyed, that berming effect was removed in some of this in here. So that is one thing that some of the water escaped down in there but would not be UNINTELLIGIBLE.

Bierman: Change direction now, talk about something else. On the feedlot of Prosser's UNINTELLIGIBLE. What's your proposal through that area? You've got lines drawn up there but what are you planning on doing in that area?

Adamson: The improvements would go just to this point. The channel would be improved all the way to that point.

Bierman: You would straighten it out and widen it?

Adamson: Yes sir we'd like to. There have been some problems in here. There are a couple of bottlenecks at this point and it needs to be straightened out. We've also looked at the flooding effects for the cattle feedyard and there are some high and low spots in the feedyard. We don't think there would be any damage even in a hundred year for cattle in there caught in there but if one fell down in a low hole it would drown but

Stoklasa: I think the way we're looking at the channel improvement is, when we say channel straightening, we do not mean a straight line from Lexington to the Platte River, but we do see some drain improvement on some problem areas, possibly some of these big horseshoes that some of these landowners have where we may be able to cut through, take the dirt out of where the channel would be and fill that horseshoe up and make it farmable.

Bierman: Now on right there at that feedlot that's definitely UNINTELLIGIBLE it would be fixed through there?

Adamson: We can claim enough benefits from the feedyard itself that it does make it feasible for the improvement to go up by there. We are stopping then at this point.

Bierman: That road?

Adamson: Yes this point right now. On beyond that we run out of benefits.

Bierman: Did you work with Mr. Prosser on part of the land in Lexington and the rest of it on where that would go.

Stoklasa: You bet. What we propose to do of course if this ever does come to a final stage is we see it there is no way we can do this entire project in one year. We would break it down into a five or six year project like taking maybe five miles at a time. In getting easements and rights of way in doing our engineering this would just about have to be done out in the field visiting with each landowner on

what his wishes were as far as Spring Creek. Do we straighten here, do we not straighten here? We've got some limits we need to follow and the landowner has got some limits. A lot of this would be designed with the landowners and doing it in stages.

Adamson: The original alinement that we had was supposedly worked out with some of the landowners at the time. Now again that's before our company was involved with this. If we're involved with final design, we would want to go back and get with the homeowner that's affected and I think the ideal solution would be to stake the field, let everyone see how it would work and then tie that in with topo and then design from that point on.

Bierman: These diagrams you had attached to the form, this included a mile west of the feedlot there. That's what I was wondering.

Adamson: No the UNINTELLIGIBLE shown there is because the channel improvements are so long and the maps would have to be so small it wouldn't make any sense. We've only included in the handouts things that affect Lexington right now. Basically because we get into this area this is where the levee itself is going to be in effect, affects more people.

Bierman: I think we'd be in agreement to work with you through the feedlot. I know Mr. Prosser, I talked with him this morning on the phone

Adamson: There's some major bottlenecks in here that certainly help alleviate some of the flooding problems if we could straighten it out.

Bierman: One of the biggest problems we got I think

Adamson: Yes

Bossung: I was going to say that.

Adamson: I didn't want to say it either.

Bierman: It's well known, we might as well say it. No I agree it needs a lot of work up there because I've had to object to the rest of the project but if you can fix that that's where the problem starts.

Adamson: No there's a big problem here and basically there is enough benefits picked up that's why it went there. If we could justify it, we'd have taken it all the way to the structures but we get to a point where you run out of benefits versus the construction costs.

Bierman: And that's a 25 foot bottom proposal on the channel?

Adamson: 25 foot bottom

Bierman: 5 foot deep?

Adamson: 5 foot deep, three to one side slopes up on the side.

Stoklasa: Okay do we have any more questions or comments?

Greg Peterman: My name's Greg Peterman from Smith & Smith Attorneys. I represent the Jessen trust. He is the owner of the land lying immediately south of Mr. Stewart's property where proposal levee number one is. We would like to go on record as being very much opposed to levee number one for two reasons. Number one it would prohibit for all practical purposes any further development that the city of Lexington farther than what it has gone at the present time. And number two it would effectively destroy any possibilities of any developments on the 200 or so acres that our client owns at this time. We would be in favor, I am authorized to state that we are in favor of levee location 2A as being perhaps the best, we can live with levee location 2 and we could also live with levee location 3. We would prefer 2A at this time, absolutely object to number 1.

Stoklasa: Thank you.

Everett Hagan: I'm Everett Hagen of Dawson County Road Department. When the 7 structures that would be on the county road system would those all be turned in on the price of that for the cost other than widening the bridges?

Adamson: What side of town?

Hagan: Those seven structures that's involved county roads, one on a state road the cost you've got in here for bridges replacement would that cover the total cost of replacing all those bridges?

Adamson: That's what we anticipate, yes.

Hagan: You think. It's approximately 75 foot bridge line south of highway 30.

Stoklasa: Does the figure look low to you, Butch?

Hagan: Oh I don't know, the last time I talked to the State they say about \$1500.00 a foot to be replaced. All I can say about it, I've got some bridges in there UNINTELLIGIBLE. I've got those three UNINTELLIGIBLE.

Stoklasa: Well I think to answer your question Butch, as I mentioned 25% of this cost has got to come up by the local people, the NRD, the county, donations, what have it, we got to have 25%. And of course you can see our rate of return is very low in this project. This is about the lowest one that we'll ever turn in if it stays at this 2½ or 3% so we're going to be down there in the priority list. We can start taking some of these construction costs and taking them out of this, our rate of return goes up and a possible chance of funding gets much greater.

Hagan: UNINTELLIGIBLE do they have to be engineered to that size or will they be engineered a smaller length, shorter length? Like our bridges won't last 4 or 5 years they've got to be replaced now.

Adamson: Location wise, are they closer to the Platte or farther away?

Hagan: They're closer to the Platte, they're on downstream from Lexington. We are really talking about probably longer than 46 foot UNINTELLIGIBLE.

Harold Kopf: When you talk about funding, I think probably the most logical fund that we will try to get will be development funds and there is a possibility that that would just be 50% of the funds, too, on the loan rather than a grant. The advisory committee, I noticed, they're coming in with a lot less grants than 50% loans than they previously did.

Adamson: you find that simply because they're trying to meet more peoples needs and when you go a 50-50 cost sharing basis they can pick up another project almost by that extra 25%.

Stoklasa: Yes the 75% I've been reading Butch of course is at the top of the ladder and we would hope to get that. Like Harold says there is a possibility that

Hagan: My idea is, I wouldn't want to have to build a bridge out there that's 75 feet and the county pick up the whole cost of it.

UNINTELLIGIBLE

Stoklasa: Okay any other comments, questions?

Engaard Lynn: Gene how much time UNINTELLIGIBLE that between the mouth of the creek and Highway 30 to straighten it out UNINTELLIGIBLE? How much time would that take off UNINTELLIGIBLE? Is there anything on that?

Stoklasa: You guys grab that one?

Adamson: The bottom width on that itself from the Platte River to Highway 30 is a forty five foot bottom.

Lynn: How much per if you got it all cleaned out and straightened out, how much of that would relieve time wise from the city of Lexington up to Spring Creek

Stoklasa: From the water standing on that.

Adamson: It would definitely improve it because you're increasing it faster down stream. Anything you do downstream is going to help increase it. The problem we have in Lexington, actually Spring Creek is on a ridge, it sounds crazy but it's on a ridge and it flows in this direction and in the middle of the city it's warped and it flows right back down so its got a dual effect. If Spring Creek floods up here, or up here it comes through Lexington, the channel improvement downstream would have no affect on that. You would still have water standing in here. It may not stand as long but it won't move it any quicker and it won't leave you any less deep in depth. We still would have to have to get to this point where we have improvements come up or the levee go in. The levee is the key thing for Lexington without the levee or the berm, Lexington is going to be flooded. Right now their channel is improved already and we would anticipate if a hundred year storm went through east of Grant Street there would be flooding. The depths down there would vary from up to a foot and a half in depth.

Bierman: What would the help be if that was brought on like he's talking about past 30 up to where the improvement already has been which is 13th Street east of town. Like if it was brought on up to there and put down the levee at the present time, how much would that be on down?

Adamson: I still think we have to look from

Bierman: I'm not saying to disband the levee, that's not the idea, but I was thinking about time, the timing on it. If you get part of it done in two years and you have a flood why how much is that going to help will that help a lot or a little or none at all without the levee?

Adamson: A little.

Bossung: I think that's what we were getting at right there UNINTELLIGIBLE.

Adamson: I don't know if I could

Hagan: UNINTELLIGIBLE sure if that thing is straightened out and cleaned out UNINTELLIGIBLE.

Adamson: It will make a lot of difference on the water that's carried down through. The thing that I'm saying is if the water is setting here and it's still going to go through here to get to there and if it does the damage here and then goes faster down through there, we'll still have the same amount of damage here. It just means we're going to move the water faster after we get by Lexington and it also means the damages downstream on the crop and pasture would be less for each event.

Arlond Garrett: Well is it true the major part of the cost of that project is from say from Highway 30 on to the river? And the only thing that really makes the whole project feasible is to come in with the benefits for the city of Lexington.

Adamson & Stoklasa: Yes sir that's right.

Garrett: So what they're saying is, sure, improving the town levee would be helpful but you can't justify that part of the project.

Adamson: Improving the channel in the lower section, I understand what you're saying here and I guess to explain that, to improve the channel from the Platte River to Highway 20, the cost of that far exceeds the benefits received. You've got all the cost downstream and you've got all the benefits right here. And that's not totally true in the long term, but when you get right down to brass tacks, if you're whole cost of the construction of the project is downstream from 30 to the Platte and all your benefits center right around Lexington if you wanted to get to a place there.

Hagan: UNINTELLIGIBLE that berm goes in, they've got probably a 2½ foot depth, UNINTELLIGIBLE raise up 2½ foot that that channel is full of snow like 2 years ago you get a quick thaw where the water can't get out and forces the flow across the road to another watershed is there any possibility UNINTELLIGIBLE.

Adamson: We've looked at pushing the water over. I think one of the key things that the water or the ice jamming itself is some of the ice jamming, least from what we were able to uncover, is most of the ice jamming is done in irrigation canals and if it wasn't irrigation canals it was contributed to a bridge where it was being bottlenecked in the bridge or that or

Hagan: This was snow.

Adamson: Same thing where

Hagan: Just full of snow all the way down

Adamson: Full of snow, we had a nice rain all came in and so it had to run on top of the snow.

Hagan: UNINTELLIGIBLE another watershed.

Adamson: Jeff we looked UNINTELLIGIBLE on that watershed.

McDermott: Well that was up towards UNINTELLIGIBLE.

Adamson: We don't think it would give you, this line right here represents the hundred year flood, okay we're not entering Mud Creek at this point and that

Hagan: UNINTELLIGIBLE pasture which runs down into Mud Creek.

Adamson: Right in through here?

Hagan: When it gets out of here do we get much water volume right down across here.

Adamson: Okay where's Mud Creek over here?

Hagan: It's over, I don't know for sure.

Adamson: It's over here farther, okay.

Hagan: We had seven tenths of a mile on 13th with water level a few years ago.

Adamson: I've got flood photos of that. The mayor indicated to me though that most of that was caused by ice jamming, they were trying to dynamite some area in that a lot of that

McDermott: If that dike is there it's going to force the water this way.

Stoklasa: Well I think Butch END OF FIRST SIDE OF TAPE

Adamson: BEGINNING SECOND SIDE upstream from irrigation canal and laterals but

Hagan: But once this water gets over here there's not too many places for it to go besides down here.

Adamson: No it's coming back but the only thing I'm saying is we're going to have to look specifically at making an assumption that there is going to be an ice jam at a certain location and if that ice jam occurs in one spot versus another it could change the whole thing.

Hagan: What are these elevations run on that this way?

Adamson: Well basically this one goes and goes way on over here somewhere. We got the maps

Hagan: Yes but it can't cross this irrigation ditch here to get back in this project.

Adamson: When it flows out?

Hagan: Right when it gets out of here.

Adamson: It comes into this irrigation

Hagan: No it can't get across that irrigation. There's an irrigation level in here and that water crosses Taft Street and goes right across here goes across

UNINTELLIGIBLE and part of it would get back into Spring Creek but not very much of it and go on west or east.

Adamson: Basically I guess what I am saying to you is that's where it's going now

Hagan: Not if it stays in the creek it don't

Adamson: What I'm saying to you is see this hundred year flood line

Stoklasa: It doesn't stay in the creek Butch that's why we've got a problem. You put that berm up there

Adamson: No wait a minute see what I'm saying to you is here's where the hundred year flood line is right now with no improvements. Okay that things coming on into here somewhere okay we're shifting it in depth but we're not shifting it in eastward section once we get by this point. We're going to fall right back into the hundred year flood line that exists now and if water is shifting into the next watershed it's been doing it for many years. This thing, this dike here, with this in here it will kick the water further to the northeast but once it gets down in here it will seek own

Hagan: I know it will go where it wants to

Adamson: The levee itself, I guess what I'm looking at, the levee itself from this point on up we don't feel it's going to kick it into another watershed. Now down stream here it's going if it's going into another watershed it's being picked up by irrigation laterals or it's been flowing into another watershed before.

Stoklasa: Okay any other comments or questions?

Jim O'Donnell: I'm Jim O'Donnell from Lexington and I own some of the land that the proposed dike is going to cross. I thought it might be in order to comment that where Spring Creek has been improved already, primarily from Highway 30 to Highway 21, the level of the bank or ditch in a lot of those areas is within one or two feet at the height of the proposed dike so for all intents or purposes part of the necessary dirt for the dike or levee or whatever you want to call it is already there, it would only take another, I know in particular on my land quite a bit of the dike running across there would only take another foot of dirt to get it up to the level that you're recommending. I'd also like to point out that for the approximately same amount in total dollar cost with location number 2A or number 2 either one, you are getting approximately a 50% more length of the levee for approximately the same cost than you would for example on as opposed to number 1 and about as I recall about 25% more length than you would for number 3. For the record I would like to say that I strongly favor location 2A, second location 2, and totally oppose 1 or 3.

Stoklasa: Thank you Jim. Yes

Dean Stuckey: I'm Dean Stuckey and I live north of the creek so I'm not in favor of any of the levies. That gentleman said a while ago all that water that's in Lexington now is going to be north and that's on my property so I'm of course against it.

O'Donnell: There really isn't a whole lot of difference on that north 25, 30 or 50 or whatever flood lines there. There isn't really a whole lot of difference between no levee at all and any one of the three if I remember your first maps

Adamson: The lines are basically the same line, the only difference would be is the depth, the depths would increase.

O'Donnell: In other words without the levee a big flood would go put the water in the same place on the north side of the creek.

Jerry: I'm not sure where Mr. Stuckey lives so I don't

O'Donnell: Well it's you know where the cemetery is just go north right there is where he lives.

Adamson: In this area?

O'Donnell: On the southwest corner.

Adamson: He's outside of the hundred year flood even with the levee improvement in place, your house, your building structures this is it right here.

Stuckey: Well let's see the it without the back line, where does it go across that corner UNINTELLIGIBLE south.

Adamson: This right here is this intersection and we're moving up approximately to where my finger is, this is where it is existing now and forcing it up about 500, 700 feet wide.

Stuckey: You make you a dam along there, you're going to push the water north you said that yourself. So it's going to cover all that property north of the creek.

Adamson: It's covering right now, what we'll be doing is is this right here north of the creek, the hundred year flood line is about we'll say about 300 feet north of the creek right now because there's ability of the water to run to the south side, when the ability for the water to run to the south is no longer there then that will increase from 200 to 300 feet here to about 700 or 800 feet but the depths in this instance are say one foot or entering on up to here about 2 to 2½ feet so the distance is not increasing greatly to the north and northeast, it is increasing, but it's not increasing greatly but the depths will be increasing. That's what really your structure if this is where you like here, the hundred year flood with the existing channel improvements the way they are today you're approximately I think about 1500 feet from the hundred year flood line. Okay now you would be approximately 500, 600, 700 feet from the flood line.

Stuckey: The dam is right there at the cemetery UNINTELLIGIBLE. And there's no dam on the south side of the creek now.

Adamson: No, but the only thing I'm saying, was that water out of this channel or was it because of the ice jamming?

Stuckey: It comes out of Spring Creek up above, yes comes out of Spring Creek.

Stoklasa: Was that because of ice jamming?

Audience: The last one was because of the ice jamming.

Adamson: I guess what I'm saying is the ice jamming we had no way to calculate where runs are going to go but based upon an intense rain storm if you got an

obstruction that alters that, if you've got a bridge that is too narrow, the flooding behind it

Stuckey: Oh I understand all that but you said you were going to move the water north. You go down along Lexington right? All right that's the question I wanted answered.

Adamson: The answer is, if we put the levee along the south side of Spring Creek we will be moving the water to the north and northeast.

Bierman: If you are going to do all the work in widening Spring Creek all the way to the Platte why is the levee necessary UNINTELLIGIBLE

Adamson: The levee is necessary because we have to protect Lexington and without the protection in Lexington we lose all the benefits, without the benefits the project could not be.

Bierman: So you add cost to make it beneficial.

Adamson: If you want to, basically what it amounts to is if you want channel improvements downstream you've got to protect Lexington, if you don't want channel improvements downstream take the levee out and not worry about it.

Bierman: I'll go along with Mr. Stuckey and voice my objection to the levee part UNINTELLIGIBLE city property or cemetery.

Adamson: No we don't want to flood the cemetery either at all.

Bierman: Well I want to voice my objection on that.

Stoklasa: Okay any other comments?

Lynn: About wouldn't that relieve that whole situation quite a little if you widen that up say 30 feet UNINTELLIGIBLE

Adamson: Basically what that would look like it would do is the only thing it would do is it would give you more capacity upstream, could handle larger amounts of water, it would just cost more to construct it. That would be the only

Lynn: UNINTELLIGIBLE you have a awful lot of dirt you're going to have to haul back and forth UNINTELLIGIBLE

Stoklasa: I think the only thing when we talk about dirt we are talking about what 30, 40 thousand yards which isn't a lot of dirt. I realize it would amount to some dollars but it's not a lot of dirt.

Adamson: We're not talking about a big levee that's a ten foot top, three foot bottom, three foot high that's not a lot of

Stoklasa: Plus a percentage of that levee is there at the present time.

Bossung: I was wondering also UNINTELLIGIBLE go on west there where we're having a little problem of getting enough dirt there with a 25 foot bottom. I was wondering where that UNINTELLIGIBLE through the Stewart place there why we couldn't go ahead and widen it at that point through there to get enough dirt for the levee without having to go anyplace else to get it.

Adamson: One of the problems, and I'll address this if we have a 40 foot wide channel down here okay if we widen this to beyond that or even then you're going to get UNINTELLIGIBLE and it's going to funnel back in small one.

Bossung: I can understand that, the only thing I was trying to do was wondering where a person would go to get enough dirt in some of these areas to do this.

Adamson: Again I understand the question but the dirt thing does not seem to be as big a factor because there are some areas in here that we probably wouldn't have to add any dirt but there are some areas in here where there are some pot holes and we might have to have 5 foot. The average across there would look like about 3½ feet above the existing grade.

Bossung: I was going to ask another question why narrow this thing down when you hit 30 why not make it the same width on out instead of dropping down to 25 feet then 45 feet why not make it jump down to 10 feet say with a 35 foot bottom, put it down to 25 then you come on back up this way and take the 3 inches of dirt out of the channel itself.

Adamson: One of the reasons is we have a break in cubic feet of water flow, the rest made it 900 cubic feet per second downstream, the rest made it 560 cubic feet per second upstream what it amounts to is it we're getting runoff and everything else farther down carrying a lot more water we're carrying water from up here

Bossung: I can understand that but I'm thinking about the dirt, what I'm thinking about more than I am the water.

Adamson: Widening it up here would be, as far as we can see at this meeting without looking at it and giving it some thought and some study, it looks like by widening it all you would be doing is increasing the cost and you would have more retention in the channel.

Bossung: I can appreciate that if you can find your dirt close enough to do you some good. If you can't

Adamson: Another thing that enters in is that we have to make certain that the dirt that we take out is of sufficient consistency that we use.

Bossung: I understand that.

Kopf: One thing is that the channel improvement is estimated to cost of about \$730,000.00 and the levee is only suppose to cost around \$70,000.00 so we're talking about one tenth of the cost for the levee. It isn't that big of a deal in the whole project and making that channel is going to cost a lot of money.

Bossung: This is the only thing, I'm agreeing with you there on that thing with the exception that I still maintain it's going to mean a lot on where you can buy the dirt.

Adamson: One other thing too, we may be able to get enough dirt downstream. We also want to fill in any obstacles or anything that is created like if we straighten the out we want to fill the other areas and we're going to have to UNINTELLIGIBLE and it takes more dirt to fill a hole than

Bossung: About 1.3 UNINTELLIGIBLE I've done enough land leveling I know what it takes.

Pete Hatfield: Will the channel improvement UNINTELLIGIBLE. It goes across UNINTELLIGIBLE.

Stoklasa: Where is the dike? Would you come up and show us?

Hatfield: Well it's across the road south of the feedlot.

Stoklasa: Right down in here?

Hatfield: Come right down across there and come in behind there

Kopf: That road protects it. I asked about that.

Adamson: See this county road here. The elevations that we picked up on that county road show that the hundred year flood would not get across the county road until we get right to that point. Now the only thing that I'm looking at too is if there are any culverts down in here if it goes through those those would have to be taken out or removed but this area would act, the road itself would act as a dike.

Hatfield: I've seen a lot of times, I'm not a hundred years old, but that water comes down across there.

Adamson: Across this one?

Hatfield: Right, right down across there right straight to down right up pass the UNINTELLIGIBLE.

Adamson: Okay that's good to know, the maps that we have out here, the elevations on that road which are very recent, indicate that it wouldn't exceed the top of that road unless there's some other circumstances for it. Most of the water that comes in is coming out of Spring Creek right at this point that we can find. And when it comes down, we were looking for some water coming in the backdoor of Lexington. Even if it gets down here this irrigation lateral is keeping it on the north side of the irrigation lateral. The irrigation lateral has a berm built up on the back side of it that exceeds a hundred year flood so therefore the hundred year flood would extend to here and then basically what it does is the road acts as a levee or a berm itself and would come back and would meet this county road and then the county road itself would carry it or on this map would come down here. It does cross this county road and goes on down and then gets down to again the irrigation lateral and the irrigation lateral stops it. But there is water then there will still be continually, even if the levee is put in, there will still be water coming down along this irrigation canal whenever Spring Creek floods but it will not be

coming on the south side because of the berm. Now it could flood on the east side and then reside back into it and that's out of the irrigation canal. There was some discussion that that was going to be closed off but I don't know what the status of that is.

Hatfield: Well all I know is that gets pretty deep out there.

Stoklasa: And definately crossing the highway?

Adamson: On this section all the way down to the intersection?

Hatfield: No just about down a half mile.

Adamson: A half mile, that's better yet.

Stoklasa: Okay anything else. Okay Harold.

CLOSING

The record of the proceedings of this hearing will be made available to the Board of Directors of the District.

The record of this public hearing will be held open for submission of additional written evidence purtaining to the project. Any additional evidence must be in writing and must be received in the Central Platte Natural Resources District Office, 116 West 4th, Grand Island, Nebraska, no later than 1:00 p.m., February 27, 1980 in order to be considered.

Since there is no additional evidence to be considered at this time, I thank you all for attending and assure you that your testimony will be considered.

This hearing is closed.

Proof of Publication

State of Nebraska, }
Dawson County, } ss.

Dale A. Taylor being duly sworn, on oath deposes and says that he is the publisher of THE DAWSON COUNTY HERALD, a weekly newspaper, which is printed and published at Lexington, in the County of Dawson, and State of Nebraska, and that the said DAWSON COUNTY HERALD has a bona fide circulation of over three hundred copies weekly, and said newspaper has been published for more than fifty-two successive weeks prior to the publication of the notice annexed hereto, and each of said issues has been published in an office maintained at said place of publication.

That the annexed notice has been published one consecutive weeks in said newspaper, the first publication thereof having been made on the 21st day of January, 1980, and the last publication on the 19 day of January, 1980.

Subscribed and sworn to before me this 21st day of January, 1980.

Ruth P. Merrett

Publication Fee \$ 2.88.

NOTICE OF HEARING

Notice is hereby given that the Central Platte Natural Resources District will conduct a public hearing on Tuesday, January 29, 1980, at 1:30 p.m. at the Dawson County Fairgrounds, 4-H Building, South Highway 283, Lexington, Nebraska, on the feasibility of constructing channel and levee improvements on Spring Creek Lower.

37-11

RECORDED

10-7-82

STEWART & STEWART
ATTORNEYS AND COUNSELORS AT LAW
609 NORTH WASHINGTON STREET
P. O. BOX 457
LEXINGTON, NEBRASKA 68850

WILLIAM A. STEWART
WILLIAM A. STEWART, JR.

TELEPHONE
324-5524

January 25, 1980

Mr. Ron Bishop
Central Platte Natural Resources District
116 W. Fourth
Grand Island, Nebraska 68801

Dear Mr. Bishop:

I find that I will be unable to attend the public meeting on the Spring Creek Watershed Lower Flood Control Project slated for January 29, 1980 at 1:30 p.m. at the 4-H Building, Dawson County Fairgrounds in Lexington. I will be engaged in a jury trial which has been set for that day. For this reason I would appreciate it if you would submit this letter to the hearing officer and to the Board of Directors.

I wholly support the flood control project on the Spring Creek Watershed, and feel that the farmers whose lands are located adjacent to the creek would benefit greatly if the creek was cleaned and straightened. It is unfortunate that a levee has to be constructed in order to do the channel work.

My Aunt Helen McKee, and the heirs of my father's estate, are the owners of the South Half (S $\frac{1}{2}$) of Section 30 Township 10 North, Range 21 West of the 6th p.m., Dawson County, Nebraska.

I have lived on that farm since June of 1955 and am aware of the water problems in that locality.

As you know, the creek banks north of Lexington are higher than the surrounding ground, and in Section 30, the land is irrigated away from the creek. The natural flow of water is from the northwest to the southeast. Anytime we have over a half-inch of rain, water drains across the section to the southeast, and into the road ditch on the south side of the section, and then to the east along the north side of the county road to where the county road intersects with the Spring Creek, and at that place, the water is discharged into the creek.

If the levee is built along the south side of Section 30 as proposed in the second location, every time we get over a half-inch of rain, 30 to 40 acres in the southeast corner of the section adjacent to the levee will be flooded. The ground

-2-

where the levee is to be located is two feet lower than the north edge of the cornfield which is the same elevation as the banks of the creek. In other words, the water along the levee would have to reach a depth of two feet before any water would flow back into the creek. This would make it impossible to ever farm this ground.

In addition, the values of the house in which I live and the tenant house, which are located just east of the levee, would be reduced drastically due to the fact that we would have a frog pond with the various odors emanating from it much of the year.

I have no objections to either location number one or location number three, but I cannot accept having the levee located in location number two.

There was some talk at the hearing the other day in Lexington that the road would be used as a levee. This I could agree with if the levee ran along the road from where it commences on the west end of Section 30 to the point where the road joins the creek. This would protect the City of Lexington, and still would enable the rains that were less than the 100-year floods, that occur every year, to drain into the creek as they have been doing for years.

The two residences located on Section 30 have been located on ground that is higher than the top of the levee would be, so that these houses would not be damaged in the 100-year flood.

If it is impossible to locate the levee along the road as I suggested, then it seems to me the levee should not come back south to the road as shown in location number two, but should continue on the south bank of the creek all the way across Section 30. If this were done, I am sure I could obtain the necessary right-of-way from the owners of the South Half of Section 30.

In summary, I would like to say that if the proposal of location number two is approved by the Board, that 30 to 40 acres of land will be flooded every year while trying to protect it from a flood that happens once every 100 years. In other words, the land in Section 30 will be flooded 100 times to protect some other land one time in 100 years.

I do not think that this is the purpose of the Spring Creek Watershed.

Sincerely yours,


W. A. Stewart, Jr.

WasJr/kn

STEWART & STEWART
ATTORNEYS AND COUNSELORS AT LAW
609 NORTH WASHINGTON STREET
P O BOX 457
LEXINGTON, NEBRASKA 68850

WILLIAM A. STEWART
WILLIAM A. STEWART, JR.

January 31, 1980

TELEPHONE
324-5524

Mr. Ron Bishop
Central Platte Natural Resources District
116 W. Fourth
Grand Island, Nebraska 68801

Dear Mr. Bishop:

I am sorry I could not be at your public meeting concerning the Spring Creek Watershed Project last Tuesday. Several people that were there informed me that you had come up with another proposal designated "2A" for the dike. From how they have described it to me, and the plat that they furnished me, I feel that this would be the best proposal for this difficult situation.

I am sure that we could obtain the necessary easements for the dike as proposed in "2A" across the S $\frac{1}{2}$ of 30-10-21.

Sincerely yours,


W. A. Stewart, Jr.

WasJr/kn

Smith & Smith

ELBERT H. SMITH (1909-1968)

ATTORNEYS AT LAW

BERNARD B. SMITH
DAVID B. SMITH

612 NORTH GRANT
LEXINGTON, NEBRASKA 68850

P.O. BOX 699
PHONE 308 324-2393

GREG A. PETERMAN
STEVEN H. HELDT

January 30, 1980

Central Platte Natural Resources District
116 West Fourth Street
Grand Island, Nebraska 68801

Re: Our Client: Jessen Trust
Matter: Spring Creek Watershed Project No. 1155A-04
Real Estate Description:

All that part of the North Half (N½) of Section Thirty-One (31), Township Ten (10) North, Range Twenty-One (21), West of the 6th P.M., Dawson County, Nebraska situated and lying north of the Platte Valley Public Power and Irrigation District Canal excepting the following described tract: beginning at a point which is 684.6 feet north and 50 feet west of the East Quarter corner of said Section 31, thence 190 feet parallel with the North line of said Section, thence North 160 feet parallel with the East line of said Section, thence East 190 feet parallel with the North Line of said Section, thence South 160 feet parallel with the East line of said Section to the place of beginning.

To Whom It May Concern:

The undersigned has been retained to represent the interests of the Jessen Trust in regard to the Spring Creek proposed watershed development. We were in attendance at the public hearing held in Lexington, Nebraska, on January 29, 1980. At that time it was indicated written comments would be accepted by Central Platte Natural Resources District until February 27, 1980.

Our client wishes to go on record as being vehemently opposed to Levy location number 1 for the reason that it would totally and completely deny to our client any possibility of future development on the described real estate. Our client further wishes to object

Page Two
Central Platte Natural Resources District
January 30, 1980

to levy location number 1 as being too close to the city limits of Lexington, Nebraska, which would forever prohibit any further growth to the north or northeast of the city of Lexington.

Our client would support a levy location denoted as 2 and would further support levy location 2A. As their last alternative, levy location 3 would be acceptable to our client as long as it did not deviate from the proposed improvements figure 1 submitted at the public hearing by way of Engineering Progress Report of Schemmer Associates Inc.

Notwithstanding our support for levy 2 and 2A, it is considered that the rate of return is quite low for any of the levy locations. It is further submitted that the cost of return is inaccurate in that no consideration has been given for the cost of dirt and further no consideration has been given for the cost of purchasing any land, easements or other land rights. Levy location 1 and levy location 3 would all require purchase of land and land rights from the Jessen Trust.

The real estate described above is currently being evaluated by an engineering concern in regard to future developmental possibilities.

We would appreciate this letter being made a part of the proceedings. Should you wish further information from our client or wish to discuss this matter in any way, I would request that you contact the undersigned.

Very truly yours,

SMITH & SMITH

By



GREG A. PETERMAN

GAP:srm

CERTIFIED MAIL

January 31, 1980

Mr. Ron Bishop, General Manager
Central Platte Natural Resources District
116 West 4th Street
Grand Island, Nebraska 68801

Re: Spring Creek Bank and Streambed
Stabilization and Flood Control
Feasibility Study
Project No. 1155A-04

Dear Mr. Bishop:

I am writing you in connection with the project referred to above, after hearing the discussion at the public hearing held in Lexington, Nebraska, January 29, 1980.

With respect to the project as proposed, I have no objections to the portion of the project that would involve the widening of Spring Creek. Neither do I have any objection to the straightening of the Creek in the various aspects stated.

I do, however, have strong objections to the proposal to construct a levee on the south side of Spring Creek. My objection is based primarily on the fact that I live on a three-acre tract located in the northwest corner of the Southwest Quarter (SW $\frac{1}{4}$) of Section 33, Township 10, Range 21. Specifically, my residence is located immediately south of the cemetery which is located in the extreme southwest corner of the Northeast Quarter (NE $\frac{1}{4}$) of the same Section.

As I understand the projections for the construction of the levee, this would involve widening the flood plain area to the north of Spring Creek, and at the same time making it possible for the water to stand at a deeper depth in the flood plain. Further, I understand that an adjunct to the construction of the levee would be the raising of Taft Street. The combination of these matters, namely, the construction of the levee and the raising of Taft Street, would throw additional water toward our residence, would deepen the water in the flood plain, and would subject our residence to substantially greater hazard of water and flood damage than now exists.

Mr. Ron Bishop, General Manager
Page 2

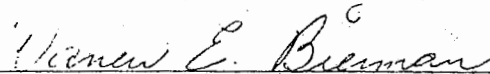
January 31, 1980

At the hearing there was some suggestion made that a dike or berm of some sort would be built to protect the cemetery located immediately north of our residence. If the project goes forward and if the dike or levee or berm is constructed to protect the said cemetery, we would ask that the protection of the cemetery be broadened to include our residence which adjoins the cemetery. Although this is not an ideal situation, it would give additional protection which would be lacking in the event our residential property was placed outside the protection of such levee.

Last, having stated my objections to the proposal, I also wish to put the Natural Resources District on notice that if the flood plain is changed by the methods suggested at the hearing, or any alternatives or variations thereof, and if the result of such changes is to damage our residential property, now or at any time in the future, we will look to the Natural Resources District for damages incurred by reason of the actions of the District.

I will be happy to visit with you at any time if you have further questions concerning our position. We thank you for any consideration which you may give us concerning this matter.

Yours very truly,



Warren E. Bierman
Route 2, Box 180
Lexington, Nebraska 68850

Feb. 14, 1956.
Central State Natural Resources District
116 W. Fourth
Grand Island Neb.

Dear Sir:

When we attended the Spring Creek Watershed meeting and hearing at Lexington 4-H Building at fairgrounds Jan. 29, 1956, we learned you were proposing a 45-foot bottom and 40-foot channel from mouth at Platte River to Highway 30.

With all the dams and levees you have constructed and ^{are} proposing, we ask why the channel has to be so wide? This is to be a creek and not a river and not a stream to later be used for carrying some other water.

Do you have faith in your dams and levees in controlling the flood waters? If so, the channel surely does not have to be this wide.

Dams and levees are constructed to control these waters and if they do not, then we think NRD has

used a lot of taxpayer money in
a needless manner.

CONTINUED

We have lived on Spring
Creek all of our lives and never
has it needed a 45 foot bottom.

We wish to go on record to
being opposed to a 45 foot bottom
and 40 foot wide channel.

Yours truly,
Audrey Fabart
Sallie Millman
Harriet Fabart

Copy reserved
for legal.

February 19, 1980

Central Platte Natural Resources District
116 W. 4th St.
Grand Island, Ne. 68801

Subject: Spring Creek Watershed Lower Flood Control Project

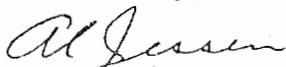
I was born on the Jessen property north of Lexington in 1934 and lived there except for a year or two until 1964. I remember as a kid floating on a raft down the middle of Hiway 21 in front of our home. Even though the road was inundated, the water was not high enough to cover the lawn and did not bother the house or any other buildings.

Later, two things happened that changed that, Hiway 21 was raised, and a culvert was removed which always had taken water from the south-east corner of our farm under the existing irrigation ditch and on south into Lexington. This culvert was of course in place in the west road ditch of Hiway 21, but was removed during the time of paving from that point south, or the subsequent black-topping north from that point. These changes of course made a reservoir out of the east end of the Jessen farm during floods. It was partially relieved when legal action against the state resulted in two culverts being installed across Hiway 21. Any adverse placement of a levee on the Jessen property would force us to seek reopening of the natural drainage to the south.

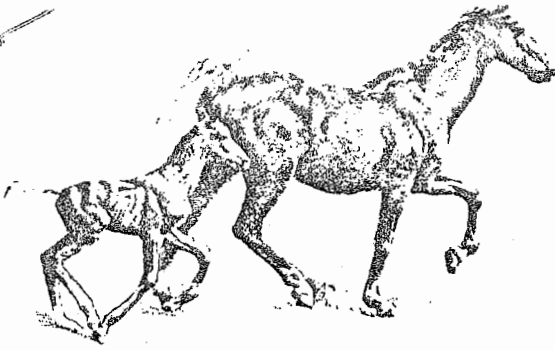
Of the proposed improvements, levee locations number 1 and 3 block the development of Lexington to the north, and they do not protect the Stewart and Stuckey residences. Keeping the water in the creek would seem to be the reasonable thing to do.

During a recent flood in the area, which was shortly after some channel work had been done on Spring Creek, I flew over the area and took aerial photographs. These pictures prove that the flooding took place east of town, not north where it used to be. It seems reasonable then to believe that further channel improvement from Lexington to the river will solve the flooding problems around the city of Lexington.

Yours truly,



Al Jessen
Trustee, Jessen Trust



Feb. 20, '80

Lexington, Neb.

Central Platte Natural Resources Dist
116 West 4th St.
Grand Island, Neb.

Dear Sirs,

On the Spring Creek Watershed Lower
Flood Project, I think you're doing
a great job, in Cleaning the creek!

Thanks for all the good things
you're doing for the community.

as I'm part owner of the land
between the creek and the city, I've
lived here since 1932 and know
what the creek will do.

The Jessen Trust land has
never flooded except for the road ditch
past the home place, and one other
time when the State of Neb. built

(the road)
 it was raise about three feet
 past the Jessen trust farm and
 no bridges or culverts were put
 in at that time so when the rains
 came we had back up water on
 about 5 or ten acres almostly where
 the building were, But the Hiway Dept
 went and built two bridges to let
 the water out so now its' O.K. They
 bridges are a lot bigger then needed
 to be but its' O.K. Thiyre good guys!

I would like to see the
 levee or dike built on the south
 side of the (or bank) of ~~the~~ creek to
 protect all the homes if we have
 to have it, lets have it on the creek
 banks where it will keep the water
 the road between Jessens & Stewarts
 has been the dike for many years. This road
 can be used as the dike, theres no culverts
 between the two as the creek water is supposed
 to go in the creek! Mis Jessen

ATTACHMENT 4
TECHNICAL FEASIBILITY

Spring Creek Lower Watershed
Dawson County, Nebraska

FORM

TECHNICAL FEASIBILITY DATA

02T1

STRUCTURAL PROJECT: Shall be considered technically feasible when it can be designed, constructed, and operated to accomplish the purpose(s) for which it was planned utilizing accepted engineering and other technical principles and concepts. Data to be provided should include, but is not limited to, the following:

1. Detailed Discussion of the Plan Development Selected (Attach) 4ADescription of all Field Investigations made to Substantiate Feasibility Report (Attach) 4BMaps, drawings, charts, tables, etc., that substantiate Feasibility Report (Attach) 4C4. Plans and Specifications (Attach) 4D

Included but not Limited To:

- A. Structural Characteristics
- B. Soil Types
- C. Hydraulic & Hydrologic Data
- D. Design Criteria

NON-STRUCTURAL PROJECT: Shall be considered technically feasible when it can be designed and carried out to accomplish the purpose(s) for which it was planned. Data to be provided should include, but is not limited to, the following:

Detailed discussion of plan of development, including techniques to be utilized in all aspects of the project. (Attach) NA2. Description of Field or Research Investigations to Substantiate Plan Conception (Attach) NA

3. Discussion of anticipated effects, if any, of project on development and/or operation of existing or envisioned structural measures, with description of such.

(Attach) NA

ESTIMATED TIME AFTER APPROVAL TO:

Advertise for Bidding 1 year, 6 months Begin Construction 60 days after biddingEstimated Construction Period 6 years to When perform Operation & Maintenance of Project Annually

Attachment 4A

The plan developed for Spring Creek Lower is to reduce floodwater damage to cropland, roads, bridges and the City of Lexington. To accomplish this, a feasibility study was conducted to determine what type of construction could obtain the maximum amount of benefits for the least amount of investment. As a result of the study, a channel design for a 2-year frequency storm was found to be the most economical to construct.

Spring Creek is a meandering creek which begins in the southwest part of Custer County and flows southeasterly past Lexington and enters the Platte River 3 miles south and 1.5 miles east of Overton, Nebraska. The watershed is approximately 7 miles wide and 50 miles long. For the purposes of constructing improvements for this study, Spring Creek is divided into a lower segment and an upper segment. The lower segment is from the Platte River to a point 2 miles north and 2 miles west of Lexington. The upper segment continues from the last described termination point to a point in Section 33, Township 11 North, Range 23 West of the 6th P.M. The lower and upper segments were analyzed to obtain rates of return. An analysis of improving only the lower segment produced a higher rate of return. Therefore, the project scope was reduced to constructing improvements only in the lower segment.

The benefits attributed to constructing channel improvements in the lower and upper segments of Spring Creek are predominantly a reduction in damages to farmland. These benefits are of a low magnitude when compared with the construction costs involved with channel widening and straightening. Therefore, to optimize the benefits, the project scope was expanded to include the construction of a levee between the northern limits of Lexington and Spring Creek. Various locations were considered before agreement was reached by the community on the location. The inclusion of the levee greatly expanded the benefits and did not greatly increase the construction cost. The levee will be designed to prevent flooding in Lexington from a 100-year event.

Attachment 4B

Field investigations were made to substantiate and collect data for preparation of this report. All bridge and culvert crossings were inspected and recorded. Notes were made as to the condition of each structure and its effect on the proposed improvements.

To properly evaluate the flooding in the Lexington area, field surveys were made and a topography map was constructed by the Central Platte Natural Resources District. The topography map contour interval is 2 feet and the scale is 1 inch equals 200 feet. This map provided the means to determine flood water depths in the urban areas.

Assessing urban damages involves not only determining flood water depths but also assessing the types of structures in the flood areas. To evaluate the damages, it is also necessary to establish the depth of flood water above the first floor of each structure. To accomplish this, consultant personnel examined Lexington and recorded various flooding parameters regarding each structure. The parameters that were observed and recorded are indicated in Figure 3.

Sheet of

Surveyor:

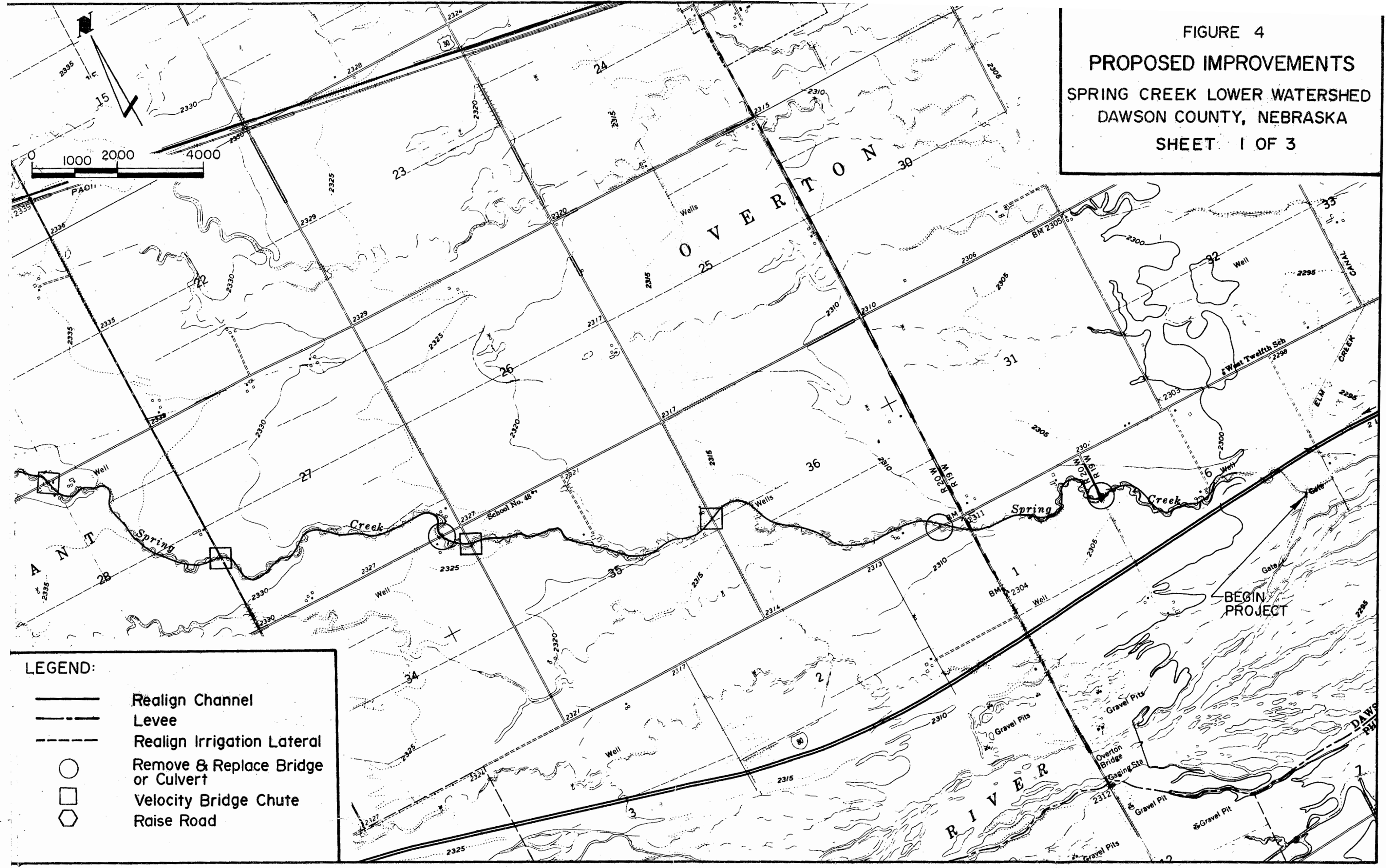
							Residential								Business								
								Struct. Code	01	03	05	60	15	20	25	10							
								Contents Code	27	29	33	43	48	53	58	38	Sma	1					
Address								1 story, no basement															
								2 or more stories no basement															
								Split level, no basement															
								All in basement															
								1 story, w/basement															
								2 or more stories w/basement															
								Split level, w/basement															
								Mobile Home, on foundation															
								Height of first floor above grade															
								If basement window dist. above grade															
								Brick															
								Metal															
								Frame															
								Concrete block															
								Large business															
								Height of first floor above grade															
Name																							
Remarks																							

Attachment 4C

This attachment contains various maps, drawings and charts utilized to substantiate this report. Figure 4 illustrates the Spring Creek watershed and that portion of the watershed where improvements are proposed. Figure 5 portrays locations of reaches and cross sections used in analyzing the project. It also shows the distribution of crops.

Improvements to reduce flooding are comprised of channel and levee construction. These improvements are illustrated in Figures 6 and 7.

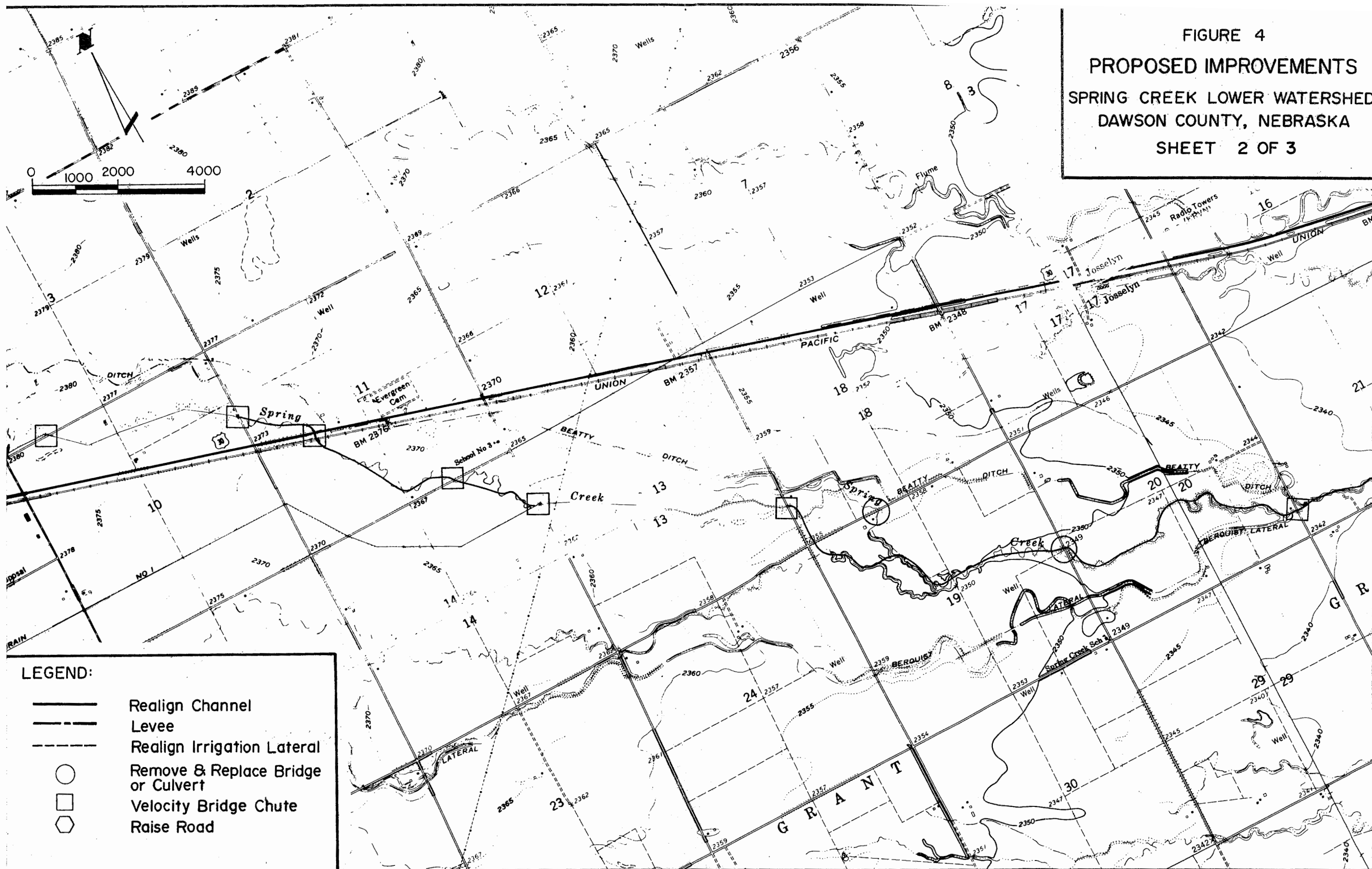
FIGURE 4
PROPOSED IMPROVEMENTS
 SPRING CREEK LOWER WATERSHED
 DAWSON COUNTY, NEBRASKA
 SHEET 1 OF 3



LEGEND:

	Realign Channel
	Levee
	Realign Irrigation Lateral
	Remove & Replace Bridge or Culvert
	Velocity Bridge Chute
	Raise Road

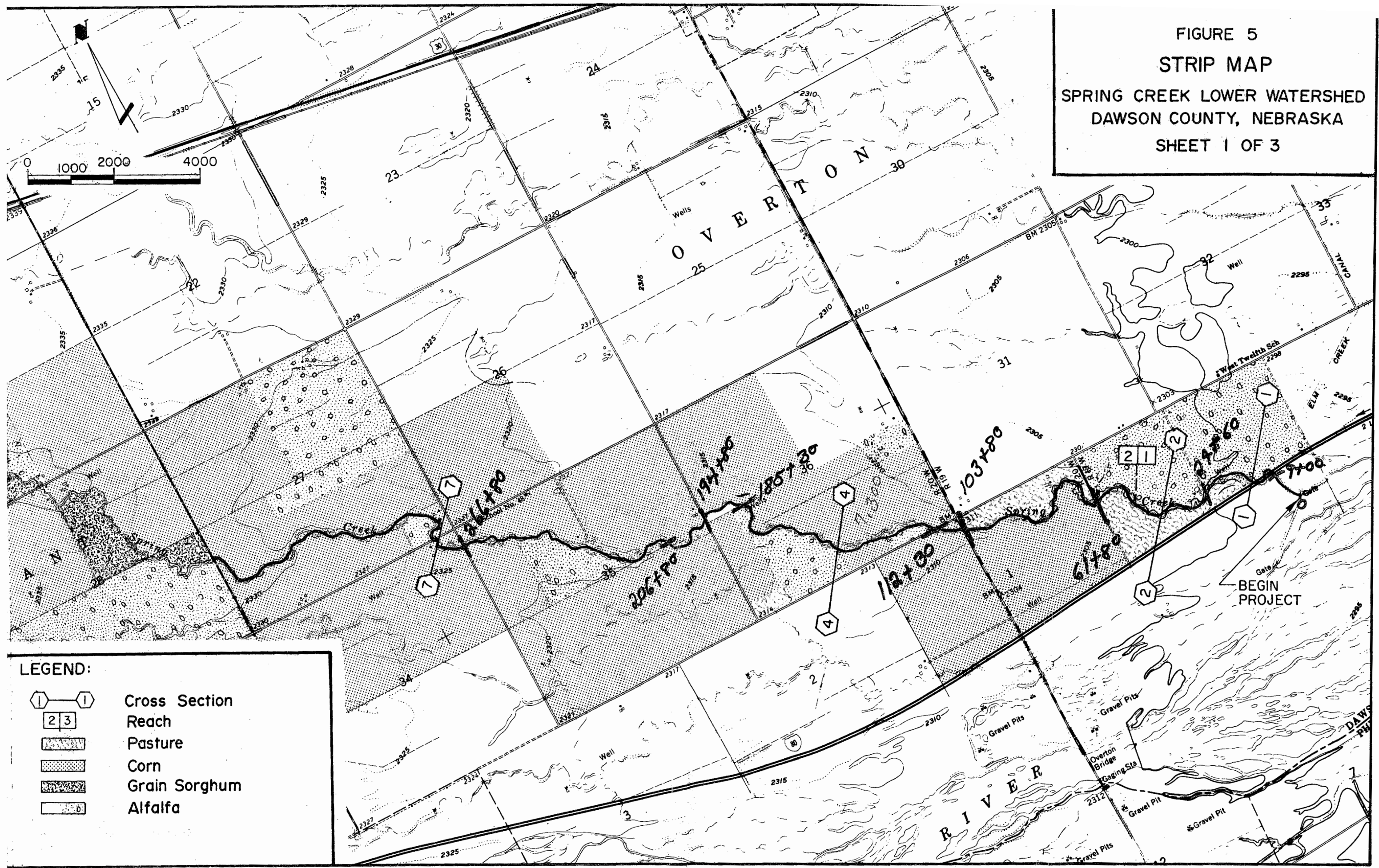
FIGURE 4
 PROPOSED IMPROVEMENTS
 SPRING CREEK LOWER WATERSHED
 DAWSON COUNTY, NEBRASKA
 SHEET 2 OF 3



LEGEND:

	Realign Channel
	Levee
	Realign Irrigation Lateral
	Remove & Replace Bridge or Culvert
	Velocity Bridge Chute
	Raise Road

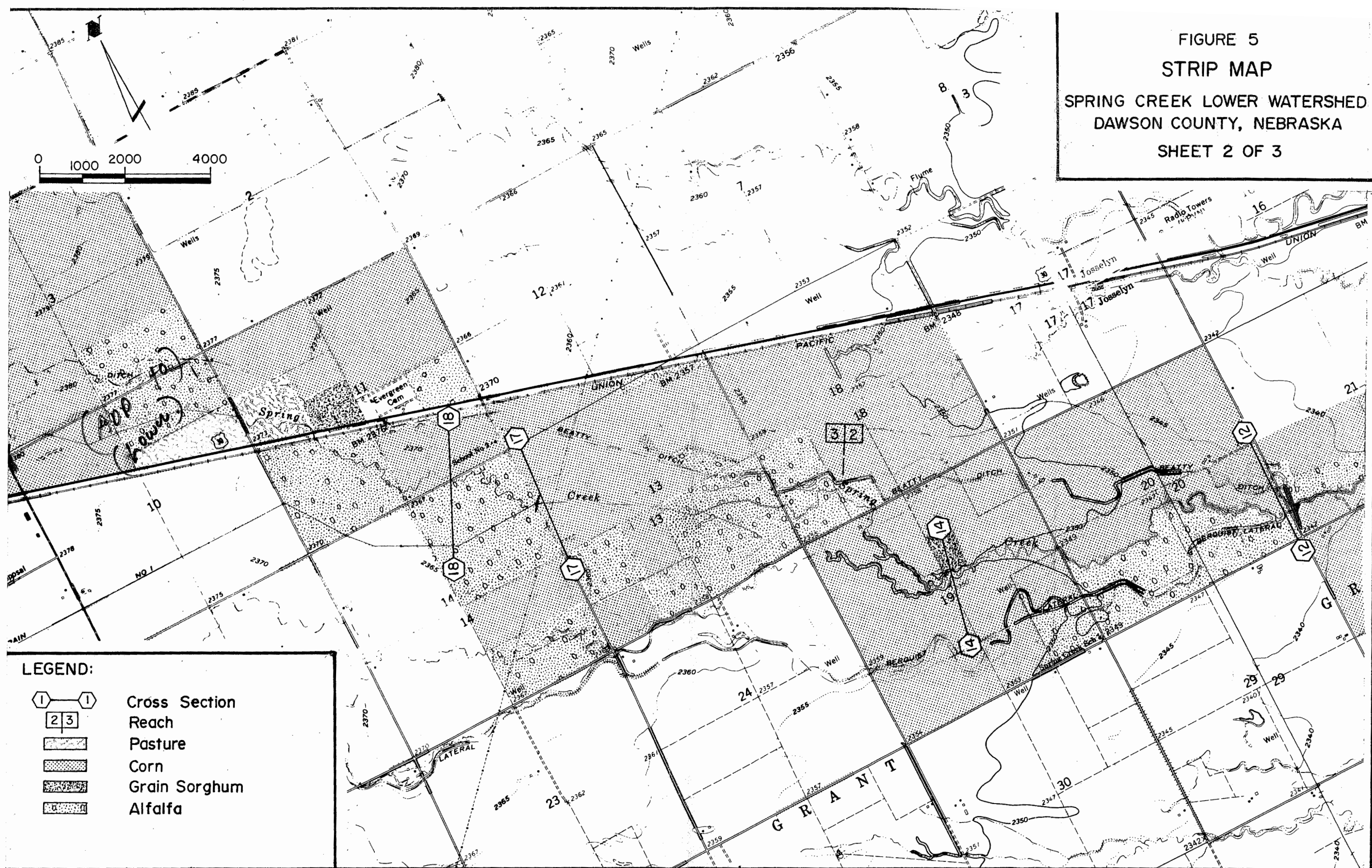
FIGURE 5
 STRIP MAP
 SPRING CREEK LOWER WATERSHED
 DAWSON COUNTY, NEBRASKA
 SHEET 1 OF 3



LEGEND:

	Cross Section
	Reach
	Pasture
	Corn
	Grain Sorghum
	Alfalfa

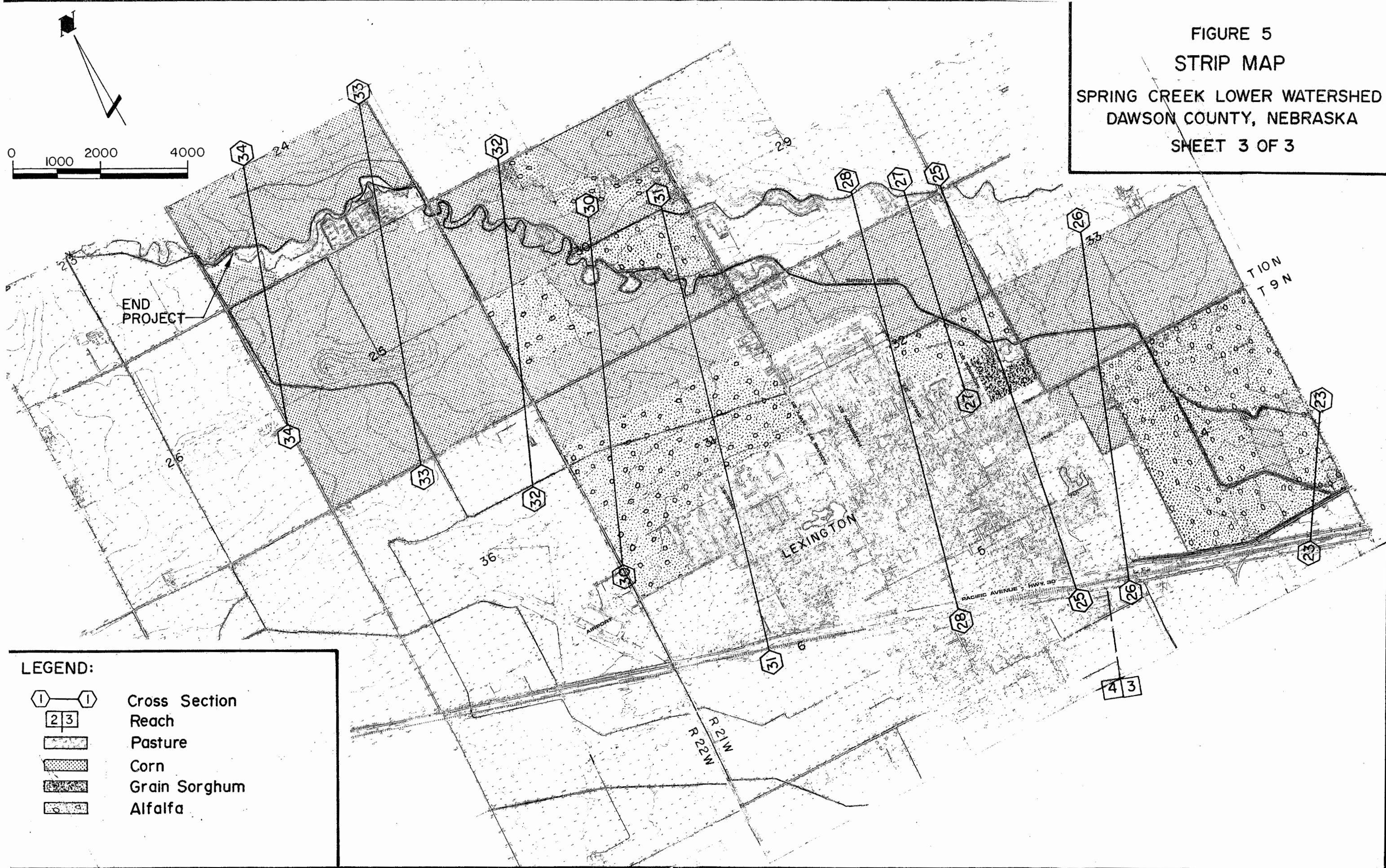
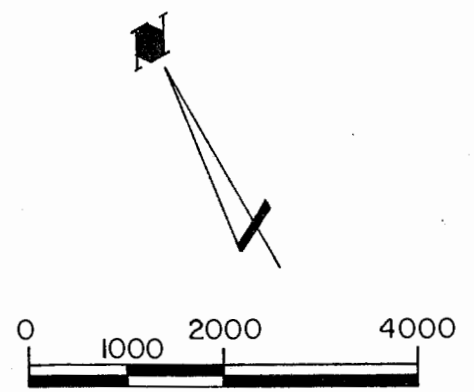
FIGURE 5
 STRIP MAP
 SPRING CREEK LOWER WATERSHED
 DAWSON COUNTY, NEBRASKA
 SHEET 2 OF 3



LEGEND:

	Cross Section
	Reach
	Pasture
	Corn
	Grain Sorghum
	Alfalfa

FIGURE 5
 STRIP MAP
 SPRING CREEK LOWER WATERSHED
 DAWSON COUNTY, NEBRASKA
 SHEET 3 OF 3

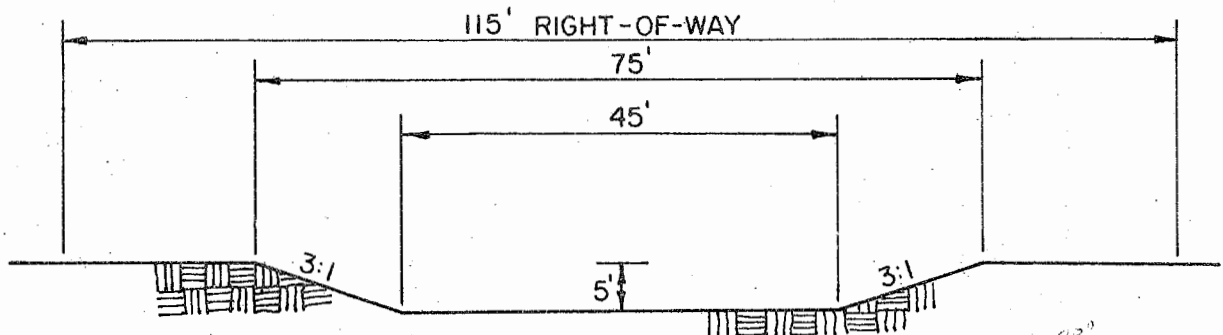


LEGEND:

	Cross Section
	Reach
	Pasture
	Corn
	Grain Sorghum
	Alfalfa

FIGURE 6
CHANNEL DETAILS

SPRING CREEK LOWER WATERSHED
DAWSON COUNTY, NEBRASKA



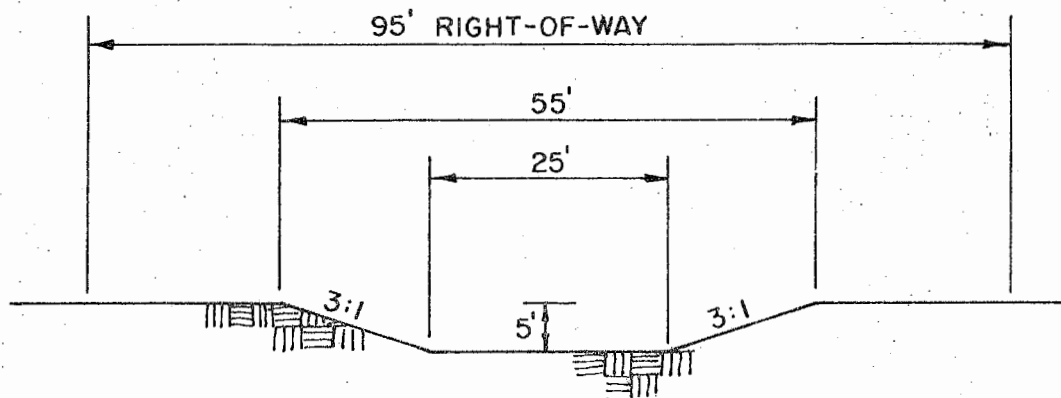
LOWER CROSS SECTION

LOCATION: PLATTE RIVER TO U.S. HIGHWAY 30

LENGTH: 13.6 MILES

CAPACITY: 900 CFS

No Scale



UPPER CROSS SECTION

LOCATION: U.S. HIGHWAY 30 TO END OF PROJECT

LENGTH: 6.3 MILES

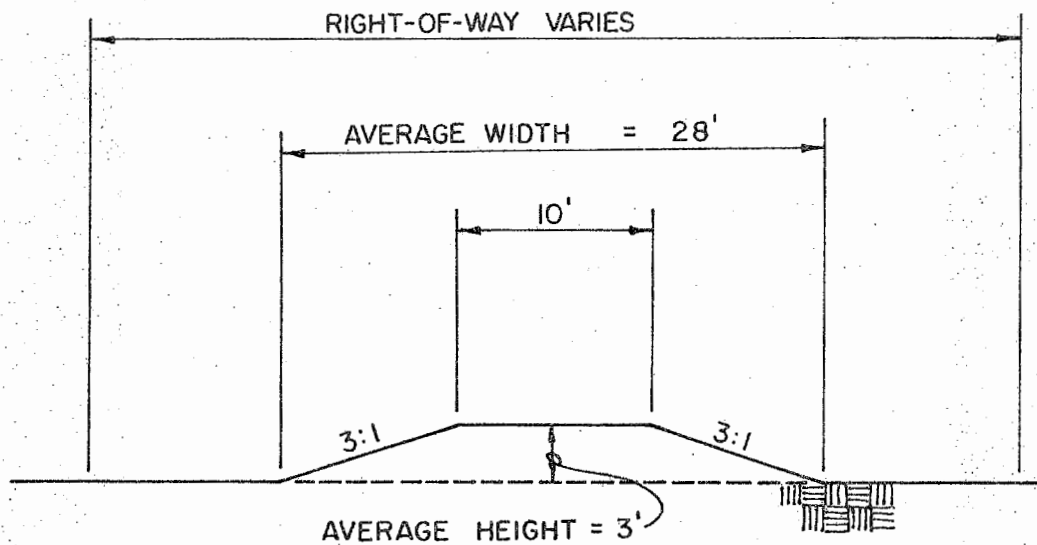
CAPACITY: 550 CFS

No Scale

FIGURE 7

LEVEE DETAILS

SPRING CREEK LOWER WATERSHED
DAWSON COUNTY, NEBRASKA



CROSS SECTION

Length: 3.3 Miles

No Scale

Attachment 4D

Construction of the proposed improvements will be done in accordance with all governing laws and codes of the State of Nebraska and Dawson County. Criteria for specific items of construction will be obtained from SCS Design Handbooks, Corps of Engineers Technical Memos and current state-of-the-art practices.

Channel improvements will be trapezoidal in shape with 3:1 side slopes and will have an average depth of 5 feet. The proposed channel capacity from the Platte River to U.S. Highway 30 is 900 cubic feet per second (cfs). The remainder of the project from Highway 30 to the end of construction has a proposed channel capacity of 550 cfs. The average velocity in the channel with improvements is 2.75 feet per second. The total length of channel improvements is 19.9 miles. Concrete drop structures will be constructed to maintain stability and proper channel gradient. The levee along the north side of Lexington will be built with a 10-foot top width and 3:1 side slopes. It has an average height of 3 feet. The length of the proposed levee is 3.3 miles. A table of quantities for all construction is listed in Table 1.

Soil investigations were not undertaken at this time. Analyses were previously conducted by the Soil Conservation Service; they are included as Appendix D. The watershed is predominantly recent alluvial materials that are underlain by the Ogallala formation. The portion of the watershed involved in this study is comprised of deep fertile soils of silt to fine sandy loam textures of the Hord, Platte, Leshara and Wann series.

Flows in streams in this watershed are not measured. Therefore, surface runoff must be calculated. Analyses have been conducted by the Soil Conservation Service using the procedures outlined in Part 1 of the Hydrology Handbook that is prepared by that organization. These procedures consider three main variables: rainfall, antecedent moisture condition and the hydrologic soil-cover complex. Rainfall was based upon data contained in Technical Paper No. 40 prepared by the National Weather Service. The antecedent moisture condition is estimated as average. The hydrologic soil-cover complex number represents the effect on runoff from soil type and land use. The weighted average cover number for this watershed is 72.

The Spring Creek watershed was divided into 42 sub-watershed areas. To develop runoff quantities, hydrographs were developed for each sub-watershed. The procedure for developing these hydrographs is described in Technical Release No. 20 which is published by the Soil Conservation Service. Technical Release No. 20 was also used to relate the volume runoff to discharge by means of the floodrouting technique it contains.

Areas inundated by flood waters was computed using 18 cross sections distributed in 4 reaches. In each reach, three depth increments for floodwaters were studied. The increments are 0 to 1.0', 1.1' to 3.0' and 3.1' and over. The relationship of acres inundated to discharge rates was based on a synthetic storm series.

TABLE 1
ESTIMATE OF APPROXIMATE QUANTITIES

	<u>Item</u>	<u>Approximate Quantity</u>	<u>Unit</u>
1.	Channel Excavation	733,710	C.Y.
2.	Grass Channel Lining	232	Acre
3.	Concrete Drop Structure	30,798	S.Y.
4.	Concrete Velocity Bridge Chutes	18,176	S.Y.
5.	Remove and Replace Bridges	12,300	S.F.
6.	Levee Embankment	36,477	C.Y.
7.	Levee Seeding	23	Acre
8.	Road Raising	3	Each
9.	Dewatering	Job	L.S.
10.	Modification of Irrigation Lateral	4,300	L.F.
	Channel, levee and access right of way	125	Acre

ATTACHMENT 5
ECONOMIC FEASIBILITY

The economic evaluation of the project compares the value of the items conserved with the costs incurred. The objective is to analyze the benefits and the construction costs. The benefits are basically categorized as crop and pasture, other rural, road and bridge and urban. Construction costs include all expenditures to construct the channel improvements, levee improvements and all appurtenances.

Benefits

The benefits were obtained by utilizing damage curves for the project with improvements and without improvements. The damages were plotted according to the probability of the storm for the 100, 50, 25, 10 and 2.2 year events. To close the graph, the point where flooding begins was also plotted. This method was developed for existing conditions and for conditions with the proposed project. The area under each graph was measured by the planimetric method. The difference between the existing and proposed conditions reflects the reduction in damages and therefore becomes project benefits. The benefits calculated below are based upon flows with six floodwater retarding structures in place. These structures were constructed with P.L. 566 funding.

Crop and Pasture

A crop distribution map of the project was obtained from the Agricultural Stabilization and Conservation Service. The strip map illustrates the various crop locations along the project. See Figure 5 for crop distribution. This data was used to develop a composite damageable value per acre of flood plain. Each cross section was analyzed to determine project benefits for flooding depths of 0 to 1 foot, 1.1 to 3 feet and over 3.1 feet. The benefits calculated from the cross sections were then totaled resulting in a total crop and pasture benefit.

Tables 2 and 3 list the commodity prices and crop yields used for benefit determination. Table 4 reflects the crop damage factors used for various flood depths. Crop damage factors are used to determine the extent of damage to each particular crop based on the amount of floodwater that is present on the field.

TABLE 2

COMMODITY PRICES¹
FOR CALENDAR YEAR 1980

Average Price Received by Nebraska Farmers
For Major Agricultural Commodities
(Dollars)

Commodity	1975	1976	1977	1978	1979	5-Year Average ²
<u>CROPS & PASTURE</u>						
Wheat, Bu.	3.68	2.93	2.11	2.75	3.60	3.07
Corn for Grain, Bu.	2.66	2.42	1.97	2.05	2.35	2.30
Oats, Bu.	1.50	1.45	1.19	1.15	1.25	1.32
Grain Sorghum, Bu.	2.31	2.16	1.70	1.82	2.07	2.20
All Baled Hay, Ton	44.38	50.33	43.00	32.00	42.50	42.85
Beans (Dry Edible), Cwt.	20.73	14.98	16.81	16.50	22.20	18.45
Potatoes, Cwt.	4.44	3.81	3.58	4.03	4.20	4.02
Soybeans, Bu.	5.12	5.41	6.65	6.20	5.90	5.88
Pasture & Range, AUM	10.00	12.00	13.00	14.00	14.50	12.80
<u>LIVESTOCK & PRODUCTS</u>						
Hogs, Cwt.	47.30	42.27	39.96	47.54	44.40	44.39
Beef Cattle, Cwt.	35.85	35.65	37.11	49.78	66.40	46.52
Calves, Cwt.	29.14	38.48	40.28	59.91	86.54	54.83
Sheep, Cwt.	8.53	11.11	11.42	16.72	23.97	15.37
Lambs, Cwt.	43.66	48.18	51.93	62.69	66.31	55.23
Milk Cows, Head	345.	414.	453.	569.	1024.	611.00
Milk (Wholesale), Cwt.	7.84	9.22	9.19	10.18	11.74	9.72
Turkeys, Lb.	.32	.29	.35	.45	.43	.37
Eggs, Doz.	.37	.45	.40	.39	.43	.41
Wool, Lb.	.33	.60	.63	.67	.72	.61

¹Sources, monthly Agricultural Prices and Annual Price Summary,
Crop Reporting Board, SRS, USDA.

²Sum of Squares Method.

TABLE 3
CROP YIELDS

<u>FIVE YEAR AVERAGE YIELD¹</u> <u>FOR CALENDAR YEAR 1980</u>	
<u>Commodity</u>	<u>Yield</u>
Wheat, Winter	34.7 Bu./Acre
Corn, Irrigated	118.2 Bu./Acre
Corn	46.6 Bu./Acre
Oats	37.5 Bu./Acre
Grain sorghum, irrigated	79.5 Bu./Acre
Grain sorghum	47.7 Bu./Acre
Alfalfa hay, irrigated	4.11 Ton/Acre
Alfalfa hay	2.84 Ton/Acre
Beans, dry edible	16.5 Cwt./Acre
Sugarbeets, irrigated	19.1 Ton/Acre
Soybeans, irrigated	37.7 Bu./Acre
Soybeans	23.3 Bu./Acre
Native hay	1.17 Ton/Acre
Pastureland (planted grass)	1.9 AUM/Acre
Rangeland	0.6 AUM/Acre

¹ Crop yields from Nebraska Agricultural Statistics averaged by using Sum of Squares Method. Rangeland and pastureland yields from current normal used in Platte Level B Study.

TABLE 4

CROP DAMAGE FACTORS BY FLOOD DEPTH¹

<u>CROP</u>	<u>0-1'</u>	<u>1'-3'</u>	<u>3'+</u>
Corn	.142	.372	.559
Grain Sorghum	.193	.394	.486
Wheat	.119	.277	.348
Forage Sorghum	.138	.336	.447
Soybeans	.152	.381	.464
Alfalfa	.090	.311	.366
Pasture	.081	.101	.114

¹From SCS Guidelines.

Other Rural

This classification includes damages to farm buildings, fences and livestock losses. Twenty-four farmsteads were reviewed for this category. Floodwater depths were calculated to determine the extent of damages with and without the project. Representative values for structures involved were used to calculate benefits.

Damage to fences would be reduced by the construction of the proposed improvements. Historical data on fence damage and repair is unavailable. Therefore, a reasonable determination was made of the fence damage reduction which could be expected with the proposed project for each frequency event.

Livestock losses along the project are not considered as being a major influence in the benefits figure. The Spring Creek floodplain is typically very flat with the majority of the floodwater less than 2 feet in depth. Livestock is allowed to graze in open fields where there are high areas which animals can reach during a flooding situation. These facts indicate that livestock loss will be minimal. However, livestock weight loss is anticipated and reasonable projections were taken into consideration in calculating benefits.

Road and Bridge

The benefits obtained with the project in this category are derived from a reduction in ditch cleaning, roadway damage and bridge repair work. The construction of the proposed channel improvements for a 2-year event is not considered to be of such magnitude to reduce or eliminate the possibility of bridge washouts. Historical data for this benefit calculation is unavailable. Estimates of damage were prepared based on an evaluation of past events and projections from Dawson County personnel.

Urban

The City of Lexington is the only source of urban damage in the project area. The urban damage is comprised of residences and businesses. An appraisal of the city was made for the 100, 50, 25 and 10 year events. Each storm was evaluated for floodwater depth to determine the damage incurred to individual residences and businesses. Average annual damages were calculated for the existing condition and with the proposed project.

To calculate the average annual damages for Lexington, property value research was conducted. The records at the Dawson County courthouse were used to determine the current market value for each residence and business. These property values were utilized with depth damage curves to calculate dollar damage figures.

Residences and businesses have separate tables of depth damage curve data. The residence-structure curve is shown in Table 5. The percentages obtained from the depth damage curve are multiplied by the total value of the structure yielding the structural damage in dollars. Table 6 displays the depth damage curve for residence-contents.

All damage values for commercial structures were computed using depth damage curves developed by the U.S. Army Corps of Engineers. Table 7 lists the depth damage curves for commercial-structure and contents. The structure percentages are then multiplied by the total estimated dollar value.

TABLE 5

DEPTH DAMAGE CURVE
FOR
RESIDENCE - STRUCTURE

Notes: 1) Damage Begins at 6 Feet Below the First Floor

Depth in Feet	CODE NO.							
	01	03	05	60	15	20	25	10
8.0								
7.0								
6.0				.0	.0	.0	.0	
5.0				25.	2.	2.	2.	
4.0				35.	3.	2.	2.	
3.0				40.	3.	2.	3.	
2.0				42.	3.	3.	3.	
1.0	.0	.0	.0	45.	6.	5.	5.	.0
* .0	8.	4.	3.	50.	10.	7.	6.	8.
1.0	22.	10.	11.		24.	14.	16.	50.
2.0	30.	16.	20.		31.	21.	22.	71.
3.0	35.	20.	25.		37.	26.	26.	82.
4.0	39.	24.	29.		41.	30.	30.	87.
5.0	41.	27.	31.		44.	33.	32.	89.
6.0	44.	30.	33.		46.	35.	35.	90.
7.0	46.	32.	34.		48.	38.	36.	90.
8.0	48.	34.	41.		49.	40.	44.	
9.0	50.	39.	46.		50.	44.	48.	
10.0		42.	50.		50.	46.	52.	
11.0		45.	53.			47.	55.	
12.0		47.	55.			48.	57.	
13.0		49.	58.			49.	59.	
14.0		50.	59.			50.	59.	
15.0			60.			50.	60.	
16.0						50.	60.	

<u>Classification</u>	<u>Code</u>
One story, no basement	01
Two or more stories, no basement	03
Split level, no basement	05
All in basement	60
One story, w/basement	15
Two or more stories, w/basement	20
Split level, w/basement	25
Mobile home, on foundation	10

*Designates First Floor

TABLE 6

DEPTH DAMAGE CURVE
FOR
RESIDENCE - CONTENTS

Notes: 1) Total value for contents curve = 50% of structure value

2) Damage begins at 6 feet below the first floor

CODE NO.									
	27	29	31	33	43	48	53	58	38
<u>Depth in Feet</u>	<u>Damage in % of Total Value</u>								
8.0					.0	.0	.0		
7.0					60.	4.	3.	.0	
6.0					68.	5.	3.	8.	
5.0					74.	8.	4.	10.	
4.0					78.	8.	5.	10.	
3.0					82.	8.	5.	15.	.0
2.0					85.	21.	10.	18.	3.
1.0	.0	.0	.0	.0		40.	22.	31.	30.
* .0	5.	5.	1.	2.		58.	34.	44.	56.
1.0	35.	16.	3.	19.		70.	43.	52.	72.
2.0	50.	28.	4.	32.		76.	48.	58.	79.
3.0	60.	37.	5.	41.		80.	51.	61.	84.
4.0	68.	43.	6.	47.		82.	52.	63.	87.
5.0	74.	47.	6.	51.		83.	53.	64.	88.
6.0	78.	49.	6.	53.		85.	56.	66.	90.
7.0	81.	50.	6.	55.		85.	59.	69.	90.
8.0	83.	51.	6.	56.		85.	64.	73.	
9.0	85.	55.	10.	62.			71.	76.	
10.0		58.	23.	69.			76.	79.	
11.0		65.	47.	75.			78.	80.	
12.0		72.	64.	78.			80.	82.	
13.0		78.	74.	80.			82.	84.	
14.0		79.	81.	81.			85.	85.	
15.0		80.	83.	83.					
16.0		85.	85.	85.					

<u>Location</u>	<u>Code No.</u>
All on first floor	27
All on first two or more floors	29
In split level, no basement	33
All in basement	43
All on first floor and basement	48
All on first two or more floors and basement	53
All above first floor	51
In split level w/basement	58
Mobile home, on foundation	38

*Designates first floor

TABLE 7

DEPTH DAMAGE CURVE
FOR
COMMERCIAL - STRUCTURE AND CONTENTS

<u>Classification</u>	<u>Description</u>	<u>Classification</u>	<u>Description</u>
27	Antique Shop	64	Grocery Store (Kwik)
28	Appliance Shop	65	Gift Shop
29	Auto Dealer	66	Golf Course
30	Auto Junkyard	67	Gun Shop
31	Auto Parts	68	Hall
32	Auto Repair	69	Hardware
33	Auto Transmission Service	70	Hobby Shop
34	Auto Muffler Service	71	Hotel
35	Bakery	72	Jewelry
36	Bank	73	Laundry
37	Barber Shop	74	Library
38	Beauty	75	Liquor Store
39	Boat Sales	76	Lumber Yard
40	Bowling Alley	77	Meat Market
41	Book Store	78	Motel
42	Business (general)	79	Music Store
43	Church	80	Newspaper Printing
44	City Hall	81	Nursing Home
45	Cleaners	82	Nursery (Plant)
46	Clinic (Medical)	83	Office Building
47	Construction Company	84	Plumbing Supply
48	Country Club	85	Police Station
49	Clothing	86	Post Office
50	Dentist Office	87	Private Club
51	Department Store	88	Real Estate Office
52	Doctors Office	89	Radio Station
53	Drug Store	90	Restaurant
54	Fire Station	91	Restaurant Drive-In
55	Flooring and Carpeting	92	School
56	Florist	93	Tavern
57	Food Processor	94	Theater
58	Funeral Home	95	Transport Company
59	Furniture	96	Trailer Sales
60	Gas Company	97	Television Repair
61	Garage	98	Variety Store
62	Greenhouse	99	Warehouse
63	Grocery Store	100	Welding Supply

Notes: 1) Structure damage is percentage of total structure value.

2) Content damage is percentage of base value.

Base Value = Retail - 100% of Total Structure Value

School & Church - 70%

Office - 65%

Auto Services - 60%

Manufacturing - 40%

Light Warehouse - 150%

Heavy Warehouse - 65%

CLASSIFICATION

FLOOD DEPTH ABOVE FIRST FLOOR (FEET)

	-1	0.	1.	2.	3.	4.	5.	6.	8.	10.
27 Structure	.0	.0	.17	.17	.18	.19	.21	.23	.28	.35
27 Content	.0	.2	.75	.78	.85	.90	.95	1.0	1.0	1.0
28 Structure	.0	.0	.17	.17	.18	.19	.21	.23	.28	.35
28 Content	.0	.0	.83	.91	.94	.95	.97	1.0	1.0	1.0
29 Structure	.0	.0	.17	.17	.18	.19	.21	.23	.28	.35
29 Content	.0	.2	.5	.9	.95	.98	1.0	1.0	1.0	1.0
30 Structure	.0	.0	.02	.04	.05	.07	.08	.10	.13	.15
30 Content	.0	.0	.09	.13	.16	.17	.18	.19	.19	.19
31 Structure	.0	.0	.05	.05	.05	.05	.07	.10	.19	.32
31 Content	.0	.0	.18	.30	.59	.70	.90	1.0	1.0	1.0
32 Structure	.0	.0	.03	.03	.03	.04	.05	.08	.17	.31
32 Content	.0	.5	.8	.95	1.0	1.0	1.0	1.0	1.0	1.0
33 Structure	.0	.0	.03	.03	.03	.04	.05	.08	.17	.31
33 Content	.0	.4	.6	.85	1.0	1.0	1.0	1.0	1.0	1.0
34 Structure	.0	.0	.03	.03	.03	.04	.05	.08	.17	.31
34 Content	.0	.0	.1	.2	.4	.6	1.0	1.0	1.0	1.0
35 Structure	.0	.12	.17	.21	.25	.28	.31	.34	.38	.43
35 Content	.0	.55	.65	.90	1.0	1.0	1.0	1.0	1.0	1.0
36 Structure	.0	.0	.11	.11	.12	.13	.15	.17	.22	.28
36 Content	.0	.0	.5	.87	.95	1.0	1.0	1.0	1.0	1.0
37 Structure	.0	.0	.13	.17	.18	.24	.31	.37	.45	.49
37 Content	.0	.0	.15	.50	.75	.88	1.0	1.0	1.0	1.0
38 Structure	.0	.0	.1	.14	.17	.23	.28	.34	.43	.5
38 Content	.0	.0	.18	.31	.50	1.0	1.0	1.0	1.0	1.0
39 Structure	.0	.14	.2	.32	.33	.34	.36	.38	.5	.6
39 Content	.0	.13	.24	.43	.82	.95	1.0	1.0	1.0	1.0
40 Structure	.0	.0	.04	.07	.11	.15	.19	.23	.31	.39
40 Content	.0	.0	.17	.22	.25	.27	.27	.28	.32	.39
41 Structure	.0	.0	.02	.03	.05	.08	.10	.12	.17	.23
41 Content	.0	.0	.07	.14	.21	.27	.35	.42	.57	.73
42 Structure	.0	.0	.01	.02	.03	.05	.08	.11	.16	.21
42 Content	.0	.0	.02	.06	.10	.15	.19	.24	.33	.44
43 Structure	.0	.0	.10	.11	.11	.12	.12	.13	.14	.17
43 Content	.0	.10	.28	.54	.70	.84	.90	.95	.99	1.0
44 Structure	.0	.0	.01	.01	.01	.02	.02	.03	.06	.12
44 Content	.0	.0	.35	.75	.85	.95	1.0	1.0	1.0	1.0

CLASSIFICATION

FLOOD DEPTH ABOVE FIRST FLOOR (FEET)

	-1	0.	1.	2.	3.	4.	5.	6.	8.	10.
45 Structure	.0	.0	.04	.06	.06	.08	.10	.13	.22	.34
45 Content	.0	.0	.10	.30	.50	.75	.95	1.0	1.0	1.0
46 Structure	.0	.0	.01	.02	.02	.03	.04	.06	.11	.17
46 Content	.0	.0	.06	.30	.30	.30	.31	.32	.38	.47
47 Structure	.0	.0	.13	.14	.15	.17	.19	.21	.25	.25
47 Content	.0	.0	.50	.75	1.0	1.0	1.0	1.0	1.0	1.0
48 Structure	.0	.0	.07	.08	.08	.09	.10	.11	.13	.15
48 Content	.0	.0	.12	.19	.27	.34	.42	.48	.62	.73
49 Structure	.0	.0	.08	.10	.11	.13	.15	.18	.24	.32
49 Content	.0	.06	.37	.50	.75	.88	1.0	1.0	1.0	1.0
50 Structure	.0	.07	.35	.35	.35	.35	.35	.35	.37	.39
50 Content	.0	.0	.21	.40	.55	.70	.85	1.0	1.0	1.0
51 Structure	.0	.0	.03	.07	.07	.07	.09	.11	.17	.23
51 Content	.0	.0	.18	.33	.65	.88	.95	1.0	1.0	1.0
52 Structure	.0	.0	.01	.03	.04	.06	.09	.11	.17	.24
52 Content	.0	.0	.07	.12	.15	.16	.18	.22	.34	.57
53 Structure	.0	.0	.01	.05	.05	.05	.07	.08	.14	.22
53 Content	.0	.0	.60	1.0	1.0	1.0	1.0	1.0	1.0	1.0
54 Structure	.0	.0	.01	.05	.05	.05	.06	.07	.11	.17
54 Content	.0	.0	.10	.25	.50	.75	.91	1.0	1.0	1.0
55 Structure	.0	.70	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0
55 Content	.0	.25	.42	.54	.65	.78	.85	1.0	1.0	1.0
56 Structure	.0	.0	.07	.07	.08	.09	.11	.13	.19	.26
56 Content	.0	.0	.5	.85	1.0	1.0	1.0	1.0	1.0	1.0
57 Structure	.0	.0	.06	.06	.06	.06	.1	.14	.20	.20
57 Content	.0	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
58 Structure	.0	.0	.01	.05	.05	.05	.06	.07	.11	.17
58 Content	.0	.0	.10	.30	.60	.90	1.0	1.0	1.0	1.0
59 Structure	.0	.0	.02	.04	.04	.05	.06	.07	.11	.17
59 Content	.0	.2	.78	1.0	1.0	1.0	1.0	1.0	1.0	1.0
60 Structure	.0	.17	.17	.17	.17	.23	.32	.45	.61	.69
60 Content										
61 Structure	.0	.0	.03	.05	.06	.07	.08	.10	.17	.25
61 Content	.0	.0	.11	.17	.20	.23	.25	.29	.42	.63
62 Structure	.0	.0	.05	.11	.16	.21	.26	.31	.42	.52
62 Content	.0	.0	.66	.89	1.0	1.0	1.0	1.0	1.0	1.0
63 Structure	.0	.0	.03	.04	.05	.06	.07	.10	.20	.37
63 Content	.0	.04	.22	.44	.74	.96	1.0	1.0	1.0	1.0
64 Structure	.0	.0	.03	.04	.05	.06	.07	.10	.20	.37
64 Content	.0	.04	.22	.44	.74	.96	1.0	1.0	1.0	1.0
65 Structure	.0	.0	.05	.08	.09	.09	.09	.11	.18	.31
65 Content	.0	.0	.54	.63	.75	.88	1.0	1.0	1.0	1.0
66 Structure	.0	.0	.01	.04	.06	.08	.09	.11	.17	.26
66 Content	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
67 Structure	.0	.0	.10	.10	.10	.11	.12	.13	.16	.20
67 Content	.0	.0	.22	.39	.58	.88	1.0	1.0	1.0	1.0
68 Structure	.0	.0	.01	.05	.05	.05	.05	.06	.09	.14
68 Content	.0	.0	.05	.08	.10	.12	.14	.18	.32	.60
69 Structure	.0	.0	.12	.12	.12	.12	.12	.12	.15	.21
69 Content	.0	.08	.33	.54	.70	.75	.88	1.0	1.0	1.0
70 Structure	.0	.0	.18	.20	.20	.20	.20	.20	.27	.39
70 Content	.0	.0	.25	.49	.64	.77	.88	1.0	1.0	1.0

CLASSIFICATION

FLOOD DEPTH ABOVE FIRST FLOOR (FEET)

	-1	0.	1.	2.	3.	4.	5.	6.	8.	10.
71 Structure	.0	.0	.01	.02	.02	.02	.03	.05	.09	.15
71 Content	.0	.0	.11	.22	.28	.33	.37	.41	.46	.54
72 Structure	.0	.0	.01	.02	.02	.02	.03	.04	.08	.12
72 Content	.0	.0	.07	.15	.24	.33	.39	.45	.56	.56
73 Structure	.0	.0	.02	.05	.08	.12	.15	.18	.23	.28
73 Content	.0	.0	.05	.10	.13	.16	.19	.22	.33	.47
74 Structure	.0	.0	.01	.02	.02	.02	.03	.04	.08	.12
74 Content	.0	.0	.35	.50	.75	.95	1.0	1.0	1.0	1.0
75 Structure	.0	.0	.01	.01	.02	.02	.03	.05	.08	.16
75 Content	.0	.0	.20	.40	.60	.81	1.0	1.0	1.0	1.0
76 Structure	.0	.0	.01	.01	.01	.01	.01	.04	.05	.07
76 Content	.0	.0	.20	.30	.45	.60	.75	.90	1.0	1.0
77 Structure	.0	.0	.10	.10	.10	.11	.12	.14	.23	.28
77 Content	.0	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
78 Structure	.0	.0	.04	.07	.10	.12	.15	.18	.26	.37
78 Content	.0	.0	.10	.16	.21	.25	.30	.36	.52	.76
79 Structure	.0	.05	.10	.13	.14	.15	.15	.15	.18	.27
79 Content	.0	.0	.66	.72	.75	.80	.88	1.0	1.0	1.0
80 Structure	.0	.0	.02	.03	.04	.05	.06	.07	.08	.11
80 Content	.0	.0	.05	.08	.11	.13	.16	.20	.31	.48
81 Structure	.0	.0	.07	.10	.14	.15	.15	.16	.20	.26
81 Content	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
82 Structure	.0	.02	.02	.03	.06	.10	.15	.22	.32	.41
82 Content	.0	.05	.20	.79	.88	.95	1.0	1.0	1.0	1.0
83 Structure	.0	.0	.12	.14	.17	.19	.23	.27	.35	.45
83 Content	.0	.0	.16	.21	.24	.25	.26	.28	.36	.50
84 Structure	.0	.0	.20	.32	.40	.47	.53	.57	.64	.70
84 Content	.0	.0	.14	.25	.35	.44	.53	.61	.77	.93
85 Structure	.0	.0	.12	.14	.17	.19	.23	.27	.35	.45
85 Content	.0	.0	.05	.15	.25	.35	.48	.62	.95	1.0
86 Structure	.0	.0	.08	.15	.24	.25	.26	.27	.32	.40
86 Content	.0	.0	.25	.43	.63	.70	.80	1.0	1.0	1.0
87 Structure	.0	.0	.05	.08	.08	.09	.09	.09	.12	.17
87 Content	.0	.0	.10	.21	.28	.35	.41	.47	.62	.83
88 Structure	.0	.0	.08	.15	.24	.25	.26	.27	.32	.40
88 Content	.0	.25	.43	.63	.70	.80	1.0	1.0	1.0	1.0
89 Structure	.0	.0	.08	.15	.24	.25	.26	.27	.32	.40
89 Content	.0	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90 Structure	.0	.0	.15	.18	.20	.23	.25	.27	.30	.37
90 Content	.0	.0	.73	.88	1.0	1.0	1.0	1.0	1.0	1.0
91 Structure	.0	.0	.02	.04	.07	.10	.14	.18	.28	.39
91 Content	.0	.0	.52	.60	.78	1.0	1.0	1.0	1.0	1.0
92 Structure	.0	.0	.08	.12	.15	.15	.16	.17	.22	.28
92 Content	.0	.0	.18	.26	.30	.33	.35	.39	.50	.66
93 Structure	.0	.0	.15	.18	.20	.22	.24	.27	.34	.42
93 Content	.0	.42	.53	.78	.92	.97	1.0	1.0	1.0	1.0
94 Structure	.0	.0	.02	.03	.04	.04	.04	.05	.10	.16
94 Content	.0	.0	.03	.04	.05	.06	.06	.06	.12	.22
95 Structure	.0	.0	.09	.11	.12	.16	.20	.24	.30	.30
95 Content	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CLASSIFICATION

FLOOD DEPTH ABOVE FIRST FLOOR (FEET)

	-1	0.	1.	2.	3.	4.	5.	6.	8.	10.
96 Structure	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
96 Content	.0	.0	.18	.37	.60	.80	1.0	1.0	1.0	1.0
97 Structure	.0	.0	.02	.06	.12	.15	.20	.25	.41	.57
97 Content	.0	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
98 Structure	.0	.0	.08	.09	.10	.12	.15	.17	.18	.20
98 Content	.0	.10	.20	.40	.70	.85	.90	.95	1.0	1.0
99 Structure	.0	.0	.0	.01	.01	.01	.03	.05	.12	.21
99 Content	.0	.0	.11	.16	.19	.21	.23	.28	.47	1.0
100 Structure	.0	.0	.07	.13	.18	.22	.25	.27	.32	.37
100 Content	.0	.0	.15	.35	.45	.49	.56	.65	1.0	1.0

Value

The benefits shown are the difference between the average annual damages with no improvements and the average annual damages with the proposed improvements.

<u>Type</u>	<u>Amount</u>
Crop and Pasture	\$ 17,449
Other rural	1,203
Road and bridge	4,720
Urban	<u>152,000</u>
Total Annual Benefits	\$175,372

COST DATA

The construction cost estimate is based on current 1980 dollars. Operation and maintenance values are based on a percentage (1 1/2%) of the earthwork and seeding construction costs and a percentage (1/2%) of the bridge and concrete construction costs. The total estimated project development cost is \$3,652,634. Annual operation and maintenance costs are \$27,661. See Table 8 for a breakdown of project costs. The Cash Flow Stream is displayed in Table 9.

RATE OF RETURN

A 50-year project life was used to prepare the following economic calculations. The rate of return is calculated as follows:

$$\begin{array}{rcl} \frac{\text{Annual Benefits} - \text{Operation \& Maintenance}}{\text{Project Cost}} & = & \\ \frac{\$175,372 - \$27,661}{\$3,652,634} & = & \\ 0.04044 & & \end{array}$$

This factor yields a rate of return of 3 1/8%.

TABLE 8

PROJECT COSTS

<u>Item</u>	<u>Amount</u>
1. Channel excavation	\$ 733,710
2. Grass channel lining (seeding)	115,850
3. Concrete drop structures	508,167
4. Concrete velocity bridge chutes	299,904
5. Remove and replace bridges	596,160
6. Levee embankment	73,301
7. Levee seeding	10,350
8. Road raising	140,000
9. Dewatering	10,500
10. Modification of irrigation lateral	<u>10,000</u>
Subtotal	\$2,497,942
Mobilization	<u>74,938</u>
Subtotal	\$2,572,880
15% Contingencies	<u>385,932</u>
Total Construction Cost	\$2,958,812
15% Engineering and Miscellaneous	<u>443,822</u>
Total Construction Cost Plus Engineering	\$3,402,634 (—)
Land Rights	<u>250,000 (—)</u>
Total Project Cost	<u>\$3,652,634 (—)</u>

TABLE 9
CASH FLOW STREAM

YEAR	FEASIBILITY, STUDY ENGINEERING, AND INSPECTION	PROJECT COSTS				TOTAL VALUE OF PROJECT (GROSS BENEFITS)	INCREMENTAL BENEFIT (CASH FLOW)	ACCUMULATIVE BENEFIT (CASH FLOW)
		CAPITAL ITEMS	OPERATION, MAINTENANCE, & REPLACEMENT COSTS	ASSOCIATED COSTS	GROSS COSTS			
0	22,100	-	-	-	22,100	0	-22,100	(-)22,100
1	-	776,000	5,500	-	781,500	35,100	-746,400	(-)768,500
2	-	726,000	11,000	-	737,000	70,200	-666,800	(-)1,435,300
3	-	726,000	16,500	-	742,500	105,300	(-)637,200	(-)2,072,500
4	-	726,000	22,000	-	748,000	140,400	(-)607,600	(-)2,680,100
5	-	676,534	27,661	-	704,195	175,372	(-)528,823	(-)3,208,923
6	-	-	27,661	-	27,661	175,372	(+)147,711	(-)3,061,212
7	-	-	27,661	-	27,661	175,372	(+)147,711	(-)2,913,501
8	-	-	27,661	-	27,661	175,372	(+)147,711	(-)2,765,790
9	-	-	27,661	-	27,661	175,372	(+)147,711	(-)2,618,079
10-50	-	-	1,134,101	-	1,134,101	7,190,252	(+)6,056,151	+3,438,072
TOTAL	22,100	3,630,534	1,327,406	-	4,980,040	8,418,112	3,438,072	-

Year - Should cover the life of the project or 50 years, whichever is less (can cover groups of years where the cash flow is identical).

Feasibility Study - Should cover the cost of preparation and should be entered in year 0.

Engineering & Inspection - Should reflect such costs and be entered in year of occurrence.

Capital Items - Should cover all construction costs, land rights costs, and costs of auxiliary facilities.

Operation, Maintenance & Replacement Costs - Should cover all O, M & R for the life of the project.

Associated Costs - Should cover all extra costs incurred individually by beneficiaries to realize their benefits in full, such as costs incurred by a farmer in distributing water from an irrigation project or costs incurred by a farmer to convert to a new cropping system or change in land use resulting from a flood control project.

In cases where benefit measurement takes into account added cost to a primary beneficiary in realizing his benefits, the associated costs will not be computed separately.

Gross Costs - is a summation of the listed project costs.

Total Value of Project (Gross Benefits) - Should cover only the primary, tangible benefits accruing because of the project or program.

Incremental Benefit (Cash Flow) - is the difference between the gross costs and gross benefits.

Accumulative Benefit (Cash Flow) - is the difference between the accumulative gross costs and the accumulative gross benefits.

ATTACHMENT 6
FINANCIAL FEASIBILITY

- | | |
|---|-------------------------|
| 1. Applicant's most recent financial statement | ATTACH <u>6A</u> |
| 2. Legal limit of rate of taxation by applicant | <u>1 mill</u> |
| 3. Rate of taxation currently being levied | <u>0.826 mill</u> |
| 4. The limit of property that may be locally taxed by the applicant(s) | <u>\$748,241,009.00</u> |
| 5. Level of assessed evaluation | <u>\$ 617,917.17</u> |
| 6. Trend of assessed evaluation | <u>5.88%</u> |
| 7. Rate of local delinquency | <u>2.00%</u> |
| 8. Legal limit of revenue bond indebtedness | <u>NA</u> |
| 9. Present revenue bond indebtedness | <u>0</u> |
| 10. Legal limit of general obligation bond indebtedness | <u>NA</u> |
| 1. Present general obligation bond indebtedness | <u>0</u> |
| 2. Other debts on contracts which may affect this project | <u>0</u> |
| 13. Overlying bond indebtedness | <u>0</u> |
| 14. Evaluation of financial status of agency from a financial consulting firm | ATTACH <u>6B</u> |
| 5. If a loan is requested, complete NRC/NRDF Form 02F2 | <u>NA</u> |

CENTRAL PLATTE NATURAL RESOURCES DISTRICT

EXPENDITURES
FISCAL 1980

GENERAL OPERATING FUND

<u>GENERAL OPERATING COSTS</u>	<u>ADOPTED</u>
Auto & Truck Expense -----	\$ 6,000.00
Directors' Expense -----	\$ 11,500.00
Directors' Per Diem -----	\$ -0-
Dues & Memberships -----	\$ 7,655.00
Employees' Benefits -----	\$ 13,000.00
Expenses - Personnel -----	\$ 17,495.00
Fees & Licenses -----	\$ 162,447.25
Tax Collection Fees-County -----	\$ 5,967.75
Information & Education -----	\$ 8,625.00
Bonds -----	\$ 526.00
Insurance -----	\$ 8,252.00
Legal Notices -----	\$ 575.00
Miscellaneous Expense -----	\$ 350.00
Office Supplies & Expense -----	\$ 12,710.00
Payroll Taxes -----	\$ 11,269.94
Postage -----	\$ 2,500.00
Special Projects -----	\$ -0-
Professional Services -----	\$ 351,940.00
Project Construction Costs -----	\$ 970,465.80
Project Land Rights -----	\$ 435,371.00
Project Legal Costs -----	\$ 8,800.00
Project Operation & Maintenance -----	\$ 40,700.00
Purchases for Resale -----	\$ 28,400.00
Rent Expense -----	\$ 10,500.00
Telephone -----	\$ 5,375.00
Utilities -----	\$ 2,500.00
Salaries -----	\$ 167,535.66
Soil Surveys -----	\$ 840.00
Building Maintenance -----	\$ -0-
Development of District Holdings -----	\$ -0-
Taxes -----	\$ 1,200.00
Conservation Incentive Payments	
Wildlife Habitat -----	\$ 19,000.00
Land Treatment -----	\$ 2,000.00
Intergovernmental Cost-sharing -----	\$ 22,500.00
Assessment Projects -----	\$ 74,700.00
Repayment of State Funds -----	\$ -0-
Project Operating Supplies -----	\$ 13,050.00
Total General Operating Costs -----	\$2,423,750.40

CAPITAL OUTLAY

Land	\$472,500.00	
Building	\$ -0-	
Machinery & Equipment	\$ 4,500.00	
Autos & Trucks	\$ 7,000.00	
Office Equipment	\$ 1,802.50	
Total Capital Outlay -----		\$ 485,802.50

DEBT SERVICE PAYMENTS

Note Principle	\$ -0-	
Mortgage Principle	\$ -0-	
Bond Principle	\$ -0-	
Interest Expense	\$ -0-	
Total Debt Service Payments -----		\$ -0-

DEDUCTIONS

Estimated Reimbursement	\$ 5,000.00	
Estimated Sales Taxes Collected	\$ 850.00	
Total Estimated Deductions -----		(-\$ 5,850.00)

TOTAL BUDGET OF EXPENDITURES (General Operating,
Capital Outlay & Debt Service Payments, Minus
Deductions) ----- \$2,903,702.90

Delinquent Tax Allowance	\$ 18,000.00	
Necessary Cash Reserve	\$ 50,000.00	
Total -----		\$ 68,000.00

TOTAL REQUIREMENTS - GENERAL OPERATING ----- \$2,971,702.90

PROJECT SINKING FUND

EXPENDITURES

Current Expenditures:		
Collection Fees - County	\$ 959.48	
Project Costs	\$ -0-	
Deferred Expenditures:		
Silver Creek	\$178,036.88	
Buffalo Creek	\$106,902.81	
Delinquent Tax Allowance	\$ 2,878.45	
TOTAL REQUIREMENTS - SINKING FUND -----		\$ 288,777.62

TOTAL REQUIREMENTS - ALL FUNDS ----- \$3,260,480.52

FUND BALANCES
and
ESTIMATED REVENUES & RECEIPTS
FISCAL 1980
GENERAL & SINKING FUNDS

UNENCUMBERED BALANCES - ALL FUNDS

Cash & Investments	\$ 928,928.76	
County Treasurer's Balances	\$ 163,246.57	
Balance - Total Assets -----		\$1,092,175.33

DEDUCTIONS (LIABILITIES)

Accounts Payable	\$ 30,390.18	
Other Current Liabilities	\$ 217,612.86	
Total Deductions (Liabilities) -----		\$ 248,003.04
Net Unencumbered Balances -----		\$ 844,172.29

REVENUES & RECEIPTS - ALL FUNDS

State Grants & Funds	\$1,384,403.25	
Federal Grants & Funds	\$ 68,462.25	
Property Rent Income	\$ -0-	
Customer Charges	\$ 31,450.00	
Income From Investments	\$ 45,000.00	
Miscellaneous Income	\$ 3,000.00	
Income From Special Assessments	\$ -0-	
Special Projects Income	\$ 146,500.00	
Income From Endowments	\$ -0-	
Land Sales	\$ -0-	
Collection of Accounts Receivable	\$ -0-	
Proceeds of Issue of Bonds	\$ -0-	
Proceeds of Sale of District Property	\$ -0-	
Proceeds of Mortgages & Notes	\$ 57,708.00	
Personal Property Tax Relief Fund & Pro Rate Motor Vehicle	\$ 61,867.56	
Total Revenues & Receipts -----		\$1,798,391.06

TOTAL REVENUES, RECEIPTS & CASH - ALL FUNDS ----- \$2,642,563.35

PROPERTY TAX REQUIREMENT - ALL FUNDS ----- \$ 617,917.17

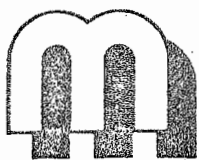
TOTAL AVAILABLE - ALL FUNDS ----- \$3,260,480.52

CENTRAL PLATTE NATURAL RESOURCES DISTRICT

GRAND ISLAND, NEBRASKA

FINANCIAL STATEMENTS

FOR THE YEAR ENDED JUNE 30, 1979



mc dermott & miller, p.c. certified public accountants

CENTRAL PLATTE NATURAL RESOURCES DISTRICT

GRAND ISLAND, NEBRASKA

FINANCIAL STATEMENTS

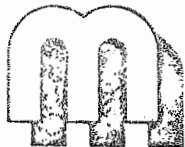
FOR THE YEAR ENDED JUNE 30, 1979

CENTRAL PLATTE NATURAL RESOURCES DISTRICT

GRAND ISLAND, NEBRASKA

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mc dermott & miller p.c.

616 West 5th Hastings, NE. 68901 Ph. 402-462-4154

ATTACHMENT 6B
CONTINUED

certified public accountants

ACCOUNTANT'S OPINION

Board of Directors
Central Platte Natural Resources District
Grand Island, Nebraska

We have examined the accompanying balance sheets of Central Platte Natural Resources District as of June 30, 1979 and 1978 and the related statements of revenues and expenditures and fund balances for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements mentioned above present fairly the financial position of Central Platte Natural Resources District at June 30, 1979 and 1978 and the results of its operations for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

The accompanying supplementary schedules and related information presented on pages 9 to 13 are not necessary for a fair presentation of the financial statements, but are presented as additional analytical data. This information has been subjected to the tests and other auditing procedures applied in the examination of the financial statements mentioned above and, in our opinion, is fairly stated in all material respects in relation to the financial statements taken as a whole.

McDERMOTT & MILLER, P.C.

McDermott & Miller

August 9, 1979

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
COMPARATIVE BALANCE SHEETS

	For The Fiscal Year Ended June 30,		Increase (Decrease)
	<u>1979</u>	<u>1978</u>	
<u>ASSETS</u>			
<u>Current Assets</u>			
Cash on Deposit - Bank	\$ 11,452.03	\$ 3,297.41	\$ 8,154.62
Cash on Deposit - County Treasurer	158,898.40	168,136.19	(9,237.79)
Accounts Receivable	3,643.69	3,671.77	(28.08)
Investments (Note 1)	917,476.73	777,779.34	139,697.39
Prepaid Employees Benefits	887.26	957.37	(70.11)
Accrued Interest Receivable	11,111.93	9,444.26	1,667.67
Total Current Assets	<u>\$1,103,470.04</u>	<u>\$ 963,286.34</u>	<u>\$ 140,183.70</u>
<u>Plant, Property and Equipment (Note 1)</u>			
Machinery and Equipment	\$ 66,930.38	52,573.43	14,356.95
Automobiles and Trucks	26,462.39	20,515.39	5,947.00
	<u>\$ 93,392.77</u>	<u>\$ 73,088.82</u>	<u>\$ 20,303.95</u>
Less: Allowance for Depreciation	44,779.44	36,083.12	8,696.32
Net Plant, Property and Equipment	<u>\$ 48,613.33</u>	<u>\$ 37,005.70</u>	<u>\$ 11,607.63</u>
TOTAL ASSETS	<u>\$1,152,083.37</u>	<u>\$1,000,292.04</u>	<u>\$ 151,791.33</u>
<u>LIABILITIES AND FUND BALANCES</u>			
<u>Current Liabilities</u>			
Accounts Payable	\$ 28,858.68	\$ 70,936.80	\$ (42,078.12)
Accrued Sales Taxes	479.96	644.38	(164.42)
Accrued Salaries Payable	1,051.54	6,146.98	(5,095.44)
Contracts Payable on Construction in Progress	217,612.86	41,805.68	175,807.18
Total Current Liabilities	<u>\$ 248,003.04</u>	<u>\$ 119,533.84</u>	<u>\$ 128,469.20</u>
<u>Fund Balances</u>			
Unrestricted:			
General Fund	\$ 723,139.49	\$ 817,008.20	\$ (93,868.71)
Restricted:			
Project Sinking Fund	180,940.84	63,750.00	117,190.84
Total Fund Balances	<u>\$ 904,080.33</u>	<u>\$ 880,758.20</u>	<u>\$ 23,322.13</u>
TOTAL LIABILITIES AND FUND BALANCES	<u>\$1,152,083.37</u>	<u>\$1,000,292.04</u>	<u>\$ 151,791.33</u>

See Notes to Financial Statements

CENTRAL PLATTE NATURAL RESOURCES DISTRICT ATTACHMENT 00
GRAND ISLAND, NEBRASKA

COMPARATIVE STATEMENT OF REVENUES AND EXPENDITURES COMPARED WITH BUDGET - GENERAL
FOR THE YEAR ENDED JUNE 30, 1979

	<u>Actual</u>	<u>Budget</u>	<u>Actual Over (Under) Budget</u>
<u>Revenues</u>			
State Grants and Funds	\$ 153,579.83	\$1,202,951.00	\$(1,049,371.17)
General Property Taxes	521,390.42	501,757.26	19,633.16
Property Rent Income	2,800.00	3,000.00	(200.00)
Customer Charges - Seed, Trees, Equipment, Rent, Etc.	31,070.51	37,750.00	(6,679.49)
Income From Investments	67,746.53	40,000.00	27,746.53
Miscellaneous Income	6,871.64	70,000.00	(63,128.36)
Land Sales	72,800.00	80,000.00	(7,200.00)
Reimbursements by Others	28,878.23	11,150.00	17,728.23
Proceeds - Notes and Mortgages	--	179,208.00	(179,208.00)
Total Revenues	<u>\$ 885,137.16</u>	<u>\$2,125,816.26</u>	<u>\$(1,240,679.10)</u>
<u>Expenditures</u>			
Automobile and Truck Expense	\$ 4,636.24	\$ 5,000.00	\$ (363.76)
Directors Expense	5,392.35	11,500.00	(6,107.65)
Depreciation - Actual, Capital Expenditures - Budget	8,696.32	425,251.00	(416,554.68)
Dues and Memberships	4,244.77	7,093.00	(2,848.23)
Employees Benefits	8,623.79	13,500.00	(4,876.21)
Expenses - Personnel	14,622.55	17,495.00	(2,872.45)
Fees and Licenses	87,793.01	170,500.00	(82,706.99)
County Collection Fees	6,099.05	6,288.69	(189.64)
Information and Education	1,481.32	11,120.00	(9,638.68)
Insurance and Bonds	7,746.50	9,050.00	(1,303.50)
Legal Notices	640.08	625.00	15.08
Miscellaneous	1,458.81	2,325.00	(866.19)
Office Supplies	9,980.46	8,100.00	1,880.46
Payroll Taxes	7,450.28	9,800.00	(2,349.72)
Postage	2,136.00	2,200.00	(64.00)
Professional Services	153,832.72	243,400.00	(89,567.28)
Project Construction Costs	255,993.14	831,000.00	(575,006.86)
Project Land Rights	75,086.25	426,000.00	(350,913.75)
Project Legal Costs	--	8,000.00	(8,000.00)
Project Operation and Maintenance	32,229.32	51,700.00	(19,470.68)
Purchases - Stock Materials for Resale	22,745.44	30,325.00	(7,579.56)
Rent Expense	9,260.00	10,440.00	(1,180.00)
Utilities and Telephone	7,141.81	7,100.00	41.81
Salaries	132,336.32	156,570.46	(24,234.14)
Soil Surveys	--	840.00	(840.00)
Supplies Operating	6,779.80	9,000.00	(2,220.20)
Taxes	1,202.62	1,030.00	172.62
Wildlife Habitat	14,250.00	18,000.00	(3,750.00)
Land Treatment	--	2,000.00	(2,000.00)
Intergovernmental Cost Sharing	14,076.52	22,500.00	(8,423.48)
Assessment Projects	3,899.50	224,500.00	(220,600.50)
Repayment of State Funds	79,170.90	81,000.00	(1,829.10)
Total Expenditures	<u>\$ 979,005.87</u>	<u>\$2,823,253.15</u>	<u>\$(1,844,247.28)</u>
INCREASE (DECREASE) IN FUND BALANCE	<u>\$ (93,868.71)</u>	<u>\$ (697,436.89)</u>	<u>\$ (603,568.18)</u>

See Notes to Financial Statements

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
PROJECT SINKING FUND
STATEMENT OF REVENUES AND EXPENDITURES COMPARED WITH BUDGET
FOR THE YEAR ENDED JUNE 30, 1979

	<u>Actual</u>	<u>Budget</u>	<u>Actual Over (Under) Budget</u>
<u>Revenues</u>			
General Property Taxes	\$ 117,190.84	\$ 121,408.36	\$ (4,217.52)
<u>Current Expenditures</u>			
Collection Fees	--	1,780.37	1,780.37
INCREASE IN FUND BALANCE	<u>\$ 117,190.84</u>	<u>\$ 119,627.99</u>	<u>\$ (2,437.15)</u>

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
STATEMENT OF CHANGES IN FUND BALANCES
FOR THE YEARS ENDED JUNE 30, 1979 AND 1978

	<u>1979</u>	<u>1978</u>
<u>Unrestricted General Fund</u>		
Fund Balance - Beginning	\$ 817,008.20	\$ 780,792.19
Increase (Decrease) in Fund Balance	<u>(93,868.71)</u>	<u>36,216.01</u>
FUND BALANCE - ENDING	<u>\$ 723,139.49</u>	<u>\$ 817,008.20</u>
<u>Restricted</u>		
Project Sinking Funds:		
Fund Balance - Beginning	\$ 63,750.00	\$ --
Increase in Fund Balance	<u>117,190.84</u>	<u>63,750.00</u>
FUND BALANCE - ENDING	<u>\$ 180,940.84</u>	<u>\$ 63,750.00</u>

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 1979

Note 1. Summary of Significant Accounting Policies

The accounting policies of Central Platte Natural Resources District of Grand Island, Nebraska, conform to generally accepted accounting principles as applicable to governmental units. The following is a summary of the significant policies:

Basis of Accounting

The modified accrual basis of accounting is followed by all funds. Modifications in such method from the accrual basis follow:

1. Revenues are recorded as received in cash except for
 - (a) Revenues susceptible to accrual and,
 - (b) Material revenues that are not received at the normal time of receipt,
 - (c) Property taxes are recorded as revenues as collected and does not include property taxes billed and uncollected.
2. Expenditures are recorded on an accrual basis except for
 - (a) Disbursements for inventory type items, which are considered expenditures at the time of purchase,
 - (b) Prepaid expenses, which normally are not recorded,
 - (c) The encumbrance method of accounting, which may be adopted as an additional modification.

Investments

Investments are certificates of deposit and savings accounts stated at cost plus interest earned and credited to the District's account balances.

Plant, Property and Equipment

Plant, property and equipment are carried at depreciated cost for items acquired after 1972. Items acquired prior to 1972 are carried at depreciated appraised values approximating cost. Depreciation is computed using the straight-line method over the following estimated lives:

Machinery and Equipment	10 Years
Automobile and Trucks	5 Years

Maintenance and repairs are charged to expenditures as incurred, and improvements and betterments are capitalized.

Project Costs

Structural improvements constructed by the District for any of its purposes (tunnels, reservoirs, regulating basins, diversion works and canals, dams, drains and drainage systems, or any other projects) are recorded as an expenditure at the time of construction.

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 1979

Note 2. Employees Retirement Plan

Effective October 1, 1975, the District entered into an agreement with the Nebraska Association of Resource Districts for the adoption of an employees retirement plan. The plan provides for past service benefits for employees for the period July 1, 1972 through September 30, 1975. The employer contributions for past service benefits has been set at 60% of current salaries. Future service contributions are met by employer and employee matching contributions of 3% of current salaries each.

Note 3. Rental Commitments

The following is a schedule by years of future minimum rental payments required under operating leases for buildings that have initial or remaining lease items in excess of one year as of June 30, 1979:

Year ending June 30,	
1980	\$ 9,000
1981	9,000
1982	9,000
1983	<u>7,500</u>
Total Minimum Rental Commitments	<u>\$34,500</u>

SUPPLEMENTAL SCHEDULES

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
SCHEDULE OF ACCOUNTS RECEIVABLE
JUNE 30, 1979 AND 1978

	<u>1979</u>	<u>1978</u>
Due From Individuals and Corporations for Tree Planting and Sale of Supplies	\$ <u>3,643.69</u>	\$ <u>3,671.77</u>

CONTINUED

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
SCHEDULE OF INVESTMENTS
JUNE 30, 1979

	<u>Interest Rate</u>	<u>Balance 6/30/79</u>
Overland National Bank & Trust Co.		
Grand Island, Nebraska		
Certificates of Deposit	10.00	\$ 200,000.00
Certificates of Deposit	5.00	3,088.91
Commercial National Bank		
Grand Island, Nebraska		
Certificates of Deposit	10.00	200,000.00
Certificates of Deposit	10.125	100,000.00
Certificates of Deposit	5.50	37,194.80
Savings Account	5.00	77,193.02
First National Bank		
Grand Island, Nebraska		
Certificates of Deposit	10.25	100,000.00
Certificates of Deposit	10.00	100,000.00
Certificates of Deposit	10.00	100,000.00
		<u>\$ 917,476.73</u>

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
SCHEDULE OF ACCOUNTS PAYABLE
JUNE 30, 1979 AND 1978

	<u>1979</u>	<u>1978</u>
Amounts Payable to Various Vendors for Supplies and Other Operating Expenditures	<u>\$ 28,858.68</u>	<u>\$ 70,936.80</u>

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
GRAND ISLAND, NEBRASKA
INFORMATION REQUIRED BY SECTION 2-3223, R. R. S. - 1943 -
JUNE 30, 1979 AND 1978

	<u>1979</u>	<u>1978</u>
Gross Income From All Sources	<u>\$1,002,328.00</u>	<u>\$ 733,634.05</u>
Amount Expended For:		
Maintenance	<u>\$ 32,229.32</u>	<u>\$ 16,033.25</u>
Improvements and Other Such Programs	<u>\$ 331,079.39</u>	<u>\$ 70,928.18</u>
Amount of Depreciation of Property	<u>\$ 8,696.32</u>	<u>\$ 8,067.17</u>
Number of Employees as of June 30	<u>13</u>	<u>17</u>
Salaries Paid Employees	\$ 130,611.27	\$ 149,545.49
Salary Reimbursements to Other Districts	6,820.49	13,370.92
Salaries Accrued Increase (Decrease)	<u>(5,095.44)</u>	<u>6,146.98</u>
Total Salaries	<u>\$ 132,336.32</u>	<u>\$ 169,063.39</u>

BIDDING PRACTICES OF THE DISTRICT

The District in general follows Nebraska State law, Sections 73-101 to 73-105, as applicable to public lettings for all major contracts. Invitations for bids are circularized to all interested prospective bidders. Prospective bidders are provided with an opportunity to inspect the work site to ascertain the nature, locations, and conditions which will affect the work. A complete assembly of the invitation for bids is provided by the contracting officer. Bid security in the form of bid bond, cashiers or certified check, money order or cash in an amount of not less than ten percent of the total bid price must be submitted with each bid exceeding \$5,000. Bid security is returned to unsuccessful bidders as soon as practicable after award of the contract. Sealed bids for proposed contracts are received until a specified time on a specified date at a specified place at which time the bids are publicly opened. Award of the contract is made to the responsible bidder whose bid is most advantageous to the District, price and other factors considered.

CENTRAL PLATTE NATURAL RESOURCES DISTRICT
 GRAND ISLAND, NEBRASKA
 SCHEDULE OF BALANCES WITH COUNTY TREASURERS
 FOR THE YEAR ENDED JUNE 30, 1979

	<u>Balance 7/1/78</u>	<u>Tax Collections</u>	<u>Warrants</u>	<u>Other Disbursements</u>	<u>Balance 6/30/79</u>
Dawson	\$ 54,080.55	\$151,962.60	\$154,300.00	\$ 1,510.20	\$ 50,232.95
Buffalo	31,565.32	141,061.65	132,700.00	1,600.27	38,326.70
Hall	49,236.37	228,540.22	221,300.00	1,971.07	54,505.52
Merrick	19,262.57	69,366.43	76,200.00	603.81	11,825.19
Merrick - Mid Platte Valley Watershed	492.69	--	--	492.69	--
Polk	3,258.04	18,272.45	18,075.00	161.25	3,294.24
Platte	1,300.51	3,633.19	4,295.00	31.69	607.01
Nance	618.57	3,074.61	3,055.00	26.26	611.92
Hamilton	1,102.93	4,485.69	4,780.00	39.88	768.74
Howard	5,264.60	8,369.81	16,725.00	68.75	(3,159.34)
Custer	1,954.04	10,307.30	10,290.00	85.87	1,885.47
Transfers	--	(492.69)	--	(492.69)	--
	<u>\$158,136.19</u>	<u>\$638,581.26</u>	<u>\$641,720.00</u>	<u>\$ 6,099.05</u>	<u>\$158,898.40</u>

ATTACHMENT 7
ENVIRONMENTAL FEASIBILITY

NEBRASKA NATURAL RESOURCES COMMISSION NEBRASKA RESOURCES DEVELOPMENT FUND ENVIRONMENTAL FEASIBILITY	PROJECT NAME: Spring Creek Lower Watershed Dawson County, Nebraska	NRC/NELE FORM 02Ev1
---	--	-----------------------------------

1. Description of the Proposed Action:

This project is proposed along Spring Creek Lower in Dawson County, Nebraska. A legal description of the project area is not available at this time. Land use is primarily agricultural. Where zoning is in effect, the primary classification is agricultural except for the area between Spring Creek and Lexington. At these locations, the zoning is urban reserve. Project facilities are not applicable in this area. Development opportunities are not anticipated since the area is presently in agricultural production and evidence indicates it will continue to be so.

2. Description of the Environment:

(ATTACH) 7A

3. Environmental Impact of Proposed Action:

(ATTACH) 7B

4. Compensation Measures:

Earthwork will be balanced on site to minimize disturbance of adjacent areas. All disturbed areas and channel banks will be seeded. Creek pollution from soil runoff will be minimized due to the immediate placement of seed and the utilization of erosion check practices. Air pollution can be somewhat abated by moistening disturbed soils. Trees and shrubs, where applicable and acceptable, will be installed by Central Platte Natural Resource District tree planting crews.

5. Adverse Effects Which Cannot Be Avoided:

This project will cause a short term loss of ground cover during the construction period. Some wildlife habitat areas will be lost due to tree removal.

6. Relationship between short-term use and long-term productivity:

Short term uses include the present usage patterns, consisting primarily of agricultural production and grazing, with urban development in Lexington. The loss of agricultural and grazing lands will be more than offset by reduced flood damage through project improvements. Long term productivity and safety will be enhanced for residents and property owners along the project.

7. Irreversible or Irretrievable Commitment of the Resources:

Natural resources and materials used in the construction of the project will be totally and irrevocably committed. Monetary and human resources will be required for project completion and are of such nature that they are irretrievable.

8. Alternatives to the Proposed Action:

(ATTACH) 7C

9. Consistency with Other Planning:

The Spring Creek Lower project as proposed in this application is a result of input supplied by the Dawson County Commissioners, the City Council of Lexington, the Spring Creek Citizens Committee, the Central Platte Natural Resources District and the general public in the watershed. All of the entities mentioned above have assisted in the development of the project so that it is consistent with their needs and ideas.

10. Unique Scenic, Archeological and Historical Resources:

According to the Nebraska Historical Society, there are no known archeological or cultural sites in Spring Creek watershed. However, numerous sites have been identified immediately adjacent to the area. It is anticipated that any construction of improvements will not disturb any known sites. No archeological, cultural or historical sites are known to exist within the watershed proper.

ATTACHMENT 7A

GENERAL DESCRIPTION

Spring Creek Watershed is located in Dawson and Custer Counties, Nebraska. Spring Creek Lower Watershed is located entirely in Dawson County. Dawson County is centrally located in the state with the topography consisting mainly of the broad, fertile Platte River valley. The northern portion of the county contains dissected loess plains and Sand Hills. The entire Spring Creek watershed comprises approximately 171,960 acres or about 268.7 square miles. The greatest length east to west is about 35.5 miles while the maximum north-south distance is about 40.5 miles. The watershed generally flows in a southeasterly direction with the southern boundary abutting the Platte River south of Overton, Nebraska, on the southeast corner, and south of Cozad on the west. The eastern boundary lies between Spring Creek and Buffalo Creek, and the western boundary lies between Spring Creek and a different Buffalo Creek. The northernmost point crosses Highway 40 approximately 8 miles west of Callaway, Nebraska.

SOILS AND GEOLOGY

The area is generally mantled with loess on Pleistocene deposits of sand and gravel. The sandy pleistocene deposits are sources of sand and gravel production, particularly along the Platte River. These deposits are known to yield large quantities of ground water.

Three soil associations dominate the area. These are the Colby-Ulysses Association, the Hall-Wood River Association and the Leshara-Platte Association. The Colby-Ulysses Association has developed on the dissected, loess mantled plain from Pleistocene unconsolidated deposits. The land surface consists of narrow-divide remnants, steeply sloping and cat-stepped side slopes, with narrow, flat or U-shaped valley floors. Dryland cultivation is often practiced on the divide remnants and in the narrow valley floors. The uncultivated land is primarily used for livestock grazing. Wheat, corn and sorghums dominate production in this area of the watershed.

South of the Colby-Ulysses Association is the Hall-Wood River Association. This Association has developed on broad, nearly level stream terraces. Shallow drainage ways have developed on the terrace plains. Areas of Eolian sands on undulating slopes occur occasionally and locally, and coarse sand or gravel may often be within a few feet of the surface. This area is typified by intensive land cultivation supported with ground water irrigation and extensive irrigation canals. Principal crops grown in this soil association tend to be corn, alfalfa, and soybeans, with considerably lesser amounts of wheat and sorghums than to the north.

To the south of the Hall-Wood River Association lies the Leshara-Platte Association. This soil association has developed on the bottom lands principally along the Platte River. The soils adjacent to the river channel have developed in sandy materials while the soils farthest from the channel tend to be developed in silty materials washed onto the flood plain from the loess mantled uplands. Corn, sorghums, and alfalfa tend to be the principal crops with small tracts of grazing land or haylands locally present in poorly drained areas.

Physical relief of the Watershed varies from nearly level in the lowlands to nearly flat divides and cat-stepped valley walls in the upland. Elevations range from approximately 2,295 feet at the mouth of Spring Creek to 3,000 feet at the upper end of the Watershed. The maximum of 705 feet variance, however, is not evenly distributed throughout the Watershed as the topography of the south one-half has a slight gradient accounting for only about 250 feet. Considerable channel and canal work has altered the natural physiography of the Watershed.

VEGETATIVE ELEMENTS

Only about one percent of the total Watershed acres is covered with woodland materials. Some woodland areas occur in the upper portion of the Watershed, but the bulk lies along the Platte River. The woodland vegetation in the upper areas of the Watershed are typical of the windbreak type of stands encircling farmsteads. The woodland areas along the Platte River would be classified as streamside associations. The fluctuating water levels, the high water table and high relative humidity along with the fertile soil conditions provide ideal growing conditions for streamside woodland vegetation.

Because of the intensive agricultural production in the Watershed, very little woodland vegetation exists. Of the woodland vegetation that does exist, only a moderate amount will be lost during the course of construction for the channel improvements. Some of the vegetation would be removed as part of a cleaning and maintenance operation for improved channel carrying capacity. Other vegetation would be removed because of the channel relocation or straightening process.

FISH HABITAT

Spring Creek has been modified by roads, canals, ditches and towns. The flow of the creek is minimal to non-existent throughout much of the year and the quality of water that does move along Spring Creek is generally poor.

The upper parts of Spring Creek support no fish populations because of insufficient water. The lower portions can support a fish population only periodically.

When Spring Creek Lower is capable of supporting fish life, the fish diversity is quite good. This is due to the species common to the Platte River. The more popular sport fish include the channel catfish, some largemouth bass and bluegill, the white bass, walleye and northern pike. The most common rough fish is carp. Sizable populations of rough fish occasionally limit the size and abundance of sport fishes.

There are no species of fish known to occur in the Watershed which are threatened or endangered. There also are not any species which have access to Spring Creek which have been classified as threatened or endangered.

WILDLIFE HABITAT

The best wildlife habitat in the Spring Creek Watershed occurs along the southern border and consists of the broken woods and grasslands which border the Platte River. Actually, most of the better parts of this habitat area lie outside the boundaries of the Watershed but the impact of its existence is significant.

Otherwise, the Spring Creek Watershed is composed of an area of intensively farmed cropland along the flood plain of the Platte River and a smaller area of range and pasture lands in the hilly uplands near the origin of Spring Creek. The agricultural lands of the flood plain are so highly developed and modified for agriculture (except for the border of the Platte) that there is little left in the way of natural wildlife habitat.

Wildlife land use can be divided into five categories: good openland habitat; poor to average openland habitat; woodland; human use lands; water. Most of the area obviously can be classified as poor to average habitat since this would include the large area of cropland in the flood plain. The specific wildlife land use areas for each classification are given below.

Although the Spring Creek Watershed is surrounded by areas containing wetlands there are none in the Watershed itself. The only areas which might approach a wetlands classification are along the Platte River.

HABITAT CLASSIFICATION

<u>Type</u>	<u>Acres</u>	<u>Percent of Area</u>
Good Openland Habitat	16,188	9.41
Poor-to-average Openland Habitat	145,687	84.72
Woodlands	1,822	1.06
Water	324	0.18
Human use Land	7,939	4.62
<hr/>		<hr/>
Total	171,960	99.99

There is little likelihood of significant change in the Watershed through the next 50 years as far as wildlife land use is concerned. The entire area is unquestionably and irrevocably geared toward intensive agricultural use. With very little change in human use or agricultural lands, there can be little change in anything else since these two types of land use account for over 98 per cent of total land use.

The Spring Creek Lower Watershed forms the core of human land use and as a result is the least productive wildlife habitat of the entire Watershed. The entire area with only minimal exception is made up of row crops, towns, highways and a few industries. Wildlife is not in abundance. Deer average less than 1 per square mile, cottontail rabbits less than 50 per square mile, and pheasant and quail less than 5 per square mile.

The area of proposed construction does not effect the habitat of any rare or endangered species of wildlife. It is anticipated the habitat land use will remain stable through the next 50 years. The wildlife populations will not change a great deal except for natural fluctuations and those related to agriculture and climate.

ATTACHMENT 7B

Implementation of this project will involve minor modification of the local environment. In those areas where the channel is realigned, some existing farm lands will be taken out of production. However, the abandoned creek channel will be filled in and will ultimately be placed back into production or into wildlife areas.

To construct the proposed channel section, there will be the need to remove some wooded areas. This work will be carefully managed to minimize tree removal.

Since the project area does not contain endangered or threatened fish or wildlife, there is not much possibility for the disruption of these types of species. The wildlife that is present along the project will seek new areas of environment during the construction phases.

Certain elements of pollution will be encountered during construction. Pollution of stream waters may result due to loose topsoils being carried off during periods of rain. Air pollution is a possibility from dust particles becoming airborne during construction.

Based upon preliminary studies conducted to date, no structures or businesses will need to be acquired to implement the proposed improvements.

An environmental check list is included as Table 10.

TABLE 10

ENVIRONMENTAL CHECK LIST

Note: Impact potential is explained on page 94

ASSESSMENT AREAS	IMPACT POTENTIAL				COMMENTS
	1	2	3	4	
I. SOIL RESOURCES			X		I.
II. SIGNIFICANT GEOLOGIC FEATURES		X			
III. PLANT COMMUNITIES AND VEGETATION			X		II.
IV. FISH & WILDLIFE		X			
V. WATER RESOURCES					
a. Groundwater		X			
b. Surface water (streams, lakes, wetland, & existing impoundments.)		X			
VI. LAND USE CHANGES					
a. Direct		X			
b. Indirect	X				
VII. HISTORICAL, ARCHEOLOGICAL, & PALEONTOLOGICAL FEATURE					
a. Sites related to persons or events after settlement		X			
b. Prehistoric Indian Sites		X			
c. Architecture (unique buildings)		X			
d. Paleontological		X			
VIII. AIR QUALITY			X		III.
IX. AESTHETICS		X			

- I. Soil Resource: There may be an increase in erosion potential on a short-term basis due to the removal of topsoil during construction. Temporary erosion control measures are anticipated as part of the project to minimize erosion.
- II. Plant Communities and Vegetation: The proposed project for channel realignment and channel enlargement will require certain areas of grasses and woods to be removed.
- III. Air Quality: A decrease in the level of air quality may occur during excavation of the channel and construction of the levee. However, the reduced air quality level would not be of the magnitude that would be harmful to life in the construction area.

IMPACT POTENTIALS

- I. Soil Resource
 1. Beneficial effect
 2. None or minimal effect
 3. Significant impairment of soil productivity or increase in erosion potential on short-term basis.
 4. Significant impairment of soil productivity or increase in erosion potential on long-term basis.
- II. Significant Geologic Features
 1. Beneficial effect
 2. None in project area or no effect
 3. Minor effects which can be mitigated
 4. Major effects
- III. Plant Communities and Vegetation
 1. Beneficial effect
 2. None or minimal effect
 3. Moderate amount of existing native vegetation would be removed
 4. Major or complete removal of native vegetation stands would occur
- IV. Fish and Wildlife
 1. Beneficial effect
 2. None or minimal effect
 3. Significant destruction of habitat which can be mitigated
 4. Significant destruction of habitat which cannot be mitigated including that of threatened and endangered species
- V. Water Resources
 - a. Groundwater
 1. Beneficial effect
 2. None or minimal effect
 3. Temporary effects in local area
 4. Permanent effects in local area or temporary effects in extensive area
 - b. Surface Water
 1. Beneficial effect
 2. None or minimal effect

to quantity and/or quality and physical characteristics

3. Temporary effects which can be mitigated
4. Permanent effects or temporary effects which cannot be mitigated

- VI. Land Use Changes
 - a. Direct
 1. Beneficial effect
 2. None or minimal effect
 3. Small scale or temporary removal from agricultural production
 4. Large scale or permanent removal from agricultural production
 - b. Indirect
 1. Beneficial effect
 2. None or minimal effect
 3. Probable indirect land changes related to project
 4. Certain indirect land use changes related to project

- VII. Historical, Archeological, and Paleontological Features
 - a. Sites related to persons or events after settlement
 1. Beneficial effect
 2. None in or near project
 3. Identified site in or near project area but not affected
 - b. Prehistoric Indian Sites
 1. Beneficial effect
 2. None in or near project area
 3. Identified site in or near project area but not affected
 4. Identified site in or near project area would be affected
 - c. Paleontological
 1. Beneficial effect
 2. None in or near project area
 3. Identified site in or near project area but not affected
 4. Identified site in or near project area would be affected

VIII. Air Quality

1. Beneficial effect
2. None or minimal effect
3. Moderate short-term effects
4. Major short-term or moderate long-term effects

IX. Aesthetics

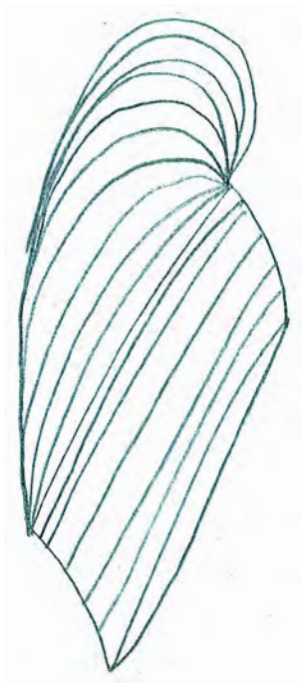
1. Beneficial effect
2. No effect or minimal visual impact
3. Moderate visual impact
4. Major visual impact

ATTACHMENT 7C

Alternatives to the proposed action are No Action and Alternate Plans. The No Action alternative has been in effect for many years. The result is damages and losses to crops, pasture, businesses and homes. This alternative is considered unacceptable due to the losses that occur. Alternate Plans include:

1. Only channel improvement on Spring Creek Lower.
2. Only channel improvement on Spring Creek Lower and Spring Creek Upper.

These plans were evaluated and found to be unfeasible.



ATTACHMENT 8

'LEGAL DATA

The Central Platte Natural Resources District is requesting financial assistance from the Nebraska Resources Development Fund for the development of the Spring Creek Lower Watershed.

The District's Board of Directors passed a resolution at their March 27, 1980 board meeting requesting the Nebraska Resources Development Fund provide 75% cost-share funding on the watershed project. A copy of the resolution is included in Appendix C.

The Central Platte Natural Resources District has entered into a contract for a feasibility study on the watershed. The Schemmer Associates Inc. has prepared the project application and feasibility report for the Spring Creek Lower Watershed. A copy of the engineering contract accompanies this application as Attachment 8A.

Attachment 8B is a statement of acknowledgement by the Central Platte Natural Resources District's manager, Mr. Ronald Bishop. Mr. Bishop is the district's authorized representative.

ENGINEERING AGREEMENT

FOR

FEASIBILITY STUDY FOR SPRING CREEK WATERSHED
CHANNEL WORK

THIS AGREEMENT, made and entered into this 13th day of July, 1978, by and between the Central Platte Natural Resources District, acting by and through its authorized representative, hereinafter referred to as the "District", and the Firm of THE SCHEMMER ASSOCIATES INC., a corporation of the State of Nebraska, hereinafter referred to as the "Consultant".

WITNESSETH:

WHEREAS, the District desires to make a feasibility study for a flood control project on the lower end of Spring Creek near Lexington, Nebraska, and

WHEREAS, the work is to consist of reviewing topographic work, preliminary designs, and economic data developed for this area by the Soils Conservation Service as part of PL566 Watershed Project; and of studying the economic feasibility of a satisfactory project and of developing a preliminary design which will assist the District in making an application for Nebraska Resources Development Funds; and for preparing such application as per required regulations; and of attending meetings with the above Board as necessary for the approval of the funding; and

WHEREAS, the Consultant is willing to provide engineering services in accordance with the terms hereinafter provided and does represent that he is in compliance with the Nebraska Statutes relating to the registration of Professional Engineers, and hereby agrees to comply with all Federal, State and local laws and ordinances applicable to the work.

NOW, THEREFORE, in consideration of these facts, the parties hereto agree as follows:

I. DEFINITIONS:

Wherever in this Agreement the following terms are used, or pronouns used in their stead, they shall have the meaning here given:

"CONSULTANT" or "CONTRACTOR" shall mean THE SCHEMMER ASSOCIATES INC. whose business and mailing address is 10830 Old Mill Road, Omaha, Nebraska 68154.

"DISTRICT" shall mean the Central Platte Natural Resources District, the Manager of the Central Platte NRD or his authorized representative.

To "ABANDON" the work shall mean that a determination has been made by the District that conditions or intentions as originally existed have changed and that the work as contemplated herein is to be renounced and deserted for as long in the future as can be foreseen.

To "SUSPEND" the work shall mean that it has been determined by the District that conditions or intentions as originally existed have changed and that the work as contemplated herein should be ceased on a temporary basis. This cessation or holding in this undetermined state will prevail until such time as a determination can be made to abandon the work or to reinstate under the conditions as defined in this Agreement.

To "TERMINATE" or the "TERMINATION" of the Agreement shall be the cessation or quitting of this contract based upon action or failure of action on the part of the Consultant as defined herein and as determined by the District.

II. GENERAL DESCRIPTION OF SCOPE AND CONTROL OF WORK:

The Consultant shall, upon receipt of the Notice to Proceed, perform all the services required under this Agreement for the project described above and as outlined in the attached Exhibit "A", Study Outline, hereby made a part of this Agreement.

III. STANDARD PRACTICES AND REQUIREMENTS:

The Consultant agrees to abide by all the applicable provisions of the current rules and regulation of any Federal, State or local agencies having jurisdiction over this project.

IV. TIME OF BEGINNING AND COMPLETION:

The Consultant agrees to begin this engineering study upon written "Notice to Proceed" from the District to the Consultant. Any engineering work performed prior to this date will not be eligible for reimbursement.

The engineering work by the Consultant will be pursued expeditiously and promptly and shall not exceed a total of 5 (five) months, unless the project is terminated before the time has expired. The Consultant will be required to furnish a total of 50 (fifty) copies of the Study to the District at the end of the above stated time period. The Consultant will schedule progress report meetings with the District approximately every 30 (thirty) days, the first such meeting to take place 45 (forty-five) days after Notice to Proceed.

V. FEES AND PAYMENTS:

A. Compensation for work as described herein shall be made to the Consultant on the basis of actual costs, plus 15% fee for profit.

B. Actual costs include direct salary costs, direct payroll additives, direct non-salary costs and indirect costs. The rates shown herein for these categories are average rates for the purpose of estimating the cost of the work; progress payments will be based on receipted invoices or certified billings and final payment will be made for actual costs. The District reserves the right to audit these costs at the conclusion of the work.

1. Direct salary costs are the salary rates for the various personnel classifications shown in this section and are average rates for billings. Reimbursement shall be based on actual payroll costs for the particular classifications.

<u>Classification</u>	<u>Estimated Hours</u>	<u>Rate/Hr.</u>
Project Director	68	\$12.46
Deputy Project Director	296	9.13
Project Engineer	264	8.50
Design Technician	256	7.23
Draftsman	144	5.82
Typist	48	4.00

2. Direct payroll additives are related costs which are paid by the Consultant; such as, Social Security, unemployment taxes, wages paid for vacation, holidays, sick leave, military leave, and so forth. For the purposes of calculating costs under this contract and on which to base progress payment, the direct salary payroll additives shall be 59.8% of the direct salary costs.

3. Direct non-salary costs includes the costs of travel, printing, computer charges, equipment, communication costs and similar items directly chargeable to the project.

4. Indirect costs include the salary costs of employees (clerical, stenographic, administrative and supervisory) of the Consultant for work not directly chargeable to individual contracts and that are allowable in accordance with Federal Procurement Regulations, Part 1-15.4. Indirect costs also include non-salary costs of the Consultant's business operations which are not directly chargeable to individual contracts and are allowable in accordance with Federal Procurement Regulations, Part 1-15.4.

For the purpose of calculating costs under this contract and on which to base progress payments, the indirect salary and direct non-salary costs shall be 72.2% of the direct salary costs.

C. The District shall reimburse the Consultant monthly for actual costs as defined above, plus 15% fee for profit up to a limiting maximum amount of \$25,000.00 for all work performed under this contract.

D. After the final report has been approved and the work accepted by the District, the Consultant shall as soon as practical submit a request for final payment which shall be noted as such.

The acceptance by the Consultant of the final payment shall constitute and operate as a release to the District for all claims and liability to the Consultant, his representatives and assigns for any and all things done, furnished or relating to the services rendered by the Consultant under or in connection with this Agreement or any part thereof.

E. The Consultant shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred and shall make such materials available at his office at all reasonable times during the contract period and for three (3) years from the date of final payment under this Agreement; such records to be available for inspection by the District or any authorized representative of the District, and copies thereof shall be furnished by the Consultant if required.

It is understood by the parties that the District will rely on the professional performance and ability of the Consultant and will not fully examine the plans, designs or work of the Consultant, and that any examination by the District, or any acceptance or use of the work product of the

Consultant will not be considered to be a full and comprehensive examination and will not be considered an approval of the work product of the Consultant which will relieve the Consultant from any liability or expense that would be connected with the Consultant's sole responsibility for the propriety and integrity of the professional work to be accomplished by the Consultant pursuant to this Agreement.

VI. ABANDONMENT, CHANGE OF PLAN, SUSPENSION AND TERMINATION:

The District shall have the absolute right to abandon the project or to change the general scope of the work at any time and such action on its part shall in no event be deemed a breach of contract.

The right is reserved by the District to suspend this Agreement at any time or to terminate for just cause. Such suspension or termination may be effected by giving the Consultant fifteen (15) days written notice.

If the District abandons the work or subtracts from the work as presently outlined, the Consultant shall be compensated on the basis of actual cost plus profit as defined in Section V.

Additions to the scope of work as defined herein, if approved in writing, will require negotiation of a supplemental agreement. If work is required which the Consultant believes is beyond the scope of services outlined herein, he must document the additional work, estimate the cost to complete said work and receive written approval from the District before performing such work. Any such work performed prior to written approval will be done at the expense of the Consultant.

The Consultant shall be responsible to determine when his actual costs plus profit will exceed the limiting maximum amount because of his having under-estimated the cost of the work as presently contemplated. When the Consultant determines that actual costs plus profit exceed the limiting

maximum amount, he will be required to estimate the additional costs needed to complete the work, document the reasons for this additional increase, and receive prior approval from the District in writing before any expenditures beyond the limiting maximum amounts are incurred.

VII. OWNERSHIP OF ENGINEERING DOCUMENTS:

All tracings, plans, specifications, maps, design computations, sketches, charts and other data prepared or obtained under the terms of this Agreement shall become the property of the District and shall be delivered to the District for keeping without restriction or limitation as to its further use.

VIII. FORBIDDING USE OF OUTSIDE AGENTS:

The Consultant warrants that he has not employed or retained any company or person, other than a bona fide employee working for the Consultant, to solicit or secure this contract, and that he has not paid or agreed to pay any company or person, other than a bona fide employee, any fee, commission, percentage, brokerage fee, gift or any other consideration, contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, the District shall have the right to annul this Agreement without liability, or, in its discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

IX. NON-RAIDING CLAUSE:

The Consultant shall not engage the services of any person or persons presently in the employ of the District for work covered by this Agreement without the written consent of the employer of such person.

X. GENERAL COMPLIANCE WITH LAWS:

The Consultant hereby agrees to comply with all Federal, State and local laws and ordinances applicable to the work.

XI. SUBLETTING, ASSIGNMENT OR TRANSFER:

Subletting, assignment or transfer of all or part of the services to be performed by the Consultant is hereby prohibited unless prior written consent of the District is obtained.

XII. SETTLEMENT OF DISPUTES:

Any disputes between the District and the Consultant not disposed of by agreement between the parties shall be settled by mutually agreeable procedures.

XIII. FAIR EMPLOYMENT PRACTICES ACT:

The Consultant agrees to abide by the provisions of the Nebraska Fair Employment Practices Act as set forth in Section 48-1101 through 48-1125, R.R.S. 1943; and to require compliance of all contractors or other persons retained in connection with said project.

XIV. RESPONSIBILITY FOR CLAIMS AND LIABILITY:

The Consultant agrees to save harmless the District from all claims and liability due to the activities of himself, his agents or his employees. In this connection the Consultant will carry insurance in the following kinds and in no less than the amounts provided by Nebraska Statutes.

<u>Type</u>	<u>Amount</u>	
1. Comprehensive Auto Liability	100,000/300,000 P.L.	50,000 P.D.
2. Workmen's Compensation	Statutory	

XV. PROFESSIONAL REGISTRATION:

The Consultant hereby agrees to affix the seal of a registered professional engineer licensed to practice in the State of Nebraska on all plans and specifications prepared hereunder.

XVI. NONDISCRIMINATION:

The Consultant agrees to comply with the Nondiscrimination Clauses of Title 49-CFR21.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their proper officials thereunto duly authorized as of the dates below indicated.

EXECUTED by the Consultant this 11th day of July, 1978.

ATTEST:
(Seal)

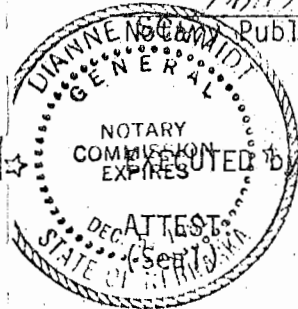
ANTHONY BRECI
GENERAL NOTARY
SEAL
STATE OF NEBRASKA
Commission Expires
Sept. 15, 1981

Anthony Brecci
Public

The Schenck Associates Inc.

William F. Schenck
Consultant

Vice president
Title



EXECUTED by the District this 15th day of July, 1978.

CENTRAL PLATTE NATURAL RESOURCES DISTRICT

Donald B. Cup
Manager

EXHIBIT 'A'

STUDY OUTLINE

SPRING CREEK BANK AND STREAMBED STABILIZATION
AND FLOOD CONTROL FEASIBILITY STUDY

SPRING CREEK WATERSHED
DAWSON COUNTY, NEBRASKA

I. SCOPE OF PROJECT

To study the feasibility of flood control measures for the lower end of Spring Creek from approximately north of Lexington, Nebraska, to its confluence with the Platte River. The study will address the feasibility of improving the conditions as they presently exist in order to solve the problems of flooding and erosion damages.

A wealth of information available from previous studies conducted by the U.S.D.A. Soils Conservation Services and other governmental agencies has been inspected and will be used in the course of this study.

II. DESCRIPTION OF STUDY AREA

A. Analyze Existing Data and Information

1. Topography
2. Hydrologic and hydraulic information
3. Soils
4. Climate
5. Utilities
6. Streets and bridges
7. Land use, population, ownership
8. Environmental features, field recon.
9. Partial flood control of Creek upstream and implications on lower reaches
10. Streambed profile

III. PROBLEMS IN THE STUDY AREA

- A. Flood Water Damage
- B. Erosion Damage
- C. Sedimentation Damage
- D. Others

IV. PROJECT OBJECTIVES

- A. Streambed and Streambank Stabilization
- B. Reduction of Flood Water Damage
- C. Investigate Adequacy of Existing Stream Crossings
- D. Other Objectives (debris, aesthetics, etc.)

V. ANALYZE DATA AND DEVELOP ALTERNATE SOLUTIONS

- A. Flood Routing and Channel Capacity Requirements
- B. Various Channel Treatment System
- C. Floodwater Retarding System

VI. DETAILED ANALYSIS OF SELECTED ALTERNATIVE

(See Study Objectives Below)

VII. CONCLUSION AND RECOMMENDATIONS

- A. Alternatives Relative to Performance and Economic Trade-offs
 - 1. Damage reductions
 - 2. Realized benefits
 - 3. Cost/benefit comparisons
- B. Evaluation of Overall Feasibility
- C. Recommendations

PROPOSED STUDY OBJECTIVES

As with any feasibility study, the overall intent is to provide answers to various questions. The broad academic areas listed under the study outline set the stage for all subsequent investigations. To get at the heart of the project, however, specific in-depth questions will have to be answered so that solutions and directions may be proposed. The following specific questions will be among those addressed the course of the study.

1. Physical Feasibility of Project

- (a) Can project be engineered
- (b) Extent of improvements
- (c) Availability of land
- (d) Soil conditions
- (e) Flood water reduction
- (f) Erosion damages
 - of streambank
 - of streambed
 - of structures
- (g) Sedimentation damages

2. Operational Feasibility of Project

- (a) Coordination with existing flood control facilities
- (b) Protection for and interfacing with existing irrigation structures and devices
- (c) Maintenance and upkeep of system
- (d) Accessibility of system

3. Institutional Feasibility of Project

- (a) Ownership of system and operational responsibility
- (b) Right-of-way considerations
 - for land dedication (gift)
 - for easements
 - for leasing possibilities and others
- (c) Any Federal, State, or local law governing the system?
- (d) Restrictive covenants on land to be used for improvement?
- (e) Zoning and land use regulations

4. Financial Feasibility of Project

- (a) Availability of funding sources
- (b) Cost sharing between agencies
- (c) Cost analysis of various options
- (d) Cost comparisons

5. Economic Feasibility of Project

- (a) Analysis of economic benefits
 - social benefits
 - environmental benefits
- (b) Evaluation of benefits received versus cost incurred
- (c) Development of cost-benefit ratio
- (d) Budgeting for maintenance and operation

6. Environmental Impact of Proposed Project

- (a) Study the possible effects of the project as it relates to environment, especially in regards to:
 - (1) Channel vegetation
 - (2) Soils erosion
 - (3) Fish habitat
 - (4) Wildlife habitat

September 20, 1979

Mr. Ron Bishop
Central Platte Natural Resources District
116 West 4th Street
Grand Island, NE 68801

RE: Feasibility Study and Application Submittal
for Spring Creek Watershed Channel Work

Dear Ron:

We are pleased to present our proposal for providing professional services for the development of the feasibility report and the preparation of the application for funding through the Nebraska Resources Development Fund.

Our proposal is outlined as follows:

I. BASIC SERVICES

A. Preparation of the feasibility report and the project application in accordance with the Nebraska Resources Development Fund guidelines.

- | | |
|---|----------|
| 1. Direct Labor (salaries, overhead, profit, etc.) | \$14,050 |
| 2. Meetings | |
| a. Progress Report Meetings - 4 | \$ 625 |
| b. Working Meetings with
Central Platte NRD Personnel - 3 | \$ 500 |
| c. Public Hearing (required) - 1 | \$ 350 |
| d. Nebraska Resources Development Fund
Presentation and Meetings - 3 | \$ 275 |
| 3. Travel Expenses (mileage) | \$ 1,300 |
| 4. Computer Expenses (computer time) | \$ 1,200 |
| 5. Photogrammetric, print, phone
presentation material expenses | \$ 1,150 |
| 6. Subsistence (motel, food expenses) | \$ 250 |

Not to Exceed \$19,400.00

September 20, 1979
Mr. Ron Bishop
Feasibility Study
Page - Two -

- B. At your direction, we will provide continuing consulting services such as additional meeting attendance, extra work requested beyond the scope of the feasibility report and application submittal requirements, etc. These continuing services will only occur upon written direction from the client.

II. FEES

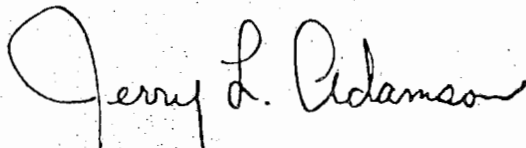
- A. Our fee for services as described in paragraph I. A. above will be based on the payroll cost times a factor of 2.75 for all time directly chargeable to the project, plus reimbursable expenses, not to exceed a total of \$19,700.
- B. For Continuing Services as described in paragraph I. B. above, our fee will be based on the payroll cost times a factor of 2.75 for all time directly chargeable to the work plus reimbursable expenses.
 - 1. Payroll cost means actual salary costs adjusted for sick leave, vacations, holidays, social security contributions, payroll taxes, retirement benefits, and health and life insurance benefits.
 - 2. Reimbursable expenses means the actual costs of transportation and subsistence of employees when traveling in connection with the work, printing and reproduction costs and toll telephone calls.
- C. Billings will be submitted for payment monthly as the work progresses and will be based on the percentage of the work completed during the previous month.

September 20, 1979
Mr. Ron Bishop
Feasibility Study
Page - Three -

If this proposal and the attached General Conditions are acceptable, you may authorize us to proceed with the work by signing both copies and returning one copy for our files.

Very truly yours,

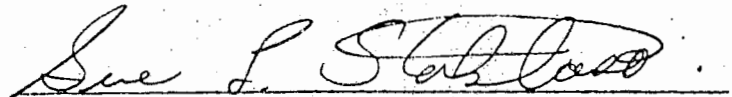
THE SCHEMME ASSOCIATES, INC.
ARCHITECTS-ENGINEERS-PLANNERS



JERRY L. ADAMSON, L.A.
ASSOCIATE

ACCEPTED:

CENTRAL PLATTE NATURAL RESOURCES DISTRICT



TITLE Resource Administrator.

DATE 1- Oct. 1979.

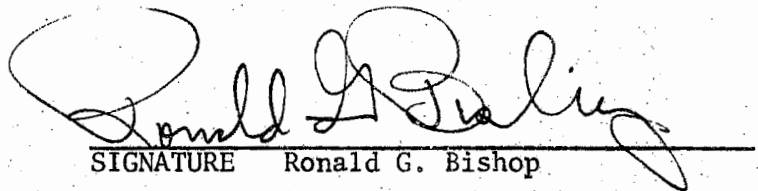
/s/

Att.

ACKNOWLEDGEMENT

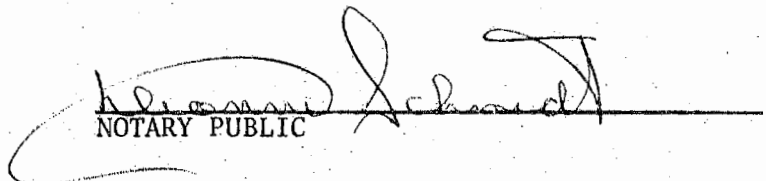
I, Ronald G. Bishop, hereby declare that the Central Platte Natural Resources District's board of directors have duly authorized the filing of this formal application for financial assistance from the Nebraska Resources Development Fund. I further declare that I have been duly authorized to represent the Central Platte Natural Resources District's board of directors in any needed correspondence relating to this application.

I declare that the foregoing application is true and correct to the best of my knowledge and belief and that the Spring Creek Lower Watershed flood control project does not conflict with any other existing Nebraska State Land and/or Water Plan.


SIGNATURE Ronald G. Bishop

State of Nebraska
County of Hall

The foregoing instrument was acknowledged before me this 25th day of March, 1980 by Ronald G. Bishop, Central Platte Natural Resources District Manager.


NOTARY PUBLIC

REFERENCES

Chow, Ven T. Handbook of Applied Hydrology, McGraw-Hill Book Company, New York, 1964

Chow, Ven T. Open-Channel Hydraulics, McGraw-Hill Book Company, New York, 1959

Linsley, Ray K., Jr., et al. Hydrology for Engineers, McGraw-Hill Book Company, New York, 1975

Simon, Andrew L. Practical Hydraulics, John Wiley & Sons, Inc., New York, 1976

Environmental Assessment Report prepared by the United States Department of Agriculture, Soil Conservation Service, Lincoln, Nebraska, 1977

Nebraska Resources Development Fund Guidelines prepared by the Nebraska Resources Development Fund Advisory Board, Lincoln, Nebraska, 1979

Supplemental Watershed Work Plan for Watershed Protection and Flood Prevention, Spring Creek Watershed prepared by the United States Department of Agriculture, Soil Conservation Service, Lincoln, Nebraska, 1978

Watershed Work Plan for Watershed Protection and Flood Prevention, Spring Creek Watershed, prepared by the United States Department of Agriculture, Soil Conservation Service, Lincoln, Nebraska, 1965

MATERIALS TESTING REPORT

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

FIELD SAMPLE NO.

DEPTH

GEOLOGIC ORIGIN

SAMPLE LOCATION

Spring Creek-Dawson Canal, Nebraska
6'-7'
Alluvium from Loess.
E Sta 1764+20 ON LINE

TYPE OF SAMPLE

TESTED AT

APPROVED BY

DATE

Dist.

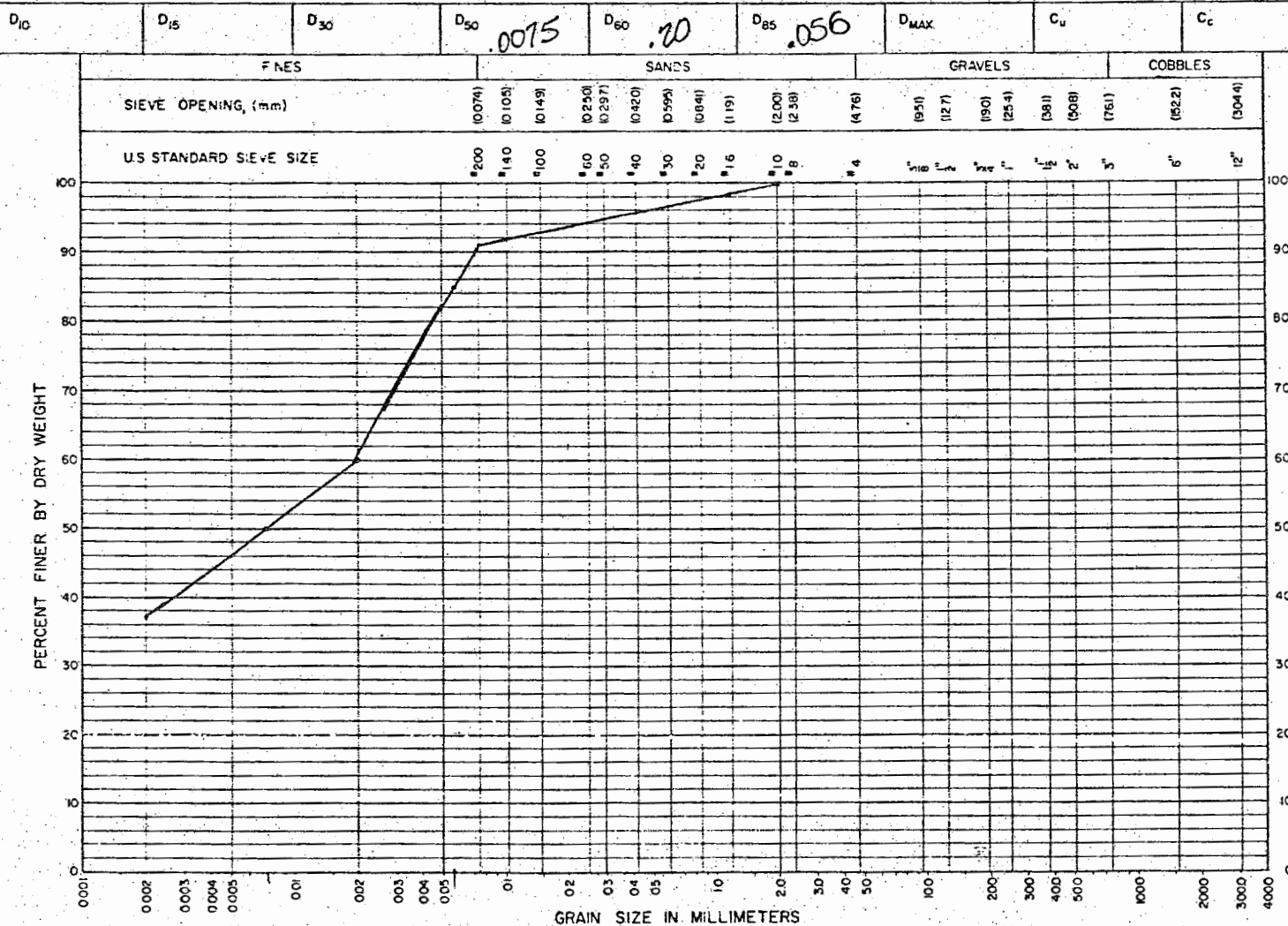
SMI

4/9/76

SYMBOL Q or CH

DESCRIPTION

GRAIN SIZE DISTRIBUTION



SPECIFIC GRAVITY (G_s)

ATTERBERG LIMITS

SOLUBLE SALTS

SHRINKAGE LIMIT

UNDISTURBED CONDITION

NATURAL MOISTURE

AIR DRY

OVEN DRY

MOISTURE

DRY UNIT WEIGHT

(-) %

(+) %

LL

PI

LL

PI

LL

PI

%

%

%

g/cc

pcf

50 25

REMARKS: Represents alluvium over the sand without calcium. This is probably recent deposit.

**MATERIALS
TESTING REPORT**

 U. S. DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

Spring Creek - Dawson Channel, Nebraska

SAMPLE LOCATION

E. Sta. 1755+00 ON LINE

FIELD SAMPLE NO.

4.1

DEPTH

3.5-4.5

GEOLOGIC ORIGIN

TYPE OF SAMPLE

Dist.

TESTED AT

SML

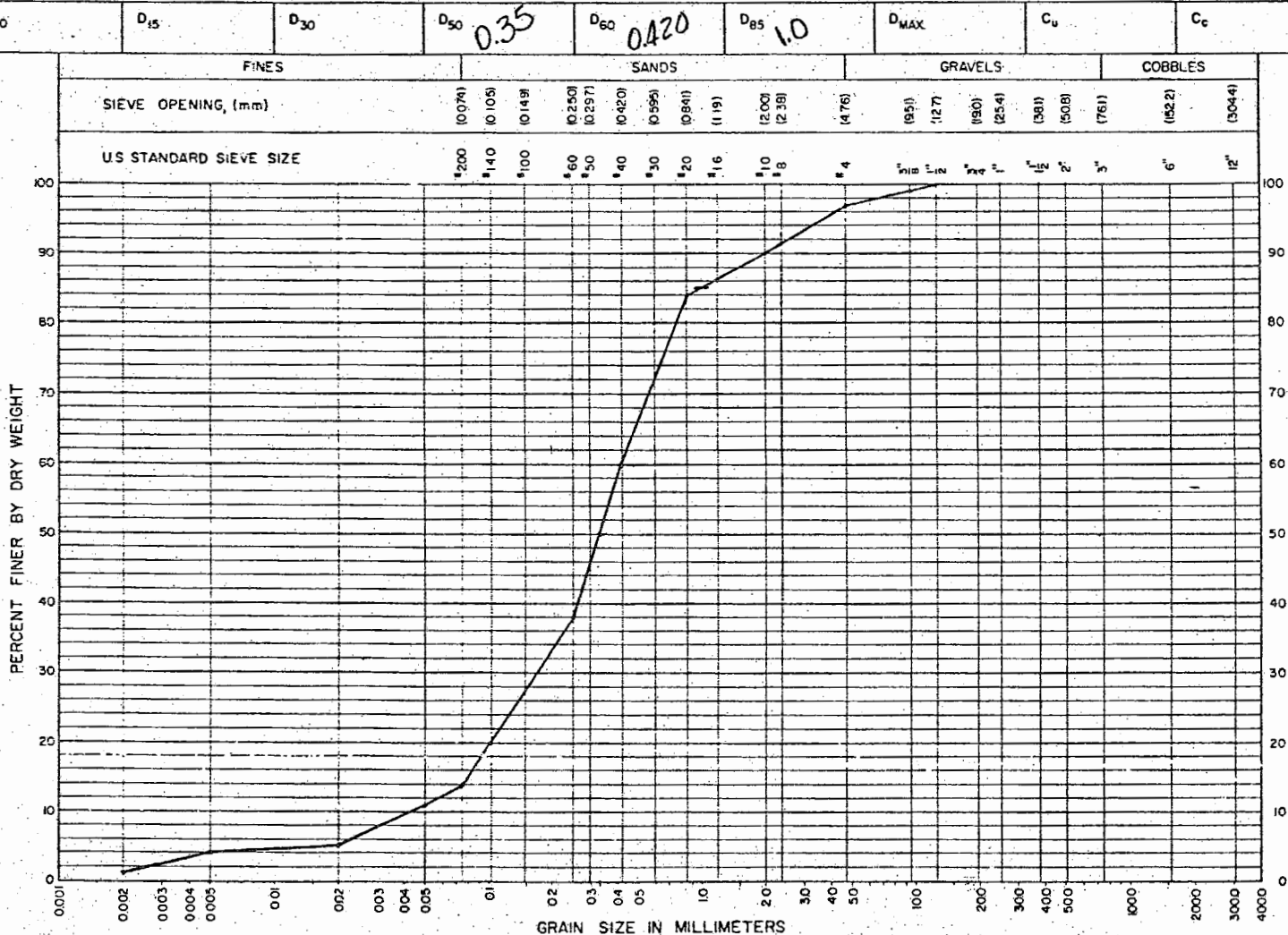
APPROVED BY

DATE

4/9/76

SYMBOL SM

DESCRIPTION

GRAIN SIZE DISTRIBUTION

 SPECIFIC
GRAVITY (G_s)
(-) G_s (+) G_s
ATTERBERG LIMITS

NATURAL MOISTURE

AIR DRY

OVEN DRY

LL

PI

LL

PI

LL

PI

 SOLUBLE
SALTS

%

 SHRINKAGE
LIMIT

%

UNDISTURBED CONDITION

MOISTURE

DRY UNIT WEIGHT

%

g/cc

pcf

REMARKS: Nonplastic SM. Represents transition material below dense silt and above clean Grand Island sands.

MATERIALS TESTING REPORT

 U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

Spring Creek - Dawson Channel, Nebraska

SAMPLE LOCATION

8 Sta. 175500 ON LINE

FIELD SAMPLE NO.

4.2

DEPTH

5.5'-7.5'

GEOLOGIC ORIGIN

TYPE OF SAMPLE

Dist

TESTED AT

SM

APPROVED BY

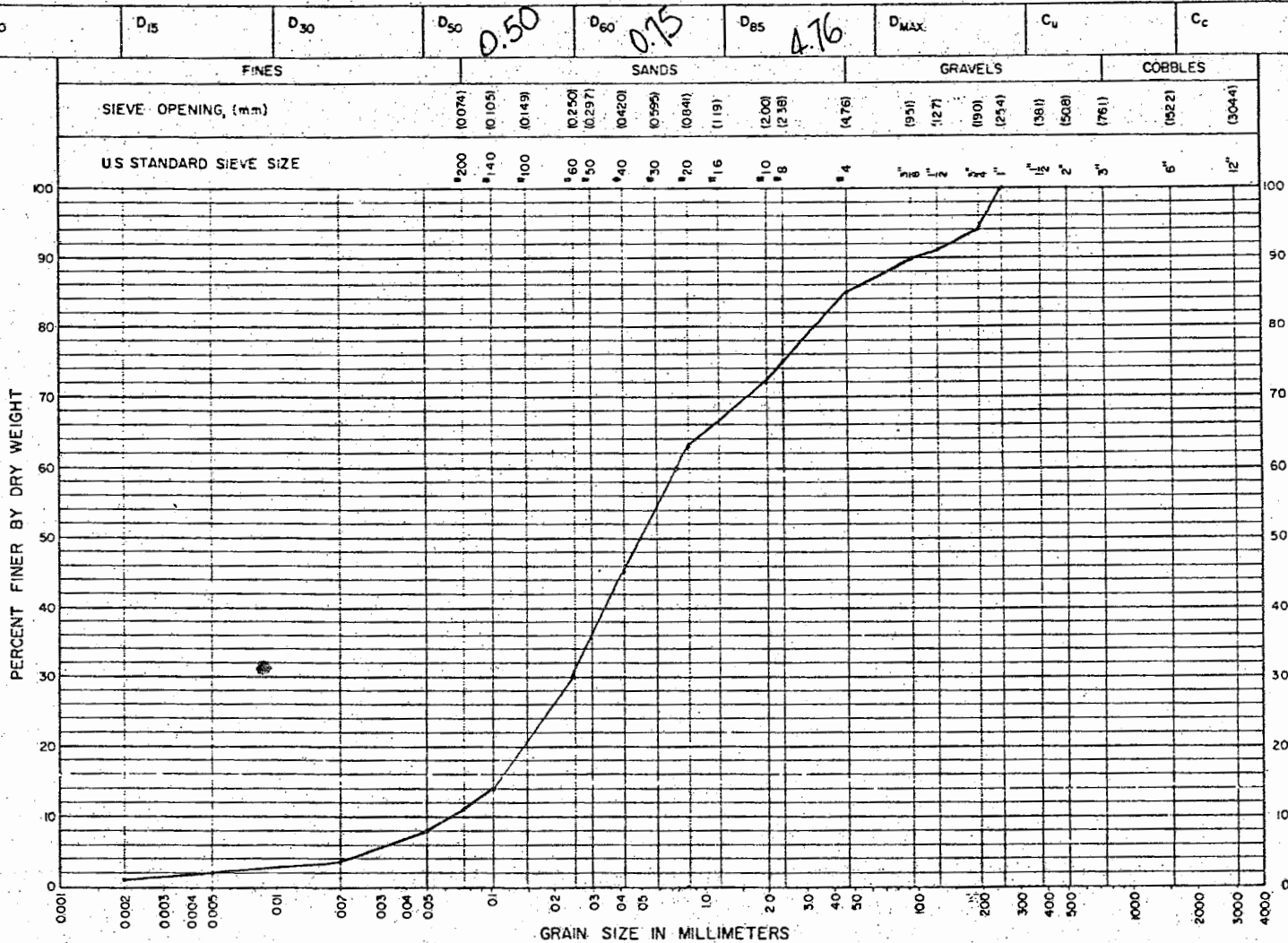
DATE

4/9/76

SYMBOL SW-SM

DESCRIPTION

GRAIN SIZE DISTRIBUTION

SPECIFIC GRAVITY (G_s)

(-) *4

(+) *4

ATTERBERG LIMITS

NATURAL MOISTURE

LL

PI

AIR DRY

LL

PI

OVEN DRY

LL

PI

SOLUBLE SALTS

%

SHRINKAGE LIMIT

%

UNDISTURBED CONDITION

MOISTURE

%

DRY UNIT WEIGHT

g/cc

pcf

REMARKS: SW-SM represents the Grand Island Sand which is very clean in place.

**MATERIALS
TESTING REPORT**

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

FIELD SAMPLE NO.

5.1

DEPTH

4, -5,

GEOLOGIC ORIGIN

Alluvium

SAMPLE LOCATION

Spring Creek - Dawson Channel No. 4386.1744+35 20' Left.

TYPE OF SAMPLE

Dist.

TESTED AT

SMU

APPROVED BY

DATE

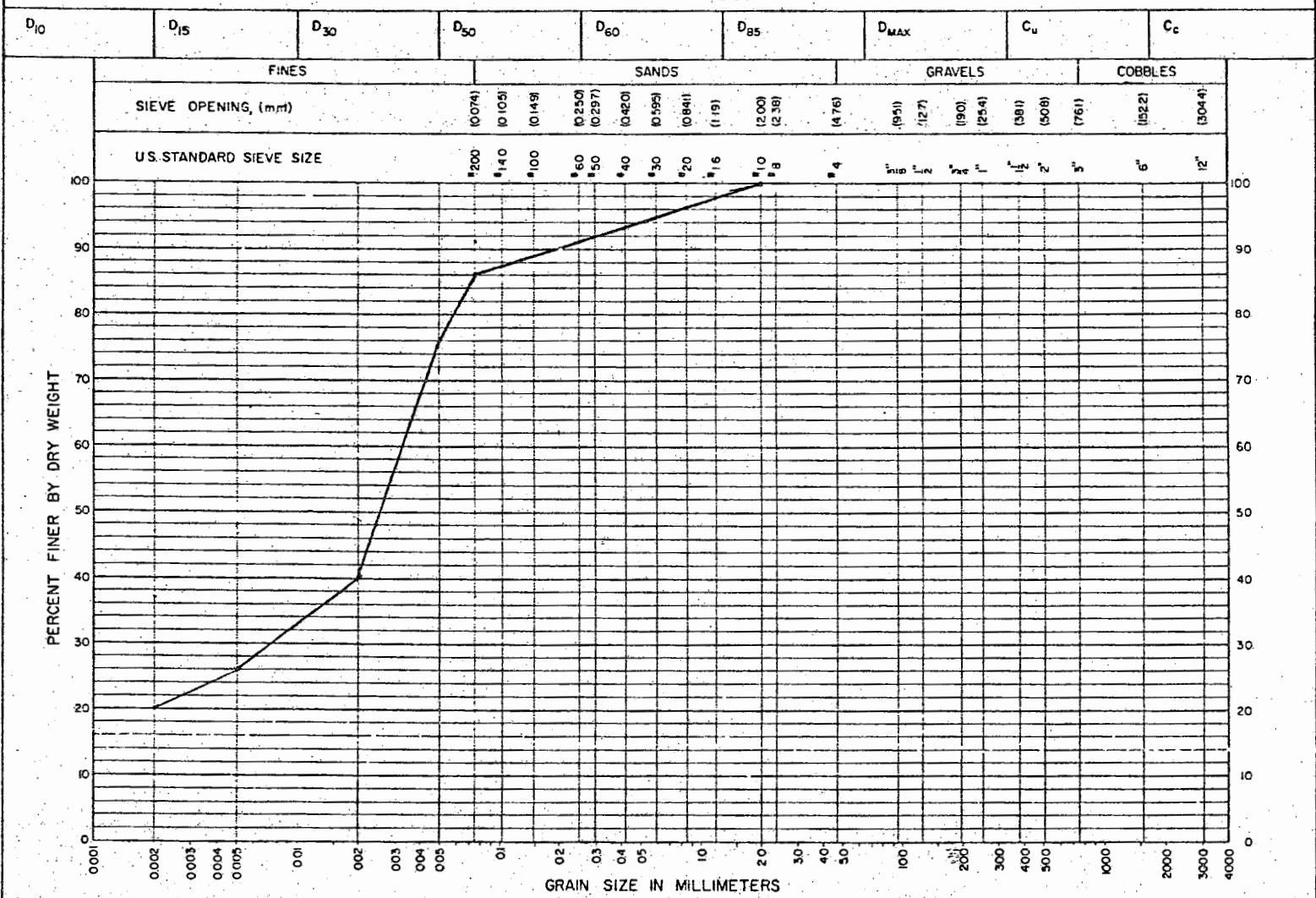
4/12/76

SYMBOL

CL

DESCRIPTION

GRAIN SIZE DISTRIBUTION



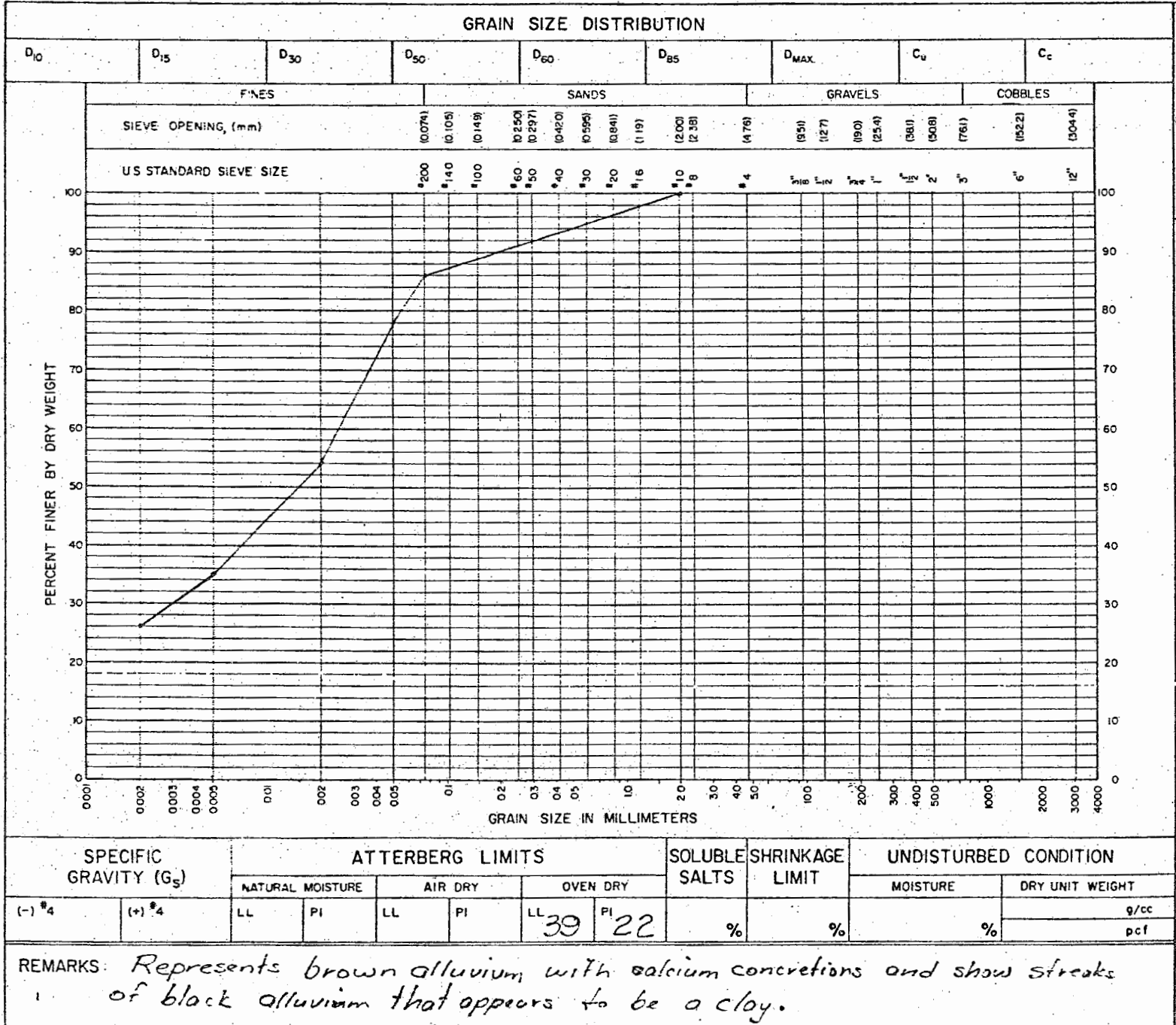
SPECIFIC GRAVITY (G_s)		ATTERBERG LIMITS				SOLUBLE SALTS	SHRINKAGE LIMIT	UNDISTURBED CONDITION	
		NATURAL MOISTURE		AIR DRY		OVEN DRY		MOISTURE	DRY UNIT WEIGHT
(-) #4	(+) #4	LL	PI	LL	PI	LL	PI	%	g/cc pcf
						34	12	%	%

REMARKS: Represents alluvium of brown color with calcium deposits. This sample above water table.

188

MATERIALS TESTING REPORT **U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE** **SOIL CLASSIFICATION**

PROJECT and STATE <i>Spring Creek-Dawson Channel Ne.</i>		SAMPLE LOCATION <i>1744+35, 20' left.</i>	
FIELD SAMPLE NO. <i>5.3</i>	DEPTH <i>6'-7'</i>	GEOLOGIC ORIGIN <i>Alluvium</i>	
TYPE OF SAMPLE <i>DIST</i>	TESTED AT <i>SMC</i>	APPROVED BY	DATE <i>4/12/76</i>
SYMBOL <i>CL</i>		DESCRIPTION	



190

MATERIALS **TESTING REPORT**

U.S. DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

FIELD SAMPLE NO.

6.2

DEPTH

5'-6'

GEOLOGIC ORIGIN

Alluvium

SAMPLE LOCATION

Spring Creek-Duncan Channel Ne. E Sta. 1734475, 12' RT

TYPE OF SAMPLE

Dist.

TESTED AT

SM

APPROVED BY

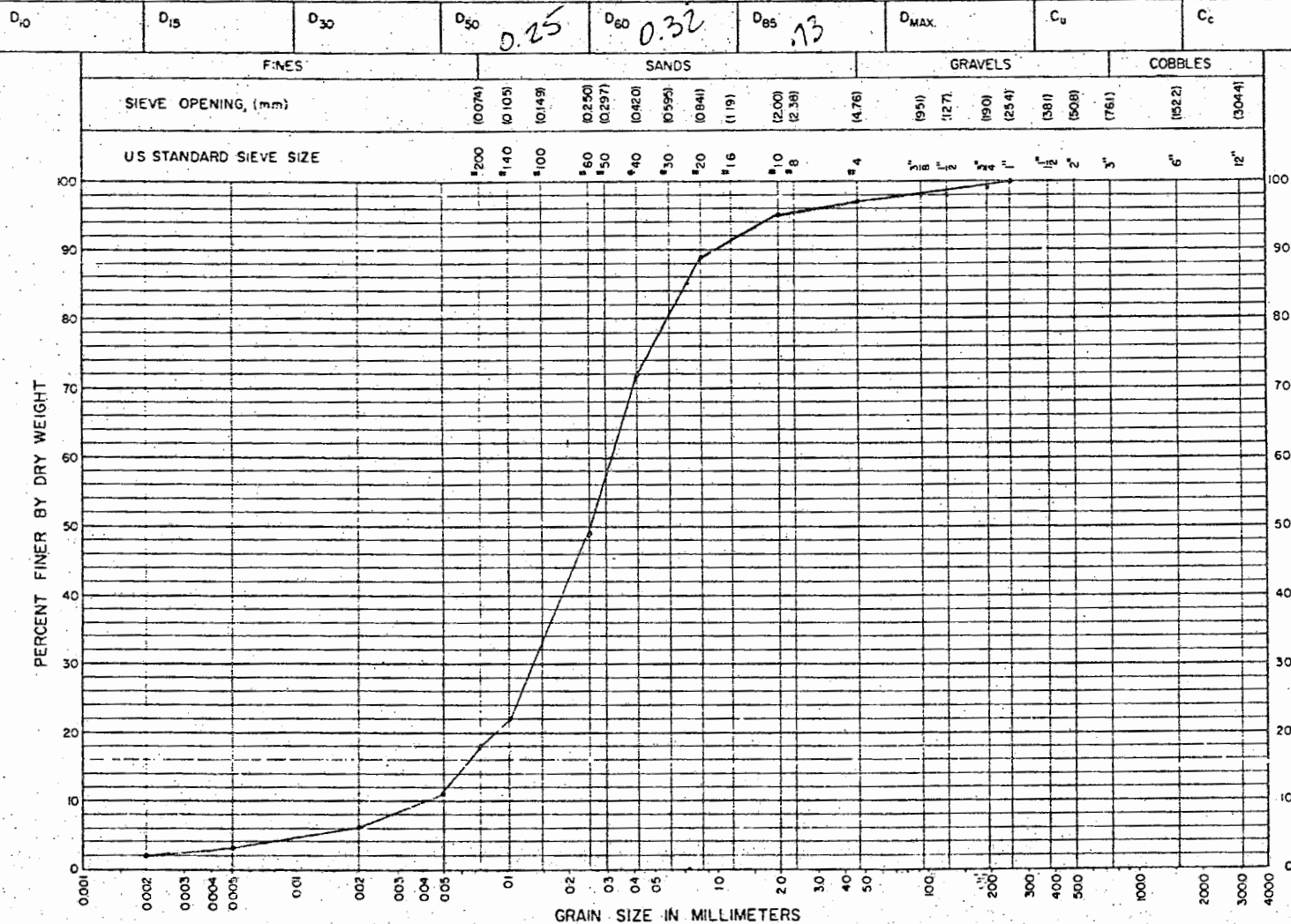
DATE

4/12/76

SYMBOL No. 3: SM

DESCRIPTION

GRAIN SIZE DISTRIBUTION



SPECIFIC GRAVITY (G_s)

(-) #4 (+) #4

ATTERBERG LIMITS

NATURAL MOISTURE

AIR DRY

OVEN DRY

LL PI

LL PI

LL PI

SOLUBLE SALTS

SHRINKAGE LIMIT

UNDISTURBED CONDITION

MOISTURE

DRY UNIT WEIGHT

%

g/cc
pcf

REMARKS: Represents Grand Island sand that is visibly dark colored.

MATERIALS
TESTING REPORT
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

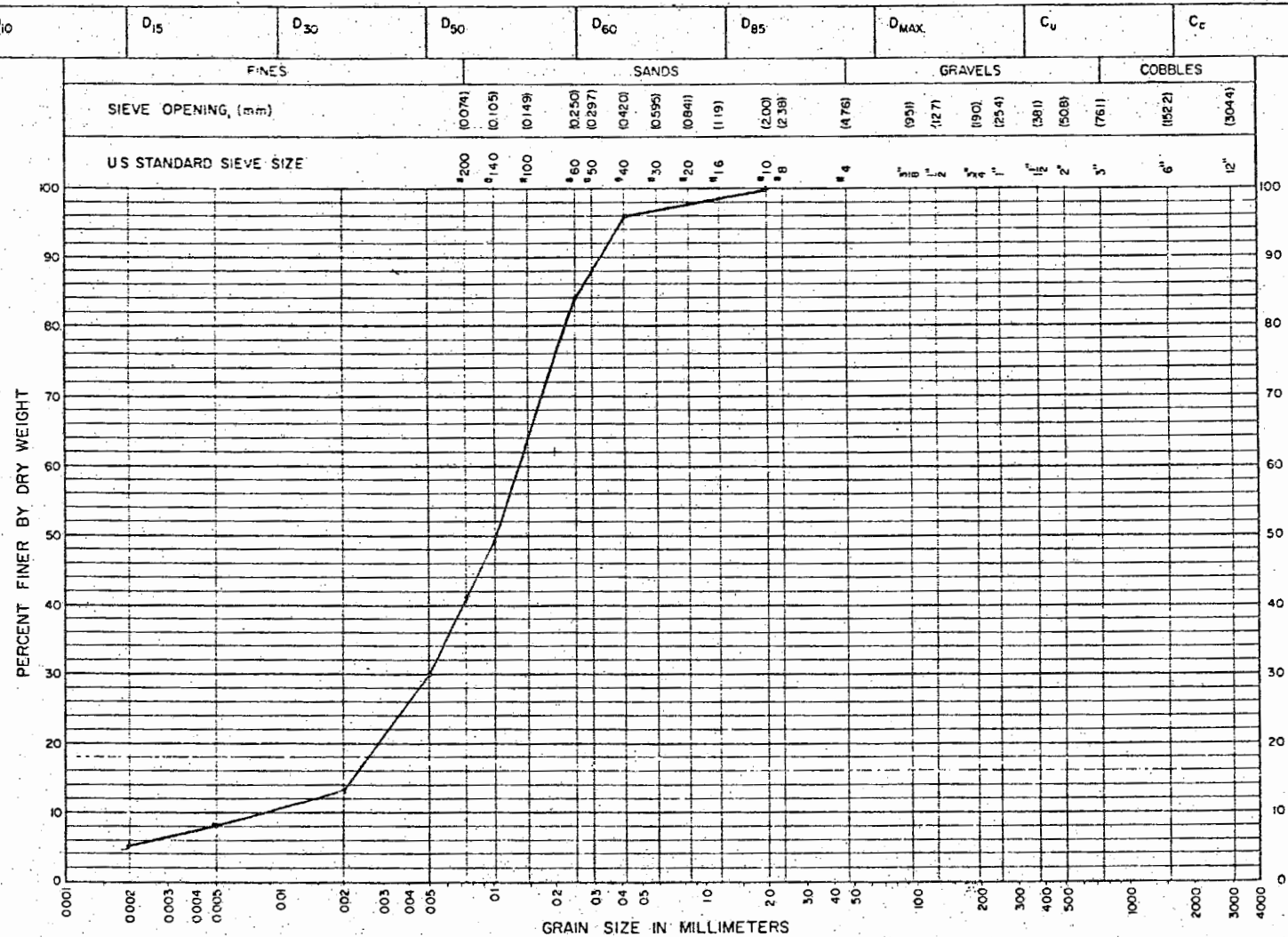
PROJECT and STATE: *Spring Creek - Spring Channel No* SAMPLE LOCATION: *Q 1722+20, 25' RT.*

FIELD SAMPLE NO.: *7.1* DEPTH: *4.5* GEOLOGIC ORIGIN: *Alluvium*

TYPE OF SAMPLE: *Dist.* TESTED AT: *SM* APPROVED BY: DATE: *4/12/76*

SYMBOL: *Non Plastic SM* DESCRIPTION:

GRAIN SIZE DISTRIBUTION



SPECIFIC GRAVITY (G _s)		ATTERBERG LIMITS						SOLUBLE SALTS	SHRINKAGE LIMIT	UNDISTURBED CONDITION	
		NATURAL MOISTURE		AIR DRY		OVEN DRY				MOISTURE	DRY UNIT WEIGHT
(-) #4	(+) #4	LL	PI	LL	PI	LL	PI	%	%	%	g/cc pcf

REMARKS: *Represents gray sand deposits with silty binder beneath water table.*

MATERIALS TESTING REPORT

 U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

Spring Creek - Dawson Channel Ne.

SAMPLE LOCATION

75' RT

FIELD SAMPLE NO.

81

DEPTH

55-70

GEOLOGIC ORIGIN

Alluvium

TYPE OF SAMPLE

Dist.

TESTED AT

SMI

APPROVED BY

DATE

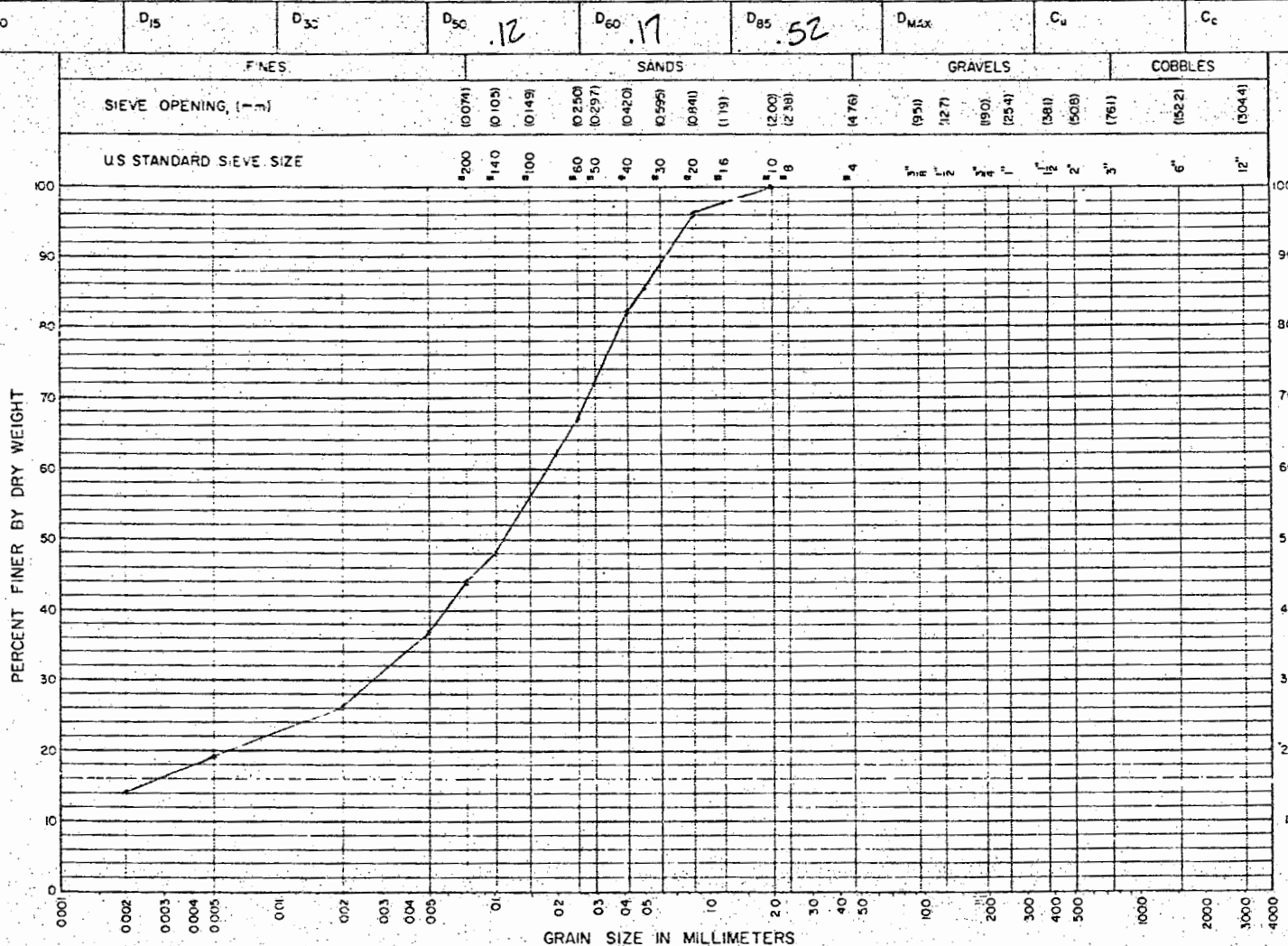
SYMBOL

SC

DESCRIPTION

4/13/76

GRAIN SIZE DISTRIBUTION


 SPECIFIC GRAVITY (G_s)

ATTERBERG LIMITS

SOLUBLE SALTS

SHRINKAGE LIMIT

UNDISTURBED CONDITION

NATURAL MOISTURE

AIR DRY

OVEN DRY

LL

PI

LL

25

10

%

%

%

REMARKS:

Represents loess or reworked loess with calcium deposits. Above water table.

MATERIALS U.S. DEPARTMENT OF AGRICULTURE
TESTING REPORT SOIL CONSERVATION SERVICE
SOIL CLASSIFICATION

PROJECT AND STATE

FIELD SAMPLE NO.

DEPTH

GEOLOGIC ORIGIN

SAMPLE LOCATION

TYPE OF SAMPLE
DIST

TESTED AT
SML

APPROVED BY

DATE

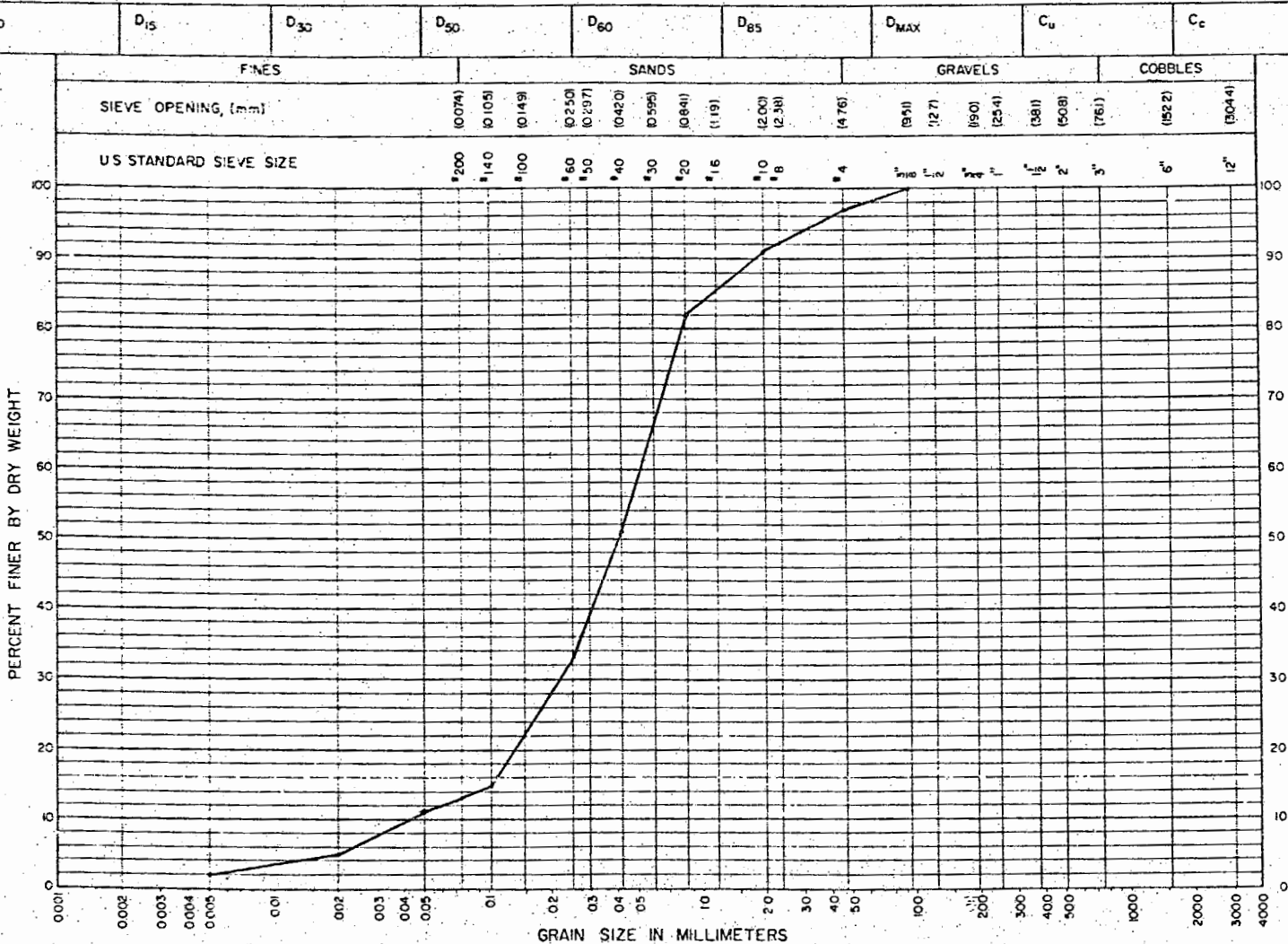
SYMBOL Non-plastic SM

DESCRIPTION

4/13/76

Spring Creek - Dawson County, Ga. No. 10.1
Alluvium
E. St. 1631 + 40 10.1 Lt

GRAIN SIZE DISTRIBUTION



SPECIFIC GRAVITY (G_s)

ATTERBERG LIMITS

SOLUBLE SALTS

SHRINKAGE LIMIT

UNDISTURBED CONDITION

NATURAL MOISTURE		AIR DRY		OVEN DRY		%	%	%	g/cc pcf
LL	PI	LL	PI	LL	PI				
(-) #4	(+) #4								

REMARKS: Clean sand (Grand Island). Represents clean sands.

MATERIALS
TESTING REPORTU.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

FIELD SAMPLE NO.

TYPE OF SAMPLE

DEPTH

GEOLOGIC ORIGIN

TESTED AT

APPROVED BY

DATE

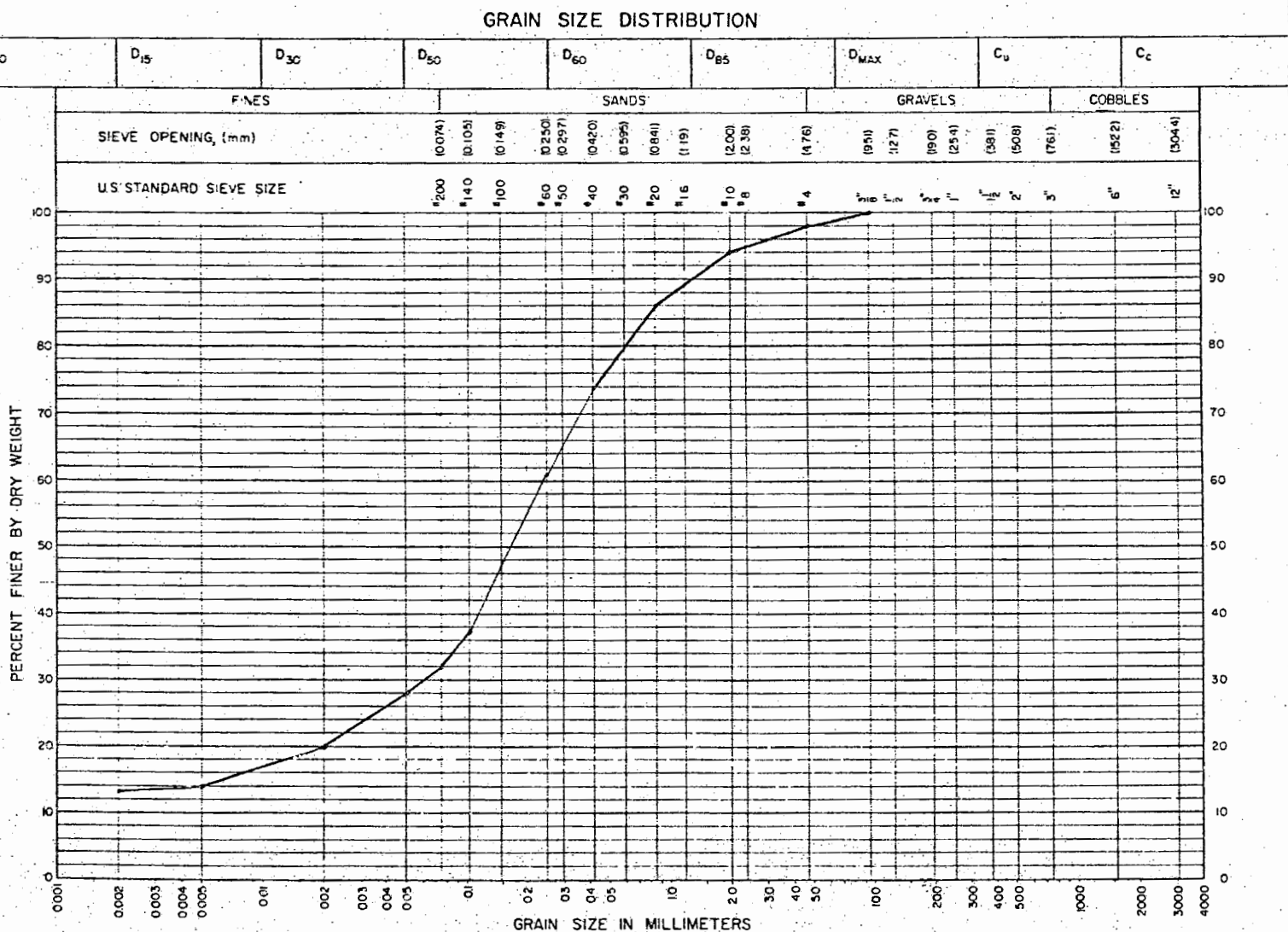
SAMPLE LOCATION

ON LINE

SYMBOL

DESCRIPTION

SC

SPECIFIC
GRAVITY (G_s)

ATTERBERG LIMITS

SOLUBLE
SALTSSHRINKAGE
LIMIT

UNDISTURBED CONDITION

NATURAL MOISTURE

AIR DRY

OVEN DRY

MOISTURE

DRY UNIT WEIGHT

(-) #4

(+) #4

LL

PI

LL

PI

LL

PI

%

%

%

g/cc

pcf

REMARKS: Represents sand mixed with calcium above water table. Very dense

**MATERIALS
TESTING REPORT**

 U.S. DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

Soring Creek - Dawson Channel Ne

SAMPLE LOCATION

FIELD SAMPLE NO.

DEPTH

GEOLOGIC ORIGIN

16.1 4.0 - 4.5 Alluvium 636.1555+00 ON LINE

TYPE OF SAMPLE

TESTED AT

APPROVED BY

DATE

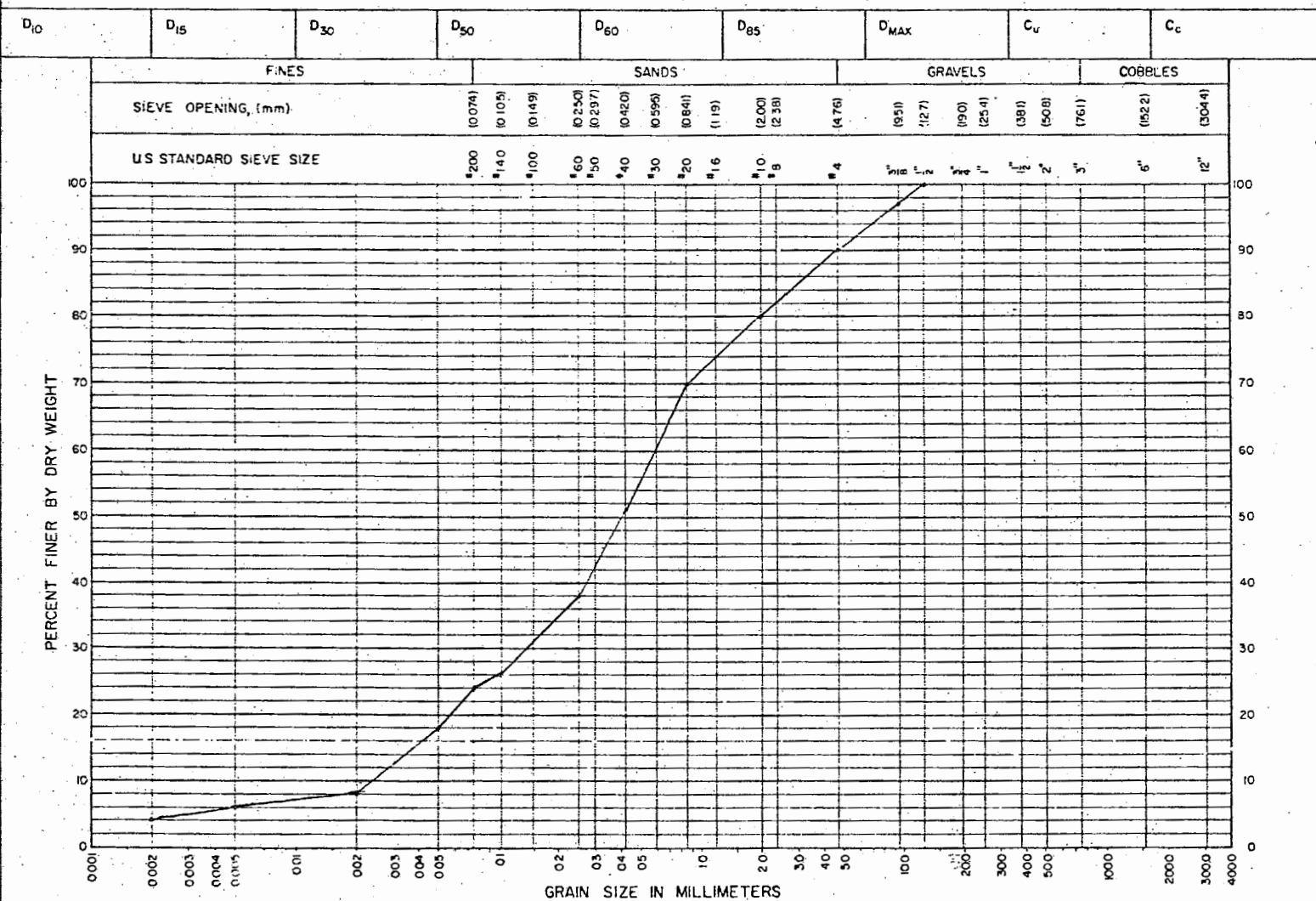
Dis.

SML

4/13/76

SYMBOL SM

DESCRIPTION

GRAIN SIZE DISTRIBUTION

 SPECIFIC
GRAVITY (G_s)

(-) *4 (+) *4

ATTERBERG LIMITS

NATURAL MOISTURE

AIR DRY

OVEN DRY

LL

PI

LL

PI

LL

PI

19 3

 SOLUBLE
SALTS

%

 SHRINKAGE
LIMIT

%

UNDISTURBED CONDITION

MOISTURE

DRY UNIT WEIGHT

%

g/cc

pcf

REMARKS:

Represents the clean Grand Island sand below water table.

MATERIALS TESTING REPORT

U.S. DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

FIELD SAMPLE NO.

TYPE OF SAMPLE

SYMBOL

SC

DESCRIPTION

DEPTH

TESTED AT

APPROVED BY

DATE

SMC

4-5

4/13/76

GEOLOGIC ORIGIN

Alluvium

Channel

Ne.

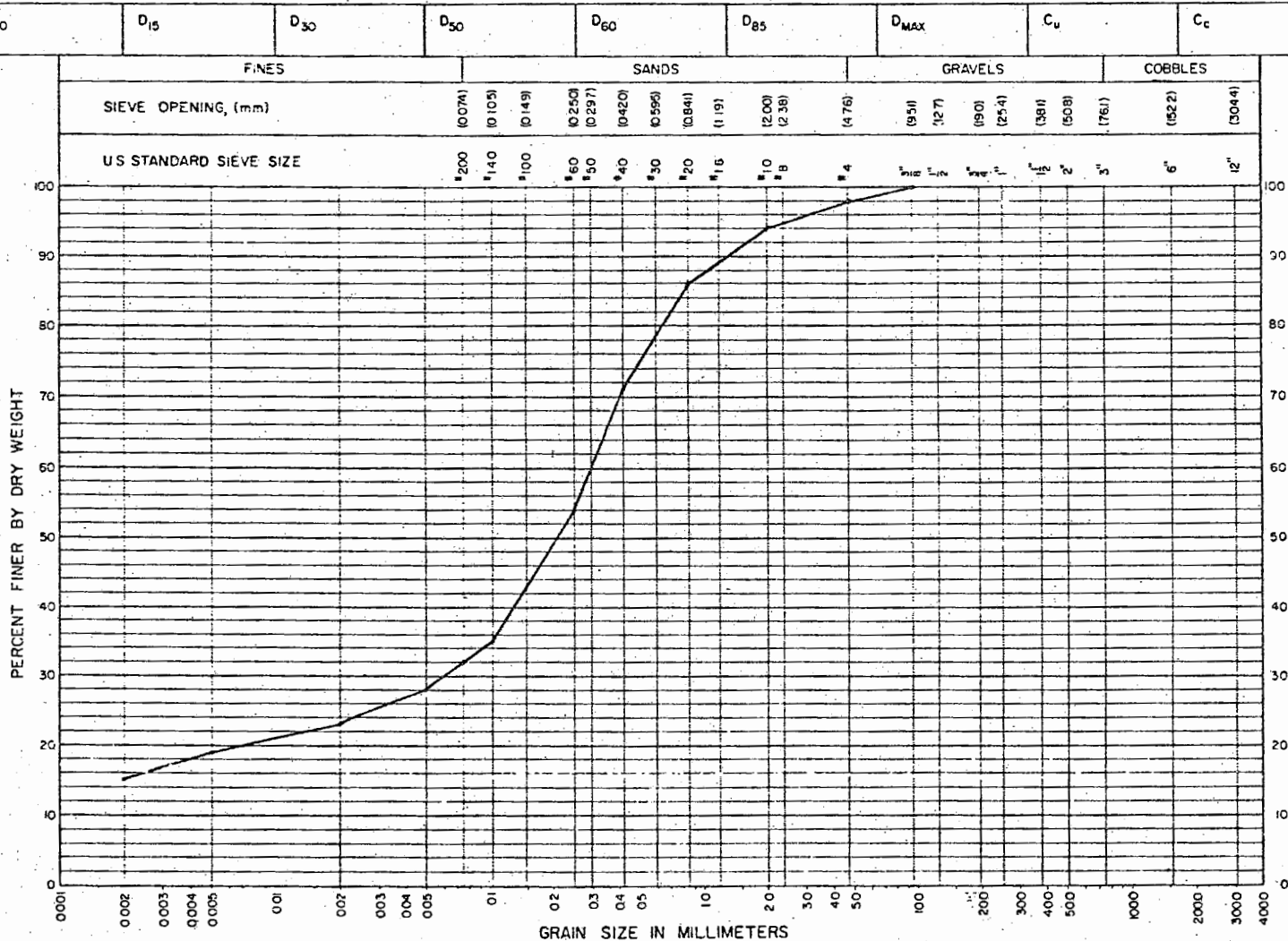
Spring Creek

17.1

SAMPLE LOCATION

2 Sta. 1586+30 ON LINE

GRAIN SIZE DISTRIBUTION

SPECIFIC GRAVITY (G_s)

ATTERBERG LIMITS

SOLUBLE SALTS

SHRINKAGE LIMIT

UNDISTURBED CONDITION

MOISTURE

DRY UNIT WEIGHT

(-) #4

(+) #4

NATURAL MOISTURE

AIR DRY

OVEN DRY

%

%

%

g/cc

pcf

LL

PI

LL

PI

LL

PI

22/10

REMARKS:

Represents silt with high amounts of calcium. Transforms color. Above water table.

MATERIALS
TESTING REPORT
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

Spring Creek-Dawson Channel

SAMPLE LOCATION

1254+00 ON LINE

FIELD SAMPLE NO.

44.1

DEPTH

3-4'

GEOLOGIC ORIGIN

Alluvium

TYPE OF SAMPLE

DIS

TESTED AT

APPROVED BY

DATE

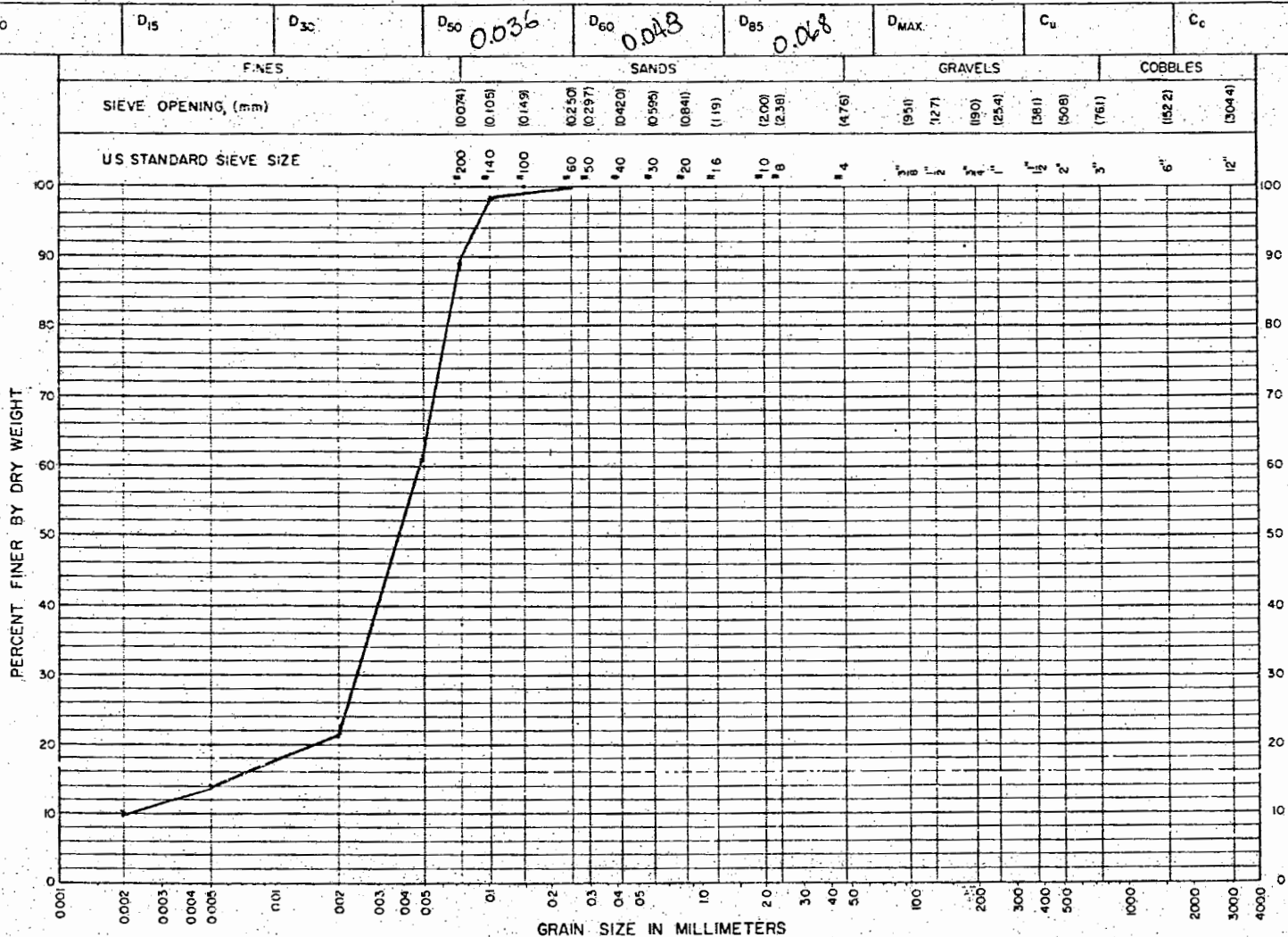
4/15/76

SYMBOL

AL-14-
MPL

DESCRIPTION

GRAIN SIZE DISTRIBUTION

SPECIFIC
GRAVITY (G_s)

(-) *4

(+) *4

ATTERBERG LIMITS

NATURAL MOISTURE

LL

PI

AIR DRY

LL

PI

OVEN DRY

LL 27

PI 5

SOLUBLE
SALTS

%

SHRINKAGE
LIMIT

%

UNDISTURBED CONDITION

MOISTURE

DRY UNIT WEIGHT

g/cc

pcf

REMARKS: Represents a silt below water table that is very dense. Appears to have a Peorian origin.

**MATERIALS
TESTING REPORT**

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

FIELD SAMPLE NO.

DEPTH

TESTED AT

GEOLOGIC ORIGIN

TYPE OF SAMPLE

APPROVED BY

DATE

SAMPLE LOCATION

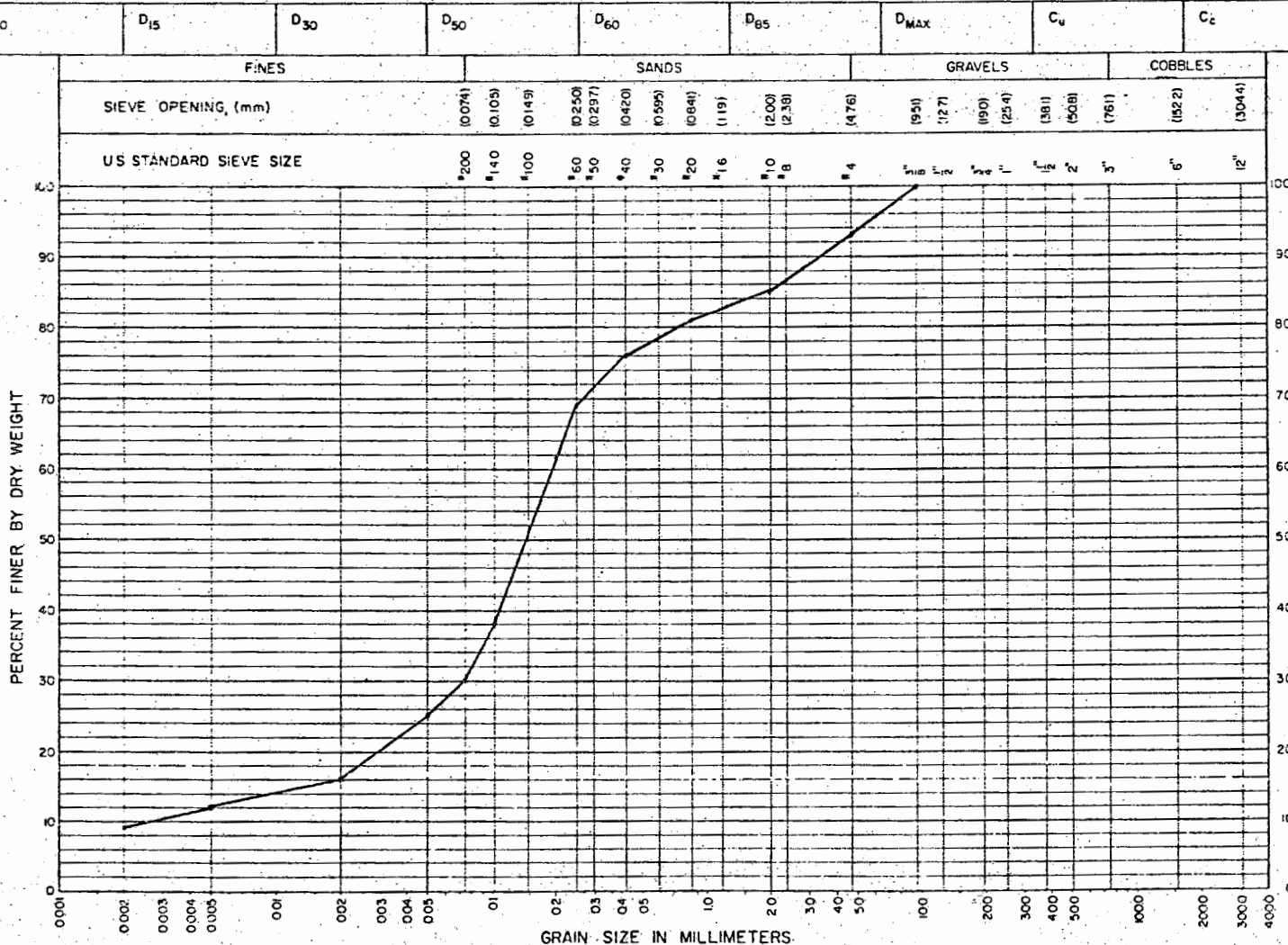
250.1344+70.12' RT

SYMBOL

SM

DESCRIPTION

GRAIN SIZE DISTRIBUTION



SPECIFIC GRAVITY (G_s)

ATTERBERG LIMITS

SOLUBLE SALTS

SHRINKAGE LIMIT

UNDISTURBED CONDITION

NATURAL MOISTURE

AIR DRY

OVEN DRY

MOISTURE

DRY UNIT WEIGHT

(-) $\frac{1}{4}$

(+) $\frac{1}{4}$

LL

PI

LL

PI

LL 20

PI 3

%

%

%

g/cc

pcf

REMARKS

Represents a sandy material that is dense below the water table.

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER		STATE <i>Neb</i>	
LOGGED BY <i>G. N. G.</i>		DATE <i>4/13/76</i>		PROJECT: WP-07 _____ WP-08 <i>X</i> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <i>Portable</i>		LOCATION OF HOLES <i>Station 1660 + 50 ONLINE</i>			

[illegible]

SCS-533
REV. 3-67

LOG OF TEST HOLES

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO. *Channel*

LOCATION

OWNER Channel Bottom @ 2309.5 STATE

LOGGED BY G. N. G.

DATE 4/13/76

PROJECT: WP-07 WP-08 ☒ FP-03 P.L-46

DRILLING EQUIPMENT *Portable*

LOCATION OF HOLES
1639+00 ON LINE

[illegible]

1. DISTURBED-UNDISTURBED-ROCK CORE

2. COARSE MATERIAL REMOVED

3. PERCENT SAMPLE RECOVERY

SHEET OF SHEETS

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Bottom 2311.2</i>		STATE <i>Neb</i>	
LOGGED BY <i>G.N.G.</i>		DATE <i>4/13/76</i>		PROJECT: WP-07 _____ WP-08 _____ FP-03 _____ P.L. 46 _____	
DRILLING EQUIPMENT <i>Portable</i>		LOCATION OF HOLES <i>7618+00 ON LINE</i>			

[illegible]

LOG OF TEST HOLES

17.0
12.0
4.4

4-6

SITE NO.

SCS-533
REV. 3-67

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Bottom @ 2312.6</i>		STATE	
LOGGED BY <i>GNG</i>		DATE <i>4/13/75</i>		PROJECT: WP-07 _____ WP-08 <i>✓</i> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <i>Portable 3 inch.</i>		LOCATION OF HOLES <i>Station 1607+00 GN LINE</i>			

[illegible]

LOG OF TEST HOLES

14.3
5.7

WATERSHED <u>Spring Creek - Dixon</u>		SUB-WATERSHED		SITE NO. <u>Channel</u>	
LOCATION		OWNER <u>Channel Bottom @ 2314.3</u>		STATE <u>Nes</u>	
LOGGED BY <u>G.N.G.</u>		DATE <u>4/13/76</u>		PROJECT: WP-07 _____ WP-08 <u>X</u> FP-03 _____ P.L. 46 _____	
DRILLING EQUIPMENT <u>Portable 8"</u>		LOCATION OF HOLES <u>Station 1586+30</u> <u>ONLINE</u>			

[illegible]

1. DISTURBED-UNDISTURBED-ROCK CORE

2. COARSE MATERIAL REMOVED

3. PERCENT SAMPLE RECOVERY

SHEET OF SHEETS

LOG OF TEST HOLES

20. 2
17. 2
2. 8

3-K

SCS-533
REV. 3-67

WATERSHED <u>Spring Creek - Dawson</u>		SUB-WATERSHED		SITE NO. <u>Channel</u>	
LOCATION		OWNER <u>Channel Bottom 2317.2</u>		STATE <u>Nebr</u>	
LOGGED BY <u>G.M.G.</u>		DATE <u>4/13/76</u>		PROJECT: WP-07 _____ WP-08 <u>X</u> FP-03 _____ P.L-46 _____	
DRILLING EQUIPMENT <u>Portable 3"</u>		LOCATION OF HOLES <u>2 Satsga 156100</u> <u>ONLINE</u>			

[illegible]

LOG OF TEST HOLES

$$\begin{array}{r} 22.8 \\ 17.8 \\ \hline 5.0 \end{array} \quad \boxed{4.8}$$

SCS-533
REV. 3-67

WATERSHED <u>Spring Creek - Dawson</u>		SUB-WATERSHED		SITE NO. <u>Channel</u>	
LOCATION		OWNER <u>Bollens Channel @ 2578</u>		STATE <u>1 lb</u>	
LOGGED BY <u>G. N. G.</u>		DATE <u>4/13/76</u>		PROJECT: WP-07 _____ WP-08 <u>X</u> FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <u>Portable 3"</u>		LOCATION OF HOLES <u>Station 1554+00 ON LINE</u>			

[illegible]

SHEET OF SHEETS

LOG OF TEST HOLES

24.0
19.9

2.1

(2-4)

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Bottom @ cks 231.9</i>		STATE <i>Nebraska</i>	
LOGGED BY <i>G.N.G.</i>		DATE <i>4/14/76</i>		PROJECT: WP-07 _____ WP-08 <i>X</i> _____ FP-03 _____ P.L. 46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>& Station 1542+40 ON LINE</i>			

[illegible]

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LOG OF TEST HOLES

23.0
19.9
3.1
2-4
SCS-533
REV. 3-67

WATERSHED <i>Spring Creek - Dixon</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel bottom@cky. 2319.9</i>		STATE <i>Neb</i>	
LOGGED BY <i>G.N.G</i>		DATE <i>4/14/76</i>		PROJECT: WP-07 _____ WP-08 <i>X</i> FP-03 _____ P.L. 46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>Station 1529+10 ON Line</i>			

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO.	TYPE	FROM	TO	CSE.	REM.	REC.
		FT.	FT.							FT.	FT.	%	MIN. DIAM.	%
21	2323.0	0.0	0.5	IS silt w vt sand 10%, black to dark brown, moist			ML Aug							
		0.5	3.0	Silt with sand alluv. 20% vt sand 20% fine sand yellow to lt tan, moist to wet.			ML Aug							
		3.0	3.5	Silt with sand alluv, 20% vt sand, 20% fine sand, yellow to lt tan, moist to wet.			ML Aug							
		3.5	5.0	Sand w/silt, 30% vt sand 30-40% fine sand some grains to 1/4".			SM Aug							

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO. *Channel*

LOCATION

OWNER Channel Bottom @ 23 22.7

STATE Neb

LOGGED BY: GAG

DATE 4/14/78

PROJECT: WP-07 _____ WP-08 X _____ FP-03 _____ P.L.-4 _____

DRILLING EQUIPMENT *Portable 3"*

LOCATION OF HOLES
Station 1519+50 ON LINE

[illegible]

SCS-533
REV. 3-67

WATERSHED <i>Spring Creek - Drouson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Bottom @ elev. 2323.5</i>		STATE <i>Nebr</i>	
LOGGED BY <i>G.N.G</i>		DATE <i>4/14/76</i>		PROJECT: WP-07 _____ WP-08 <input checked="" type="checkbox"/> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>Station 1509+00 12' Rt</i>			

[illegible]

LOG OF TEST HOLES

$$\begin{array}{r} 26.2 \\ 24.3 \\ \hline 1.9 \end{array}$$

1-3

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Bottoms @ c/s 232x.3</i>		STATE <i>Nebr</i>	
LOGGED BY <i>G. N. G.</i>		DATE <i>4-14-76</i>		PROJECT: WP-07 _____ WP-08 <i>X</i> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>Station 1499+60 ON LINE</i>			

[illegible]

SHEET OF SHEETS

LOG OF TEST HOLES

$$\begin{array}{r} 21.8 \\ 25.8 \\ \hline 1.9 \end{array}$$

SCS-533
REV. 3-57

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO. *Channel*

LOCATION	OWNER
	Channel 60 How @ 2325.3

STATE *Nicaragua*

LOGGED BY G.N.G.

DATE 4/14/76

PROJECT: WP-07 WP-08 ☒ FP-03 P.L.-46

DRILLING EQUIPMENT *Portable 3"*

LOCATION OF HOLES/ *C Station 1487+30-5' Rt*

[illegible]

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Bottom @ elev. 2326.3</i>		STATE <i>Neb</i>	
LOGGED BY <i>G.N.G.</i>		DATE <i>4/14/76</i>		PROJECT: WP-07 _____ WP-08 _____ FP-03 _____ P.L-46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>Station 14+77 ON LINE</i>			

[illegible]

USDA-PCB HYATTSVILLE, MD. 1969

LOG OF TEST HOLES

REV. 3-67

SUB-WATERSHED

SITE NO.

OWNER

STATE

DATE 4/14/76

PROJECT:

WP-07

WP-08

FP-03

P.L. 46

Portable 3"

LOCATION OF HOLES

Station 1448+00

ON LINE

154

SCS-533
REV. 3-67

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO. Chan ne.

LOCATION	OWNER
	Channel Bottom @ elev 2331.5

STATE Nebor

LOGGED BY	G.M.G.	DATE	4/14/76
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PROJECT: WP-07 WP-08 ☒ FP-03 P.L. 46

DRILLING EQUIPMENT Portable 3"

LOCATION OF HOLES
1437400 ON LINE

[illegible]

REV. 3-67

SITE NO.	
----------	--

STATE

P.L.-46

HOLES
1276+10

ON LINE

[illegible]

LOG OF TEST HOLES

$$\begin{array}{r} 36.0 \\ 33.6 \\ \hline 2.4 \end{array}$$

Spring Creek - Dawson

SUB-WATERSHED

SITE NO.

0. Channel

LOCATION

OWNER

Bottom channel @

STATE

N-6

LOGGED BY

G. N. G

DATE 4/14/76

PROJECT:

WP-07

WP-08

FP-03

P.L.-46

DRILLING EQUIPMENT

Portable 3"

LOCATION OF HOLES
1
2
3
4
5
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86
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89
90
91
92
93
94
95
96
97
98
99
100

~~OFF~~ ON LINE

144 + 60

157

LOG OF TEST HOLES

$$\begin{array}{r} 30.6 \\ 36.6 \\ \hline 1.8 \end{array}$$
1-3

SCS-53
REV. 3-

SUB-WATERSHED

SITE NO	Channel
STATE	Web

LOCATION

OWNER *channel Bottom@* 36.6

STATE Nebraska

LOGGED BY G.N.G.

DATE 4/14/76

PROJECT: WP-07 WP-08 FP-03 P.L.46

DRILLING EQUIPMENT

Portalde 3"

LOCATION OF HOLES 1401+80 ON LINE

[illegible]

LOG OF TEST HOLES

1-3

WATERSHED <u>Spring Creek - Dawson</u>		SUB-WATERSHED		SITE NO. <u>Channel</u>	
LOCATION		OWNER <u>Channel Bottom @ e.b., 230.2</u>		STATE <u>Nebr</u>	
LOGGED BY <u>G.N.G.</u>		DATE <u>4/14/76</u>		PROJECT: WP-07 _____ WP-08 <u>X</u> _____ FP-03 _____ P.L-46 _____	
DRILLING EQUIPMENT <u>Portable 3"</u>		LOCATION OF HOLES <u>1335+00 ON LINE</u>			

[illegible]

SHEET OF SHEETS

LOG OF TEST HOLES

SCS-533
REV. 3-67

SUB-WATERSHED		SITE NO. <u>Channel</u>	
OWNER <u>Channel Bottom @ ebr. 2337.0</u>		STATE <u>Nebraska</u>	
PROJECT:			
WP-07	WP-08	FP-03	P.L. 46
LOCATION OF HOLES <u>1374+00 ONE INCH</u>			

[illegible]

LOG OF TEST HOLES

41.6
39.7
1.9

SCS-533
REV. 3-67

WATERSHED Spring Creek - Dawson		SUB-WATERSHED		SITE NO. Channel	
LOCATION		OWNER Channel Bottom @ elev. 3339.7		STATE	
LOGGED BY G.N.G.		DATE 4/14/76		PROJECT: WP-07 _____ WP-08 <u>X</u> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT Portable 3H		LOCATION OF HOLES 1365+00 20' left			

[illegible]

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LOG OF TEST HOLES

46-6
42.3
4.3 4-6

SCS-533
REV. 3-67

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel bottom @ 2342.3</i>		STATE <i>Neb</i>	
LOGGED BY <i>G. N. G.</i>		DATE <i>4/14/76</i>		PROJECT: WP-07 _____ WP-08 _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>Station 1331+00 ON LINE</i>			

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO.	TYPE	FROM FT.	TO FT.	CSE. %	REM. MIN. DIAM.	REC. %
		FT.	FT.											
37	2346.6	0.0	0.5	Gravel with silt, dirty grains to 1/2" size alluvium moist		SM	Any							
	GN	0.5	1.0	Gravel with plate silt, 10% gravel grains to 1/2" size moist.		ML	Any							
		1.0	3.0	Silt, with sand 10-20% of sand, 10% fine sand, yellow to H tan, moist to wet at bottom.		ML	Any							
		3.0	3.5	Silt, with sand - 10-20% of sand, 10% fine sand, yellow to H tan, moist to wet		ML	Any							
		3.5	5.0	Sand with silt, 70% sand, 30% of sand - 40% fine sand very few grains to 1/2" wet.		SM	Any							
		5.0	7.0	Sand with silt, 70% sand, 30% of sand - 40% fine sand, very few grains to 1/2" size. Water free at 6.0'		SM	Any							
162														

1. DISTURBED-UNDISTURBED-ROCK CORE

2. COARSE MATERIAL REMOVED

3. PERCENT SAMPLE RECOVERY

SHEET _____ OF _____ SHEETS

SITE NO. *Chamarel*

OWNER Channel Bottom @ elev. 2243.5

STATE Nebraska

LOGGED BY *G N. G*

DATE 4/15/76

PROJECT: WP-07 WP-08 ☒ FP-03 P.L. 46

DRILLING EQUIPMENT *Portable 3"*

LOCATION OF HOLES 1320 + 00 ON LINE

163

- SHEET _____ OF _____ SHEETS

LOG OF TEST HOLES

$$\begin{array}{r} 47.1 \\ 44.3 \\ \hline 2.7 \end{array}$$

SCS-533
REV. 3-67

SUB-WATERSHED

SITE NO. Channel

STATE Nebr

DATE/	4/15/76
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PROJECT: WP-07 WP-08 ☒ FP-03 P.L. 46

LOCATION OF HOLES 1310+00 ON LINE

[illegible]

1. DISTURBED-UNDISTURBED-ROCK CORE

2. COARSE MATERIAL REMOVED

3. PERCENT SAMPLE RECOVERY

SHEET OF SHEETS

LOG OF TEST HOLES

REV. 3-67

SITE NO. Chanizel

STATE Alb

PROJECT: WP-07 _____ WP-08 X _____ FP-03 _____ P.L-46 _____

LOCATION OF HOLES 1299+56 10' Left

[illegible]

SHEET OF SHEETS

LOG OF TEST HOLES

$$\begin{array}{r} 49.8 \\ 48.3 \\ \hline 1.5 \end{array} \quad \textcircled{1-3}$$

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO Channel
STATE Neb

LOCATION	OWNER
	Channel bottom @ elev. 2348.3

LOGGED BY G.N.G. DATE 4/15/76

PROJECT: WP-07 WP-08 FP-03 P.L.-46

DRILLING EQUIPMENT *Portable 3"*

LOCATION OF HOLES	1285+00	ON LINE
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[illegible]

WATERSHED Spring Creek - Dawson

SUB-WATERSHED	2347.0
---------------	--------

SITE NO. Channel

LOCATION

OWNER Channel bottom @ elev.

STATE Nc b

LOGGED BY G. N. G.

DATE 4/15/76

PROJECT: WP-07 _____ WP-08 X _____ FP-03 _____ P.L-46 _____

DRILLING EQUIPMENT *Portable 3"*

LOCATION OF HOLES	\$ Sta. 1276+00	ONLINE
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[illegible]

SCS-533
REV. 3-67

WATERSHED <u>Spring Creek-Dawson</u>		SUB-WATERSHED		SITE NO. <u>Channel</u>	
LOCATION		OWNER <u>Channel bottom @ elev 2348.0</u>		STATE <u>Neb</u>	
LOGGED BY <u>G.N.G</u>		DATE <u>4/15/76</u>		PROJECT: WP-07 _____ WP-08 <u>X</u> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <u>Portable 3"</u>		LOCATION OF HOLES <u>C Station 126425 ON LINE</u>			

[illegible]

LOG OF TEST HOLES

$$\begin{array}{r} 55.5 \\ 50.7 \\ \hline 48 \end{array}$$

SCS-533
REV. 3-61

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO. *Channel*

LOCATION	OWNER Channel Bottom @ elev. 2350.7
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STATE Neb

LOGGED BY	G.N.G.	DATE	4/15/75
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PROJECT: WP-07 _____ WP-08 X _____ FP-03 _____ P.L.-46 _____

DRILLING EQUIPMENT Portable 3'

LOCATION OF HOLES	1254+00	ON LINE
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[illegible]

LOG OF TEST HOLES

4-6

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO. Channel
STATE Nebraska

LOCATION

OWNER Channel Bottom @ elev 2352.0

STATE Neb

LOGGED BY *G.N.G.*

DATE 4/15/76

PROJECT:

WP-07

WP-08

FP-03

P.L.-46

DRILLING EQUIPMENT *Portable* 3 "

LOCATION OF HOLES 1244+70 12' R

170

SHEET OF SHEETS

LOG OF TEST HOLES

$$\begin{array}{r} 57.1 \\ 52.2 \\ \hline 4.9 \end{array}$$

WATERSHED <u>Spring Creek-Dawson</u>		SUB-WATERSHED <u>-</u>		SITE NO <u>Channel</u>	
LOCATION		OWNER <u>Channel bottom @ elev 2352.9</u>		STATE <u>Nebraska</u>	
LOGGED BY <u>G.N.G.</u>		DATE <u>4/15/76</u>		PROJECT: WP-07 _____ WP-08 <u>X</u> FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <u>Portable - 3"</u>		LOCATION OF HOLES <u>1233+10 30' Rt</u>			

[illegible]

SHEET OF SHEETS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LOG OF TEST HOLES

25 4-6
53.7
4.8

SCS-533
REV. 3-67

WATERSHED <i>Spring Creek - Drusson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel bottom @ 2353.7</i>		STATE <i>Nebr</i>	
LOGGED BY <i>G.N.G.</i>		DATE <i>4/19/76</i>		PROJECT: WP-07 _____ WP-08 <input checked="" type="checkbox"/> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLE <i>E. Sptn 1223+00 - 17' Rt</i>			

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM FT.	TO FT.					NO.	TYPE	FROM FT.	TO FT.	CSE. %	REM. MIN. DIAM.	REC. %
47	2358.5	0	1.0	T.S silt w/sand 10-20% v/sand, moist organic		ML	Aug							
		1.0	12.0	Silt w/sand 10-20% v/sand 10-20% fine sand, organic moist.		ML	Aug							
		2.0	3.0	Silt with sand, 10-20% v/sand 10-20% fine sand, organic, iron streaks moist		3rd ML	Aug							
		3.0	4.0	Sand with silt, 10-30% v/sand, 10%-30% fine sand grains to 1/4 in in fairly clean. Moist		SM	Aug							
		4.0	5.0	Silt with sand 10-20% v/sand, 10-20% fine sand, silty streaks are black in yellow with fine matrix wet moist		ML	Aug							
		5.0	6.0	Silt with sand, 10-20% v/sand, 10-30% fine sand, silt streaks are black in yellow with wet.		ML	Aug							
		6.0	7.0	Sand, all, 80% sand, grains to 1/4 in wet, very clean.		SM								
172														

Handwritten: 58.
23 2 44
33

SCS-533
REV. 3-67

WATERSHED Spring Creek - Dawson

SUB-WATERSHED

SITE NO. Channel

LOCATION

OWNER Channel Botom @ 22/01 2354

STATE Nebr

LOGGED BY G.N.G

DATE 4/19/76

PROJECT:

WP-07

WP-08

FP-03

P.L.-46

DRILLING EQUIPMENT *Portable 3"*

LOCATION OF HOLES

ON OF HOLES
Station 1712+60 14' Rt

[illegible]

173


1. DISTURBED-UNDISTURBED-ROCK CORE

2. COARSE MATERIAL REMOVED

3. PERCENT SAMPLE RECOVERY

SHEET OF SHEETS

60.0
55.5
4.5



A/b

P:L.-46

251

174

LOG OF TEST HOLES

$$\begin{array}{r} 59.0 \\ 56.3 \\ \hline 2.7 \end{array}$$

WATERSHED <i>Spring Creek Lawren</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>(Channel Bottom @ elev 2356.3</i>		STATE <i>Ne</i>	
LOGGED BY <i>G. N. G.</i>		DATE <i>4/19/76</i>		PROJECT: WP-07 _____ WP-08 _____ FP-03 _____ P.L-46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>41190+30 ON LINE</i>			

[illegible]

WATERSHED Spring Creek-Dawson

SUB-WATERSHED

SITE NO. *3995*

LOCATION	OWNER
	Channel Bottom @ elev.

STATE Neb

LOGGED BY	G. N. G.	DATE	4/19/76
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PROJECT: WP-07 _____ WP-08 ~~_____~~ FP-03 _____ P.L. 48 _____

DRILLING EQUIPMENT *Portable 3"*

LOCATION OF HOLES
Station 1179+20 ON LINE

[illegible]

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LOG OF TEST HOLES

SCS-533
REV. 3-67

WATERSHED Spring Creek - Dawson SUB-WATERSHED _____ SITE NO. Channel
LOCATION _____ OWNER Channel Bottom elev. 2357.9 STATE Neb
LOGGED BY G. N. G. DATE 4/19/76 PROJECT: WP-07 _____ WP-08 X FP-03 _____ P.L. 46 _____
DRILLING EQUIPMENT Portable 3" LOCATION OF HOLES Station 1171+00 ONLINE

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO.	TYPE	FROM FT.	TO FT.	CSE. %	REM. MIN. DIAM.	REC. %
		FT.	FT.											
52	2354.1	0.0	0.5	f.s. Black - silty w/ sand 10-20% moist.		ML	Ag							
		0.5	2.0	Silt, lt tan to yellow, 10-20% sand, 10-20% fine sand moist		ML	Ag							
		2.0	3.0	Silt, wetter 10% w/ sand dense black moist (old topsoil)		ML	Ag							
	CL	3.0	4.5	Silt, calcareous dense w/ sand 10-30% fine 20-30% white to yellow dense		ML	Ag							
		4.5	5.0	Silt, black with coarse sand, grain to 1/4" wet		ML	Ag							
	SC	5.0	6.0	Silt, black to dark brown fine sand 25% coarse sand 10% sticky wet		SM	Ag							
		6.0	7.0	Sand all, 10% sand, grain to 1/4" wet		SM	Ag							
177														

1. DISTURBED-UNDISTURBED-ROCK CORE

2. COARSE MATERIAL REMOVED

3. PERCENT SAMPLE RECOVERY

SHEET _____ OF _____ SHEETS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LOG OF TEST HOLES

SCS-533
REV. 3-67

WATERSHED <u>Spring Creek - Dawson</u>		SUB-WATERSHED		SITE NO. <u>Channel</u>	
LOCATION		OWNER <u>Channel bottom owner 23590</u>		STATE <u>Nebr</u>	
LOGGED BY <u>G. H. G.</u>	DATE <u>4/19/76</u>	PROJECT: WP-07 _____ WP-08 <u>X</u> FP-03 _____ P.L. 46 _____			
DRILLING EQUIPMENT <u>Portable 3"</u>		LOCATION OF HOLES <u>Station 1160+00 ON LINE</u>			

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO.	TYPE	FROM FT.	TO FT.	CSE. %	REM. MIN. DIAM.	REC. %
		FT.	FT.											
53	2365.0	0.0	2.0	TS. Silty w/ 10-20% v. sand, roots, moist			ML Aug							
		2.0	3.0	Silt clay with 10-20% v. sand 10-20% fine sand 11 in to dark tan wet.										
		3.0	4.5	Silt, v. sand 10 to 20% fine sand 10-30% some coarse grains to 1/2". wet. blue to 11 tan to yellow.			ML Aug							
		4.5	5.0	Sand, with silt. 1/2 sand 20%, fine sand 10%, grains to 1/4" wet.			SM Aug							
		5.0	5.5	Sand, dirty, silty black to yellow, 10-20% fine sand 20-30% coarse sand 30-40% grains to 1/4" wet.			SM Aug							
		5.5	7.0	Sand, clean, 80% sand with 1/2" size wet. 10-20% silt.			SM Aug							
178														

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LOG OF TEST HOLES

61.5
1163.3
4.2

SCS-533
REV. 3-67

WATERSHED <i>Spring Creek - Dawson</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Bottom @ elev. 1163.3</i>		STATE <i>Nebraska</i>	
LOGGED BY <i>G. N. G.</i>	DATE <i>4/20/76</i>	PROJECT: WP-07 _____ WP-08 <i>X</i> _____ FP-03 _____		P.L. 46 _____	
DRILLING EQUIPMENT <i>Portable 3"</i>		LOCATION OF HOLES <i>Station 1130+70 16' Left.</i>			

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO.	TYPE	FROM FT.	TO FT.	CSE. %	REM. MIN. DIAM.	REC. %
		FT.	FT.											
<i>5A</i>	<i>2367.5</i>	<i>0.0</i>	<i>1.0</i>	<i>TS, Black, organic, 10-20% sand, wet.</i>		<i>ML</i>	<i>Ag</i>							
		<i>1.0</i>	<i>3.0</i>	<i>Silt, alluv. 10-20% vls and, 10-20% fine sand, lt tan to yellow</i>										
	<i>CL</i>			<i>moist to wet in place. Calcareous and tough to</i>		<i>ML</i>	<i>Ag</i>							
				<i>clean</i>										
		<i>3.0</i>	<i>3.5</i>	<i>Silt, alluv. 10-20% sand, 20-30% fine sand, lt tan to yellow, wet,</i>										
	<i>CL</i>			<i>calcareous and tough.</i>		<i>ML</i>	<i>Ag</i>							
		<i>3.5</i>	<i>5.0</i>	<i>Sand alluvial, 10-30% of sand, 20-30% fine sand, yellow</i>										
	<i>SC</i>			<i>to white. Calcareous, wet. Not tough. concretions</i>		<i>SM</i>	<i>Ag</i>							
<i>54.1</i>				<i>up to 1 inch size.</i>				<i>Dis</i>		<i>3.5</i>	<i>5.0</i>			
		<i>5.0</i>	<i>5.5</i>	<i>Sand alluvial, 10-20% of sand, 20-30% fine sand, yellow</i>										
	<i>SC</i>			<i>to white, calcareous wet, Not tough. concretions to 1 1/2 size</i>		<i>SM</i>	<i>Ag</i>							
		<i>5.5</i>	<i>7.0</i>	<i>Sand, alluvial, 80% sand grains to 1/2 or 1" size very</i>		<i>SM</i>	<i>Ag</i>							
				<i>wet clean.</i>		<i>or</i>								
<i>179</i>														

**MATERIALS
TESTING REPORT**

 U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

Spring Creek - Dawson Channel Nebraska Sta. 1775+60, 35' Lt.

SAMPLE LOCATION

FIELD SAMPLE NO.

11

DEPTH

3.5 - 4.0'

GEOLOGIC ORIGIN

TYPE OF SAMPLE

Dist.

TESTED AT

SMU

APPROVED BY

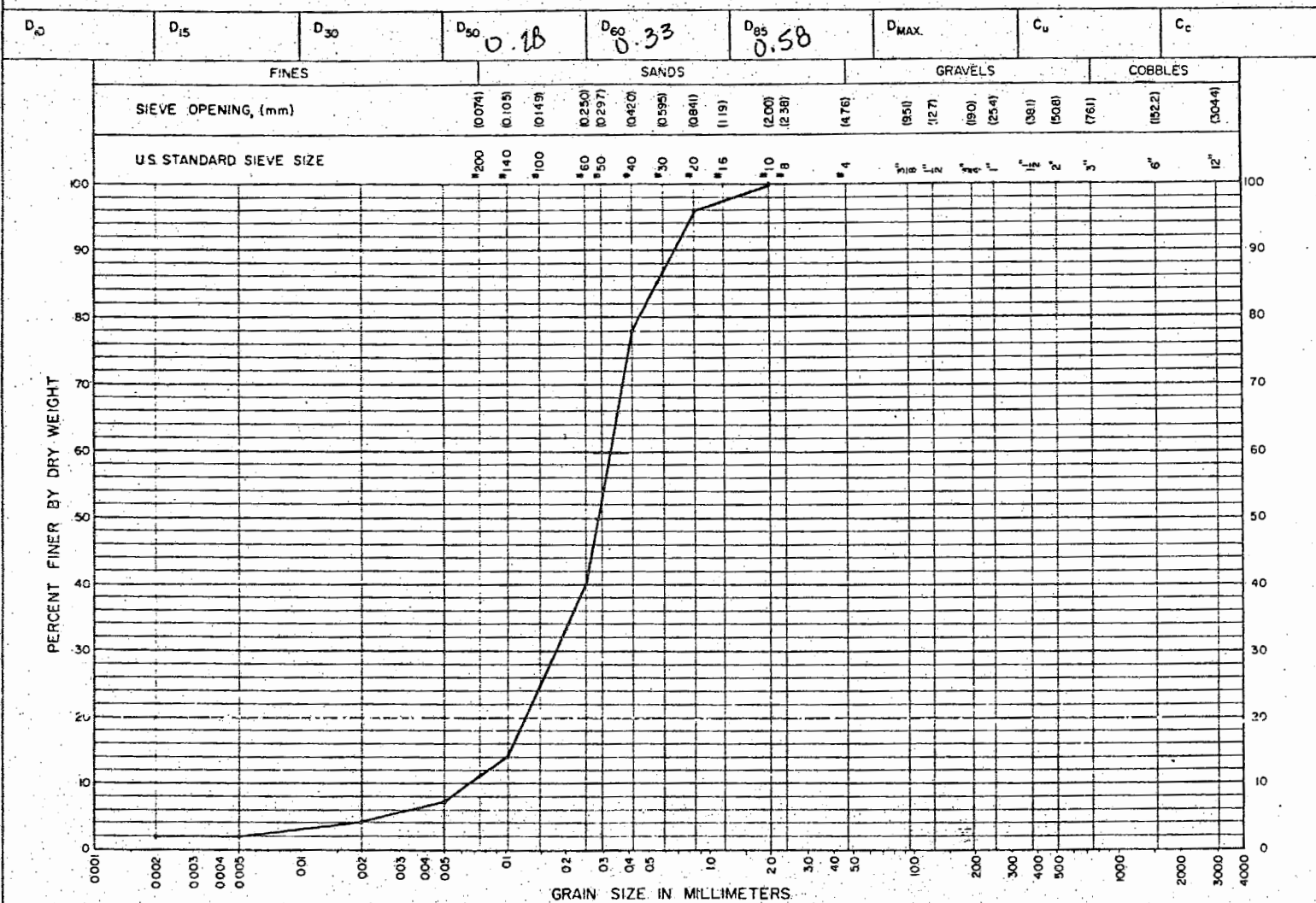
DATE

4/9/76

SYMBOL

SP-SM

DESCRIPTION

GRAIN SIZE DISTRIBUTION

 SPECIFIC
GRAVITY (G_s)

ATTERBERG LIMITS

 SOLUBLE
SALTS

 SHRINKAGE
LIMIT

UNDISTURBED CONDITION

NATURAL MOISTURE

AIR DRY

OVEN DRY

MOISTURE

DRY UNIT WEIGHT

(-) *4

(+) *4

LL

PI

LL

PI

LL

PI

%

%

%

g/cc

pcf

REMARKS: Non plastic SP-SM. Represents sand after construction of I-80.

MATERIALS
TESTING REPORTU.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT AND STATE

Spring Creek - Dawson Channel Nebraska

SAMPLE LOCATION

Sb. 1715+60, 35' Left.

FIELD SAMPLE NO.

1.2

DEPTH

5'-6'

GEOLOGIC ORIGIN

TYPE OF SAMPLE

Dist

TESTED AT

SM/L

APPROVED BY

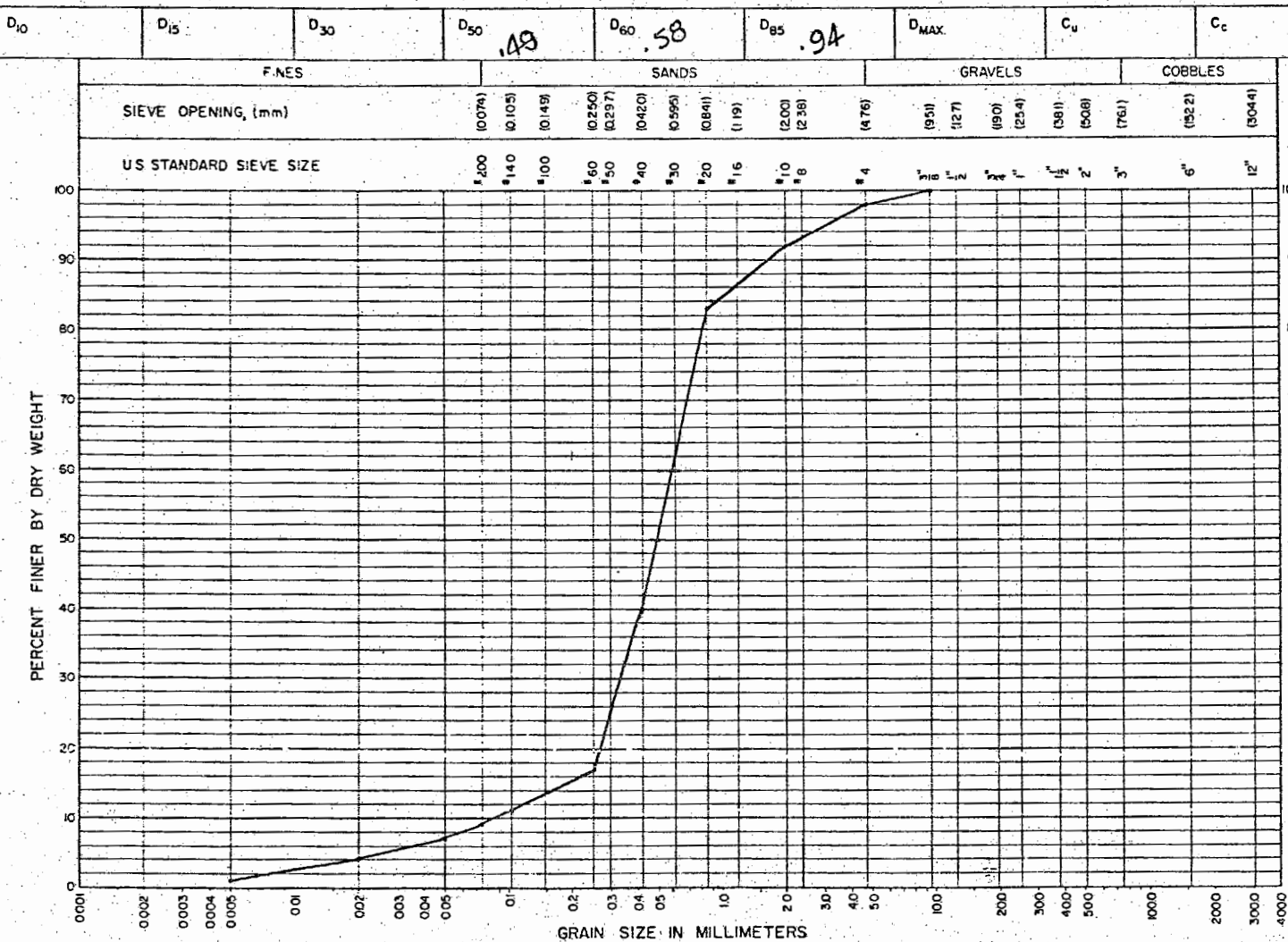
DATE

4/9/76

SYMBOL SW-SM

DESCRIPTION

GRAIN SIZE DISTRIBUTION

SPECIFIC
GRAVITY (G_s)

ATTERBERG LIMITS

NATURAL MOISTURE

AIR DRY

OVEN DRY

SOLUBLE
SALTSSHRINKAGE
LIMIT

UNDISTURBED CONDITION

MOISTURE

DRY UNIT WEIGHT

(-) %

(+) %

LL

PI

LL

PI

LL

PI

%

%

%

g/cc

pcf

REMARKS: Non plastic SW-SM. Represents sand after construction of I-80.

MATERIALS **TESTING REPORT**

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL CLASSIFICATION

PROJECT and STATE

FIELD SAMPLE NO.

Spring Creek - Dawson Channel, Nebraska

SAMPLE LOCATION

Sta. 1782+10 20' Left

DEPTH

4.0-5.0

GEOLOGIC ORIGIN

TYPE OF SAMPLE

Dist.

TESTED AT

SML

APPROVED BY

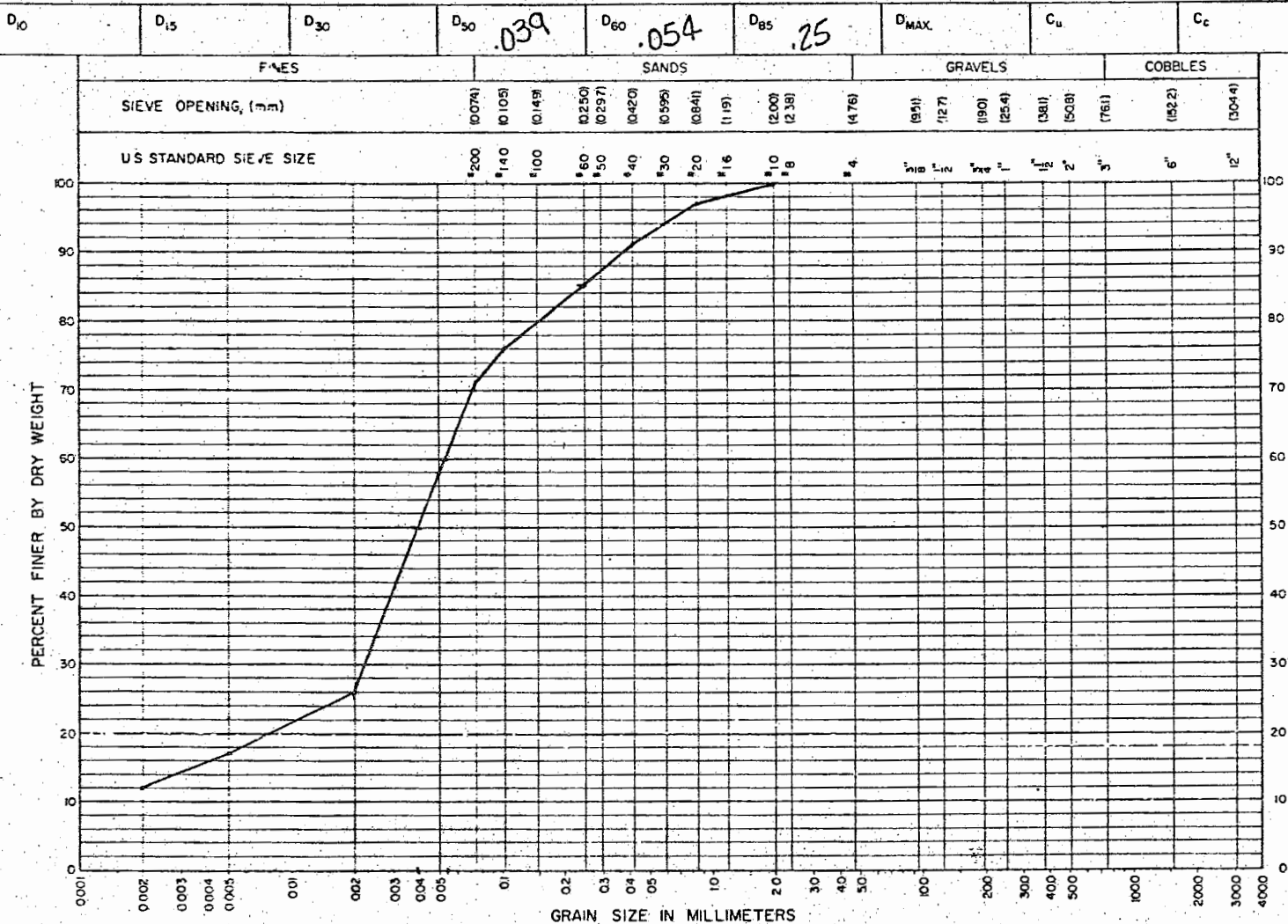
DATE

4/9/76

SYMBOL ML

DESCRIPTION

GRAIN SIZE DISTRIBUTION

SPECIFIC GRAVITY (G_s)

(-) *4

(+) *4

ATTERBERG LIMITS

NATURAL MOISTURE

AIR DRY

OVEN DRY

LL

PI

34

10

LL

PI

SOLUBLE SALTS

SHRINKAGE LIMIT

UNDISTURBED CONDITION

MOISTURE

DRY UNIT WEIGHT

%

g/cc

pcf

REMARKS: Represents silt over the sand without calcium. Material is dense in place.

MATERIALS TESTING REPORT		U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE		SOIL CLASSIFICATION	
PROJECT and STATE <i>Spring Creek - Dawson Channel, Nebraska</i>				SAMPLE LOCATION <i>Sta. 1764+20 ON LINE</i>	
FIELD SAMPLE NO. <i>3.1</i>		DEPTH <i>5'-6'</i>		GEOLOGIC ORIGIN	
TYPE OF SAMPLE <i>Dist.</i>		TESTED AT <i>SML</i>		APPROVED BY	
SYMBOL <i>CL</i>		DESCRIPTION		DATE <i>4/9/76</i>	

D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	D_{MAX}	C_u	C_c
			<i>.022</i>	<i>.028</i>	<i>.055</i>			

FINES		SANDS					GRAVELS				COBBLES									
SIEVE OPENING, (mm)		(.075)	(.105)	(.149)	(.250)	(.425)	(.850)	(1.18)	(2.00)	(2.36)	(4.75)	(9.5)	(12.5)	(19.0)	(25.0)	(37.5)	(60.0)	(75.0)	(106.0)	(200)
U. S. STANDARD SIEVE SIZE		#200	#140	#100	#60	#50	#40	#30	#20	#16	#10	#8	#4	#2	#1	#1/2	#3/8	#3/16	#1/4	#1/2
PERCENT FINER BY DRY WEIGHT	100																			
	90																			
	80																			
	70																			
	60																			
	50																			
	40																			
	30																			
	20																			
	10																			
	0																			
GRAIN SIZE IN MILLIMETERS		100	200	300	400	500	600	700	800	900	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000

SPECIFIC GRAVITY (G_s)		ATTERBERG LIMITS				SOLUBLE SALTS	SHRINKAGE LIMIT	UNDISTURBED CONDITION			
		NATURAL MOISTURE		AIR DRY		OVEN DRY				MOISTURE	DRY UNIT WEIGHT
(-) *4	(+) *4	LL	PI	LL	PI	LL	PI	%	%	%	g/cc pcf
				<i>44</i>	<i>24</i>						

REMARKS: *Represents silt over sand with calcium deposits. Material is dense in place.*

APPENDICES

APPENDIX A

Nebraska Reissued Revised Statutes,
1943, Section 2-3234

the necessary rights and interest in such lands, in order to demonstrate by example the means, methods, and measures by which soil and water resources may be conserved and soil erosion in the form of soil blowing and soil washing may be prevented and controlled. Demonstration projects shall be coordinated with the programs of the experiment station of the University of Nebraska.

2-3233. Each district shall have the power and authority to acquire and dispose of water rights in accordance with Chapter 46, article 2, and to acquire by grant, purchase, bequest, devise, or lease, and to hold and use waterworks, personal property, interests or title in real property, and to sell, lease, encumber or otherwise dispose of such waterworks and property. Each district shall also have the power and authority to acquire, construct, own, operate, control, maintain and use any and all such works and facilities, both within and without the district, necessary to carry out the provisions of this act, and furnish water service for domestic, irrigation, power, manufacturing and other beneficial purposes.

2-3234. Each district shall have the power and authority to exercise the power of eminent domain when necessary to carry out the purposes of this act within the limits of the district or outside its boundaries. Exercise of eminent domain shall be governed by the provisions of sections 76-704 to 76-724; Provided, that whenever any district seeks to acquire the right to interfere with the use of any water being used for power purposes in accordance with sections 46-204, 70-668, 70-669, and 70-672, and shall be unable to agree with the user of such water upon the compensation to be paid for such interference, the procedure to condemn property shall be followed in the manner set forth in sections 76-704 to 76-724, and no other property shall be included in such condemnation. No district shall contract for delivery of water to persons within the corporate limits of any village, city, or metropolitan utilities district, nor in competition therewith outside such corporate limits, except by consent of and written agreement with the governing body of such political subdivision. A village, city, or metropolitan utilities district may negotiate and, if necessary, exercise the power of eminent domain for the acquisition of water supply facilities of the district which are within its boundaries.

2-3235. (1) Each district shall have the power and authority to cooperate with or to enter into agreement with, and within the limits of appropriations available, to furnish financial or other aid to any cooperator, agency, governmental or otherwise, or any owner or occupier of lands within the district, for the carrying out of projects for benefit of the district as authorized by this act, subject to such conditions as the board may deem necessary to advance the purposes of this act.

(2) As a condition to the extending of any benefits under this act to, or the performance of work upon, any lands not owned or controlled by this state or any of its agencies, the directors may require contributions in money, services, materials, or otherwise to any operations conferring such benefits, and may require landowners to enter into and perform such agreements or covenants as to the permanent use of such lands as will tend to prevent or control erosion thereon.

(3) Each district may make available, on such terms as it shall prescribe, to landowners within the district, specialized equipment, materials, and services, which are not readily available from other sources, as will assist such

APPENDIX B

Nebraska Reissued Revised Statutes,
1943, Sections 2-3229 and 2-3231

2-3227. Each district may invest any surplus money in the district treasury, including such money as may be in any sinking fund established for the purpose of providing for the payment of the principal or interest of any contract, bond, or other indebtedness or for any other purpose, not required for the immediate needs of the district, in certificates of deposit of banks which are members of the Federal Deposit Insurance Corporation except that whenever the amount deposited exceeds the amount of insurance available thereon, the excess shall be secured in the same manner as for the deposit of public funds, in loan associations in the State of Nebraska to the extent that deposits therein are insured by the Federal Savings and Loan Insurance Corporation, in its own bonds, in treasury notes or bonds of the United States, or in bonds or debentures issued either singly or collectively by any of the twelve federal land banks, the twelve intermediate credit banks, or the thirteen banks for cooperatives under the supervision of the Farm Credit Administration. Investments in bonds or treasury notes may be made by direct purchase of any issue of such bonds or treasury notes, or part thereof, at the original sale of the same, or by the subsequent purchase of such bonds or treasury notes. Any bonds or treasury notes thus purchased and held may, from time to time, be sold and the proceeds reinvested in bonds or treasury notes as provided in this section. Sales of any bonds or treasury notes thus purchased and held shall, from time to time, be made in season so that the proceeds may be applied to the purposes for which the money with which the bonds or treasury notes were originally purchased was placed in the treasury of the district. The functions and duties authorized by this section shall be performed under such rules and regulations as shall be prescribed by the board.

2-3228. Each district shall have the power and authority to:

(1) Receive and use grants, state appropriations, gifts, and bequests for the purposes of this act;

(2) Establish advisory groups by appointing persons within the district; pay necessary and proper expenses of such groups as the board shall determine, and dissolve such groups;

(3) Employ such persons as are necessary to carry out the purposes of this act;

(4) Purchase liability, property damage, workmen's compensation, and other types of insurance as in the judgment of the board are necessary to protect the assets of the district;

(5) Borrow money to carry out the provisions of this act;

(6) Adopt rules and regulations to carry out the purposes of this act; and

(7) Invite the local governing body of any municipality or county to designate a representative to advise and counsel with the board on programs and policies that may affect the property, water supply or other interests of such municipality or county.

2-3229. The purposes of natural resources districts shall be to develop and execute, through the exercise of powers and authorities contained in this act, plans, facilities, works and programs relating to (1) erosion prevention

and control, (2) prevention of damages from flood water and sediment, (3) flood prevention and control, (4) soil conservation, (5) water supply for any beneficial uses, (6) development, management utilization and conservation of ground water and surface water, (7) pollution control, (8) solid waste disposal and sanitary drainage, (9) drainage improvement and channel rectification, (10) development and management of fish and wildlife habitat, (11) development and management of recreational and park facilities, and (12) forestry and range management. All such plans and programs are to be in conformance with the goals, criteria and policies of the state water plan as developed by the Nebraska Soil and Water Conservation Commission; Provided, that the development and execution of such plans and programs as authorized by this section within Nebraska planning and development districts shall be undertaken only if a properly designated district planning body for the area affected shall find that such plans and programs are not in conflict with the goals, objectives, or plans of the district planning board. Such planning body shall be accorded a period of thirty days to review and comment upon the plans and programs of natural resources districts. Failure to reply within thirty days shall be conclusive that the proposed plans and programs have been endorsed by the district planning body; Provided, that negative comments on plans or programs by the district planning body shall not delay action by the natural resources district or its agent when such plans and programs are specifically recommended in a functional plan that has been approved by the Legislature. The same thirty-day review period shall be provided for the central state planning agency. The execution of such plans and programs as authorized by this section may not be undertaken if as a result of this review the central state planning agency shall find that such plans and programs are in conflict with state policies and plans approved by the Legislature. Failure to reply within thirty days shall be conclusive that the proposed plans and programs have been endorsed by the central state planning agency. As to development and management of fish and wildlife habitat and development and management of recreational and park facilities, such plans and programs shall be in conformance with the outdoor recreation plan for Nebraska and the fish and wildlife plan for Nebraska as developed by the Game and Parks Commission. Plans for development and management of fish and wildlife habitat and recreational and park facilities shall be approved in writing by the Game and Parks Commission prior to their adoption or development. Periodic reports shall be submitted by the districts to the commission as such plans and programs develop and the commission shall coordinate the activities of the several districts to prevent conflicts of operations.

2-3230. Each district shall have the power and authority to construct and maintain works and establish and maintain facilities across or along any public street, alley, road, or highway and in, upon, or over any public lands which are now, or may hereafter become, the property of the State of Nebraska, and to construct works and establish and maintain facilities across any stream of water or watercourse; Provided, that the district shall promptly restore any such street, highway, or other property to its former state of usefulness as nearly as may be possible, and shall not use the same in such manner as to completely or unnecessarily impair the usefulness thereof. In the use of streets, the district shall be subject to the reasonable rules and regulations of the county, city, or village where such streets lie concerning excavation and the refilling of excavation, the relaying of pavements, and the protection of the public during periods of construction. The district shall not be required to pay any license or permit fees, or file any bonds, but may be required to pay reasonable inspection fees.

2-3230.01. A natural resources district having within, or partially within its boundary, the irrigation service area of an operational irrigation district, reclamation district, or public power and irrigation district, shall, prior to construction of any project within such irrigation service area that would have a direct effect upon the conveyance, distribution, use, recovery, reuse and drainage of water, obtain approval of such project by the governing board of the irrigation district, reclamation district or public power and irrigation district whose irrigation service area is so affected.

2-3231. Each district shall have the power and authority to:

(1) Contract for the construction, preservation, operation, and maintenance of tunnels, reservoirs, regulating or reregulating basins, diversion works and canals, dams, drains, drainage systems, or other projects for a purpose mentioned in section 2-3229, and necessary works incident thereto, and to hold the federal government or any agency thereof free from liability arising from any construction;

(2) Contract with the United States for a water supply and water distribution and drainage systems under any Act of Congress providing for or permitting such contract;

(3) Acquire by purchase, lease, or otherwise mutually arrange to administer and manage any project works undertaken by the United States or any of its agencies, or by this state or any of its agencies; Provided, that this section shall not apply to any project being administered or managed by any public power district, public power and irrigation district, metropolitan utilities district, reclamation district, or irrigation district; and

(4) Act as agent of the United States, or any of its agencies, or for this state or any of its agencies, in connection with the acquisition, construction, operation, maintenance or management of any project within its boundaries.

2-3232. Each district shall have the power and authority to:

(1) Make studies, investigations or surveys and to do research as may be necessary to carry out the purposes of this act, to enter upon any land, after notifying the owner or occupier, for the purpose of conducting such studies, investigations, surveys, and research, and to publish and disseminate the results. Entry upon any property pursuant to this section shall not be considered to be legal trespass and no damage shall be recoverable on that account alone. In case of any actual or demonstrable damage to premises, the district shall pay the owner of the premises the amount of the damages. Upon failure of the landowner and the district to agree upon the amount of damage, the landowner, in addition to any other available remedy, may file a petition as provided in section 76-705. To avoid duplication of effort, any such studies, investigations, surveys, research or dissemination shall be in cooperation and coordination with the programs of the University of Nebraska, or any department thereof, and any other appropriate state agencies; and

(2) Conduct demonstration projects within the district on lands owned or controlled by this state or any of its agencies, with the cooperation of the agency administering and having jurisdiction thereof, and on any other lands within the district, upon obtaining the consent of the owners of such land or

APPENDIX C

o

Resolution on Spring Creek Lower Watershed

RESOLUTION ON SPRING CREEK LOWER WATERSHED

WHEREAS the Central Platte Natural Resources District was created by enactment of Nebraska Natural Resources District Act, Nebraska Revised Statutes of 1943, Sections 2-3201 to 2-3261 and became a legal public body on July 1, 1972, and

WHEREAS the Nebraska Legislature, in outlining the purposes of the Natural Resources Districts, specifically identified flood prevention and control and prevention of damages from flood water as two of the Districts' purposes and authorized the Districts to contract for the construction, operation and maintenance of dams and other necessary works incident thereto, and

WHEREAS the Spring Creek Lower Watershed is a major watershed within the Central Platte Natural Resources District and receives extensive flood damage as a result of major floods in the watershed, and

WHEREAS the Central Platte Natural Resources District has hired the engineering firm of The Schemmer Associates Inc. to review the flood control needs of the Spring Creek Lower Watershed and develop a detailed feasibility study for the watershed, and

WHEREAS the engineering firm of The Schemmer Associates Inc. has made such a detailed study and concluded that a flood control project could be constructed in the watershed that would greatly reduce flood damages and show a favorable rate of return on investment, and

WHEREAS the development of such a project within the watershed would provide benefits not only to the people within the watershed but to Central Nebraska in general, and

WHEREAS the local people and the Central Platte Natural Resources District are financially unable to carry out a project of this magnitude within a reasonable time without financial assistance, and

WHEREAS the Nebraska Legislature created the Nebraska Resources Development Fund to assist with the development of the state's water and related land resources, and

WHEREAS there are no other state or federal sources of financial assistance available to the District that would enable the District to complete a flood control project on Spring Creek Lower Watershed within a reasonable time,

NOW THEREFORE, be it resolved that the board of directors of the Central Platte Natural Resources District hereby requests a \$2,739,475.00 grant from the Nebraska Resources Development Fund for seventy-five percent (75%) cost-share on the development of a watershed project for Spring Creek Lower.

Resolution adopted at the Central Platte Natural Resources District board meeting on March 27, 1980.

APPENDIX D
SCS Soil Investigations

FIGURE 8
SOIL BORING LOCATIONS
 SPRING CREEK LOWER WATERSHED
 DAWSON COUNTY, NEBRASKA
 SHEET 1 OF 3

LEGEND:
 (1) Soil Boring

The map displays a topographic representation of the Spring Creek Lower Watershed. Key features include:

- Topography:** Contour lines indicating elevation, with labels such as 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3170, 3180, 3190, 3200, 3210, 3220, 3230, 3240, 3250, 3260, 3270, 3280, 3290, 3300, 3310, 3320, 3330, 3340, 3350, 3360, 3370, 3380, 3390, 3400, 3410, 3420, 3430, 3440, 3450, 3460, 3470, 3480, 3490, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3610, 3620, 3630, 3640, 3650, 3660, 3670, 3680, 3690, 3700, 3710, 3720, 3730, 3740, 3750, 3760, 3770, 3780, 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890, 3900, 3910, 3920, 3930, 3940, 3950, 3960, 3970, 3980, 3990, 4000, 4010, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280, 4290, 4300, 4310, 4320, 4330, 4340, 4350, 4360, 4370, 4380, 4390, 4400, 4410, 4420, 4430, 4440, 4450, 4460, 4470, 4480, 4490, 4500, 4510, 4520, 4530, 4540, 4550, 4560, 4570, 4580, 4590, 4600, 4610, 4620, 4630, 4640, 4650, 4660, 4670, 4680, 4690, 4700, 4710, 4720, 4730, 4740, 4750, 4760, 4770, 4780, 4790, 4800, 4810, 4820, 4830, 4840, 4850, 4860, 4870, 4880, 4890, 4900, 4910, 4920, 4930, 4940, 4950, 4960, 4970, 4980, 4990, 5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090, 5100, 5110, 5120, 5130, 5140, 5150, 5160, 5170, 5180, 5190, 5200, 5210, 5220, 5230, 5240, 5250, 5260, 5270, 5280, 5290, 5300, 5310, 5320, 5330, 5340, 5350, 5360, 5370, 5380, 5390, 5400, 5410, 5420, 5430, 5440, 5450, 5460, 5470, 5480, 5490, 5500, 5510, 5520, 5530, 5540, 5550, 5560, 5570, 5580, 5590, 5600, 5610, 5620, 5630, 5640, 5650, 5660, 5670, 5680, 5690, 5700, 5710, 5720, 5730, 5740, 5750, 5760, 5770, 5780, 5790, 5800, 5810, 5820, 5830, 5840, 5850, 5860, 5870, 5880, 5890, 5900, 5910, 5920, 5930, 5940, 5950, 5960, 5970, 5980, 5990, 6000, 6010, 6020, 6030, 6040, 6050, 6060, 6070, 6080, 6090, 6100, 6110, 6120, 6130, 6140, 6150, 6160, 6170, 6180, 6190, 6200, 6210, 6220, 6230, 6240, 6250, 6260, 6270, 6280, 6290, 6300, 6310, 6320, 6330, 6340, 6350, 6360, 6370, 6380, 6390, 6400, 6410, 6420, 6430, 6440, 6450, 6460, 6470, 6480, 6490, 6500, 6510, 6520, 6530, 6540, 6550, 6560, 6570, 6580, 6590, 6600, 6610, 6620, 6630, 6640, 6650, 6660, 6670, 6680, 6690, 6700, 6710, 6720, 6730, 6740, 6750, 6760, 6770, 6780, 6790, 6800, 6810, 6820, 6830, 6840, 6850, 6860, 6870, 6880, 6890, 6900, 6910, 6920, 6930, 6940, 6950, 6960, 6970, 6980, 6990, 7000, 7010, 7020, 7030, 7040, 7050, 7060, 7070, 7080, 7090, 7100, 7110, 7120, 7130, 7140, 7150, 7160, 7170, 7180, 7190, 7200, 7210, 7220, 7230, 7240, 7250, 7260, 7270, 7280, 7290, 7300, 7310, 7320, 7330, 7340, 7350, 7360, 7370, 7380, 7390, 7400, 7410, 7420, 7430, 7440, 7450, 7460, 7470, 7480, 7490, 7500, 7510, 7520, 7530, 7540, 7550, 7560, 7570, 7580, 7590, 7600, 7610, 7620, 7630, 7640, 7650, 7660, 7670, 7680, 7690, 7700, 7710, 7720, 7730, 7740, 7750, 7760, 7770, 7780, 7790, 7800, 7810, 7820, 7830, 7840, 7850, 7860, 7870, 7880, 7890, 7900, 7910, 7920, 7930, 7940, 7950, 7960, 7970, 7980, 7990, 8000, 8010, 8020, 8030, 8040, 8050, 8060, 8070, 8080, 8090, 8100, 8110, 8120, 8130, 8140, 8150, 8160, 8170, 8180, 8190, 8200, 8210, 8220, 8230, 8240, 8250, 8260, 8270, 8280, 8290, 8300, 8310, 8320, 8330, 8340, 8350, 8360, 8370, 8380, 8390, 8400, 8410, 8420, 8430, 8440, 8450, 8460, 8470, 8480, 8490, 8500, 8510, 8520, 8530, 8540, 8550, 8560, 8570, 8580, 8590, 8600, 8610, 8620, 8630, 8640, 8650, 8660, 8670, 8680, 8690

①

Soil Boring

FIGURE 4
 PROPOSED IMPROVEMENTS
 SPRING CREEK LOWER WATERSHED
 DAWSON COUNTY, NEBRASKA
 SHEET 2 OF 3

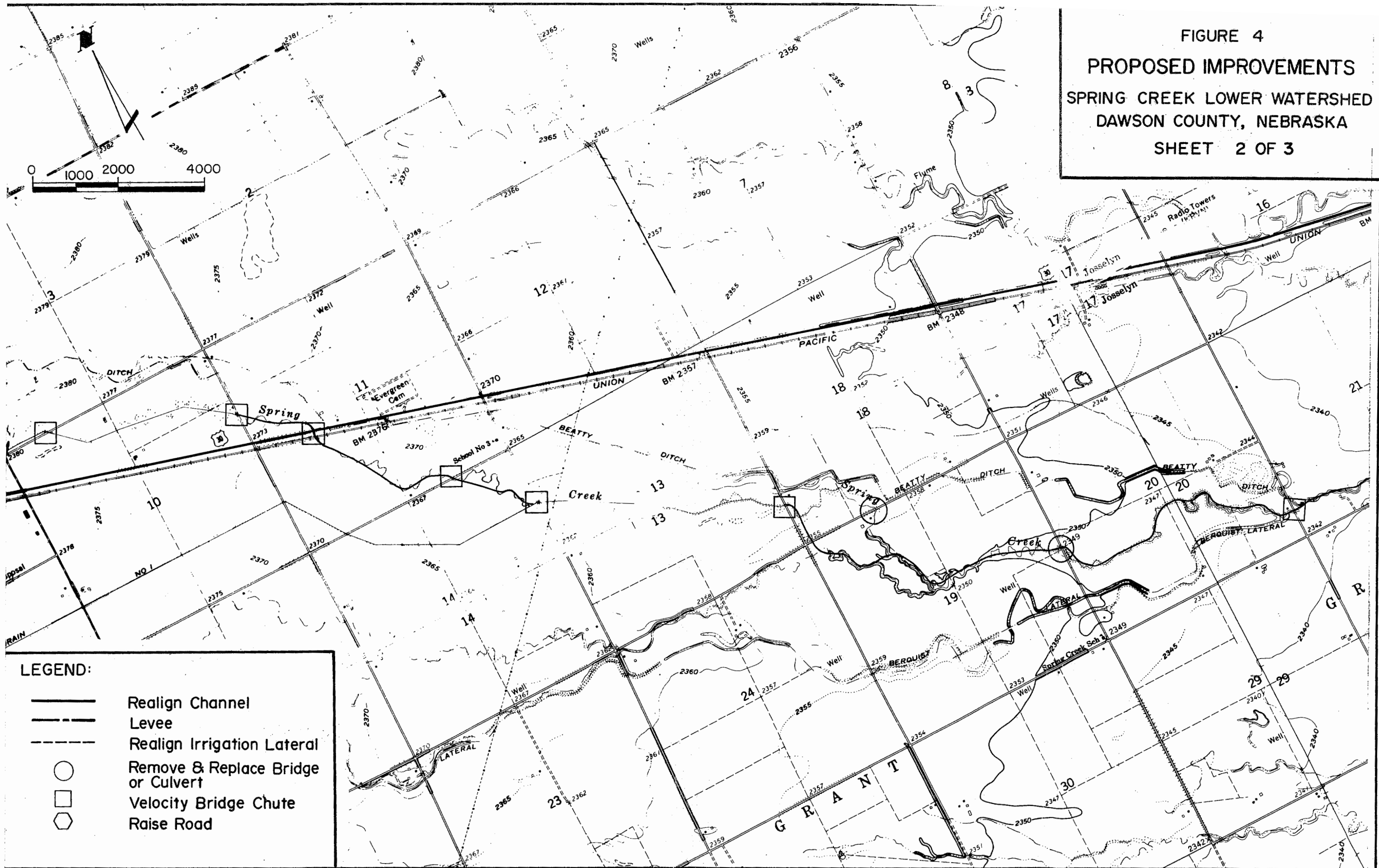
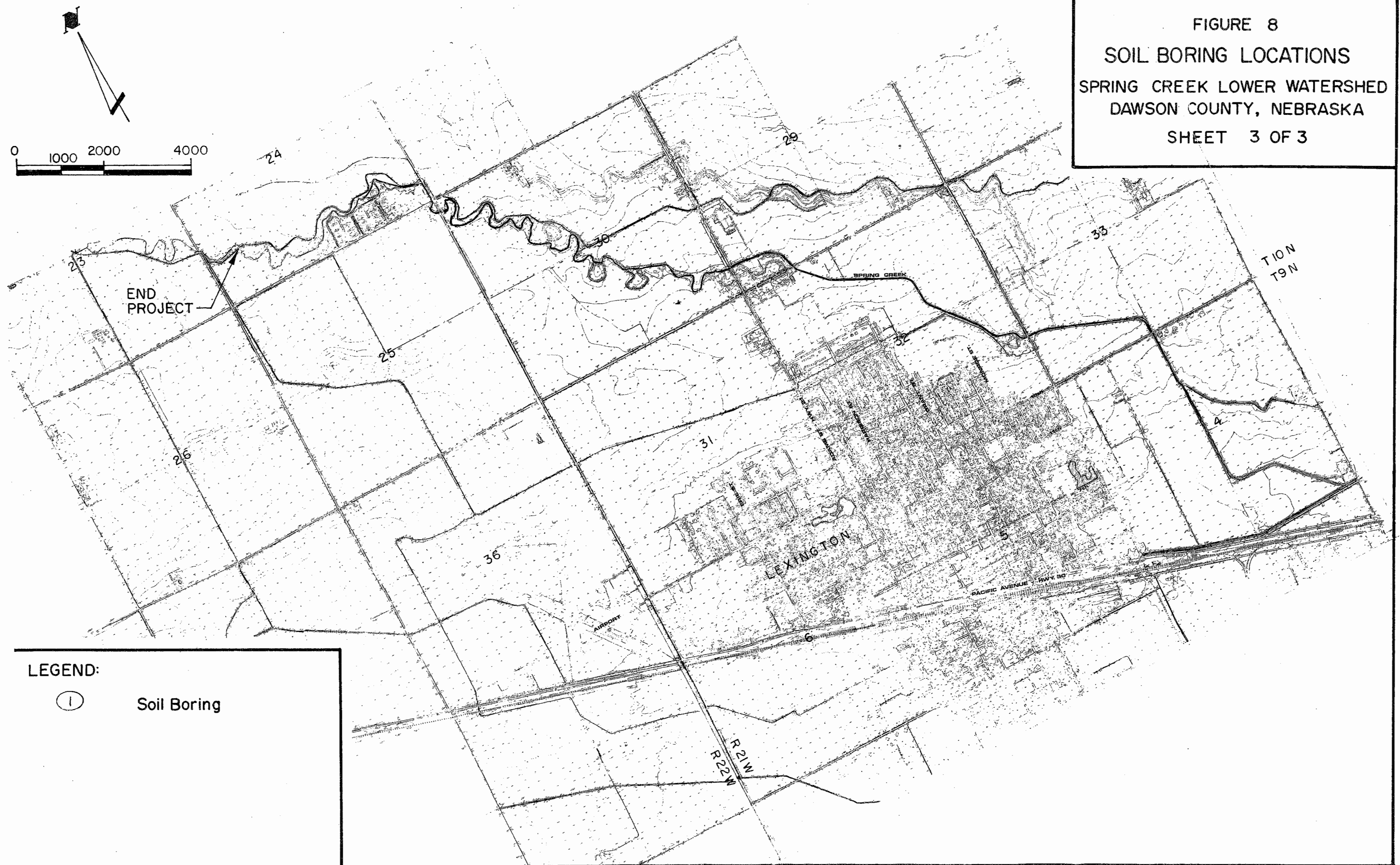


FIGURE 8
SOIL BORING LOCATIONS
SPRING CREEK LOWER WATERSHED
DAWSON COUNTY, NEBRASKA
SHEET 3 OF 3



LABORATORY SAMPLE NUMBER	FIELD NUMBER	NEBRASKA LOCATION AND DESCRIPTION	DEPTH	FIELD CLASS- IFICATION	MECHANICAL ANALYSIS GRAIN SIZE DISTRIBUTION EXPRESSED AS PERCENT FINER BY DRY WEIGHT																	ATTERBERG LIMITS		UNIFIED CLASS- IFICATION	SOLUBLE SALTS %	DIS- PER-SION %	CURVE NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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					#002 mm	#005	#002	#005	#200 0.075	#140 0.105	#60 0.250	#40 0.42	#20 0.84	#10 2.0	#4 4.75	3/8" 9.525	1/2" 12.7	3/4" 19.05	1" 25.4	1 1/2" 38.1	2" 50.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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WATERSHED <i>Spring Creek-Dawson</i>		SUB-WATERSHED <i>Channel bottom @ 2291.7</i>		SITE NO. <i>Channel</i>	
LOCATION <i>South Side I-80 Bridge</i>		OWNER		STATE <i>Neb</i>	
LOGGED BY <i>G.N.G.</i>		DATE <i>4/6/76</i>		PROJECT: WP-07 _____ WP-08 <input checked="" type="checkbox"/> FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <i>Portable</i>		LOCATION OF HOLES <i>C Station 1775+60 35' Left</i>			

[illegible]

LOG OF TEST HOLES

LOG OF TEST HOLES

SCS-533

REV. 3-6

WATERSHED Spring Creek Dawson

WATERSHED Spring Creek Dawson

LOCATION 305' W. from Head of c.

LOCATION 305' W. from Head of c.

LOGGED BY GNG

LOGGED BY GNG

DATE 4/6/76

DATE 4/6/76

SUB-WATERSHED

SUB-WATERSHED
Channel bottom @ 2291.2

SUB-WATERSHED
Channel bottom @ 2291.2

OWNER

OWNER

SITE NO.

SITE NO. *Char n*

SITE NO. *Char n*

STATE

STATE AKA

PROJECT:

PROJECT:

WP-07

WP-07

WP-08

WP-08

FP-03

FP-03

P.L.-46

P.L.-46

DRILLING EQUIPMENT

DRILLING EQUIPMENT *Portable*

DRILLING EQUIPMENT *Portable*

LOCATION OF HOLES

LOCATION OF HOLES
Station PT82+10 20' Left

LOCATION OF HOLES
Station PT82+10 20' Left

[illegible]

1. DISTURBED-UNDISTURBED-ROCK CORE

2. COARSE MATERIAL REMOVED

3. PERCENT SAMPLE RECOVERY

SHEET OF SHEETS

USDA BCS HYATTSVILLE, MD 1963

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LOG OF TEST HOLES

SCS-533
REV. 3-67

WATERSHED <i>Spring Creek - Dixon</i>		SUB-WATERSHED		SITE NO. <i>Channel</i>	
LOCATION		OWNER <i>Channel Coll. & Co. 2235-6</i>		STATE <i>Ne b.</i>	
LOGGED BY <i>E.N.G.</i>	DATE <i>4/12/66</i>	PROJECT: WP-07 <input checked="" type="checkbox"/> WP-08 <input checked="" type="checkbox"/> FP-03 <input type="checkbox"/> P.L-46 <input type="checkbox"/>			
DRILLING EQUIPMENT <i>Portage 3"</i>		LOCATION OF HOLES <i>E. of 1744+35 20' left</i>			

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES						
		FROM	TO					NO.	TYPE	FROM FT.	TO FT.	CSE. %	REM. MIN. DIAM.	REC. %
		FT.	FT.											
5	220.1	0	1.5	Topsoil, tan to brown, moist 20% of sand		ML	K _{un}							
		0.5	1.5	Alluvium, yellow brown 40% of sand 10% fine		ML	K _{un}							
		1.5	2.0	Block, to moist some roots		ML	K _{un}							
		2.5	4.0	Clayey yellow with calcium streaks fine sand 10% dense		CL	K _{un}							
				& moist.		ML	K _{un}							
		4.0	5.0	Alluvium, brown, very moist, concrete to 1" dense, fine sand		CL	K _{un}							
5.1	21.1			5%		ML	K _{un}	5.1	Dr	4'	5'			
		5.0	7.0	Alluvium, yellow to tan, wet, containing some sticks, water		CL	K _{un}							
5.2	21.1			hole at 5.0' some black streaks at 6'-7'		ML	K _{un}	5.2	Dr	5'	6'			
5.3	21.1							5.3	Dr	6'	15'			
130														

SCS-533
REV. 3-67

WATERSHED <u>Sering Creek - 600000</u>		SUB-WATERSHED		SITE NO. <u>1110</u>	
LOCATION <u>Station 701+03 7550' RT</u>		OWNER		STATE <u>W.Va.</u>	
LOGGED BY <u>G.N.G.</u>		DATE <u>4/13/75</u>		PROJECT: WP-07 _____ WP-08 <u>X</u> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT <u>For use</u>		LOCATION OF HOLES <u>General Station @ 79.6</u>			

HOLE NO.	STA. & SURFACE ELEVATION	HOLE DEPTH		DESCRIPTION OF MATERIALS	N	U S C S	TYPE BIT USED	SAMPLES							
		FROM	TO					NO.	TYPE ¹	FROM	TO	CSE.	REM. ²	REC. ³	
															FT.
2	2300.0	0	1.0	T.S. dark moist, fine roots 20% of sand		ML	Run								
		1.0	2.5	Lt. moist, tan to yellow tan, 20-30% of sand moist		ML	Run								
		2.5	3.5	Lt. moist, tan to yellow tan, 20-30% of sand moist		ML	Run								
		3.5	4.5	Lt. moist, dark with carbon deposit, 20-30% of sand moist		ML	Run								
		4.5	5.5	Lt. moist, dark to streaked green, carbon, 20-30% of sand moist		ML	Run								
133	2300.0	5.5	7.0	Lt. green to yellow tan, carbon, 20-40% of sand moist		ML	Run	60	70						

LOG OF TEST HOLES

(5-7)

SCS-533
REV. 3-67

WATERSHED Spring Creek, Dawson		SUB-WATERSHED		SITE NO. Channel	
LOCATION		OWNER channel bottom @ 2300.0		STATE Neb	
LOGGED BY G.N.G.		DATE 4/13/76		PROJECT: WP-07 _____ WP-08 <u>X</u> _____ FP-03 _____ P.L.-46 _____	
DRILLING EQUIPMENT Portable		LOCATION OF HOLES Station 1695+30 ON LINE			

[illegible]

4-6
SCS-533
REV. 3-67

SITE NO. *Channel*

OWNER	Channel bottom @ 2301.7	STATE
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PROJECT: WP-07 WP-08 FP-03 P.L. 46

LOCATION OF HOLES
Station 1681 + 40 10' left.

[illegible]