Report of
NORTH DAKOTA STATE WATER COMMISSION
State Office Building
BISMARCK, NORTH DAKOTA
58501

WHITE EARTH DAM AND RECREATION COMPLEX
HOUNTRAIL COUNTY
SWC PROJECT #327 - SORA PROJECT #31-16

Prepared in cooperation with
Hountrail County Water Management District
State Game and Fish Department
State Outdoor Recreation Agency

November 22, 1968

HYDROLOGIC CYCLE

RAIN CLOUDS

WHILE FALLING

FROM SCIL

FROM STREAMS

FROM VEGETATION

FROM LAKES

INERFILTRATION

SURFACE RUNOFF

PERCOLATION

GROUND WATER

LAKES
NORTH DAKOTA STATE WATER COMMISSION

PROJECT REPORT

NAME: White Earth Dam and Recreation Complex, Mountrail County
PROJECT: SWC #327 - SORA #31-16
DATE: November 22, 1966

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November 22, 1968

John Greenslit, State Liaison Officer
State Outdoor Recreation Agency
State Office Building
Bismarck, North Dakota 58501

RE: White Earth Dam and Recreation Complex,
SVC Project #327 (SORA #31-16)

Dear Mr. Greenslit:

Enclosed are seven (7) copies of an acquisition and development proposal for the White Earth Dam and Recreation Complex in Mountrail County. The proposal was prepared by the State Water Commission in cooperation with the State Game and Fish Department and the Mountrail County Water Management District, the project sponsor.

Please submit the proposal to the Bureau of Outdoor Recreation for a grant from the Land and Water Conservation Fund. We appreciate the cooperation of the State Outdoor Recreation Agency and others who assisted in the preparation of this report.

Sincerely yours,

Milo W. Hoisveen
Engineer-Secretary

MWH:JS:ka
cc: Mountrail Co. WMD
State Game & Fish Dept.
Comm. Steinberger

"BUY NORTH DAKOTA PRODUCTS"
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
PROJECT PROPOSAL - ACQUISITION

Use this form for submission of individual projects for acquiring lands and waters or interests in lands and waters for public outdoor recreation purposes. If concurrent development is being undertaken, check here [X]

<table>
<thead>
<tr>
<th>Date Received</th>
<th>Priority</th>
<th>Project Number</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Project Officer</th>
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<table>
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<tr>
<th>SECTION 1</th>
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1. State or Territory: North Dakota
2. Name and address of agency responsible for project: Mountrail County Water Management District, c/o David Coons, Chairman, Coulee, North Dakota 58729
3. Project Title: White Earth Dam & Recreation Complex, Mountrail County - SORA #31-16
4. Brief description of project: Located 17 miles west and 8 miles north of Stanley in the White Earth River Valley, the project includes acquiring 362 acres of land, constructing a dam creating a 175 acre reservoir with a 1600 acre-foot capacity and installing outdoor recreation facilities for such activities as fishing, boating, picnicking, swimming and playing outdoor games. The project is designed to meet local unmet needs for water-based outdoor recreation facilities and to meet future requirement for fishing lakes in Region II as stipulated in the State Outdoor Recreation and State Water Resources Plans. General area development is included in the plans to enhance the area's natural scenic beauty.

5. Duration of project: from 2-1-69 to 6-30-71
6. Federal assistance requested: $8,554.50
7. Recommended priority: A
8. Name, Organization, and Title of individual having day-to-day responsibility for direction of project: Mountrail County Water Management District, c/o David Coons, Chairman, Coulee, North Dakota 58729
9. Name and Address to appear on check: Milo W. Hoisveen, State Fiscal Officer, State Office Building, Bismarck, North Dakota 58501
10. TERMS AND CONDITIONS: In submitting this Project Proposal, the State hereby accepts the Terms and Conditions set forth in the BOR Grants-in-Aid Manual, which will be a part of the Project Agreement for any grant awarded under this proposal.
11. CERTIFICATION: As the official designated to represent the State and act for the State for purposes of the Land and Water Conservation Fund Act, I recommend that assistance be made available from the Fund, when monies are available, in accordance with the recommended priority. No financial assistance has been given or promised under any other Federal program or activity with regard to the proposed project. The State or public agency to be responsible for the proposed project has the ability and intention to finance its share of the costs of this project. The Applicant will not discriminate against any person on the basis of race, color, or national origin in the use of any property or facility acquired or developed pursuant to this proposal, and shall comply with the terms and intent of Title VI of the Civil Rights Act of 1964, P. L. 88-354 (1964), and of the regulations promulgated pursuant to such Act by the Secretary of the Interior and contained in 43 CFR 17.

(Signature)

(Date)

12. For State use: SORA (7) Mountrail Co. WMD Game & Fish Dept. Comm. Steinberger SWC (10)

BOR 8-90

Sargent County Teller, Minot

November 22, 1968

John Greenslief
(Title)
1. Nature and Extent of Use - A. For entire area in which acquisitions are to be made:

   Cropland and pasture.

   B. For area to be acquired:

   Cropland and pasture.

2. BOR Classification of area

   I

3. Check one

   New Site

   Addition to existing site

4. Location

   County: Mountrail

   Town: Stanley

   Town population: 2000

   Miles from Town: 25

5. Total acres to be acquired

   362

6. Cover, acres in

   A. Forest
   B. Rock
   C. Cutover
   D. Swamp

   E. Grass
   F. Desert
   G. Water

7. Topography, acres in

   A. Flat
   B. Hilly
   C. Rolling
   D. Mountainous

8. Waterfront, feet on

   A. Ocean
   B. Lake
   C. Stream

9. Roadfront, feet on

   A. Dirt
   B. Gravel
   C. Paved

10. PARCELS TO BE ACQUIRED

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<th>PARCEL NUMBER</th>
<th>ACRES</th>
<th>ESTIMATED VALUE</th>
<th>NUMBER OF BUILDINGS</th>
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SEE ATTACHED SHEETS FOR DETAILS AND APPRAISAL.

FOR CONCURRENT ACQUISITION AND DEVELOPMENT PROJECT SUBMISSIONS

<table>
<thead>
<tr>
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<th>TOTAL ESTIMATED VALUE</th>
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<tr>
<td>Total estimated acquisition value</td>
<td>17,109</td>
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<tr>
<td>Total estimated development costs</td>
<td>115,800</td>
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<td>TOTAL</td>
<td>132,909</td>
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Source of Federal assistance requested:

Mountrail County Water Management Dist.

State Game & Fish Department

State Water Commission

"No other Federal funds have been requested for this project."

Attaches, by reference number, the following supplemental documents necessary to process this Acquisition Project Proposal:

A-660-1 Project Justification. A. Description of how the proposed project is in accord with the State outdoor recreation plan and would help meet priority needs identified in the plan. Indicate how the natural beauty of the area will be preserved. B. Indicate other organizations consulted during formulation of this proposal. C. Plans for Operations and Maintenance.

A-660-2 Maps and Charts. A. Simple plot plan or map showing the total area to be acquired and its relationship to the surrounding area. Annotated any plans for streets, highways, waterlines, sewers, etc. to be located on or near the involved area. (Key to show location within State, County, or city.) B. Description of any improvements on lands to be acquired. C. Description of all legal rights to be held by applicant and any other person or organization.

A-660-3 Agreements. A. Agreements or arrangements made with other organizations for participating in the project, or in later operation and maintenance of the completed project.

The items shown below need not be submitted with the project proposal. However, during the course of execution of an approved project, the applicant should be prepared to submit them to the Bureau for review, as follows:

A-660-4 Appraisal reports and other documentation of cost.

A-660-5 Satisfactory evidence of title (such as an opinion by the State Attorney General) for each parcel.

A-660-6 Five-year history of conveyances for each parcel listed in project proposal (name of parties involved, dates, interest conveyed and consideration).
# WHITE EARTH DAM AND RECREATION COMPLEX

MOUNTAIL COUNTY

(SWC Project #327 - SORA Project #31-16)

## LAND ACQUISITION SUMMARY

(BOR Form 8-90)

<table>
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<th>OWNER</th>
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TOTAL ESTIMATED VALUE ................................. $17,109

November 22, 1968

ka
QUALIFICATIONS

ROBERT O. BURBIDGE
Appraiser

BORN: November 28, 1900, at Park River, Walsh County, North Dakota, Age 67, Health Good.

EDUCATION: Public School, Renville County, N. D., graduated from Minot High School in 1918, from the University of North Dakota in 1922 with a B. S. Degree in Business Administration and Law.

MARRIED 1927. Three children.

EXPERIENCE: Asst. Cashier of country bank, 1922 to 1924, then in the Insurance Business in Minot, N. D. to 1926.

1926 to 1937: Farmed in Renville County, N. D. 1920 acre farm, grain and live-stock, carrying 100 head of cattle, 100 ewes, and 8 to 10 brood sows.

1937 to 1947: Real-estate Field man and Sec.-Treas. of National Farm Loan Association Group Office at Stanley, N. D. Supervised and serviced, and later sold some 350 farms owned by the Federal Land Bank and Land Bank Commissioner.

1947 to Present: Real Estate, Appraisals and Insurance Business at Stanley, N. D. I have appraised approximately 300 farms along the Missouri River in connection with the Garrison Reservoir Land Acquisition Program. In connection with this program I have appeared as an expert witness on value in 75 or 100 land valuation cases before the Federal Court for North Dakota in Minot and in Aberdeen for South Dakota cases, for the United States Department of Justice.

I have also been employed by the U. S. Corps of Engineers to appraise land acquired for the United States Air Force Base at Minot, N. D. In 1957 I was employed by the Carter Oil Company as an expert witness on land value in a case before the Federal Court in Minot, N. D. Throughout all this time since 1947 I have made numerous other private appraisals for individuals, banks, etc., and have been on the panel of the Veterans Administration during the whole period, making approximately 300 appraisals for them. These have been both town and city property and farm and ranch property.

In the Real Estate Business: I have averaged two to six or more sales per year. A larger proportion of my time is now occupied with appraisals.

ROBERT O. BURBIDGE

ROBERT O. BURBIDGE
APPRaiser
STANLEY, NORTH DAKOTA
THOMAS M. MOORE

EASEMENT

WHITE EARTH DAM
SWC PROJECT #327

KNOW ALL MEN BY THESE PRESENTS, That the undersigned, for and in consideration of $_______, acknowledged as received, and the benefits to other lands, does hereby grant unto the Mountrail County Water Management District, Stanley, North Dakota, its successors or assigns forever:

(1) The exclusive and perpetual right and easement to flood with water and to raise the water level of any natural water-course, lake or stream upon the lands hereinafter described, by means of dams, dikes, fills, ditches, spillways, and other structures for water storage for recreational use, migratory bird and wildlife conservation management and for the fish stocking or planting and development of such area.

(2) The lands upon and over which said exclusive and permanent rights and easement are granted are described as follows:

11.5 acres more or less located in the NW\(\frac{1}{4}\)

of Sec. 30, Twp. 158 N., Rge. 93 W., distributed as follows:

**Permanent Easement**

1.0 acres more or less below elevation 2152
M.S.L., U.S.G.S. Datum

**Flood Easement**

10.5 acres more or less, between elevation 2152 and 2156.2 M.S.L., U.S.G.S. Datum

all in the County of Mountrail and State of North Dakota.

(3) It is expressly understood that the consideration herein specified liquidates all damages whatsoever that may occur on account of the construction or maintenance of said dam, dikes, fills, ditches, spillways, or other construction, or through the inundation of any lands because of such construction of which may be caused by
floods, climatic conditions or any other act which is beyond the control of the grantee. Provided, however, that no liability shall attach to the grantors herein or their successors, arising from any injury to the Mountrail County Water Management District personnel or members of the public which may be incurred while upon these premises, from any animal which may be allowed to range on the premises covered by this easement.

(4) It is expressly understood that the Mountrail County Water Management District shall survey or cause to be surveyed the area wherein such impoundment, dam, fills, spillway, dikes, ditches or structure shall be created and upon a determination that the proposed project is feasible will expend such money as may be agreed upon by and between the parties hereto and other interested departments, boards, agencies or organizations for the erection, construction, improvement or development of such impoundment, dam, spillway, dikes, fills, ditches, or structure or for the fish planting and stocking of such water area as the case may be.

(5) LASTLY, this easement may, at any time, upon agreement in writing by and between the grantor or his successor and the Mountrail County Water Management District be canceled, vacated or terminated.

IN WITNESS WHEREOF, The undersigned has set his hand and seal this ______ day of October, 1968.

Owner
EASEMENT

WHITE EARTH DAM
SWC PROJECT #327

KNOW ALL MEN BY THESE PRESENTS, That the undersigned, for and in consideration of $______, acknowledged as received, and the benefits to other lands, does hereby grant unto the Mountrail County Water Management District, Stanley, North Dakota, its successors or assigns forever:

(1) The exclusive and perpetual right and easement to flood with water and to raise the water level of any natural water-course, lake or stream upon the lands hereinafter described, by means of dams, dikes, fills, ditches, spillways, and other structures for water storage for recreational use, migratory bird and wildlife conservation management and for the fish stocking or planting and development of such area.

(2) The lands upon and over which said exclusive and permanent rights and easement are granted are described as follows:

1.6 acres more or less located in the SE\(\frac{1}{4}\)SW\(\frac{1}{4}\) of Sec. 19, Twp. 158 N., Rge. 93 W., distributed as follows:

**Flood Easement**

1.6 acres more or less, between elevation 1570 and 1574 M.S.L., U.S.G.S. Datum

all in the County of Mountrail and State of North Dakota.

(3) It is expressly understood that the consideration herein specified liquidates all damages whatsoever that may occur on account of the construction or maintenance of said dam, dikes, fills, ditches, spillways, or other construction, or through the inundation of any lands because of such construction of which may be caused by floods, climatic conditions or any other act which is beyond the control of the grantee. Provided, however, that no liability shall attach to the grantors herein or their successors, arising from any injury to the Mountrail County Water Management
District personnel or members of the public which may be incurred while upon these premises, from any animal which may be allowed to range on the premises covered by this easement.

(4) It is expressly understood that the Mountrail County Water Management District shall survey or cause to be surveyed the area wherein such impoundment, dam, fills, spillway, dikes, ditches or structure shall be created and upon a determination that the proposed project is feasible will expend such money as may be agreed upon by and between the parties hereto and other interested departments, boards, agencies or organizations for the erection, construction, improvement or development of such impoundment, dam, spillway, dikes, fills, ditches, or structure or for the fish planting and stocking of such water area as the case may be.

(5) LASTLY, this easement may, at any time, upon agreement in writing by and between the grantor or his successor and the Mountrail County Water Management District be canceled, vacated or terminated.

IN WITNESS WHEREOF, The undersigned has set his hand and seal this day of October, 1968.


Owner
A tract of land described as follows:

Begin at the SW corner of the NE ¼ of the NE ¼ (Lot 1) of Section 6, Township 157 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota; thence proceed north and along the west line of said Lot 1, 865.9 feet to a point; thence S 33° 12' 30" E 504.1 feet to a concrete marker; thence S 23° 53' W 485.7 feet to the south line of said Lot 1; thence S 89° 56' 12" W and along said south line a distance of 79.5 feet to the point of beginning.

The said tract lies in the NE ¼ of the NE ¼ of Section 6 and contains 3.1 acres more or less.

I hereby certify that this plat was made from an actual survey done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
A tract of land described as follows:

Beginning at the center of Section 31, Township 158 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota, proceed north 916.5 feet to a point on the N-S $\frac{1}{2}$ line; thence N 39° 16' E, 519.1 feet to a point on the north line of the SW$_{\frac{1}{4}}$ of the NE$_{\frac{1}{2}}$; thence along said north line N 89° 57' 53" E 756.2 feet to a point; thence S 35° 14' W 719.9 feet to a concrete marker; thence S 1° 59' 30" W 730.8 feet to a point on the E-W $\frac{1}{2}$ line; thence along the said E-W $\frac{1}{2}$ line S 89° 57' 45" W 644.1 feet to the point of beginning.

The said tract lies in the SW$_{\frac{1}{4}}$ of the NE$_{\frac{1}{2}}$ of the said Section 31, and contains 21.3 acres, more or less.

I hereby certify that this survey was done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
Stanley, N. D.

Mr. W. G. Matson, Sec.-Treas.,
Mountrail County Water Management
District,
Stanley, North Dakota 58784

RE: N. D. Water Cons. Dist. #r/#327
White Earth Dam
LeRoy Mollet-Owner

Dear Mr. Matson:

At your request I have made an appraisal of the above
property for the purpose of estimating the compensation due
the owner for the fair market value of the land taken plus
damage, if any, to the remainder. The amount being taken is
24.4 acres in Lot 1-Sec. 6-157-93 for the White Earth Dam
project, as described in a Surveyors Sketch dated 7-26-68.

In my opinion after carefully inspecting the property
and considering all factors which I thought pertinent the amount
due for the fair market value of the land taken plus damage
to the remainder, and for moving fences if any is $2450.00

I certify that I have no present or intended future
interest in this property.

Yours truly,

R. O. Burbidge
Appraiser

Two parcels of land in the SE\(\frac{1}{4}\) of the NE\(\frac{1}{4}\) of Section 6, Township 157 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota, described as follows:

(Parcel 1) - Beginning at a concrete marker 816 feet westerly from the E-W line of said Section 6, proceed westerly S 89° 57' 30" W, 505.5 feet to a point; thence north 801.6 feet to a point; thence S 32° 15' E, 947.3 feet to the point of beginning.

(Parcel 2) - Beginning at the NW corner of the SE\(\frac{1}{4}\) of the NE\(\frac{1}{4}\) of Section 6, Township 157 North, Range 93 West; thence N 89° 56' 12" E, 79.5 feet to a point; thence S 23° 53' W, 196.2 feet to the point; thence north 179.4 feet to the point of beginning.

The said parcels lie in the SE\(\frac{1}{4}\) of the NE\(\frac{1}{4}\) of said Section 6, and contain 4.9 acres, more or less.

I hereby certify that this plat was made from an actual survey done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
Mr. W. G. Matson, Sec.-Treas.,
Mountail Co. Water Management District.
Stanley, N. D. 58784

Re: N. D. Water Cons. Project #327
White Earth Dam
Arnold Postivit-Owner

Dear Mr. Matson:

At your request I have made an appraisal of the above property for the purpose of estimating the compensation due the owner for damage from the taking of 4.9 acres in the SENE of Sec. 6-157-93 as described on a Survey Sketch dated 7-29-68, for the White Earth Dam Project.

After carefully examining the property and considering all factors which I considered pertinent it is my opinion that the present market value of the tract taken plus damages and reimbursement for moving fences if any, is $511.00.

I certify that I have no present or intended future interest in this property.

Very truly yours,

R. O. Burbidge
Appraiser.

Dated: Sept. 30, 1968
A tract of land described as follows:

Beginning at a concrete marker on the north section line 365.3 feet easterly of the north \( \frac{1}{4} \) corner of Section 31, Township 158 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota and proceed N 89° 58' E and along said north line 792.9 feet to a concrete marker; thence S 6° 04' W, 593.6 feet to a concrete marker; thence S 55° 16' E, 411.3 feet to a concrete marker; thence S 35° 14' W, 604.7 feet to a point on the south line of the NW\( \frac{1}{4} \) of the NE\( \frac{1}{4} \); thence S 89° 57' 53" W and along said south line 756.2 feet to a point; thence N 39° 16' E, 610.4 feet to a concrete marker; thence N 47° 00' W, 406.2 feet to a concrete marker; thence N 5° 15' W, 571.5 feet to the point of beginning.

The said tract lies in the NW\( \frac{1}{4} \) of the NE\( \frac{1}{4} \) and the NE\( \frac{1}{4} \) of the NE\( \frac{1}{4} \) of the said Section 31, and contains 22.0 acres, more or less.

I hereby certify that this survey was done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
A tract of land described as follows:

Beginning at the center of Section 31, Township 158 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota; proceed along the E-W ¼ line S 89° 57' 45" W, 776.8 feet to a concrete marker; thence N 18° 26' E, 226.9 feet to a concrete marker; thence N 45° 35' E, 925.2 feet to a concrete marker; thence N 39° 16' E, 70.0 feet to the N-S ¼ line; thence South 916.5 feet to the point of beginning.

The said tract lies in the SE¼ NW¼ of said Section 31, and contains 9.3 acres, more or less.

I hereby certify that this survey was done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
Stanley, N. D.

Mr. W. G. Matson, Sec.-Treas.,
Mountrail County Water Management
District,
Stanley, North Dakota 58784

Re: N. D. Water Cons. District
Project #327
White Earth Dam
Clifford Enget & Theodore
Albertson-Owners

Dear Mr. Matson:

At your request I have made an appraisal of the above
property for the purpose of estimating the compensation due
the owners for the fair market value of 31.3 acres being
taken for the White Earth Dam project as shown on two Surveyors
Sketches dated 7-26-68, plus damage to the remainder if any.

In my opinion after examining the property and carefully
considering all pertinent factors the amount due for the fair
market value of the land taken plus damage to the remainder
and for moving fences is $3080.00

I certify that I have no present or contemplated future
interest in the property.

Yours truly,

R. O. Burbidge
Appraiser

Dated September 30, 1968
A tract of land described as follows:
Beginning at a concrete marker on the south section line 365.3 feet easterly from the south ¼ corner of Section 30, Township 158 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota, proceed N 14°-49'-30" W, 1336.0 feet to a concrete marker; thence N 25°-51'-30" E, 712.4 feet to a concrete marker; thence N 59°-51' W, 636.7 feet to a concrete marker; thence N 25°-21' W, 423.6 feet to a concrete marker on the E-W ¼ line of Section 30; thence N 89°-56'-30" E, 130.8 feet to a concrete marker on the E-W ¼ line of Section 30; thence S 80°-35'-40" E, 705.9 feet to a concrete marker; thence S 66°-27'-20" E, 471.9 feet to a concrete marker; thence S 9°-03'-20" E, 662.3 feet to a concrete marker; thence S 40°-00'-26" W, 769.0 feet to a concrete marker; thence S 9°-22' E, 576.7 feet to a concrete marker; thence S 48°-47' E, 787.7 feet to a concrete marker on the south section line of Section 30; thence S 89°-58' W, 792.9 feet to the point of beginning.

The said tract lies in the NE ¼ SW ¼, NW ¼ SE ¼ and the SW ¼ SE ¼ of the said Section 30 and contains 37.4 acres, more or less.

I hereby certify that this survey was done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster, Registered Land Surveyor
Stanley, N. D.
September 30, 1968

Mr. W. G. Matson, Sec.-Treas.,
Mountrail County Water Management
District,
Stanley, North Dakota 58784

Re: N. D. Water Cons. District
Project #327
White Earth Dam
Clifford Enget - Owner

Dear Mr. Matson:

At your request I have made an appraisal of the above property for the purpose of estimating the compensation due the owner for the fair market value of 37.4 acres being taken in Sec. 30-158-93, for the White Earth Dam Project as shown by Surveyor's sketch dated 7-26-68, plus damage to the remainder if any.

In my opinion after examining the property and consideration of all pertinent factors the amount due for the fair market value of the land plus damage for severance and for fence moving if any is $3783.00

I certify that I have no present or contemplated future interest in the property.

Yours truly,

[Signature]
R. O. Burbidge
Appraiser

A tract of land described as follows:

Beginning at the south $\frac{1}{4}$ corner of Section 31, Township 158 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota, proceed north and along the N-S quarter line 1324.0 feet to the north line of the SW$_{\frac{1}{4}}$ of the SE$_{\frac{3}{4}}$; thence along said north line N 89° 57' 37" E, 676.5 feet to a point; thence S 18° -33' 30" W, 550.1 feet to a concrete marker; thence S 33° 12' 30" E 959.2 feet to a point on the E-W section line of said Section 31; thence S 89° 57' 30" W, 1026.7 feet to the point of beginning.

The said tract lies in the SW$_{\frac{1}{4}}$ SE$_{\frac{3}{4}}$ of said Section 31 and contains 21.1 acres, more or less.

I hereby certify that this survey was done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
A tract of land described as the E_{1/4} of the SW_{1/4} of Section 31, Township 158 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota, and contains 80.0 acres, more or less.

I hereby certify that this survey was done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
A tract of land described as follows:

Beginning at the north $\frac{1}{4}$ corner of Section 6, Township 157 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota, proceed easterly N 89° 57' 30" E, 1026.7 feet to a point on the north section line; thence S 33° 12' 30" E 538.3 feet to a point on the east line of the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ (Lot 2); thence south 865.9 feet and along said east line to the south line of said Lot 2; thence S 89° 56' 12" W, 1321.5 feet and along south line of said Lot 2 to a point; thence north along the N-S quarter line, 1317.0 feet to the point of beginning.

The said tract lies in the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ (Lot 2) of said Section 6, and contains 38.4 acres, more or less.

I hereby certify that this plat was made from an actual survey done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
A tract of land described as the SW\textsuperscript{1/4} of the NE\textsuperscript{4} of Section 6, Township 157 North, Range 93 West of the Fifth Principal Meridian, Mountrail County, North Dakota,

Beginning at the center of Section 6; thence north 1319.0 feet to the NW corner of the said SW\textsuperscript{1/4} of the NE\textsuperscript{4}; thence N 89° 56' 12" E 1321.5 feet to the NE corner of the said SW\textsuperscript{1/4} of the NE\textsuperscript{4}; thence south and along the east line of said SW\textsuperscript{1/4} of the NE\textsuperscript{4} a distance of 179.4 feet to a point; thence S 23° 53' W 217.4 feet to a concrete marker; thence S 32° 15' E 165.4 feet to the said east line; thence south 801.6 feet to a point on the E-W quarter line; thence S 89° 57' 30" W and along the said quarter line 1321.5 feet to the point of beginning.

The said tract lies in the SW\textsuperscript{1/4} of the NE\textsuperscript{4} of said Section 6 and contains 39.7 acres, more or less.

I hereby certify that this plat was made from an actual survey done under my direction by D. B. Young on July 26, 1968 and that to the best of my knowledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
A tract of land described as follows:
All of the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$ (Lot 3) of
Section 6 containing 59.9 acres more
or less, and the following part of
the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 6,
Township 157 North, Range 93 West
of the Fifth Principal Meridian,
Mountrail County, North Dakota, be-
ginning at the center of said Section 6;
thence S 89° 57' 30" W, 143.6 feet to
a concrete marker; thence N 16° 43' W
1376.6 feet to a concrete marker;
thence N 89° 56' 12" E 539.5 feet to
a point; thence south 1319.0 feet to
the point of beginning.

The said tract lies in the NE $\frac{1}{4}$ of the
NW $\frac{1}{4}$ and the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of said
Section 6 and contains 50.3 acres,
more or less.

I hereby certify that this plat was made
from an actual survey done under my
direction by D. B. Young on July 26,
1968 and that to the best of my know-
ledge said survey is true and correct.

Frank Foster
Registered Land Surveyor
Stanley, N. D.
September 30, 1968.

Mr. W. G. Matson, Sec.-Treas.,
Mountrail County Water Management
District,
Stanley, North Dakota 58784.

Re: N. D. Water Cons. District
Project #327
White Earth Dam
Boy Scouts of America-Owner

Dear Mr. Matson:

At your request I have made an appraisal of the above
property for the purpose of estimating the compensation due
the owners for the taking of 250.9 acres for the White Earth
Dam project as outlined in Six Surveyors Sketchs bearing dates
of 7-29-68, and 7-26-68 covering land in Sec. 6-157-93 and
Sec. 31-158-93, and for damage to the remainder.

In my opinion after examining the property, and considering
all factors which I considered pertinent, the compensation due
is $6822.00 for the land taken plus damage to the remainder.

I certify that I have no present or contemplated future
interest in the property.

Yours truly,

R. O. Burbidge
Appraiser

**DEPARTMENT OF THE INTERIOR**
**BUREAU OF OUTDOOR RECREATION**

**PROJECT PROPOSAL – DEVELOPMENT**

Use this form for submission of individual projects which will develop lands and waters to facilitate their use by the public for outdoor recreation. If concurrent acquisition is being undertaken, check here [ ].

<table>
<thead>
<tr>
<th>Date Received</th>
<th>Priority</th>
<th>Project Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Project Officer**

<table>
<thead>
<tr>
<th>1. State or Territory</th>
<th>2. Name and address of agency responsible for project</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Dakota</td>
<td>Mountrail County Water Management District, c/o David Coons, Chairman, Coulee, North Dakota 58729</td>
</tr>
</tbody>
</table>

3. Project Title

**White Earth Dam & Recreation Complex, Mountrail County – SORA #31-16**

4. Brief description of project

Located 17 miles west and 8 miles north of Stanley in the White Earth River Valley, the project includes acquiring 362 acres of land, constructing a dam creating a 175 acre reservoir with a 1600 acre-foot capacity and installing outdoor recreation facilities for such activities as fishing, boating, picnicking, swimming and playing outdoor games. The project is designed to meet local unmet needs for water-based outdoor recreation facilities and to meet future requirements for fishing lakes in Region II as stipulated in the State Outdoor Recreation and State Water Resources Plans. General area development is included in the plans to enhance the area's natural scenic beauty.

**SWC #327**

5. Duration of project

from 2-1-69 to 6-30-71

6. Federal assistance requested

$57,900

7. Recommended priority

A

8. Name, Organization, and Title of individual having day-to-day responsibility for direction of project

Mountrail County Water Management District

c/o David Coons, Chairman

Coulee, North Dakota 58729

9. Name and address to appear on check

Milo W. Hoisveen, State Fiscal Officer

State Office Building

Bismarck, North Dakota 58501

10. TERMS AND CONDITIONS: In submitting this Project Proposal, the State hereby accepts the Terms and Conditions set forth in the BOR Grants-in-Aid Manual, which will be a part of the Project Agreement for any grant awarded under this proposal.

11. CERTIFICATION: As the official designated to represent the State and act for the State for purposes of the Land and Water Conservation Fund Act, I recommend that assistance be made available from the Fund, when monies are available, in accordance with the recommended priority. No financial assistance has been given or promised under any other Federal program or activity with regard to the proposed project. The State or public agency to be responsible for the proposed project has the ability and intention to finance its share of the costs of this project. The Applicant will not discriminate against any person on the basis of race, color, or national origin in the use of any property or facility acquired or developed pursuant to this proposal, and shall comply with the terms and intent of Title VI of the Civil Rights Act of 1964, P. L. 88-354 (1964), and of the regulations promulgated pursuant to such Act by the Secretary of the Interior and contained in 43 CFR 17.

(Signature)

(Date)

12. For State use

SORA (7)

Mountrail Co. WMD

Game & Fish Dept.

Comm. Steinberger

SWC (10)

John Greenslit

(Name)

State Liaison Officer

(Title)

November 22, 1958

Sargent County Teller, Minor
SECTION 11 - TABULAR SUMMARY OF PROJECT ELEMENTS AND COSTS

Identify the phase or element of the Development Project suggested by the line items. Indicate additional breakdown of work elements necessary and desirable to allocate work assignments and costs.

<table>
<thead>
<tr>
<th>DATE OF</th>
<th>TOTAL ESTIMATED COST</th>
</tr>
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<tbody>
<tr>
<td>BEGIN-</td>
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<tr>
<td>NING</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>COMPL-</td>
<td>$ 115,800</td>
</tr>
<tr>
<td>ETION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amount of Federal development assistance requested 57,900</td>
</tr>
</tbody>
</table>

DEVELOP SITE PLANS & SPECIFICATIONS

A. Source of remainder of funds
B. 

DEVELOP CONSTRUCTION PLANS AND SPECIFICATIONS

A. Total estimated acquisition value $ 17,109
B. Total estimated development costs $ 115,800
TOTAL $ 132,909

PREPARE SITE

A. Total amount of Federal assistance requested $ 66,454.50
B. Source of remainder of funds

UNDERTAKE CONSTRUCTION

<table>
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<tr>
<th>Element</th>
<th>DATE</th>
<th>ESTIMATED COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Dam</td>
<td>3-1-69</td>
<td>10-30-69</td>
</tr>
<tr>
<td>B. Recreation</td>
<td>6-1-69</td>
<td>6-30-71</td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td></td>
<td>Land 362</td>
</tr>
<tr>
<td>B.</td>
<td></td>
<td>Land 187</td>
</tr>
</tbody>
</table>

"No other Federal funds have been requested for this project."

SECTION 111 - ATTACHMENTS

Attach, by reference number, the following supplemental documents necessary to process this Development Project Proposal:

D-660-1 Project Plan and Justification. A. Description of how the proposed project is in accord with the State outdoor recreation plan and would meet priority needs identified in the plan. B. Summary of area, its nature and relation of development to the area. Indicate how the natural beauty of area will be enhanced. C. Descriptive outline of proposed accomplishments with funds requested. Indicate contemplated other uses of the area. D. List of names of organizations which will undertake the development and how this will be performed. E. Economic feasibility data, or other types of data to indicate extent and kind of use to be made of the completed area or facility. F. Plans for operations and maintenance.

D-660-2 Maps and Charts. A. Simple site plans or maps showing total area, in addition to area to be developed. Annotate to show plans for, or existing streets, highways, waterlines, sewers, etc. to be located on or near the area. (Key to allow location within State, County, or city.) Indicate uses now made of the area by applicant or other agencies or individuals. B. Description of all legal rights to the area to be held by applicant and any other person or organization.

D-660-3 Agreements. A. Agreements or arrangements made with other organizations for participating in project, including operation and maintenance of completed facility.

The terms shown below need not be submitted with the project proposal. However, during the course of execution of an approved project, the applicant should be prepared to submit them to the Bureau for review, as follows:

D-660-4 Plans. A. Site plans, specifications and cost estimates. B. Construction plans, specifications and cost estimates. These must be submitted for review and approval before construction may proceed on a structure to cost in excess of $100,000.

D-660-5 Contracts. A. Copies of pertinent contracts, as specifically required by the Bureau of Outdoor Recreation.
PROJECT PLAN AND JUSTIFICATION:

A. State Plan Accord

The White Earth Dam and Recreation Complex will provide outdoor recreation opportunities for boating, water skiing, fishing, picnicking, swimming and playing outdoor games and sports.

"Outdoor Recreation in North Dakota", the State Plan, (page 39, paragraph 5-7) states: "Planning Region II has generally adequate areas and facilities for hunting, swimming beaches, and for playing or attending outdoor sports events to meet the needs of residents as projected to 1980. There may be instances of local unmet needs for these activities. The supply of fishing areas is adequate to meet 1970 needs, however an additional 1800 acres of fishing lakes will be needed by 1980. Many potential dam and reservoir sites are available.

"Acquisition and development programs should generally be directed towards providing areas and facilities for boating, water skiing, swimming pools, camping, bicycle trails, horseback riding trails, picnicking,
walking and hiking trails, scenic drives, cultural events, ice skating, sledding, tobogganing, and snow skiing. Action by all levels of government and by the private sector must be expanded if the growing future needs of the region are to be met."

The project is in accord with the state comprehensive outdoor recreation plan and will serve to meet priority needs identified in the plan. It is accorded Bureau of Outdoor Recreation priority designation "A".

Jean Walterson
Recreation Planner

B. Summary of Area

The proposed project is to be located about 17 miles west and 8 miles north of Stanley in Mountrail County, North Dakota. Economic Region II, part of which is in the White Earth Valley, is known for its scenic hills, ravines, and wooded areas.

Topography is ideal for the installation of a structure to retain a 175 surface acre reservoir for water-related outdoor recreation purposes. There are no power lines in the area contemplated for development. General layout of the project features contemplates enhancement of the area's appearance and add to the White Earth River Valley's natural beauty.

C. Outline of Project Features

A $85,000 dam is planned which will create a 175
acre reservoir with a 40 square mile drainage area, 4225 acre-feet capacity and 25 feet maximum depth. A detailed cost estimate, design, hydrology, and soils report are included with this proposal. The water has been allocated, by permit of the State Engineer, to recreation.

About 348.9 acres of land are to be acquired in fee and easements obtained on 13.1 acres for the reservoir and public use recreation areas adjacent to the reservoir. The estimated land cost is $17,109. Appraisal reports are included with this proposal.

Recreation facilities are to be installed by the Mountrail County Water Management District for public use activities such as fishing, boating, swimming, picnicking, and playing outdoor games. No charges are anticipated at the project for use of the area for recreational purposes. A detailed cost estimate for the recreation facilities phase of the project is included with this proposal.

In summary, the project phases, their costs and allocations are as follows:

<table>
<thead>
<tr>
<th>PROJECT PARTICIPANTS</th>
<th>LAND</th>
<th>DAM</th>
<th>FACILITIES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountrail Co. WMD</td>
<td>$3,554.50</td>
<td>$13,900</td>
<td>$15,000</td>
<td>$32,454.50</td>
</tr>
<tr>
<td>State G &amp; F Dept.</td>
<td>5,000.00</td>
<td>5,000</td>
<td>-</td>
<td>10,000.00</td>
</tr>
<tr>
<td>SWC</td>
<td>-</td>
<td>24,000</td>
<td>-</td>
<td>24,000.00</td>
</tr>
<tr>
<td>BOR</td>
<td>8,554.50</td>
<td>42,900</td>
<td>15,000</td>
<td>66,454.50</td>
</tr>
<tr>
<td>TOTALS</td>
<td>$17,109.00</td>
<td>$85,800</td>
<td>$30,000</td>
<td>$132,909.00</td>
</tr>
</tbody>
</table>
D. Organizations and Coordination

During the project formulation process numerous conferences were held among the participating agencies, landowners, and interested citizens. Coordination of each project phase will be continued among all interested entities as acquisition and development activities proceed.

Primary agencies and their responsibilities include:

1. Project Sponsor - Mountrail County Water Management District

2. Grant Administration - State Outdoor Recreation Agency

3. Land Acquisition - Mountrail County Water Management District and State Game & Fish Department

4. Dam Construction - North Dakota State Water Commission with contract forces

5. Recreation Facilities - Mountrail County Water Management District

6. Financing - Bureau of Outdoor Recreation Mountrail County Water Management District, State Game & Fish Department and State Water Commission

E. Economic Feasibility

The project will serve a 50 mile radius area with
an estimated 52,000 population. Anticipated annual visitations are 33,000 with an assumed economic value of $1.50 per visitation. Annual operation and maintenance costs are estimated at $1,300 and depreciation (including land) at $3,322 for total annual costs of $4,622. Average annual net economic benefits are estimated at $44,878.

Assuming the $132,905 total costs allocated to outdoor recreation were invested and compounded at 4% for 40 years, the estimated project life, we would have a product of $638,099. With net annual benefits of $44,878 over the project's 40 year life, we would receive $1,795,120 in economic benefits indicating a benefit-cost ratio of 2.8 to 1.

A project economic feasibility report is included with this proposal (SORA Form 28).

F. Operation and Maintenance

The Mountrail County Water Management District will operate and maintain the project with technical assistance from the North Dakota State Game and Fish Department and State Water Commission. The area will be open to the public at all times. Operation and maintenance funds are obtained from ad valorem taxes levied by the Mountrail County Water Management District.

A-D:660-2. MAPS AND CHARTS

A. Included with this project proposal are the following maps and supporting data:
1. State map showing project #31-16 location
2. Design and Hydrology Report
3. Soils Investigation Report
4. Water Permit #1535 and SWC Form 110 - "Permit for Construction of Dam"
5. SWC Map #6119-327-1 ) "Topography"
   #6139-327-2 )
6. SWC Map #6155-327-3 "Dam Site Topography"
7. SWC Map #6156-327-4 "Log of Drill Holes"

A-D:660-3. AGREEMENTS

A. The following are included with this proposal:
   1. Mountrail County Board of Commissioners' Approval
   2. Mountrail County Water Management District Project Assurances
   3. Cost Participation Agreement among Mountrail County Water Management District, State Game and Fish Department and State Water Commission.

A-D:660-4. PLANS

A. Construction plans for the project are included as follows:
   1. SWC Map #6821-327-5 "Cross Section and Details"
   2. SWC Map #6822-327-6 "Box Outlet and Details"
   3. SWC Map #6824-327-7 "Recreation Area and Facilities"
4. SWC Map #327-8 "Land Acquisition"

Prepared by:

Jim Schulz, Assistant Secretary
North Dakota State Water Commission

JS:ka
Dist.
SORA (7)
Mountrail Co. WMD
Comm. Steinberger
SWC (10)
MEMO TO: Milo W. Hoisveen, Chief Engineer
FROM: Delton D. Schulz, Office Engineer
        Dale H. Glover, Hydrologist
SUBJECT: White Earth Dam - SWC Project #327 - Hydrology, Design, and
         Dam Construction Cost Estimate Report
DATE: March 5, 1968

HYDROLOGY

White Earth Dam is proposed to be located in the SWNE\(\frac{1}{4}\) of Section 6, Township
157 North, Range 93 West on the White Earth River in Mountairl County. The drainage
area above the dam site is 40.0 square miles.

The length of the river channel from its headwaters to the dam site approxi-
mates 17 miles. The total fall within this distance is 100 feet.

A rainfall of 50-year frequency on the area would approximate 3.20 inches
falling in a 6.60 hours period. The computed design inflow hydrograph has a peak
of 1,914 cubic feet per second and a total volume of 1,062 acre-feet, which is
equal to a runoff depth of 0.48 inches from the contributing drainage area of 40
square miles.

Computations developed for the maximum design flows as well as a graphical
presentation of the inflow-outflow hydrograph are attached.

DESIGN

A compacted earthfill embankment with 3:1 upstream slope, 2:1 downstream
slope and 12' wide top is proposed. The embankment will also incorporate a core
trench at the base to limit seepage as well as a toe drain in the downstream base
of the earth embankment. Rock riprap 18 inches thick is to be placed on a 6-inch
gravel base on the upstream face of the embankment, extending from elevation 2146.0
to elevation 2158.0. The crest of the embankment is to be set at elevation 2161.0.

The service spillway proposed consists of a reinforced concrete pipe drop
inlet 60 inches in diameter, a reinforced concrete pipe 36 inches in diameter
extending laterally through the embankment and a 11'-6" x 7'-6" reinforced concrete outlet structure. The box drop inlet control elevation is to be established at 2152.0. The base of the outlet structure is to be established at elevation 2122.5, which is approximately two feet below the natural ground line and should effectively limit erosion.

Also incorporated in the embankment, is a 10-inch drawdown pipe, with gate valve for the purpose of reservoir renovation and conceivably may be utilized for drawdown of reservoir waters for any repairs that may be needed on the structure in the future. The inlet elevation of the drawdown pipe is to be established at elevation 2134.0 and the outlet at elevation 2122.5.

An emergency spillway, with a 100' wide bottom and 4:1 side slopes is to be incorporated in this project as a safety feature. The emergency spillway is to be vegetated and the crest will be set at mean sea level elevation 2156.0.

Computations of storm routing through the reservoir indicates that a 50-year rainfall storm frequency would have to be exceeded in order for the reservoir water surface to attain elevations requiring use of the emergency spillway. The substantiating data indicates that the factors of safety regarding the proposed structure are more than adequate.

The following are physical features of the dam:

A. Maximum height of dam embankment - 36.0 feet.
B. Maximum depth of reservoir at control elevation 2152.0 - 25 feet.
C. Reservoir water surface area at control elevation 2152.0 - 175 acres.
D. Reservoir capacity at control elevation 2152.0 - 1,600 acre-feet.
E. Drainage area above the dam - 40.0 square miles.

An area capacity curve for the reservoir is attached.

COST ESTIMATE
FOR
DAM CONSTRUCTION
The following is a preliminary cost estimate for construction of White Earth Dam. The only item of construction whose quantity is estimated is the embankment core excavation. Additional soils investigation is needed to accurately determine this quantity.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stripping: 10,000 yd.³ @ 30 cents</td>
<td></td>
<td></td>
<td>$3,000.00</td>
</tr>
<tr>
<td>2. Embankment Core Excavation 4,000 yd.³ @ 80 cents</td>
<td></td>
<td></td>
<td>3,200.00</td>
</tr>
<tr>
<td>3. Embankment (in place yardage) 75,000 yd.³ @ 40 cents</td>
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<td></td>
<td>30,000.00</td>
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<tr>
<td>4. 114 lin. ft. 36&quot; RCP (cable ties and diaphragms) @ $20.00</td>
<td>41000</td>
<td></td>
<td>2,280.00</td>
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<tr>
<td>5. 12 lin. ft. 60&quot; RCP (cables, brackets, etc.) @ $60.00</td>
<td>39000</td>
<td></td>
<td>720.00</td>
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<tr>
<td>6. 184 lin. ft. 10&quot; steel pipe - Lump Sum</td>
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<td></td>
<td>3,000.00</td>
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<tr>
<td>(Trash rack and diaphragms and control valve)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. Trash Rack for Service Spillway</td>
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<td></td>
<td>150.00</td>
</tr>
<tr>
<td>8. Concrete 14 yd.³ @ $150.00</td>
<td>14</td>
<td></td>
<td>2,100.00</td>
</tr>
<tr>
<td>9. Reinforced Steel 1,390 lbs. @ 20 cents</td>
<td></td>
<td></td>
<td>278.00</td>
</tr>
<tr>
<td>10. Pit run gravel 1,500 tons @ $2.50</td>
<td></td>
<td></td>
<td>3,750.00</td>
</tr>
<tr>
<td>11. Rock Riprap 3,000 tons @ $5.00</td>
<td></td>
<td></td>
<td>15,000.00</td>
</tr>
<tr>
<td>12. Salvaging and placing top soil 7,000 yd.³ @ 25 cents</td>
<td></td>
<td></td>
<td>1,750.00</td>
</tr>
<tr>
<td>13. Seeding: 4 acres @ $100.00</td>
<td></td>
<td></td>
<td>400.00</td>
</tr>
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</table>

**TOTAL CONTRACT COSTS** $65,628.00

*Contingencies 6,372.00*

*Engineering 6,000.00*

**SUBTOTAL** $78,000.00

*10% Indirect Costs 7,800.00*

**TOTAL** $85,800.00

DDS: DHG: sl

**Distribution:**

MWH  
A1 G  
DDS  
JS  
Sponsors

**Delton D. Schulz, Office Engineer**

**Dale H. Glover, Hydrologist**
DA = 40 square miles.
Length of stream channel = L = 17 miles.
H = 100^+ Feet.

\[ T_c = \frac{2.47L^{1.15}}{H^{0.385}} = \frac{2.47 \times 17^{1.15}}{100^{0.385}} = \frac{2.47 \times 26}{5.9} = 11.0 \text{ Hours.} \]

Use \( \frac{P}{T_c} = 0.2; \quad P = 0.2 \times T_c = 0.2 \times 11 = 2.2 \text{ Hours} \quad (P = 20\% T_c) \)

Use 3 periods, Duration = 3 x 2.2 = 6.6 Hours.

\[ C = \frac{0.30}{110.284} = 0.30 = .152 = 15.2\% \text{ runoff.} \]

50-Year Frequency, 6.6 Hour Precip. = 3.20 inches.
R.O. = 0.152 x 3.20 = 0.48 inches.

\[ M = \frac{DA}{T_c} = \frac{40}{11} = 3 \frac{7}{11} = 3.64 \]

\[ M \times R.O. = 3.64 \times 0.48 = 1.75 \]

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>TOTAL</th>
</tr>
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<tr>
<td>% Dist.</td>
<td>50</td>
<td>37</td>
<td>13</td>
<td>100%</td>
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<tr>
<td>D = M x R.O.</td>
<td>0.88</td>
<td>0.65</td>
<td>0.22</td>
<td>1.75</td>
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</table>
WHITE EARTH DAM

(Model Hydrograph Used: P = 20% $T_c$)

<table>
<thead>
<tr>
<th>HOUR</th>
<th>TIME</th>
<th>1st PER.</th>
<th>2nd PER.</th>
<th>3rd PER.</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>5</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>25</td>
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<tr>
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<td>88</td>
<td>223</td>
<td>0</td>
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<tr>
<td>1.7</td>
<td>15</td>
<td>223</td>
<td>0</td>
<td>0</td>
<td>223</td>
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<tr>
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<td>20</td>
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<td>0</td>
<td>546</td>
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<tr>
<td>2.8</td>
<td>25</td>
<td>918</td>
<td>1220</td>
<td>65</td>
<td>2263</td>
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<tr>
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<td>30</td>
<td>1220</td>
<td>1440</td>
<td>164</td>
<td>3864</td>
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<tr>
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<td>0</td>
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<td>45</td>
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<td>132</td>
<td>2313</td>
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<td>5.5</td>
<td>50</td>
<td>991</td>
<td>901</td>
<td>22</td>
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<td>56</td>
<td>1908</td>
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<td>229</td>
<td>60</td>
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<td>65</td>
<td>514</td>
<td>866</td>
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<td>1609</td>
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<td>70</td>
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<td>305</td>
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<td>605</td>
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<td>1239</td>
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<tr>
<td>8.8</td>
<td>80</td>
<td>212</td>
<td>487</td>
<td>341</td>
<td>1040</td>
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<tr>
<td>9.4</td>
<td>85</td>
<td>165</td>
<td>380</td>
<td>293</td>
<td>838</td>
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<tr>
<td>9.9</td>
<td>90</td>
<td>135</td>
<td>285</td>
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<td>668</td>
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<tr>
<td>10.5</td>
<td>95</td>
<td>108</td>
<td>210</td>
<td>205</td>
<td>523</td>
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<td>11.0</td>
<td>100</td>
<td>77</td>
<td>157</td>
<td>165</td>
<td>399</td>
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<tr>
<td>11.6</td>
<td>105</td>
<td>45</td>
<td>122</td>
<td>128</td>
<td>295</td>
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<td>110</td>
<td>21</td>
<td>99</td>
<td>97</td>
<td>217</td>
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<tr>
<td>12.7</td>
<td>115</td>
<td>5</td>
<td>80</td>
<td>71</td>
<td>156</td>
</tr>
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<td>120</td>
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<td>57</td>
<td>53</td>
<td>110</td>
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<td>13.8</td>
<td>125</td>
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<td>41</td>
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<td>16</td>
<td>34</td>
<td>50</td>
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<tr>
<td>14.9</td>
<td>135</td>
<td>0</td>
<td>4</td>
<td>27</td>
<td>31</td>
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<td>19</td>
<td>19</td>
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<td>0</td>
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<tr>
<td>16.5</td>
<td>150</td>
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<td>0</td>
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<td>5</td>
</tr>
<tr>
<td>17.0</td>
<td>155</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>17.6</td>
<td>160</td>
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<td>0</td>
<td>0</td>
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</tbody>
</table>

* Maximum Discharge = 1914 c.f.s.

Time Intervals = .05 x 11 = .55 Hrs.

22,629 x .55 = 12,500 Hr. Sec. Ft. = 1,062 Acre-Feet

40 square miles x 53.33 x 0.48 = 1,045 Acre-Feet
Recreation Facilities Cost Estimate

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NUMBER</th>
<th>ESTIMATED UNIT COST</th>
<th>ESTIMATED TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area #1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Picnic Area:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Table</td>
<td>12</td>
<td>$55.00</td>
<td>$660.00</td>
</tr>
<tr>
<td>b. Fireplace</td>
<td>6</td>
<td>40.00</td>
<td>240.00</td>
</tr>
<tr>
<td>c. Trash Receptacle</td>
<td>6</td>
<td>15.00</td>
<td>90.00</td>
</tr>
<tr>
<td>d. Well</td>
<td>1</td>
<td>1,500.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>e. Comfort Station</td>
<td>1</td>
<td>1,500.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>f. Shelter</td>
<td>1</td>
<td>1,000.00</td>
<td>1,000.00</td>
</tr>
<tr>
<td>2. Playground</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Swing Set</td>
<td>1</td>
<td>350.00</td>
<td>350.00</td>
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<tr>
<td>b. Sand Box</td>
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<td>3. Boating Area:</td>
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</tr>
<tr>
<td>a. Launch Ramp</td>
<td>1</td>
<td>1,000.00</td>
<td>1,000.00</td>
</tr>
<tr>
<td>b. Dock</td>
<td>1</td>
<td>500.00</td>
<td>500.00</td>
</tr>
<tr>
<td><strong>Area #2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Picnic Area:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Table</td>
<td>12</td>
<td>55.00</td>
<td>660.00</td>
</tr>
<tr>
<td>b. Fireplace</td>
<td>6</td>
<td>40.00</td>
<td>240.00</td>
</tr>
<tr>
<td>c. Trash Receptacle</td>
<td>6</td>
<td>15.00</td>
<td>90.00</td>
</tr>
<tr>
<td>d. Well</td>
<td>1</td>
<td>1,500.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>e. Comfort Station</td>
<td>1</td>
<td>1,500.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>f. Shelter</td>
<td>1</td>
<td>1,000.00</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>
NORTH DAKOTA STATE OUTDOOR RECREATION AGENCY  
Project Economic Feasibility Report  
Benefit-Cost Ratio

PROJECT NAME_ White Earth Dam and Recreation Complex  
LOCATION-COUNTY_ Mountrail  
SORA #: 31-16  
SWC #: 327

I. BASIC DATA

A. Radius of Anticipated Use__ 50 miles
B. Population Within Use Area__ 52,000
C. Anticipated Annual Visitations__ 33,000
D. Investment (include land) $132,909
E. Estimated Life of Facilities__ 40 years

II. ANNUAL COSTS

F. Operation and Maintenance $1,300
G. Depreciation (D ÷ E ) $3,322
H. Total Annual Costs (F ÷ G ) $4,622

III. ANNUAL BENEFITS

J. Assumed Value Per Visitation $1.50
K. Estimated Annual Benefits (J × C ) $49,500
L. Average Net Benefits (K ÷ H ) $44,878

IV. BENEFIT-COST RATIO

M. Factor for value of 1 compounded  
at 40 years @ 4% = (factor) 4.80102063
(Standard factor for 30 years @ 4% = 3.24339751)

N. Product of Investment (D ÷ M factor) $638,999
P. Total Benefits (L × E ) $1,795,120
Q. Benefit-Cost Ratio (P ÷ N ) XXX 2.8:1

To support D-660-1 E Economic Feasibility

SORA Form 28  
500/4-21-66
August 25, 1964

North Dakota State Water
Conservation Commission
State Capitol Building
Bismarck, North Dakota

Re: Soil Borings - Project Number 327, White Earth, North Dakota

Gentlemen:

During a period from August 8 to 11, 1964, we put down six borings at the proposed project Number 327, White Earth Dam, White Earth, North Dakota.

The borings were put down at the locations staked by you. Surface elevations and sketch were to be provided by you for your own use. The logs of the borings and a sheet giving our method of soil classification (U. S. Bureau of Soils) are attached. The soil was visually classified in accordance with the above method.

The borings were cased with 2 1/2 inch pipe which was cleaned and advanced by standard jetting methods, or with a cleanout tube. Soil samples were taken with a 2-inch O. D. split sampler, and the blows per foot (BPF) as given along the right side of the logs were recorded on this sampler driven by a 140 pound weight falling thirty inches. The consistency of the cohesive soil was rated by the penetration of the sampler.

The borings were placed in order to recover samples of the strata for your study. These samples will be held at this laboratory until instructed as to their disposition.

The water levels shown are subject to change from season to season and from one year to the next.
The recommendations and/or suggestions contained in this report are our opinions based on data which are assumed to be representative of the site explored, but because the area of the borings in relation to the entire area is very small, and for other reasons, we do not warrant conditions below the depth of our borings or that the strata logged from our borings are necessarily typical of the entire site.

Very truly yours,

TWIN CITY TESTING AND ENGINEERING LABORATORY, INC.

[Signature]

Frederick C. Theiss, P. E.
Branch Manager

FCT/skl

Enclosures
# Log of Test Borings

**Project:** #327, White Earth Dam, White Earth, North Dakota  
**Laboratory No.:** ND 20337  
**Vertical Scale:** 1" = 5'

## Boring No. 1

<table>
<thead>
<tr>
<th>Depth</th>
<th>Surface Elevation</th>
<th>BPF</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>Brown sandy loam (moist)</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>4</td>
<td>Brown loamy sand (moist) with some gravel</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>13</td>
<td>Brown sand (moist) with lenses of clay</td>
</tr>
<tr>
<td>4½</td>
<td></td>
<td></td>
<td>Brown loamy sand (moist) with gravel</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>11</td>
<td>Brown sand (moist to water bearing) with lenses and laminations of clay and lenses of lignite</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>3</td>
<td>Brown sand (water bearing) with lenses of clay, lignite, scoria and a little gravel</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>7</td>
<td>Grey clay (soft) with lenses of loam and sand (water bearing) and lignite</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>6</td>
<td>Grey clay (soft) with lenses of sand (water bearing) &amp; lignite</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
<td>Grey clay (soft)</td>
</tr>
</tbody>
</table>

## Boring No. 2

<table>
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<th>BPF</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>Brown sandy loam (moist)</td>
</tr>
<tr>
<td>1½</td>
<td></td>
<td>5</td>
<td>Light brown sandy clay loam (medium)</td>
</tr>
<tr>
<td>4½</td>
<td></td>
<td>7</td>
<td>Brown sand (moist) with lenses of clay</td>
</tr>
<tr>
<td>6½</td>
<td></td>
<td>11</td>
<td>Brown clay loam (very stiff) with a little gravel &amp; a boulder at 8.5'</td>
</tr>
<tr>
<td>8½</td>
<td></td>
<td>14</td>
<td>Brown loamy sand (moist) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>3</td>
<td>Brown clay (soft) with lenses of sand</td>
</tr>
<tr>
<td>14½</td>
<td></td>
<td></td>
<td>Brown clay (soft)</td>
</tr>
<tr>
<td>20½</td>
<td></td>
<td>3</td>
<td>Brown sand (water bearing) with lenses and laminations of clay</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td>Black lignite (water bearing)</td>
</tr>
<tr>
<td>24½</td>
<td></td>
<td>5</td>
<td>Brown sand (water bearing) &amp; gravel</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>4</td>
<td>Brown sand (water bearing) with lenses of clay (soft)</td>
</tr>
</tbody>
</table>
### Boring No. 1

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>BORING NO.</th>
<th>BORING NO.</th>
<th>BORING NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Brown sandy loam (moist)</td>
<td>Brown loamy sand (moist) with lenses of sand and lignite</td>
<td>Brown sandy loam (moist)</td>
</tr>
<tr>
<td>1</td>
<td>Brown loamy sand (moist) with some gravel</td>
<td>Brown mottled clay (medium) with lenses of sand and lignite</td>
<td>Brown loamy sand (moist) with lenses of sand and lignite</td>
</tr>
<tr>
<td>2</td>
<td>Water Level</td>
<td>Brown sandy loam (water bearing) (rather stiff to medium)</td>
<td>Brown sandy loam (moist)</td>
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<tr>
<td>3</td>
<td>Brown sandy loam (water bearing) (rather stiff to medium)</td>
<td>Brown sandy loam (water bearing) (rather stiff to medium)</td>
<td>Brown sandy loam (water bearing)</td>
</tr>
<tr>
<td>4</td>
<td>Brown sandy loam (water bearing) (rather stiff to medium)</td>
<td>Brown sandy loam (water bearing)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Grey sand (water bearing) with lenses of sand and lenses of clay</td>
<td>Grey sand (water bearing) with lenses of clay</td>
<td>Grey sand (water bearing) with lenses of clay</td>
</tr>
<tr>
<td>6</td>
<td>Brown clay (rather stiff) with lenses of sand and lenses of clay</td>
<td>Brown clay (rather stiff) with lenses of sand and lenses of clay</td>
<td>Brown clay (rather stiff) with lenses of sand and lenses of clay</td>
</tr>
<tr>
<td>7</td>
<td>Brown sandstone (hard)</td>
<td>Brown sandstone (hard)</td>
<td>Brown sandstone (hard)</td>
</tr>
<tr>
<td>8</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>9</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>10</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>11</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>12</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>13</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>14</td>
<td>Greyish brown clay (stiff) with lenses of lignite</td>
<td>Greyish brown clay (stiff) with lenses of lignite</td>
<td>Greyish brown clay (stiff) with lenses of lignite</td>
</tr>
<tr>
<td>15</td>
<td>Brown sandstone (hard)</td>
<td>Brown sandstone (hard)</td>
<td>Brown sandstone (hard)</td>
</tr>
<tr>
<td>16</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>17</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>18</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
<td>Brown sand (water bearing) with lenses of clay and with gravel</td>
</tr>
<tr>
<td>19</td>
<td>Grey clay (rather stiff) with lenses of lignite</td>
<td>Grey clay (rather stiff) with lenses of lignite</td>
<td>Grey clay (rather stiff) with lenses of lignite</td>
</tr>
<tr>
<td>20</td>
<td>Black Lignite</td>
<td>Black Lignite</td>
<td>Black Lignite</td>
</tr>
<tr>
<td>21</td>
<td>Grey shale (very stiff)</td>
<td>Grey shale (very stiff)</td>
<td>Grey shale (very stiff)</td>
</tr>
<tr>
<td>22</td>
<td>(End of Boring)</td>
<td>(End of Boring)</td>
<td>(End of Boring)</td>
</tr>
</tbody>
</table>

**NOTE:** Water level shown was taken 20 minutes after completion of boring.
# Log of Test Borings

**Project:** #327 White Earth Dam, White Earth, North Dakota

**Laboratory No.:** ND 20337

**Vertical Scale:** 1" = 5'

### Boring No. 5

<table>
<thead>
<tr>
<th>Depth</th>
<th>Boring No.</th>
<th>Surface Elev.</th>
<th>B.P.F.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
<td></td>
<td>5</td>
<td>Brown sandy loam (moist)</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>5</td>
<td>Brown loamy sand (moist) with lenses of clay</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>12</td>
<td>Brown loamy sand (moist) with lenses of clay and some gravel</td>
</tr>
<tr>
<td>11 1/2</td>
<td></td>
<td></td>
<td>23</td>
<td>Water Level</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>5</td>
<td>Brown loamy sand (moist) with lenses and laminations of clay</td>
</tr>
<tr>
<td>14 1/2</td>
<td></td>
<td></td>
<td>3</td>
<td>Brown clay loam (soft)</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td>4</td>
<td>Brown sand (water bearing) with lenses and laminations of clay and lenses of lignite</td>
</tr>
<tr>
<td>21 1/2</td>
<td></td>
<td></td>
<td></td>
<td>(End of Boring)</td>
</tr>
</tbody>
</table>

**Note:** Water level shown was taken 30 minutes after completion of boring.

### Boring No. 6

<table>
<thead>
<tr>
<th>Depth</th>
<th>Boring No.</th>
<th>Surface Elev.</th>
<th>B.P.F.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1/2</td>
<td>6</td>
<td></td>
<td>2</td>
<td>Brown loamy sand (moist)</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>3</td>
<td>Brown mottled clay (very soft to stiff to rather stiff) with a little gravel and lenses of lignite and a small lens of wet sand at 13.0'</td>
</tr>
<tr>
<td>14 1/2</td>
<td></td>
<td></td>
<td>8</td>
<td>Greyish brown mottled clay (medium) with some gravel</td>
</tr>
<tr>
<td>16 1/2</td>
<td></td>
<td></td>
<td>3</td>
<td>Greyish brown sand (water bearing) with lenses of clay</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>9</td>
<td>Black Lignite</td>
</tr>
<tr>
<td>22 1/2</td>
<td></td>
<td></td>
<td>3</td>
<td>Grey clay (stiff)</td>
</tr>
<tr>
<td>24 1/2</td>
<td></td>
<td></td>
<td>4</td>
<td>Grey clay (very stiff) with gravel</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
<td>21</td>
<td>Grey shale (very stiff)</td>
</tr>
<tr>
<td>31 1/2</td>
<td></td>
<td></td>
<td></td>
<td>(End of Boring)</td>
</tr>
</tbody>
</table>

**Note:** Water level shown was taken 30 minutes after completion of boring.
We use the U.S. Bureau of Soils method of soil classification which is based on the texture of the soil. The texture of a soil is influenced by the amount of the various sizes of soil particles in the soil. The soil particles are grouped into three particle size classifications as follows:

<table>
<thead>
<tr>
<th>Particle-Size Classification</th>
<th>Diameter of Particles (Millimeters)</th>
<th>U.S. Standard Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>2.0 to 0.05</td>
<td>#10 to #270</td>
</tr>
<tr>
<td>Silt</td>
<td>0.05 to 0.005</td>
<td>(Cannot be separated by sieving)</td>
</tr>
<tr>
<td>Clay</td>
<td>Smaller than 0.005</td>
<td></td>
</tr>
</tbody>
</table>

Soil is grouped into twelve basic classifications according to the percentages of sand, silt, and clay present in the soil. These classifications are shown by the following triaxial graph.

This same classification system in tabular form is as follows:

<table>
<thead>
<tr>
<th>BASIC SOIL CLASSIFICATION</th>
<th>SAND</th>
<th>SILT</th>
<th>CLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>90%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>Loamy sand</td>
<td>80%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Sandy loam</td>
<td>50%</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Loam</td>
<td>30%</td>
<td>50%</td>
<td>20%</td>
</tr>
<tr>
<td>Silty loam</td>
<td>0%</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>Silt</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Sandy clay loam</td>
<td>50%</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Clay loam</td>
<td>20%</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>Silty clay loam</td>
<td>0%</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Clay</td>
<td>0%</td>
<td>80%</td>
<td>50%</td>
</tr>
<tr>
<td>Sandy clay</td>
<td>50%</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Silty clay</td>
<td>0%</td>
<td>20%</td>
<td>70%</td>
</tr>
</tbody>
</table>

We classify the sand present in a soil as coarse (#10 - #70 sieves), medium (#20 - #40 sieves), fine (#40 - #100 sieves), very fine (#100 - #270 sieves), or as well graded. Soils with an appreciable amount of gravel present are classified "with a little gravel" (less than 15%), "with some gravel" (15 to 30%), "with gravel" (30 to 50%), "and gravel" (over 50%). Material over 3 inches is classified as "boulders." Organic soil is classified as "peat" (over 2/3 organic material) or "muck" (1/3 to 2/3 organic material).
AGREEMENT
CONSTRUCTION OF WORKS

THIS AGREEMENT is entered into by and between:
(1) The North Dakota State Water Commission, hereinafter referred to as the Commission, acting by and through, Milo W. Hoisven, Secretary and Chief Engineer;
(2) The Mountrail County Water Management District, hereinafter referred to as the District, acting by and through David Coons, Chairman;
(3) The Game & Fish Department, hereinafter referred to as the Department, acting by and through (Name), (Title);
(4) The (Name), hereinafter referred to as the Department, acting by and through (Name), (Title).

I. PROJECT, LOCATION AND PURPOSE

WHEREAS, the parties to this Agreement propose to construct the following:

White Earth Dam and Recreation Complex (SORA Project #31-16), hereinafter referred to as the Project, located in Section 6, Township 157 North, Range 93 West, Mountrail County, North Dakota, the purpose of which is to provide a water-based outdoor recreation area and facilities.

NOW, THEREFORE, IT IS AGREED:

II. DRAWINGS AND SPECIFICATIONS

That the Project will be constructed in accordance with drawings and specifications of the Commission, approved by Department, and District, with drawings and specifications, detailed maps of dam and recreation area referred to by State Water Commission Project #327, are by this reference made a part of this Agreement to the same force and effect as if they were incorporated into the body of this Agreement.

III. COSTS AND ALLOCATIONS

That the estimated cost of the various Project elements and their allocation to the Project participants shall be as follows:

A. Preliminary Engineering and Investigations - - - - - Total Estimate $ (500–3/68)
<table>
<thead>
<tr>
<th>B. Land and/or Easement Acquisition</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>Total Estimate $17,109.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Dakota State Water Commission</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$3,554.50 or</td>
</tr>
<tr>
<td>2. Mountrail County Water Management District</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$5,000.00 or</td>
</tr>
<tr>
<td>3. Game and Fish Department</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>$8,554.50 or</td>
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<tr>
<td>4.</td>
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<td>-</td>
<td>-</td>
<td>$10,000.00 or</td>
</tr>
<tr>
<td>5. Bureau of Outdoor Recreation</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>$24,000.00 or</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Construction of Main Works</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>Total Estimate $85,800.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Dakota State Water Commission</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>$24,000.00 or</td>
</tr>
<tr>
<td>2. Mountrail County Water Management District</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$5,000.00 or</td>
</tr>
<tr>
<td>3. Game and Fish Department</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>$13,900.00 or</td>
</tr>
<tr>
<td>4.</td>
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<td>-</td>
<td>-</td>
<td>$24,000.00 or</td>
</tr>
<tr>
<td>5. Bureau of Outdoor Recreation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$42,900.00 or</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Construction of Appurtenant Works (Recreation Facilities)</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>Total Estimate $30,000.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Dakota State Water Commission</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$15,000.00 or</td>
</tr>
<tr>
<td>2. Mountrail County Water Management District</td>
<td>-</td>
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<td>-</td>
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<td>$15,000.00 or</td>
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<td>3.</td>
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<td>$15,000.00 or</td>
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<td>4.</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>$15,000.00 or</td>
</tr>
<tr>
<td>5. Bureau of Outdoor Recreation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$15,000.00 or</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. Other Items</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>Total Estimate $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Dakota State Water Commission</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$9,800.00 or</td>
</tr>
<tr>
<td>2.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$9,800.00 or</td>
</tr>
<tr>
<td>3.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$9,800.00 or</td>
</tr>
<tr>
<td>4.</td>
<td>-</td>
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<td>-</td>
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<td>$9,800.00 or</td>
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<tr>
<td>5.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$9,800.00 or</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F. Total Project Costs and Allocations</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>$132,909.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Dakota State Water Commission</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$24,000.00 or</td>
</tr>
</tbody>
</table>
That all parties shall provide the others with cost statements within 30 days after the Project's completion and settlements shall be made within 30 days of receipt of said statements.

IV. TITLE TO LANDS AND/OR EASEMENTS

That title to all lands and/or easements for the Project shall be purchased in the name of Mountrail County Water Management District and recorded in the County Register of Deeds office wherein the Project is situated.

V. OPERATION AND MAINTENANCE

That the District shall operate and maintain the Project in accordance with rules and regulations prescribed by the Commission and Department.

VI. INDEMNIFICATION

That the District does hereby accept responsibility for, and holds the Commission and the Department harmless from, all claims and damages to public or private properties, rights, or persons arising out of the construction, operation, and maintenance of the Project. In the event a suit is initiated or judgment entered against the Commission or Department the District shall indemnify them for any settlement arrived at or judgment satisfied.

VII. CHANGES IN RESPONSIBILITIES

That changes in any responsibilities of the parties hereto or conditions herein stated will not be effective or binding unless such changes or conditions are made in writing, signed by the parties concerned and attached hereto.

VIII. OTHER STIPULATIONS

Bureau of Outdoor Recreation cost participation is contingent upon approval by that Agency.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement the day and year indicated below.

WITNESS: DATE: NORTH DAKOTA STATE WATER COMMISSION

By: Secretary and Chief Engineer

MOUNTRAIL COUNTY WATER MANAGEMENT DISTRICT

By: GAME AND FISH DEPARTMENT

By:
Date received and filed in State Engineer's office

Mountairl County Water Management District White Earth Dam, whose post office

(Names of Applicant)

address is Stanley, State of , hereby applies

for a permit to divert and appropriate water of the State of North Dakota as stated herein, subject to existing

rights.

1. Source of proposed appropriation White Earth River

which is tributary to Garrison Reservoir.

2. A. Amount of water requested 1580 acre-feet storage plus 525 acre-feet annually

B. Proposed rate of withdrawal of water NA cubic feet per second

or gallons per minute.

3. Points of Diversion:

A. (1) 1/4 1/4 Sec. Twp. Rge.

(2) 1/4 1/4 Sec. Twp. Rge.

(3) 1/4 1/4 Sec. Twp. Rge.

B. If water is to be delivered from storage reservoir complete the following:

Location of dam SW 1/4 NE 1/4 Sec. Twp. 152 Rge. 93

Height of embankment above stream bed 39 ft.

Capacity of Reservoir 1580 acre-feet. Area of water surface 175 acres.

C. If water is to be obtained from well complete the following:

Proposed depth well Depth to top of Aquifer

Proposed size well or well casing Depth to Bottom of Aquifer

Has pump test been performed, if so, by whom

Computed capacity of well

4. Purpose Recreation

A. If purpose is irrigation:

Type of irrigation system Dates of use

Estimate of time required for completion of system

5. Has the quality of water analysis been made? Class water C S

Date Sample taken

6. Description of land to be irrigated (show lot numbers where applicable):

<table>
<thead>
<tr>
<th>Sec.</th>
<th>NW 1/4</th>
<th>SW 1/4</th>
<th>NW 1/4</th>
<th>SW 1/4</th>
<th>NE 1/4</th>
<th>SW 1/4</th>
<th>NE 1/4</th>
<th>NW 1/4</th>
<th>SW 1/4</th>
<th>NE 1/4</th>
<th>SW 1/4</th>
<th>NE 1/4</th>
<th>NW 1/4</th>
<th>SW 1/4</th>
<th>NE 1/4</th>
<th>SW 1/4</th>
<th>NE 1/4</th>
<th>SW 1/4</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

Total number of acres to be irrigated

Located in Mountairl County, North Dakota.

Estimated quantity of water that will be returned to the approximate source from which diverted:

MOUNTAIRL COUNTY WATER MANAGEMENT DISTRICT

By (Applicant's Signature) Chairman

NOTE: Above application is merely a declaration of intention to create a water right, approval does not create such right. Water right will be created only if and when water is beneficially used.
This is to certify that I have examined the foregoing application and hereby approve the same subject to prior water rights. The acre-feet is subject to modification by the State Engineer. Failure to comply with any order of the State Engineer may result in forfeiture of water right.

The amount of water to be appropriated shall be limited to the amount that can be used beneficially, not to exceed 1580 acre feet each year for storage plus 525 acre-feet annual use.

1. Date of priority: April 8, 1968
2. Date of hearing on application: April 29, 1968
3. Date of approval by State Water Conservation Commission: May 14, 1968
4. Construction to be initiated on or before: 
5. Construction to be completed on or before: 
6. Water shall be beneficially used on or before: December 31, 1972

WITNESS my hand and seal this 20th day of May, 1968.

State Engineer
Secretary, State Water Conservation Commission
APPLICATION FOR PERMIT TO CONSTRUCT OR ENLARGE A DAM OR RESERVOIR

TO: Chief Engineer
North Dakota State Water Commission
Bismarck, North Dakota

I, ____________________________, a duly authorized agent of the Mountrail County Water Management District, hereby apply for a permit to construct or enlarge the dam as indicated below and according to specifications shown on this and attached sheets.

1. Location: Mountrail

Legal description to nearest forty acre tract:

2. Purpose: Recreation

3. Data

   Drainage Area Above Dam: 48.0
   Roll, Earth
   Type of Dam
   Type and Size of Spillway: Glory Hole, 60", RCP drop inlet, 36", RCP conduit
   Type and Size of Emergency Spillway: Earth, 100
   Earth
   Type and Size of Gate Reservoir Control Structure
   Invert Height above Stream Bed of Control Structure
   Height of Spillway above Stream Bed: 30 feet
   Surface Area of Reservoir at Spillway Crest: 175 acres
   Computed Reservoir Capacity at Spillway Crest Elevation: 1580 acre feet

4. Watercourse on which dam is to be located is a tributary to: Garrison Reservoir

5. Will flows presently available to downstream riparian land owners be depleted? No

6. Downstream landowners who might be deprived of use of water by construction of the dam are

7. Is the dam and impounded water on the owner's land? No

8. For an enlargement of an existing dam, answer the following:

   Why is enlargement necessary?

9. The dam will be built under the supervision of State Water Commission and will conform to data and specifications given above and on the following attached sheets plans on file

   (Name or Number of attached data sheet)

10. This dam will be operated in conformance to all state water laws and rules and regulations of the North Dakota State Water Commission

11. Construction will begin on or before 19 ,

   and will be completed on or before 19

   Date Submitted: March 13, 1969

   Mountrail County Water Management District
   Signed ____________________________
   (Owner of land on which dam is located)

   Address ____________________________

   OF NORTH DAKOTA )
   Y OF Mountrail )

   in this ______ day of March, ______, before me a Notary Public personally appeared
   ____________________________, known to me to be the same person who executed the foregoing applica-
   a water right permit and acknowledged to me that he executed the same.

   ____________________________, Notary Public, County of North Dakota, State of
   My Commission Expires ____________________________

   should be recognized that the filing of this application and its approval in no way relieves the landowner
   in any responsibility or liability for damages from the construction, operation or failure of this structure.

   (Name)

   No. 110 11-20

   "Buy North Dakota Products"

   (Stamp)
AFFIDAVIT OF DESIGNING AGENCY

The dam and reservoir described in this application and on attached sheets has been designed and approved by the

North Dakota State Water Commission, and, if the construction thereof is supervised by this agency, it will be built according to the specifications and data shown in this application and data sheets attached hereto.

Dated this 20th day of May, 1968

Name of Agency

Address of Agency

Designing Agency

Signed

Title

State Engineer

For use of North Dakota State Water Commission

APPROVAL AND PERMIT

This is to certify that I have examined the foregoing application and hereby approve the same subject to the rules and regulations of the North Dakota State Water Commission and the laws of the State of North Dakota subject to the following conditions:

WITNESSES my hand and seal this 20th day of May, 1968

Signed:

Chief Engineer
North Dakota State Water Commission

DISAPPROVAL

This is to certify that I have examined the foregoing application and hereby reject and disapprove the same for the following reasons:

WITNESSES my hand and seal this ________________ day of ________________, 19_.

Signed:

Chief Engineer
North Dakota State Water Commission

Form No. 118 Rev. 11-69

(2M—11/68)
W. C. Matson, Sec. Treas.
Mountrail County Water
Management District
Stanley, N. Dak. 58781

Dear Sir:

When the Mountrail County Commissioners were in session
on November 8, 1968 they passed the following Resolution:

"Motion made by Comm. Dobrovolny, that the following
Resolution be approved: BE IT HEREBY RESOLVED that the
County Board of Commissioners approve the White Earth Res.
Project 327 as proposed by the Mountrail County Water
Management District. Motion seconded by Comm. Chief.
Motion carried."

Very truly yours,

Dorthy Laird Strobeck
County Auditor