

WATER PERMIT NO. FC-25

Name of Applicant: Spencer Quarries, Inc.

Address: 25341 430th Ave, Spencer SD 57374

Phone: 605 246-2344

Amount of Water Claimed: Total Acres: NA

Source of Water Supply: Wolf Creek

Water to be used for: flood control County: Hanson

Type of Waste Disposal System:

Location: ½ mile west of Spencer

PRIORITY Date Received: 7-16-1998

Fee: \$150

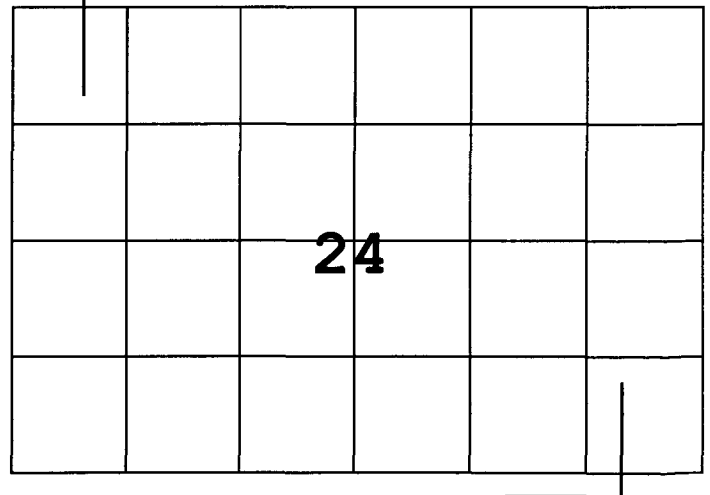
Corrected Application Received: 7-30-1998

Period of Annual Use: January 1 – December 31

Remarks: Reroute a segment of Wolf Creek

Diversion Point: Sec 24-T103N-R57W

Land to be Irrigated:



Depth of Well: _

Well Driller: _

Remarks:

Type of Map: aerial

Prepared by: Richard Waldera

Reviewed and the Number Assigned on: 7-30-1998

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

**SOUTH DAKOTA
FLOOD CONTROL PERMIT NO. FC-25**

Date of first receipt of application July 16, 1998.

The Water Management Board approved Flood Control Permit No. FC-25 on December 2, 1998 for Spencer Quarries, Inc., 25341 430th Ave, Spencer SD 57374 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Flood Control Permit No. FC-25 authorizes rerouting a portion of Wolf Creek to allow for an expansion of an existing hard rock quarry. The proposed rerouted section of Wolf Creek runs through Section 24-T103N-R57W between the county road bridge and SD Highway 38.
2. Approval of the project will reduce damage from flooding and will not increase the likelihood or the severity of flood damages downstream, the necessary easements have been obtained, will not impair existing rights and is in the public interest.
3. The date from which applicant may claim right is July 16, 1998.
4. All construction is to be completed on or before December 2, 2003.

WATER MANAGEMENT BOARD

By: _____

John Hatch
John Hatch, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JAN 19 1999

date



FORM 2: Application for flood control permit
(type or print)



Mail to:
Water Rights Division
Joe Foss Building
523 E Capitol
Pierre SD 57501-3181
605 773-3352

No. FC-25 Hydrologic Unit 10160011
Basin James River
Newspaper Alexandria Herald, Alexandria, SD
(office use only)

APPLICATION FOR A FLOOD CONTROL PERMIT WITHIN THE STATE OF SOUTH DAKOTA

1. Name of Applicant Spencer Quarries, Inc.
Address 25341 430th Avenue
(Street, RR or Box)
Spencer S.D. 57374 Phone No. 605/246-2344
(City) (State) (Zip Code)
2. Name of watercourse WOLF CREEK
3. Location of project (legal description) SEC 24-103-57
4. County or counties where project is located Hanson
5. Give a brief description of the proposed project including the type of project (Dam, Dikes, Channel Modifications, etc.) and purpose for the project. When available Include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed.)

See Enclosure

Attachment: Attach map (see instruction)

STATE OF SOUTH DAKOTA)
County of Hanson) SS

Richard Walders the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Signed Richard Walders

Subscribed and sworn to before me this 10 day of July 19 98

Beth M. Kayser my commission
Notary Public expires 4-13-2003



NOT TO SCALE

County



115-R

23.7

Spencer Quarry

98.9

154.4

24

Existing Creek

49.2

Proposed
Route

94.3

Option B

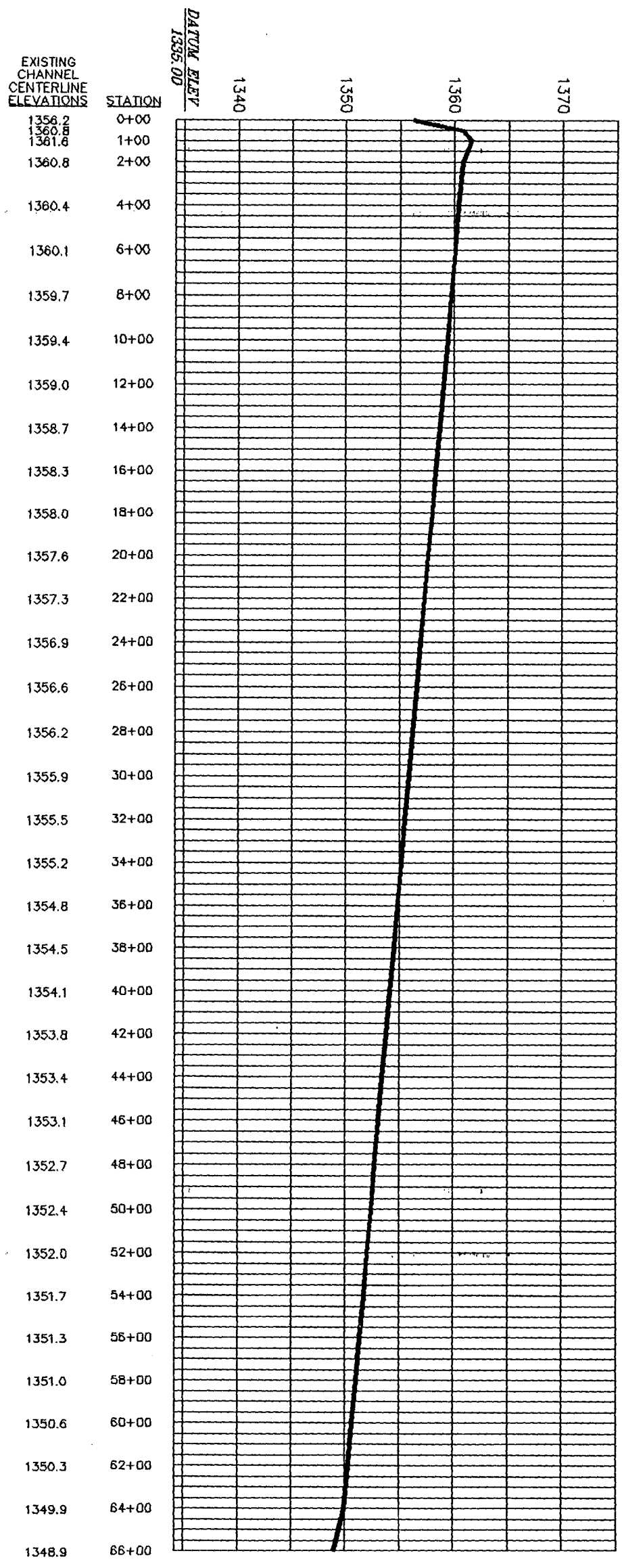
22.2

94.2

103-57

SPENCER QUARRY EXISTING CHANNEL APPROXIMATE FLOWLINE PROFILE

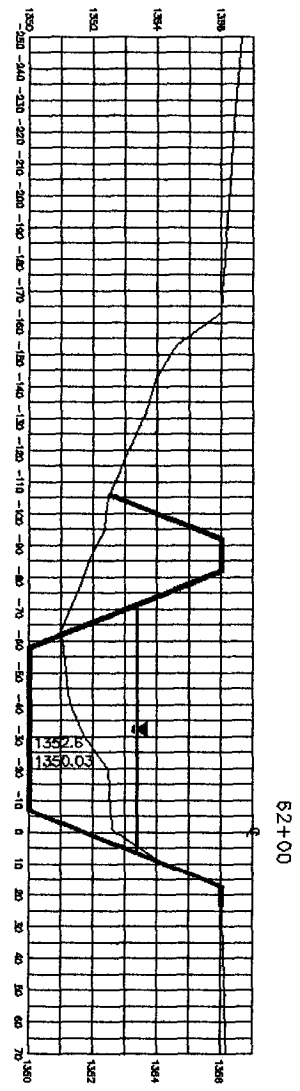
SCALE: H: 1" = 800'
V: 1" = 6'



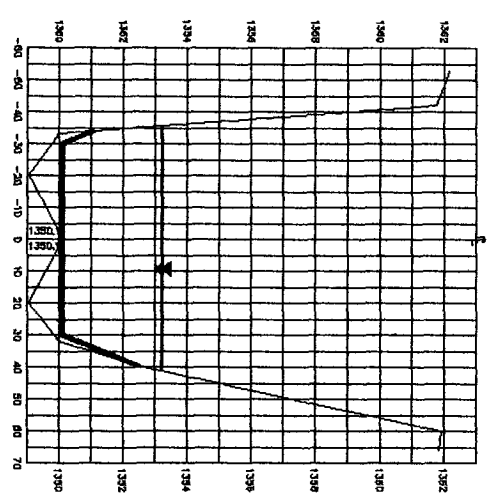
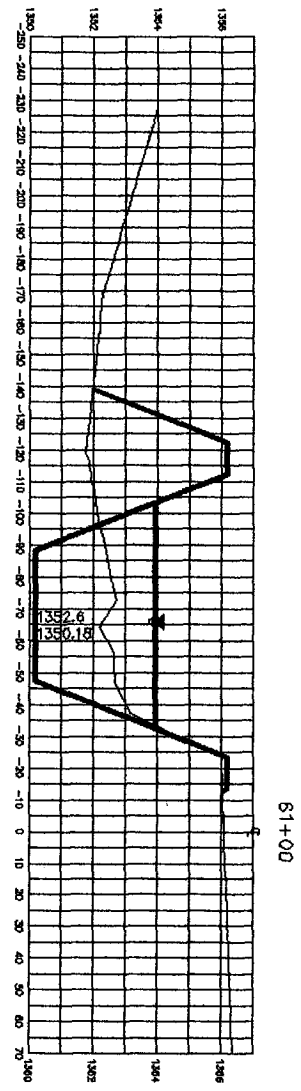
EXISTING GROUND
 PROPOSED CHANNEL
 WATER ELEVATION
 ELEVATION @ EXISTING/PROPOSED

SCALE: H: 1" = 60'
 V: 1" = 5'

1372.9
 1356.20



62+88.56



SHEET #
 25
 Modified
 8/26/98

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

Nº 415821

Pierre, July 16, 1998

RECEIVED OF Spencer Quarries, Inc., 25341 430th Ave., Spencer, SD 57374
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>EC-25</u> to Appropriate Water, to construct and to put water to beneficial use _____	150	00
Fee for Application for Permit No. _____ to Appropriate Water, for Future Use _____		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____		
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	150 00

By _____
Chief Engineer

John Hatch



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
15 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

REPLY TO
ATTENTION OF

February 9, 1998

South Dakota Regulatory Office
28563 Power Road, Room 120
Pierre, South Dakota 57501

John Miller
SD DENR
Joe Foss Building
523 E. Capitol Ave.
Pierre, SD 57501

Tim Olson
SD Game, Fish, Parks
Joe Foss Building
523 E. Capitol Ave.
Pierre, SD 57501

Donald (Pete) Gober
US Fish & Wildlife
420 S. Garfield, S. 400
Pierre, SD 57501

Bob Mairley
US EPA
999 - 18th St.
Denver, CO 80202

Dear Sirs:

Enclosed for your review is preliminary information provided to this office regarding a potential application for Department of the Army permit pursuant to Section 404 of the Clean Water Act. The project as proposed involves re-routing a reach of Wolf Creek to facilitate plans to expand the existing quarry operation. The project proponent is Spencer Quarries, Inc. The project is located in Section 24, Township 103 North, Range 57 West, Hanson County, South Dakota.

I have scheduled a pre-application meeting to discuss this project on February 25, 1998. The meeting will be at 10:00 AM at our office. The project proponent will be available to answer questions and to discuss the project. Photos and a video tape of the project area are available at this office for viewing prior to the meeting.

If you or a representative of your office can not attend, please let me know in advance.

If you have any questions regarding this matter, please feel free to contact me at the above address or telephone (605-224-8531) and reference permit action No. 199830050.

Sincerely,

Steven E. Naylor
Regulatory Program Manager,
South Dakota

Encl.

CF: Spencer Quarries, Inc., Attn: Richard Waldera, G.M.
PO Box 198, Spencer, SD 57374



199830050

SPENCER QUARRIES, INC.

Quartzite Materials

TELEPHONE 605, 246-2344

FAX # 605, 246-2362

P.O. BOX 198

SPENCER, SOUTH DAKOTA 57874

[FEB 1998]

RECEIVED

FEBRUARY 3RD, 1998

TO: CORP OF ENGINEERS
STEVE NAYLOR
JIM OEHLERKING
TOM LOWIN

GENTLEMEN:

ENCLOSED IS SPENCER QUARRIES, INC. GENERAL PROPOSAL TO REROUTE WOLF CREEK. THIS PROPOSAL INCLUDES AS FOLLOWS-

EMPLOYMENT IMPACT
ECONOMICAL IMPACT
IMPACT TO THE CITY OF SPENCER (LETTER)
CONTOUR MAP
PICTURES
VIDEO
REASONS WHY SPENCER QUARRIES IS REQUESTING THIS
PROJECT
MAP OF SERVICE AREA/LIST OF VARIOUS USERS

IF AFTER REVIEW OF THIS PROPOSAL ANY ADDITIONAL INFORMATION IS NEEDED PLEASE LET ME KNOW.

SINCERELY YOURS;

Rich

RICHARD WALDERA
GEN. MGR.

SPENCER QUARRIES, INC.

Quartzite Materials

TELEPHONE 605, 246-2344

FAX # 605, 246-2362

P.O. BOX 198

SPENCER, SOUTH DAKOTA 57574

SPENCER QUARRIES, INC. IS APPROXIMATELY 100 YEARS OLD. THE QUARRIES MAIN PRODUCT AT THAT TIME WAS BUILDING BLOCK (ROCK). WE HAVE EXPANDED OUR PRODUCT LINE AND PRODUCTION DRAMATICALLY SINCE THE ORIGIN.

SPENCER QUARRIES IS PRESENTLY IN THE CONSTRUCTION PHASE OF UPGRADING OUR MINING PROCESS. WHEN COMPLETED IN MID 1998 THERE WILL BE A TOTAL EXPENDITURE OF APPROXIMATELY \$1.5 MILLION.

OUR PRESENT PIT IS APPROXIMATELY 35 ACRES. WE ARE MINING AT THE 135 FOOT LEVEL. SPENCER QUARRIES, INC. PRESENTLY OWNS 320 ACRES WHICH HAS A TOTAL QUARTZITE DEPOSIT BENEATH. WE ARE ALSO IN THE PROCESS OF PURCHASING AN ADDITIONAL 100 ACRES WHICH THE PROPOSED CREEK REROUTE WILL BE LOCATED. BY ACQUIRING THIS ADDITIONAL 100 ACRES THE NEW PROPOSED CREEK WILL BE APPROXIMATELY THE SAME LENGTH AS THE PRESENT SECTION OF WOLF CREEK TO BE ABANDON.

WE HAVE APPROXIMATELY 2 YEARS OF MINING LIFE LEFT IN OUR PRESENT PIT AS WE HAVE ENCOUNTERED PIPESTONE JUST BELOW THE 135 FOOT LEVEL. PIPESTONE IS A PRODUCT WHICH IS NOT SALEABLE.

WE ARE IN DIRE NEED TO EXPAND OUR QUARRY. TO ACCOMPLISH THIS WOLF CREEK WHICH SURROUNDS OUR PRESENT PIT, NEEDS TO BE REROUTED, AS THE ENCLOSED MAPS AND PICTURES REVEAL.

THE WET LANDS MAP, WHICH I ACQUIRED FROM THE LOCAL SOIL CONSERVATION OFFICE, DOES NOT INDICATE WET LANDS OTHER THAN THE PRESENT CREEK ITSELF.

IN 1997 SPENCER QUARRIES EMPLOYED A TOTAL OF 46 PEOPLE. OF THESE 46 TOTAL EMPLOYEES, WE HAVE 18 FULL TIME AND 2-6 PART TIME EMPLOYEES ON DUTY YEAR ROUND. SPENCER QUARRIES EMPLOYS SEVERAL COLLEGE STUDENTS, FARMERS, AND FULL TIME EMPLOYEES FROM OTHER EMPLOYERS ON A PART TIME BASIS YEAR ROUND. SPENCER QUARRIES PAY ROLL FOR 1997 TOTALLED JUST SHY OF \$700,000. THIS IS VERY SUBSTANTIAL IN A RURAL COMMUNITY.

IN 1992 SPENCER QUARRIES, INC. PURCHASED COMMERCIAL ASPHALT WHICH USES SPENCER QUARRIES PRODUCT ALMOST EXCLUSIVELY. COMMERCIAL ASPHALT EMPLOYED A TOTAL OF 42 PEOPLE IN 1997 WITH A PAY ROLL OF ALMOST \$600,000.

SPENCER QUARRIES, INC. PAID A TOTAL OF APPROXIMATELY \$1,300,000 WAGES IN 1997.

SPENCER QUARRIES, INC. PAID APPROXIMATELY \$130,000 FOR SALES, USE, AND TRUCKING TAX IN 1997 TO THE STATE OF SOUTH DAKOTA.

THE ENCLOSED MAP SHOWING THE GENERAL TRADE AREA ALSO INDICATES THE IMPORTANCE OF SPENCER QUARRIES TO CONTINUE TO FURNISH RAW AGGREGATE. A SHORT LIST OF ENTITIES UTILIZING SPENCER QUARRIES PRODUCT ARE--STATE OF SOUTH DAKOTA, STATE OF NEBRASKA, CITIES, COUNTIES, TOWNSHIPS, FARMERS, REDI-MIX CONCRETE PLANTS

(25 REGULAR) AND CONTRACTORS. THE PRIMARY USE OF SPENCER QUARRIES AGGREGATES IS AS FOLLOWS--ROAD CONSTRUCTION (ASPHALT & CONCRETE) & MAINTENANCE, BUILDING CONSTRUCTION, EROSION CONTROL, AND RAILROAD CONSTRUCTION & MAINTENANCE.

THE QUALITY AND QUANTITY OF NATURAL PIT (GRAVEL) IN THE STATE OF SOUTH DAKOTA AND NEBRASKA ARE BOTH ON THE DECLINE WHICH ONLY APPLYS MORE PRESSURE TO THE LEDGE ROCK SOURCES (SPENCER QUARRIES) TO SUPPLY MORE AND BETTER AGGREGATES.

IN SUMMARY, WE NEED TO REROUTE WOLF CREEK.

JANUARY 15TH, 1998

TO WHOMEVER CONCERNED;

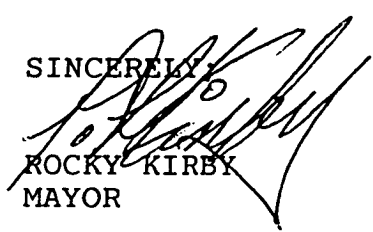
WE THE GOVERNING BODY OF SPENCER S.D. HAVE BEEN MADE AWARE OF THE WOLF CREEK REROUTING PROJECT PROPOSED BY SPENCER QUARRIES, INC.

WE AS A BODY DO SUPPORT THE PROPOSED PROJECT. WE FEEL THE REROUTING WILL ENHANCE THE CREEKS CAPACITY WHICH WILL GIVE SPENCER THE MUCH NEEDED ADDITIONAL DRAINAGE.

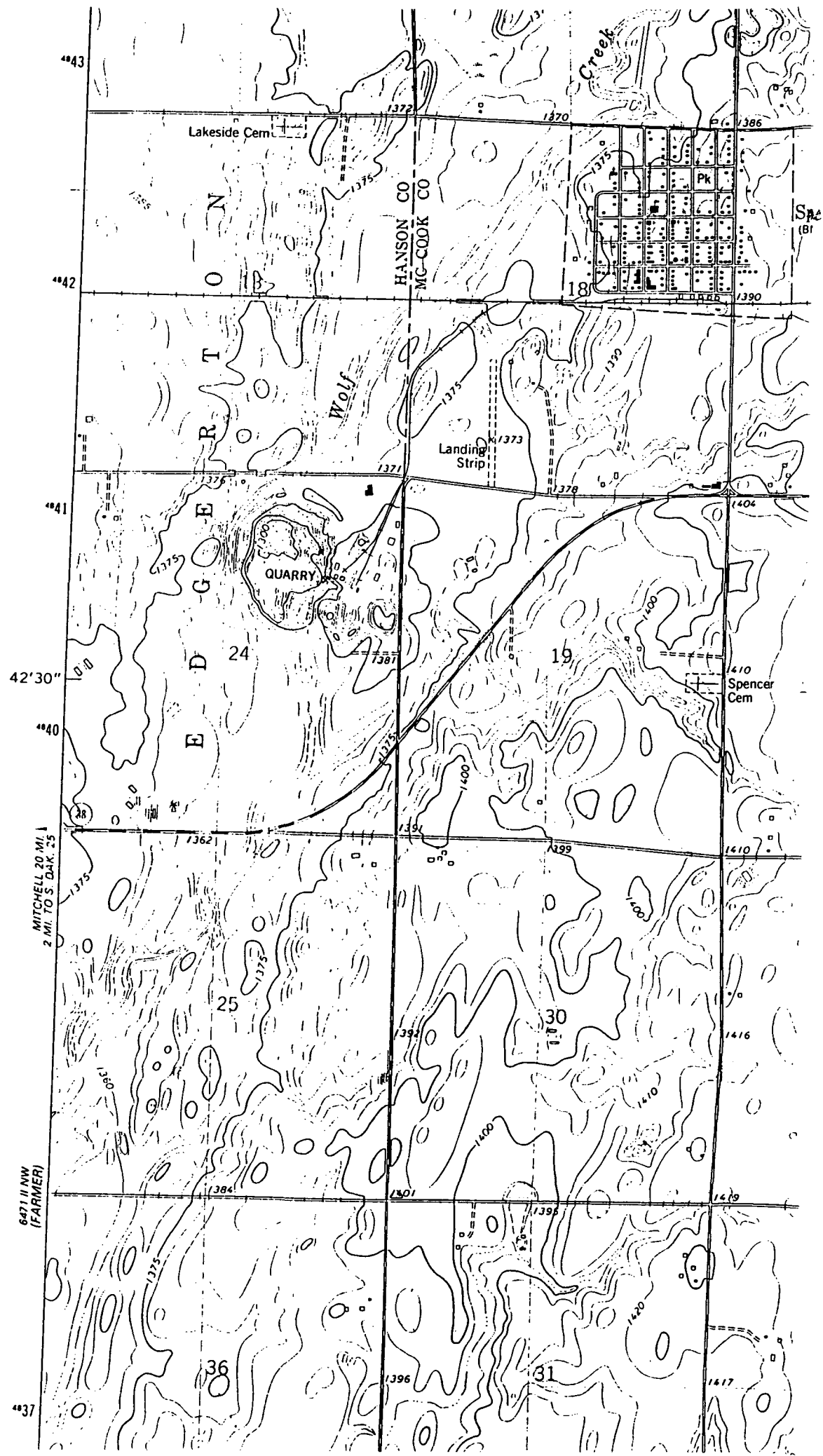
SPENCER QUARRIES, INC. HAS BEEN OPERATING IN OUR COMMUNITY FOR APPROXIMATELY 100 YEARS. SPENCER QUARRIES INC. IS A VERY MUCH NEEDED INDUSTRY FOR OUR COMMUNITY FOR SEVERAL REASONS SOME OF WHICH ARE; EMPLOYMENT, PRODUCT AVAILABILITY, AND COMMUNITY SUPPORT.

WE UNDERSTAND IF THIS PROPOSED CREEK REROUTING IS NOT ALLOWED OUR COMMUNITY COULD POSSIBLY LOSS THIS INDUSTRY IN THE FUTURE. THE CITY OF SPENCER DOES NOT WANT TO SEE THAT HAPPEN.

SINCERELY,



ROCKY KIRBY
MAYOR

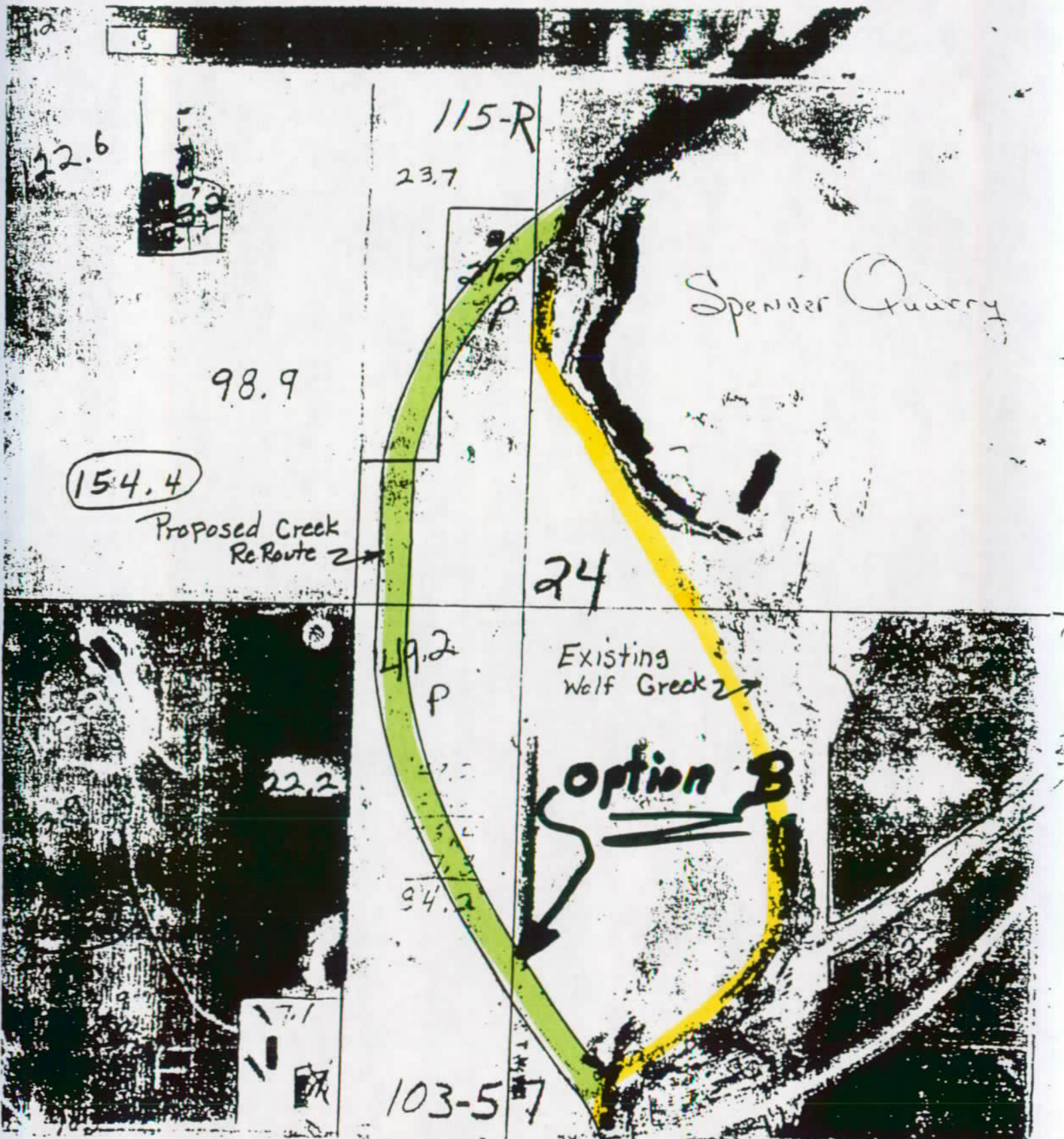


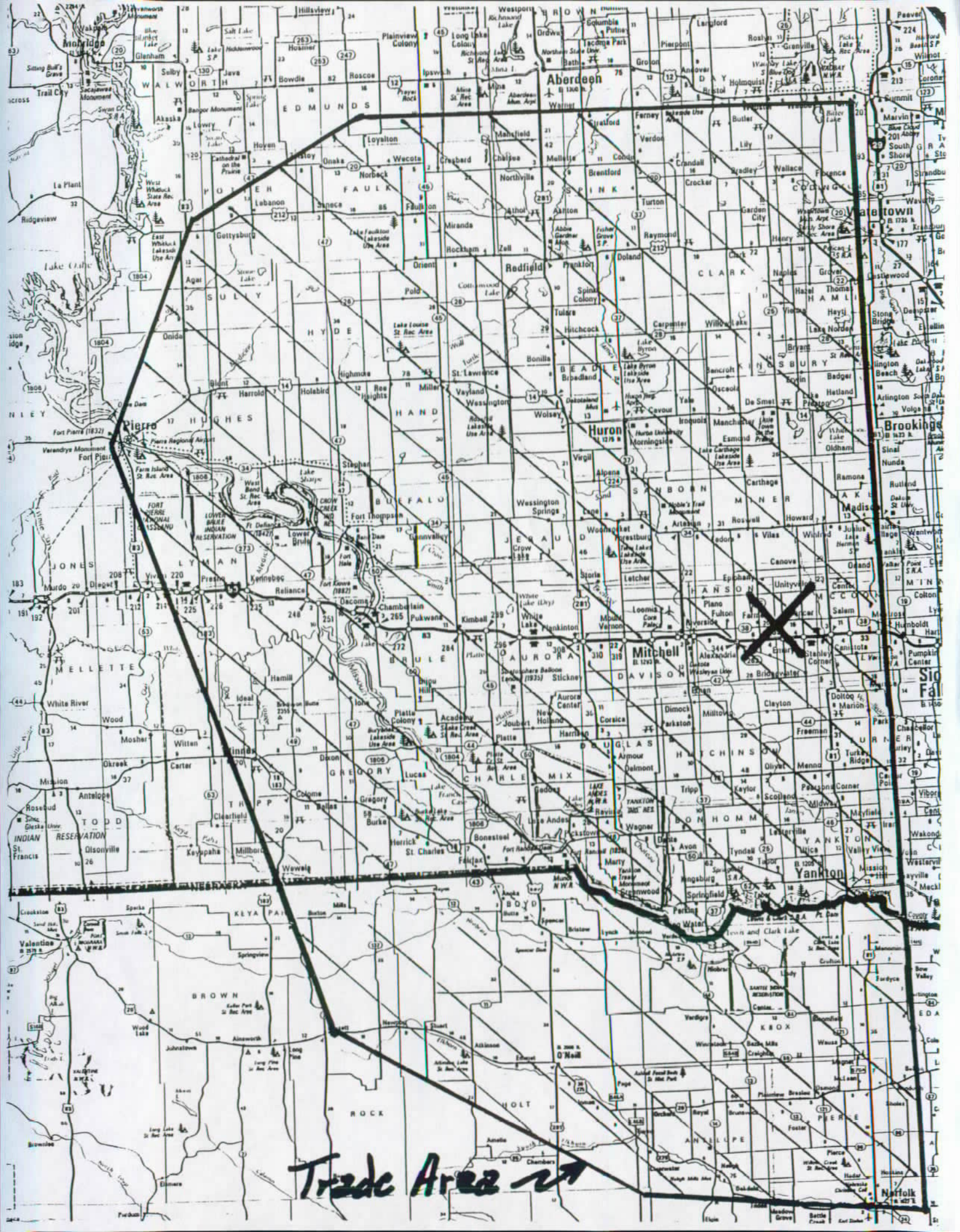
BENTON DIRECTORY



NOT TO SCALE

County







**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

February 27, 1998

Richard Waldera
Spencer Quarries, Inc.
PO Box 198
Spencer SD 57374

Dear Mr. Waldera:

I am writing in response to our meeting on February 25, 1998, with the Corps of Engineers and our phone call on February 26, 1998.

During your presentation it was mentioned that the quarry is discharging approximately 2 million gallons of water per day into Wolf Creek. This equates to an average pump rate of 1,388 gallons per minute (gpm) or 3.10 cubic feet of water per second (cfs). I have reviewed our water rights records and the quarry does have a vested water right (copy enclosed) that allows diversion of 1.8 cfs for use in a rock quarry washing process.

According to our phone conversation on February 26, 1998, the quarry is diverting a portion of the water for rock washing. This may amount to about 100 gpm to the rock washing reservoir with the remainder diverted to dewater the quarry at a current pump rate of about 2,200 gpm (4.9 cfs). Since the current diversion rate of 4.9 cfs exceeds the 1.8 cfs diversion rate authorized by the vested right, a new water right permit will be needed for the 3.1 cfs increase. Application forms are enclosed. If possible, please include the total volume of water diverted per year. This yearly volume figure may well be the 2 million gpd figure you cited at the February 25, 1998, meeting.

In regard to the flood control permit application to reroute the creek, it will be necessary to show that the proposed creek changes will not increase the severity or likelihood of flood damages in other areas (South Dakota Codified Law 46-2A-11). You may wish to work with a consultant that is familiar with a HEC flood routing program or a similar hydrologic analysis tool to address this requirement. Also, you may submit the water permit application and flood control permit application at the same time or separately.

Please let me know if you have any questions concerning this information. I can be reached at (605) 773-3352 and I will try to help in any way possible. If you have internet access, you can also get information about water right requirements through the department website located at www.state.sd.us/denr.

Sincerely,

Ron Duvall
Natural Resources Engineer
Water Rights Program

enclosures



PUBLIC NOTICE

US Army Corps
of Engineers

Omaha District

APPLICANT: SPENCER QUARRIES, INC.
APPLICATION NO: 199830050
WATERWAY: WOLF CREEK

ISSUE DATE: AUGUST 28, 1998
EXPIRATION DATE: SEPTEMBER 18, 1998

Regulatory Office, 28563 Powerhouse Rd, Room 120, Pierre, SD 57501

21 DAY NOTICE

JOINT NOTICE OF PERMIT PENDING

US ARMY CORPS OF ENGINEERS
AND
SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

The application of Spencer Quarries, Incorporated, Spencer, South Dakota, for approval of plans and issuance of a permit under authority of the Secretary of the Army is being considered by the District Engineer, US Army Engineer District, Omaha, Nebraska.

The applicant requests authorization to relocate a segment of Wolf Creek in association with the expansion of an existing hard rock quarry located in Section 24, Township 103 North, Range 57 West, Hanson County, South Dakota.

The proposed project will consist of the excavation/construction of a new creek channel. The new alignment of the creek will be approximately 6,288 feet in length beginning in the existing channel at the bridge at the north end of the quarry property and arc around the west boundary of the quarry site until it connects with the existing channel as it passes through the Highway 38 bridge at the south end of the property. The new channel is designed to carry the maximum flow capacity of the upstream (north) bridge opening which is estimated to be 984.7 cubic feet per second. This design includes the construction of dikes on both sides of the channel to maintain a depth of flow through the new channel alignment and not allow water to spread over the low areas in the beginning and ending stretches of the new channel. In the first 1,100 feet of the channel, the depth will be 6 feet with a depth of flow of 5 feet during maximum flow. The cross-section will consist of a 10 feet wide ditch bottom with 4 to 1 side slopes, 10 feet wide dike top, and 4 to 1 outside slopes to natural ground. In the approximate location of channel station 11+00 (see attached plans) it is anticipated that the bottom of the channel will be constructed in rock. This will require a change in the cross-section of the channel to a bottom width of 30 feet and side slopes of 1.25 to 1 through channel station 60+00. No problems with stability or erosion of the slopes are expected due to the anticipated construction in solid rock. The change in cross-section will also decrease the overall volume of material that must be removed in the construction process.

The purpose of the project is to maintain production at the quarry. Wolf Creek currently flows through the quarry site where expansion is possible (i.e., where quality material is available).

The South Dakota Department of Environment and Natural Resources, Division of Environmental Regulation, 523 East Capitol Avenue, Pierre, South Dakota 57501-3181, will review the proposed project for state certification in accordance with the provisions of Section 401 of the Clean Water Act. The certification, if issued, will express the State's opinion that the operations undertaken by the applicant will not result in a violation of applicable water quality standards. The South Dakota Department of Environment and Natural Resources hereby incorporates this public notice as its own public notice and procedures by reference (ARSD 74:03:02).

Omaha District will comply with the National Historic Preservation Act of 1966 and 36 CFR 800. We have checked the National Register of Historic Places and "its current supplements," and no property listed in the Register or proposed for listing is located in the permit area. This is the extent of our knowledge about historic properties in the permit area at this time. However, we will evaluate input by the State Historic Preservation Officer and the public in response to this public notice, and we may conduct or require a reconnaissance survey of the permit area or check for unknown historic properties, if warranted.

In compliance with the Endangered Species Act, our preliminary review indicates that the proposed activity will not affect species designated as threatened or endangered pursuant to the Endangered Species Act or their critical habitat.

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposals must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the activity will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production, and, in general the needs and welfare of the people. In addition, the evaluation of the impacts of the project on public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act (40 CFR Part 230).

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reason for holding a public hearing. The request must be submitted to the US Army Corps of Engineers, South Dakota Regulatory Office, 28563 Powerhouse Road, Room 120, Pierre, South Dakota 57501.

Any interested party (particularly officials of any town, city, county, state, Federal agency, or local association whose interests may be affected by the proposed work) is invited to submit to this office, written facts, arguments, or objections on or before September 18, 1998. Any agency or individual having an objection to the proposed work should specifically identify it as an objection with clear and specific reasons. Comments, both favorable and unfavorable, will be accepted, made a part of the record and will receive full consideration in subsequent actions on this permit application. All replies to the public notice should be addressed to the address listed in the previous paragraph. Mr. Thomas A. Lowin, telephone number (605) 224-8531, may be contacted for additional information.

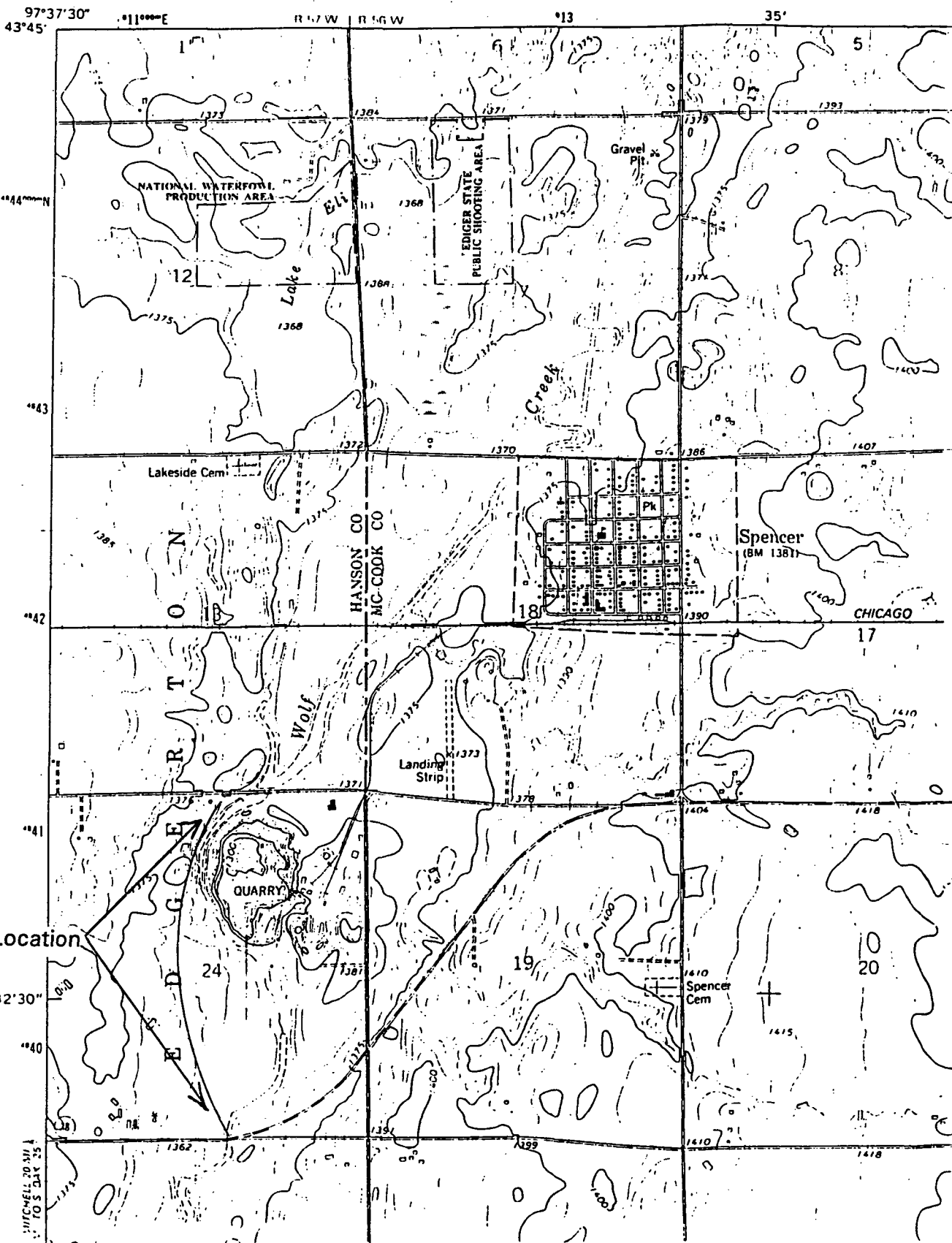
Comments received after the close of the business day on the expiration date of this public notice will not be considered.

This project, if authorized, will be under the provisions of Section 404 of the Clean Water Act.

Drawings showing the location and extent of the work are attached to this notice.

82115W
(EPHANY)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



PURPOSE: Channel Relocation
DATUM msl
ADJACENT PROPERTY OWNERS:
1 John Eichacker
2 Calvin Heitzman

IN Wolf Creek
AT Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION BY Spencer Quarries, Inc.
SHEET 1 OF 20 DATE 8-26-98

Schmucker, Paul, Nohr & Associates
620 North Lawler P. O. Box 398
MITCHELL, SOUTH DAKOTA 57301
Phone 996-7761

JOB _____
SHEET NO. _____ OF _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SCALE _____

SPENCER QUARRIES SHEET ORDER

①	②
③	④
⑤	⑥
⑦	⑧
⑨	⑩

PURPOSE: Channel Relocation
DATUM msl
ADJACENT PROPERTY OWNERS:
1 John Eichacker
2 Calvin Heitzman

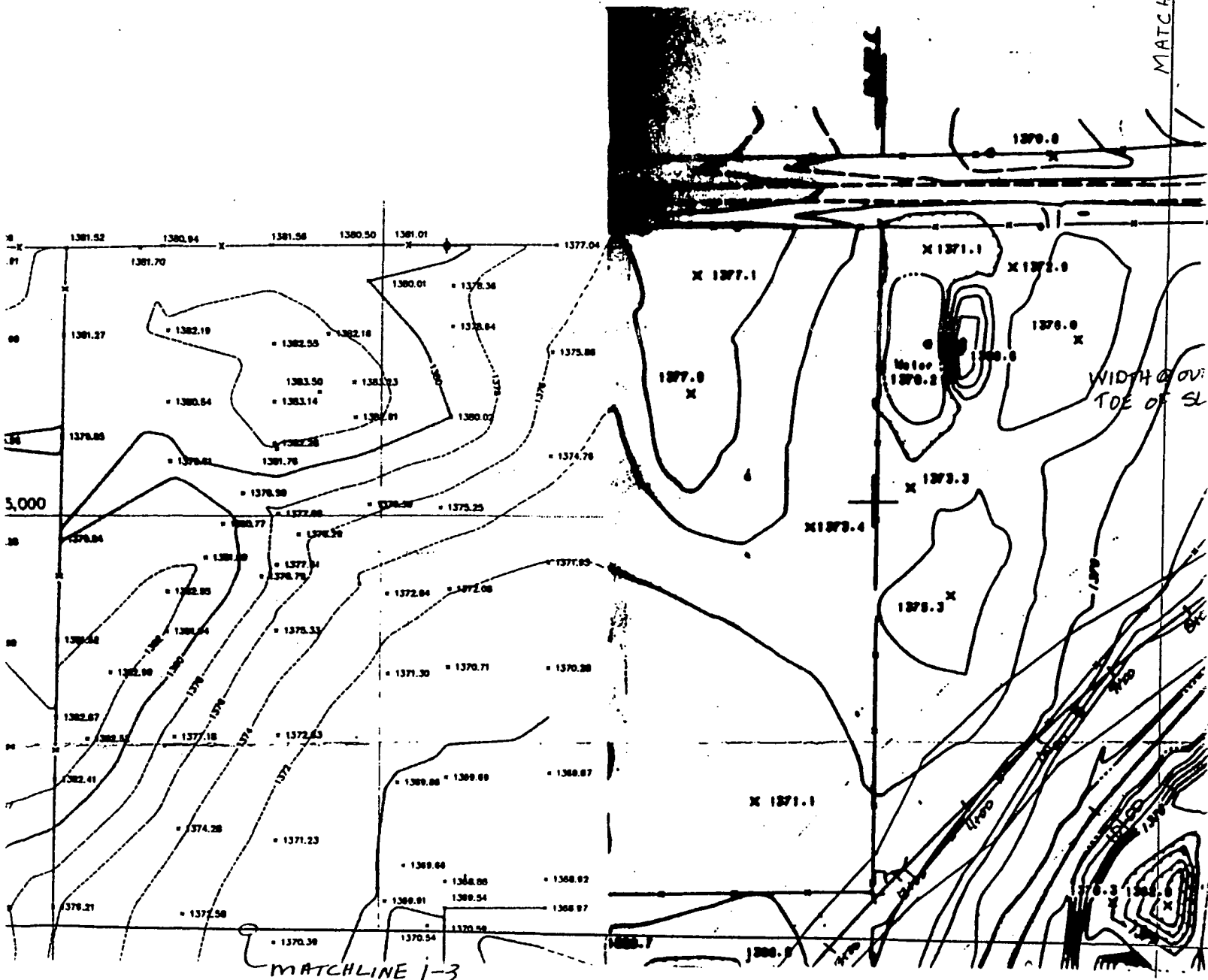
IN Wolf Creek
AT Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION BY Spencer Quarries, Inc.
SHEET 2 OF 20 DATE 8-26-98

①

SCALE: 1" = 150' +/-



MATCHLINE 1-2



PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

1 John Eichacker

2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

COUNTY OF Hanson

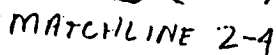
STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 3 OF 20 DATE 8-26-98

SCALE: 1" = 150'

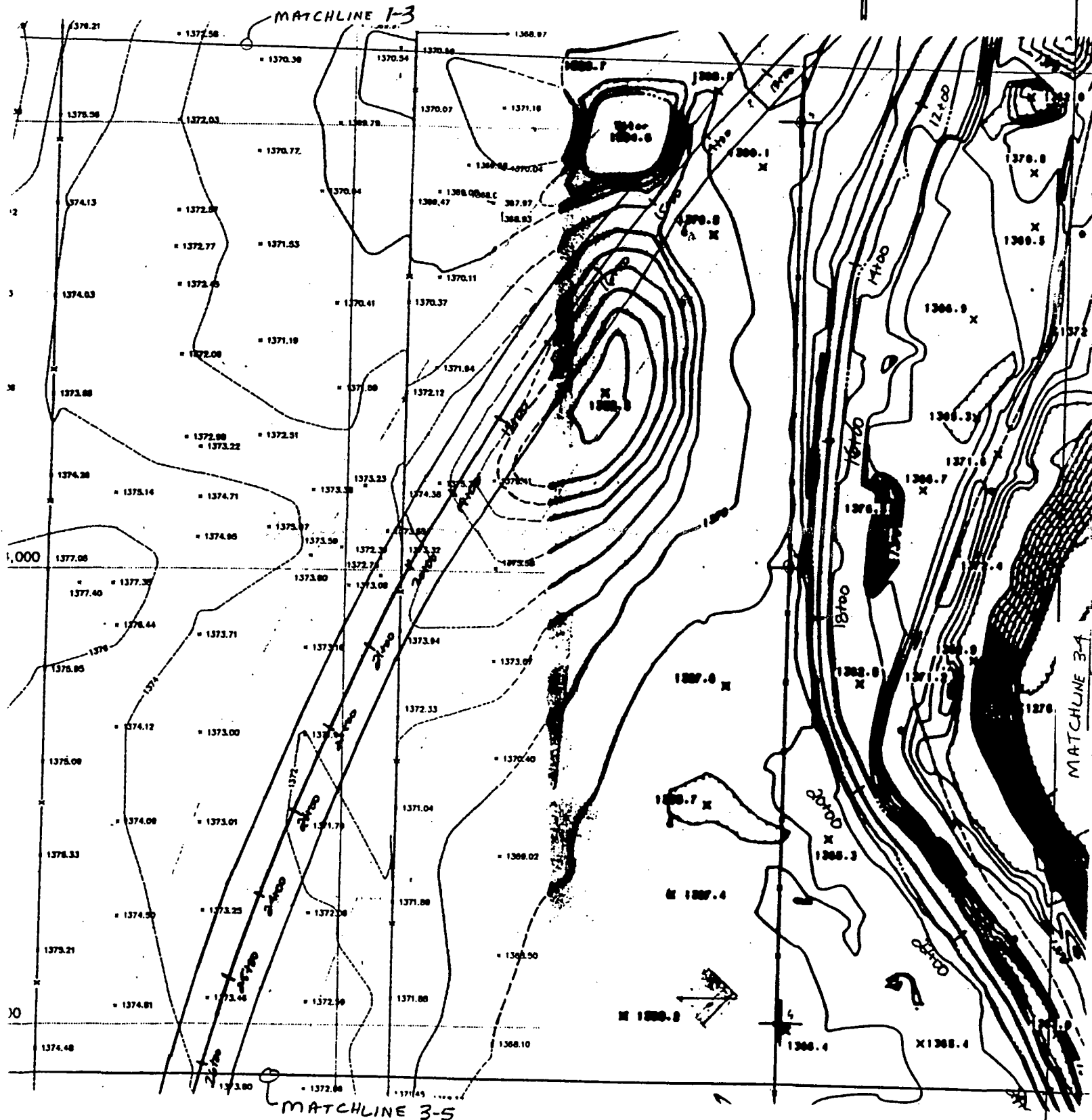
MATCHLINE 1-2



IN Wolf Creek
AT Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION by Spencer Quarries, Inc.
SHEET 4 OF 20 DATE 8-26-98

3

SCALE: 1" = 150'



PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

1 John Eichacker

2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

COUNTY OF Hanson

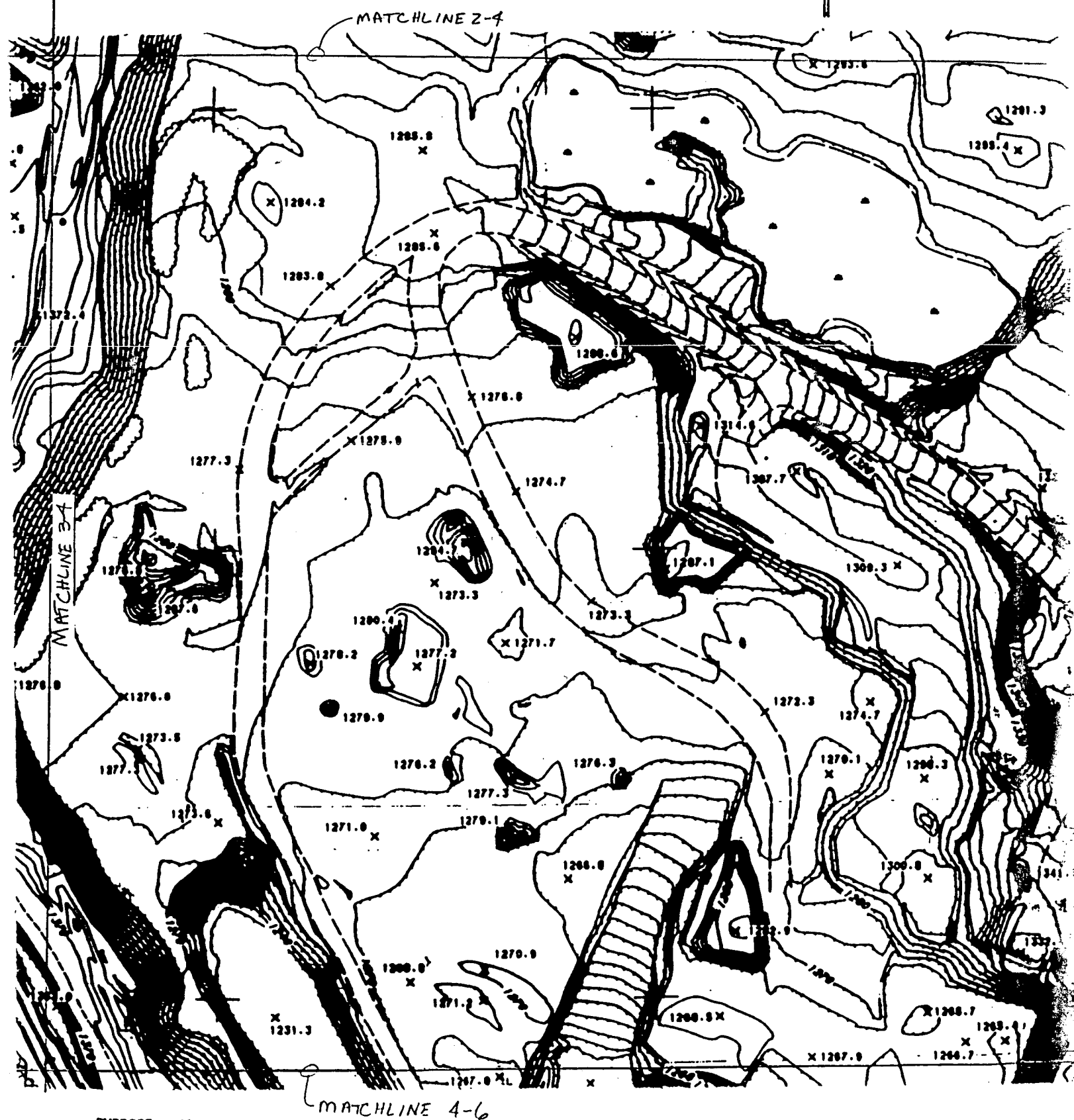
STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 5 OF 20 DATE 8-26-98

4

SCALE: 1" = 150' +/-



PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

1 John Eichacker

2 Calvin Heitzman

IN Wolf Creek

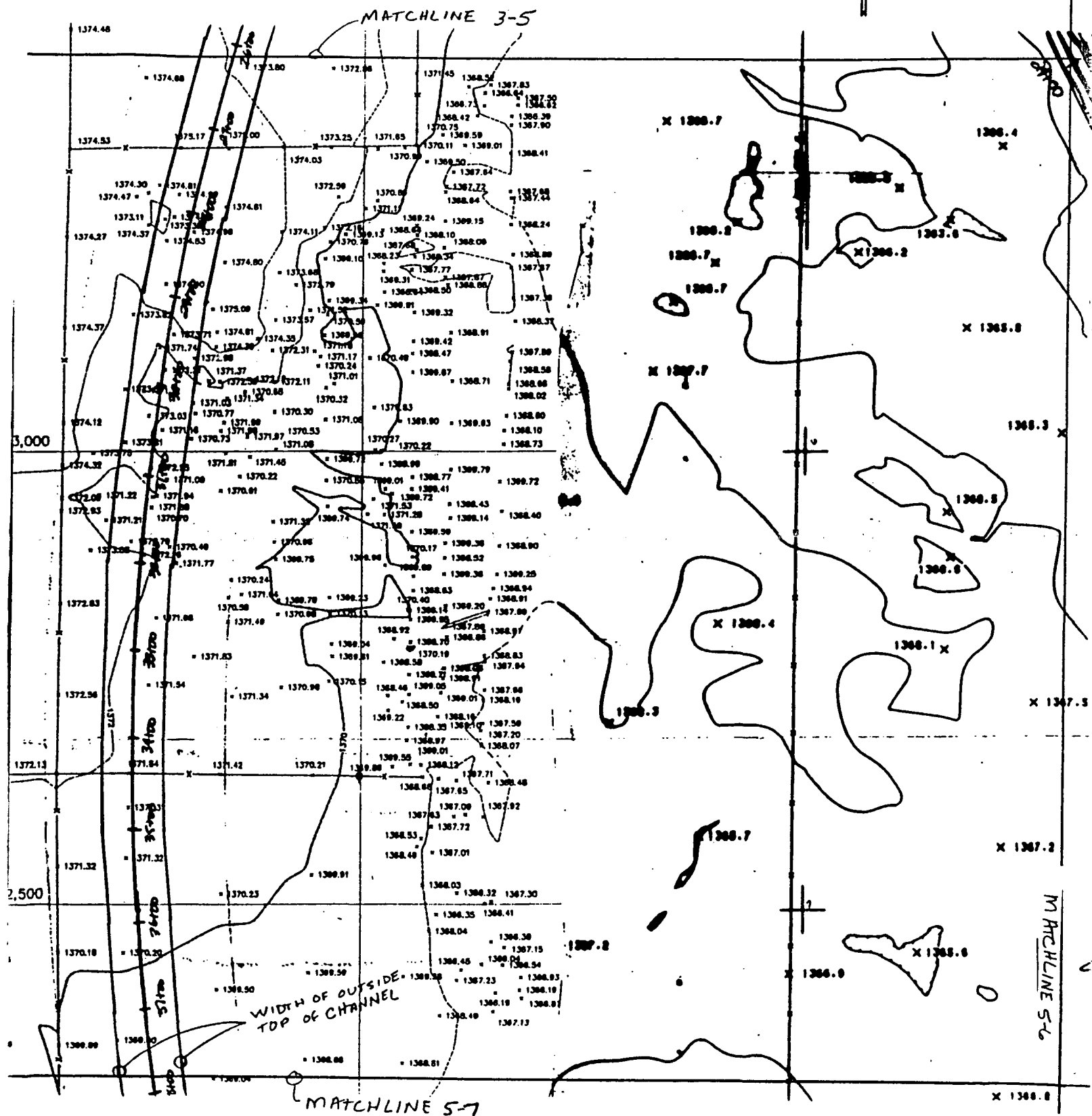
AT Sec 24, T103N, R57W

COUNTY OF Hanson

STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 6 OF 20 DATE 8-26-98



PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

- 1 John Eichacker
- 2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

COUNTY OF Hanson

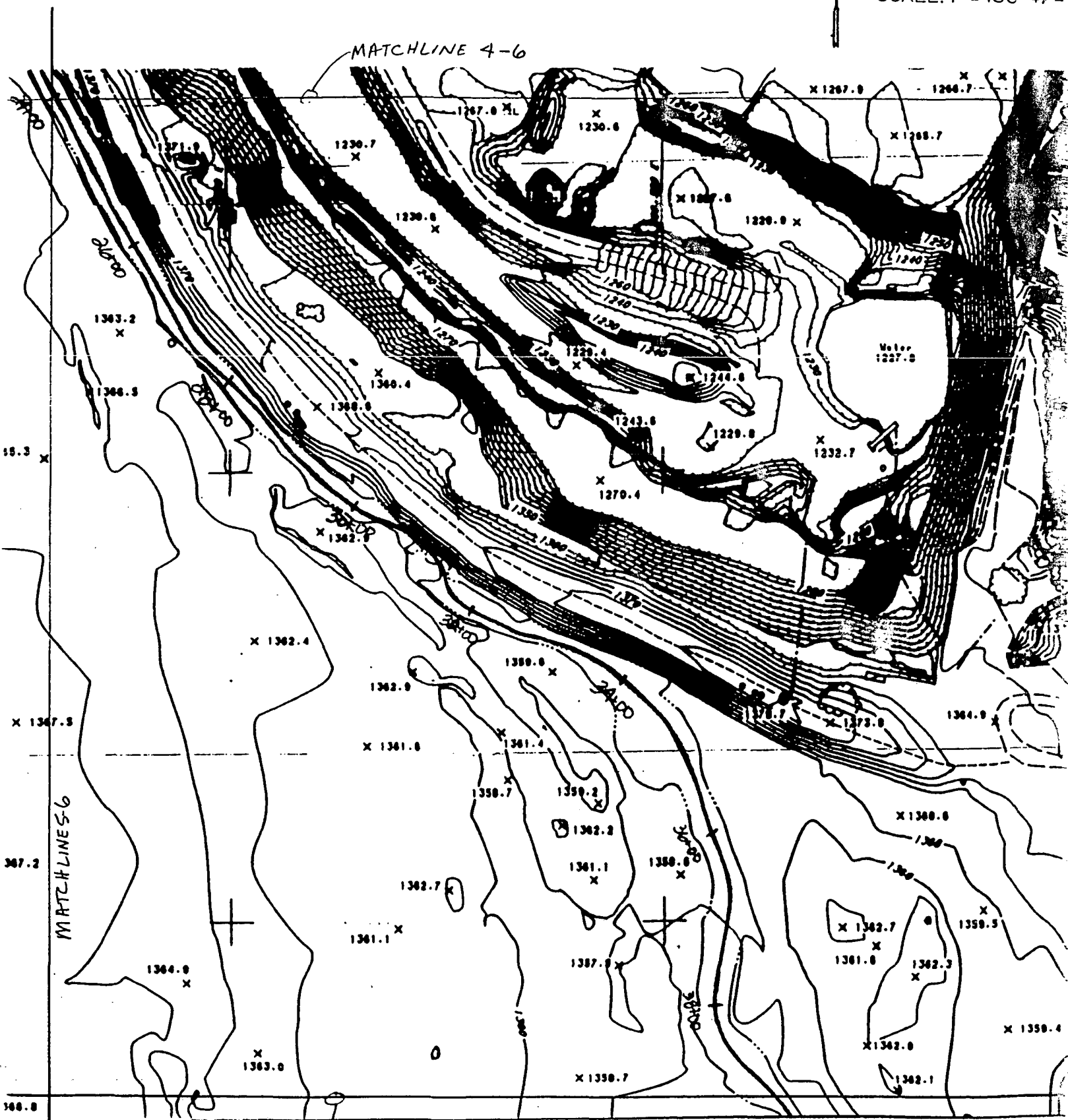
STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 7 OF 20 DATE 8-26-98

6

SCALE: 1" = 150' +/-



PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

1 John Eichacker

2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

COUNTY OF Hanson

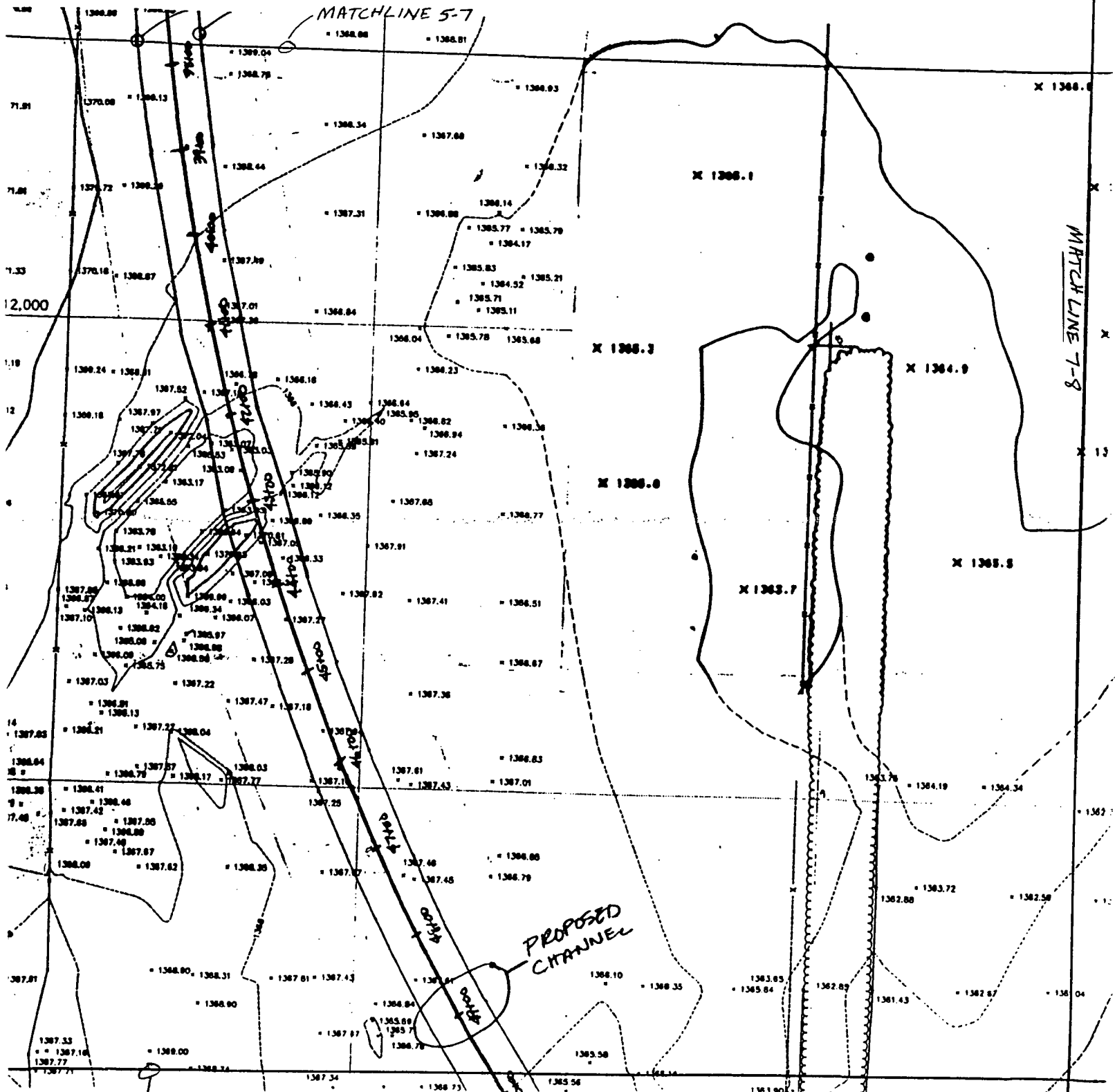
STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 8 OF 20 DATE 8-26-08

7

SCALE: 1" = 150' +/-



MATCHLINE 7-9

PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

1 John Eichacker

2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

COUNTY OF Hanson

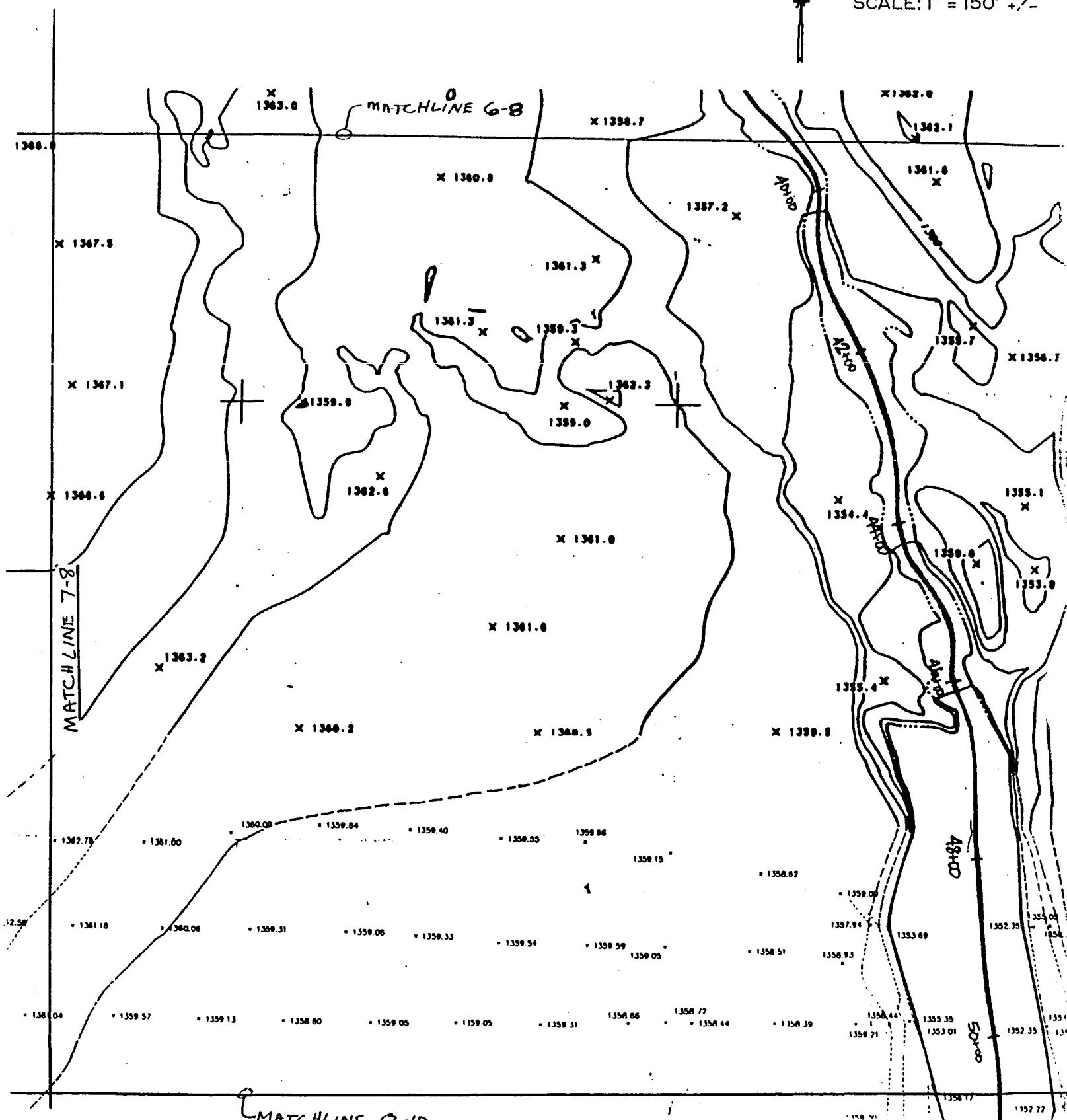
STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 9 OF 20 DATE 8-26-98

8

SCALE: 1" = 150' +/-



PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

- 1 John Eichacker
- 2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

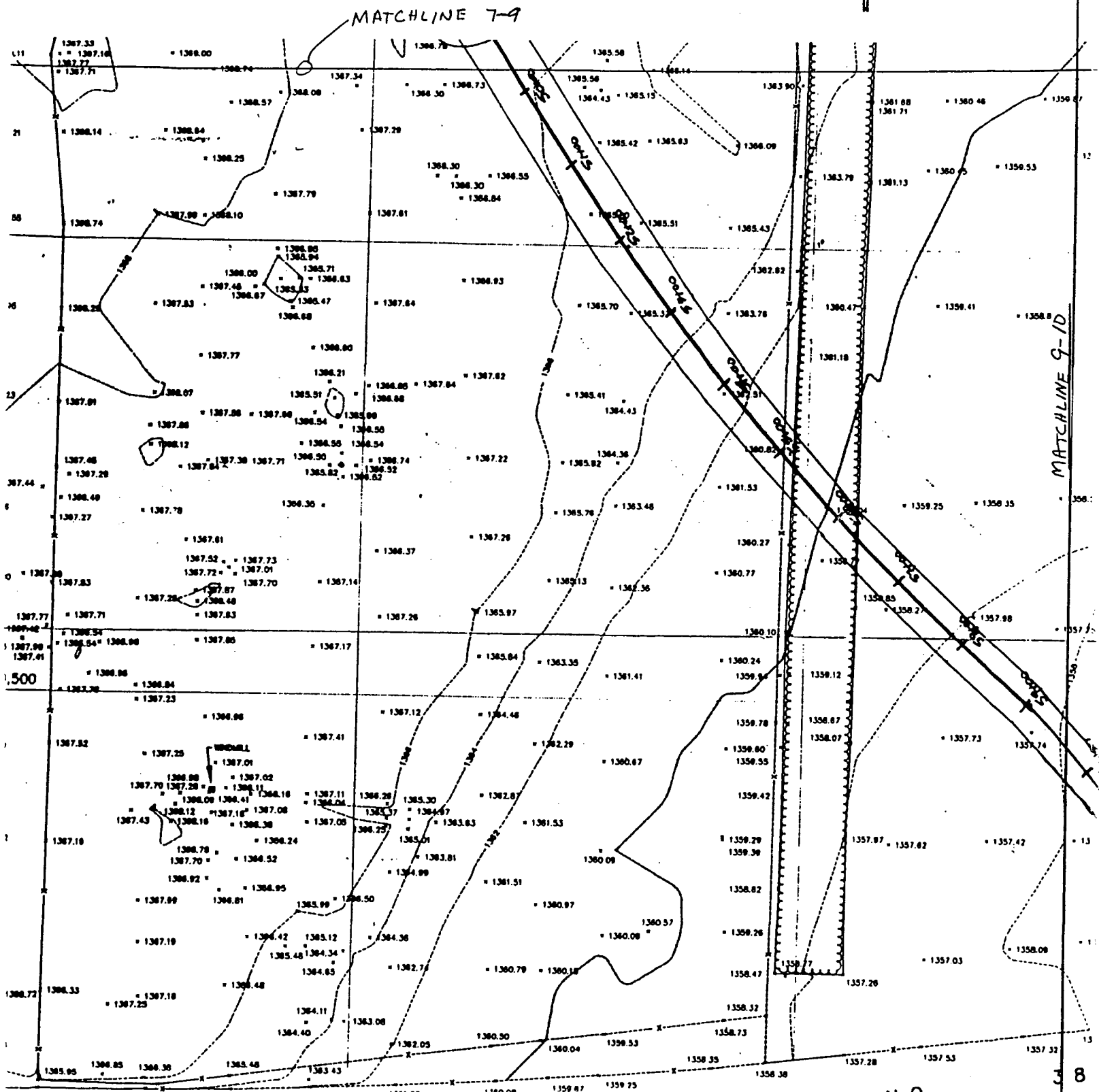
COUNTY OF Hanson

STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 10 OF 20 DATE 8-26-98

SCALE: 1" = 150' +/-

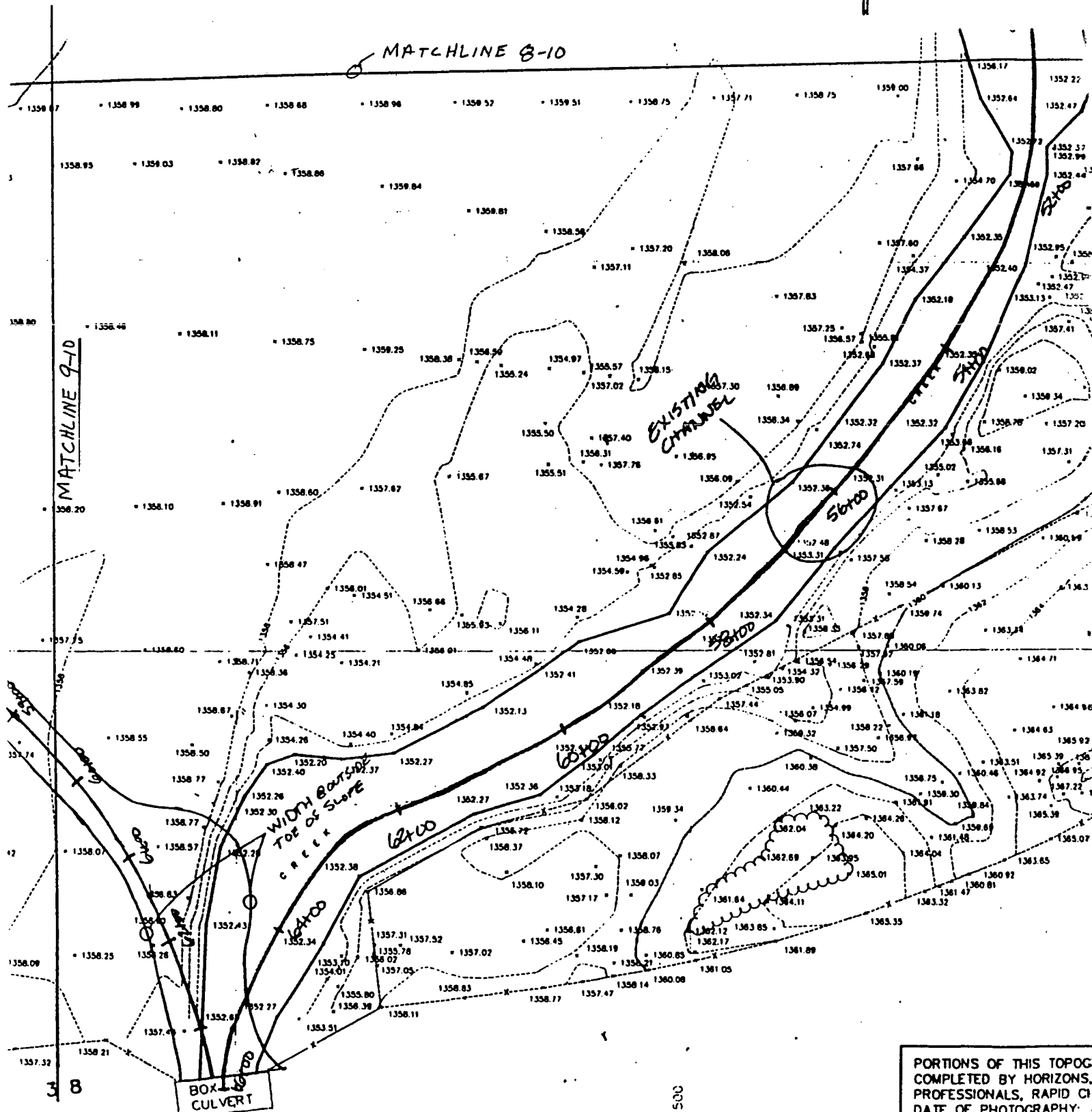


PURPOSE: Channel Relocation
 DATUM msl
 ADJACENT PROPERTY OWNERS:
 1 John Eichacker
 2 Calvin Heitzman

IN Wolf Creek
AT Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION by Spencer Quarries, Inc.
SHEET 11 OF 20 DATE 8-26-98

(10)

SCALE: 1" = 150' +/-



PURPOSE: Channel Relocation
DATUM msl
ADJACENT PROPERTY OWNERS:
1 John Eichacker
2 Calvin Heitzman

IN Wolf Creek
At Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION BY Spencer Quarries, Inc.
SHEET 12 OF 20 DATE 8-26-98

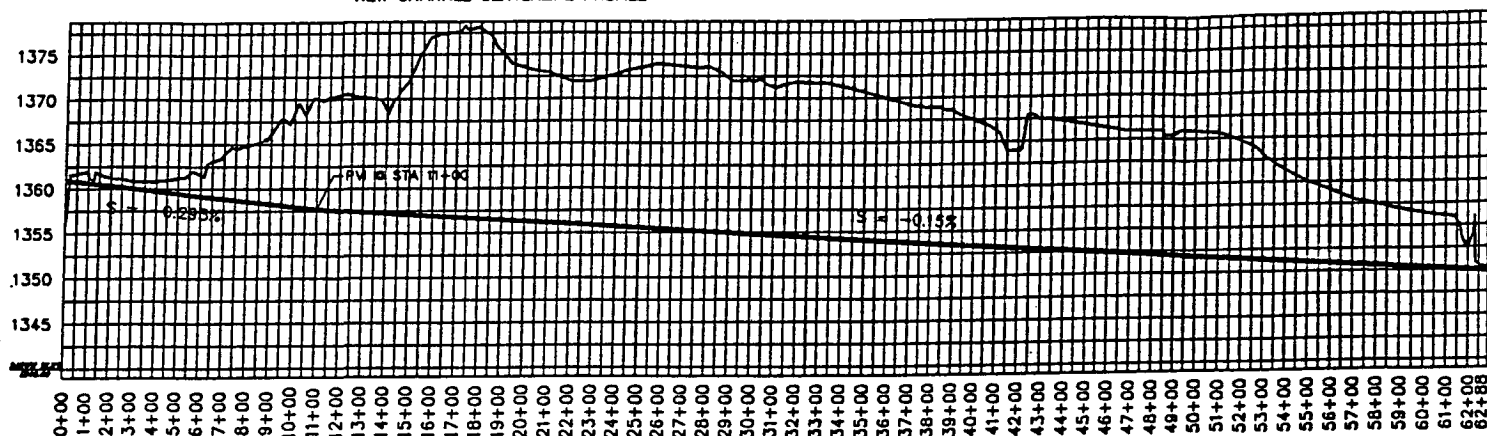
PORTIONS OF THIS TOPOG
COMPLETED BY HORIZONS.
PROFESSIONALS, RAPID CI
DATE OF PHOTOGRAPHY:

SHEET 1

SPENCER QUARRY NEW CHANNEL CENTERLINE PROFILE

EXISTING & ELEVATION
PROPOSED & ELEVATION

SCALE: H 1" = 500'
V 1" = 5'



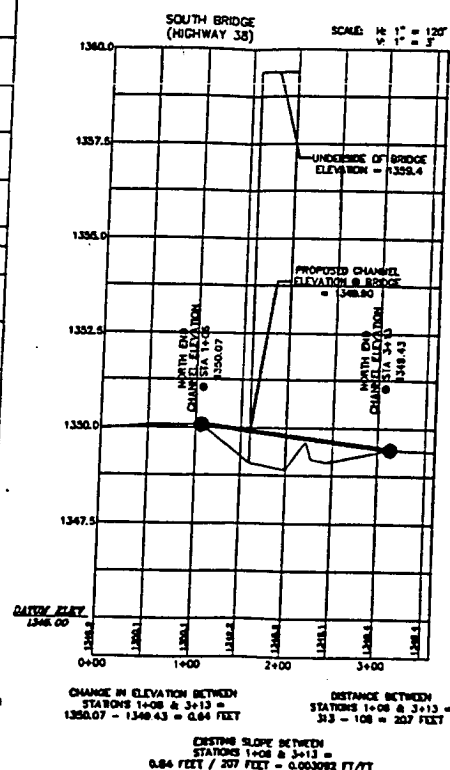
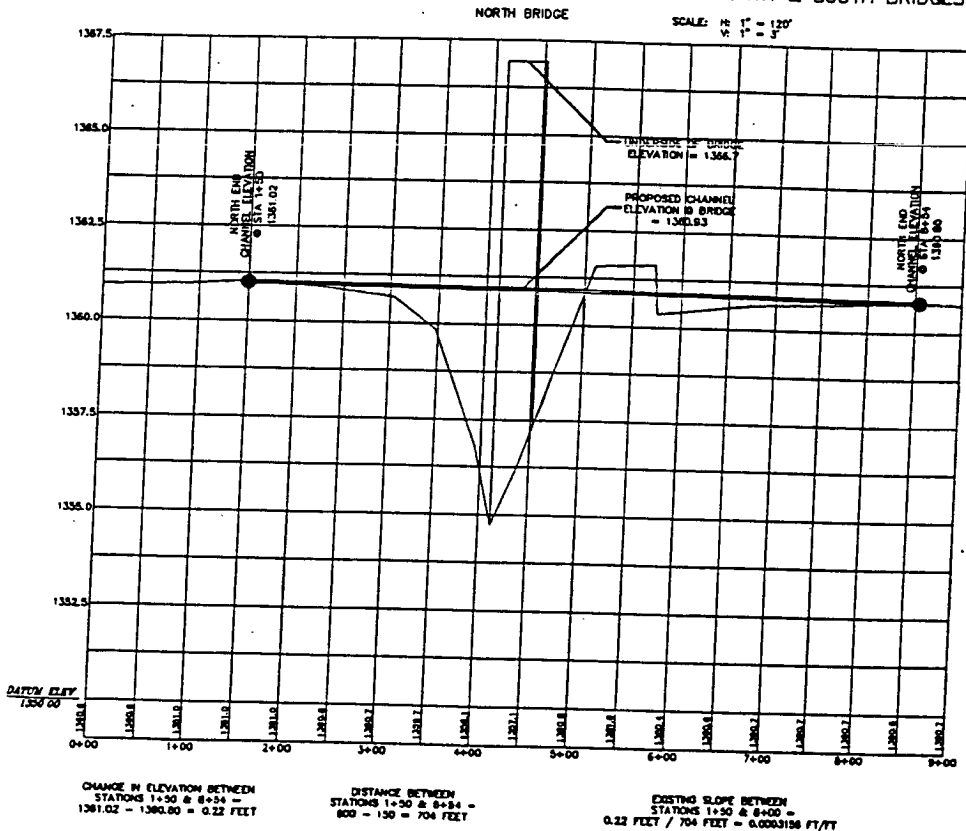
STATIONS	CHANNEL CENTERLINE ELEVATIONS	EXISTING PROPOSED
0+00	1356.2	1360.83
1+00	1361.5	1360.84
2+00	1361.3	1360.34
3+00	1360.8	1360.05
4+00	1360.8	1359.78
5+00	1361.3	1359.48
6+00	1361.5	1359.17
7+00	1363.9	1358.87
8+00	1364.8	1358.58
9+00	1366.3	1358.29
10+00	1368.7	1357.99
11+00	1370.0	1357.70
12+00	1370.5	1357.55
13+00	1370.2	1357.40
14+00	1368.7	1357.25
15+00	1372.6	1357.10
16+00	1377.1	1356.85
17+00	1377.6	1356.80
18+00	1377.8	1356.65
19+00	1375.0	1356.50
20+00	1373.5	1356.35
21+00	1372.8	1356.20
22+00	1372.0	1356.05
23+00	1372.2	1356.80
24+00	1372.8	1355.75
25+00	1373.5	1355.60
26+00	1373.8	1355.44
27+00	1373.8	1355.28
28+00	1373.5	1355.14
29+00	1372.2	1354.99
30+00	1372.0	1354.84
31+00	1371.3	1354.69
32+00	1371.8	1354.54
33+00	1371.8	1354.38
34+00	1371.3	1354.24
35+00	1370.7	1354.09
36+00	1368.9	1353.84
37+00	1368.2	1353.78
38+00	1368.9	1353.64
39+00	1368.4	1353.49
40+00	1367.4	1353.34
41+00	1366.2	1353.19
42+00	1364.0	1353.04
43+00	1367.6	1352.89
44+00	1367.2	1352.74
45+00	1364.8	1352.59
46+00	1366.4	1352.44
47+00	1368.0	1352.29
48+00	1368.0	1352.14
49+00	1365.8	1351.99
50+00	1365.9	1351.84
51+00	1365.6	1351.69
52+00	1364.7	1351.54
53+00	1363.1	1351.39
54+00	1361.4	1351.24
55+00	1360.1	1351.08
56+00	1359.1	1350.93
57+00	1358.1	1350.78
58+00	1357.5	1350.63
59+00	1356.9	1350.48
60+00	1356.5	1350.33
61+00	1356.1	1350.18
62+00	1352.8	1350.03
62+88	1350.3	1348.90

PURPOSE: Channel Relocation
DATUM msl
ADJACENT PROPERTY OWNERS:
1 John Eichacker
2 Calvin Heitzman

IN Wolf Creek
AT Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION BY Spencer Quarries, Inc.
SHEET 13 OF 20 DATE 8-26-98

SHEET 2

SPENCER QUARRY - PROFILES OF NORTH & SOUTH BRIDGES ADJACENT TO PROPERTY



NOTE: STATIONS SHOWN ON THIS SHEET ARE FOR THE BRIDGE AREAS ONLY AND DO NOT COINCIDE WITH STATIONS SHOWN ON OTHER SHEETS.

PURPOSE: Channel Relocation
 DATUM msl
 ADJACENT PROPERTY OWNERS:
 1 John Eichacker
 2 Calvin Heitzman

IN Wolf Creek
 AT Sec 24, T103N, R57W
 COUNTY OF Hanson STATE SD
 APPLICATION BY Spencer Quarries, Inc.
 SHEET 14 OF 20 DATE 8-26-98

$$A = \frac{(38+45)}{2} \times 1.9' + \frac{(45+58)}{2} \times 0.9 + 58 \times 3.4 = 322.4 \text{ ft}^2$$

SHEET 3

$$WP = 3.7 + 7 + 3.5 + 38 + 4.5 + 5.6 + 3.5 = 658 \text{ ft}$$

$$n = 0.025$$

$$S = 0.0003156 \text{ ft/ft}$$

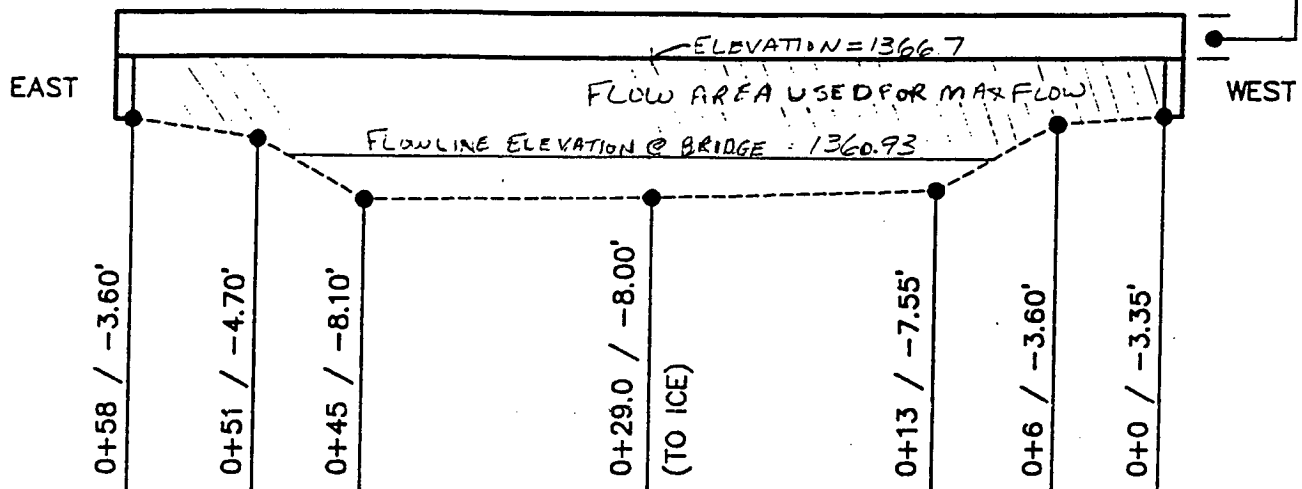
$$Q = 984.7 \text{ CFS}$$

LOOKING SOUTH

SCALE: 1" = 10'

23.20' WIDE NORTH / SOUTH

DECK WIDTH = 2.52'



AREA BELOW 1360.93 NOT USED FOR
FLOW CALCULATION AS THIS IS AN
AREA THAT POOLS BELOW AN
ACTUAL FLOW LINE

NORTH

BRIDGE AT GRAVEL ROAD

schmucker, paul, nohr & associates

ENGINEERS-PLANNERS-SURVEYORS - 620 north lawler p.o. box 398
MITCHELL SOUTH DAKOTA, zip 57301 - PHONE 605-996-7761 FAX 605-996-0015

SPN
ASSOCIATES

PURPOSE: Channel Relocation

DATUM: msl

ADJACENT PROPERTY OWNERS:

- 1 John Eichacker
- 2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

COUNTY OF Hanson

STATE SD

APPLICATION BY Spencer Quarries, Inc.

SHEET 15 OF 20 DATE 8-26-98

SHEET #
5

EXISTING GROUND

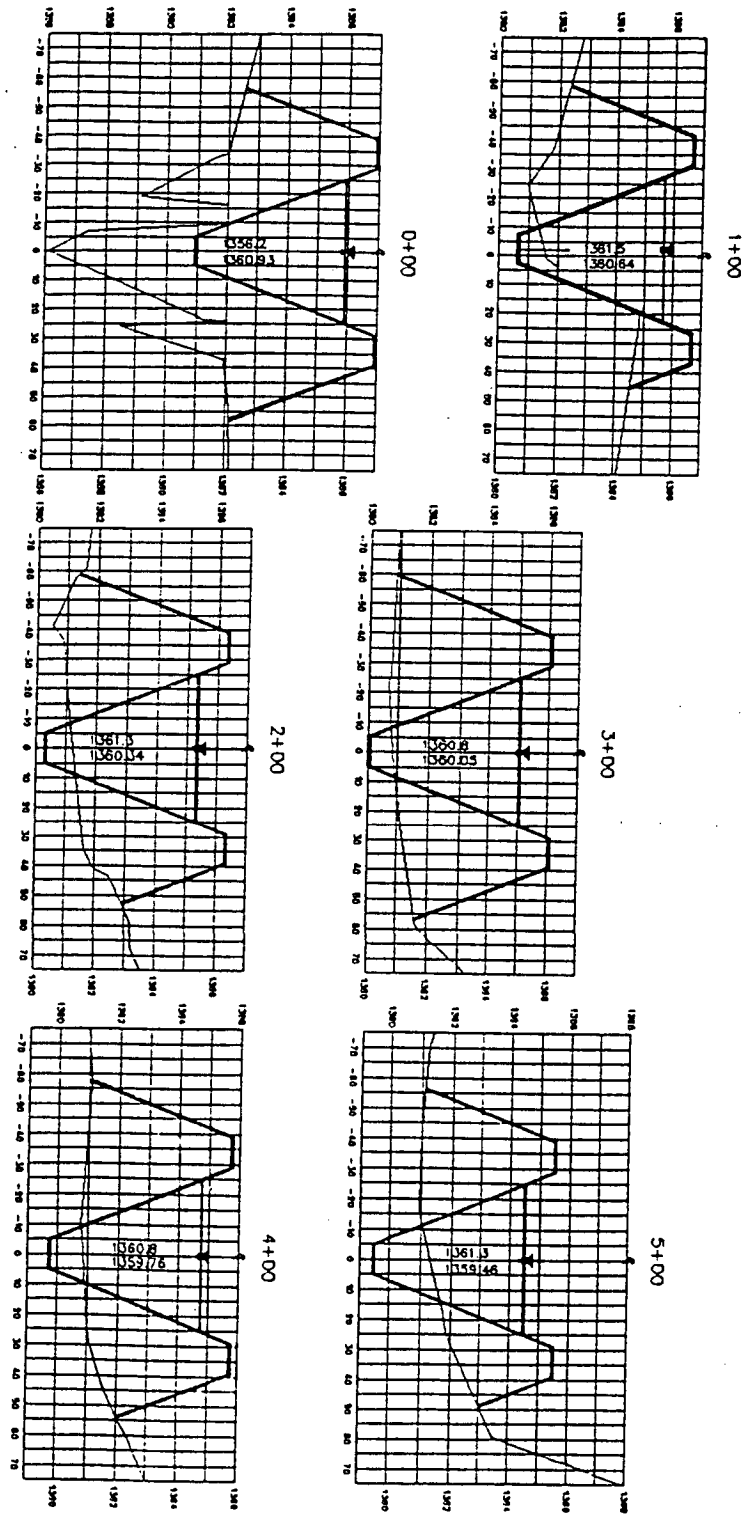
PROPOSED CHANNEL

WATER ELEVATION

1372.9
1358.20

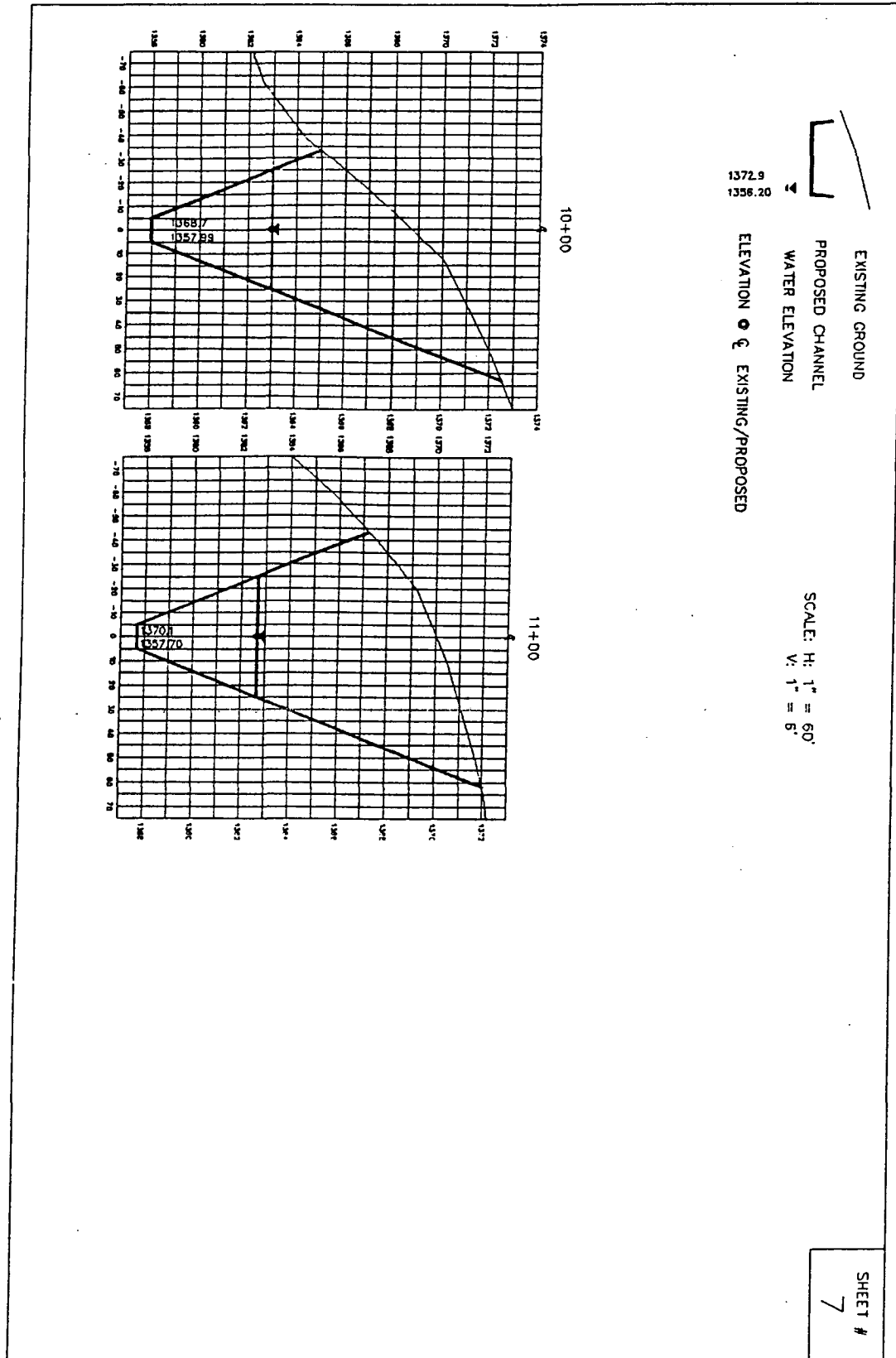
ELEVATION @ EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'



PURPOSE: Channel Relocation
 DATUM msl
 ADJACENT PROPERTY OWNERS:
 1 John Eichacker
 2 Calvin Heitzman

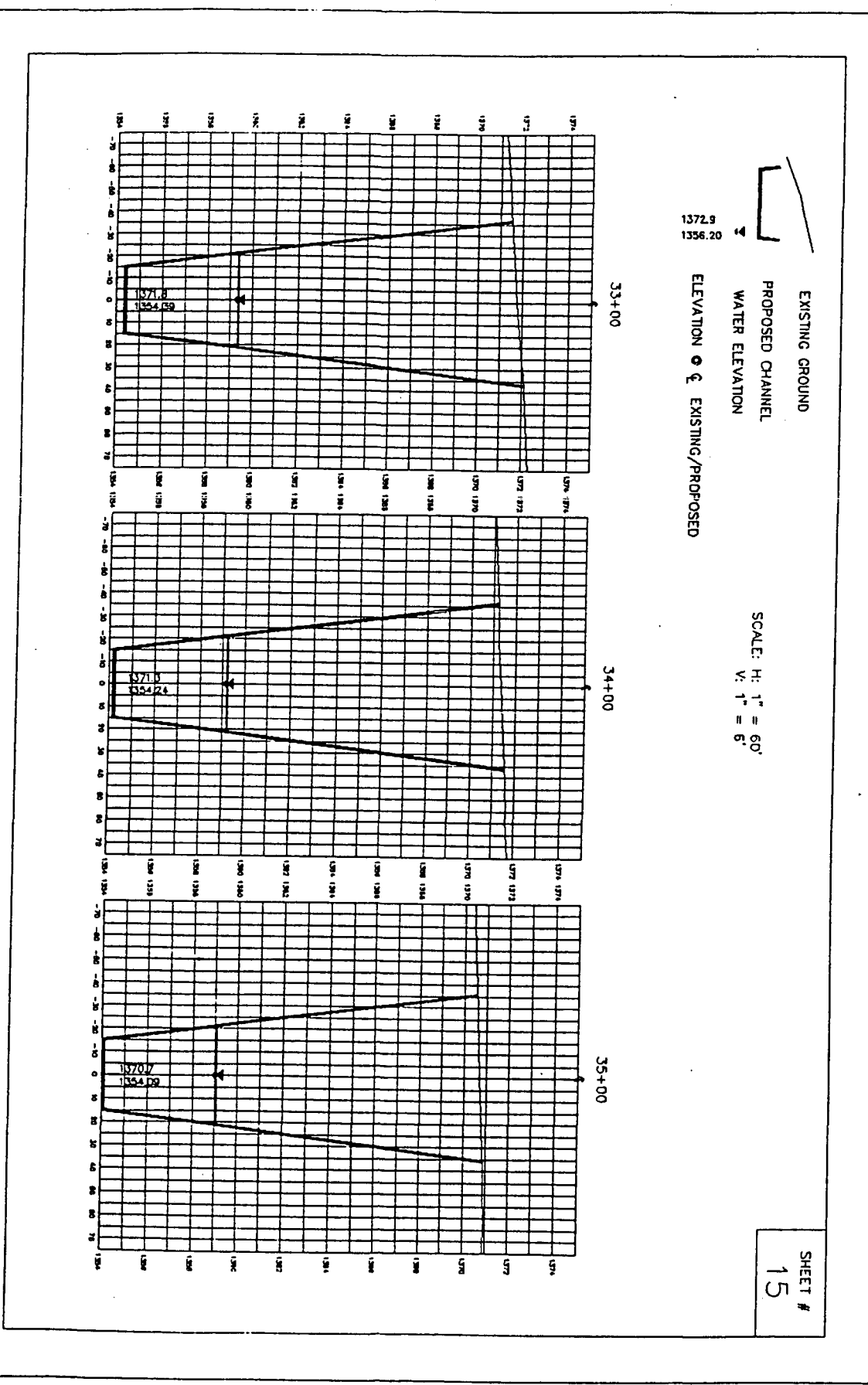
IN Wolf Creek
 AT Sec 24, T103N, R57W
 COUNTY OF Hanson STATE SD
 APPLICATION BY Spencer Quarries, Inc.
 SHEET 16 OF 20 DATE 8-26-98



PURPOSE: Channel Relocation
 DATUM msl
 ADJACENT PROPERTY OWNERS:
 1 John Eichacker
 2 Calvin Heitzman

IN Wolf Creek
 AT Sec 24, T103N, R57W
 COUNTY OF Hanson STATE SD
 APPLICATION BY Spencer Quarries, Inc.
 SHEET 17 OF 20 DATE 8-26-98

Typical Sections



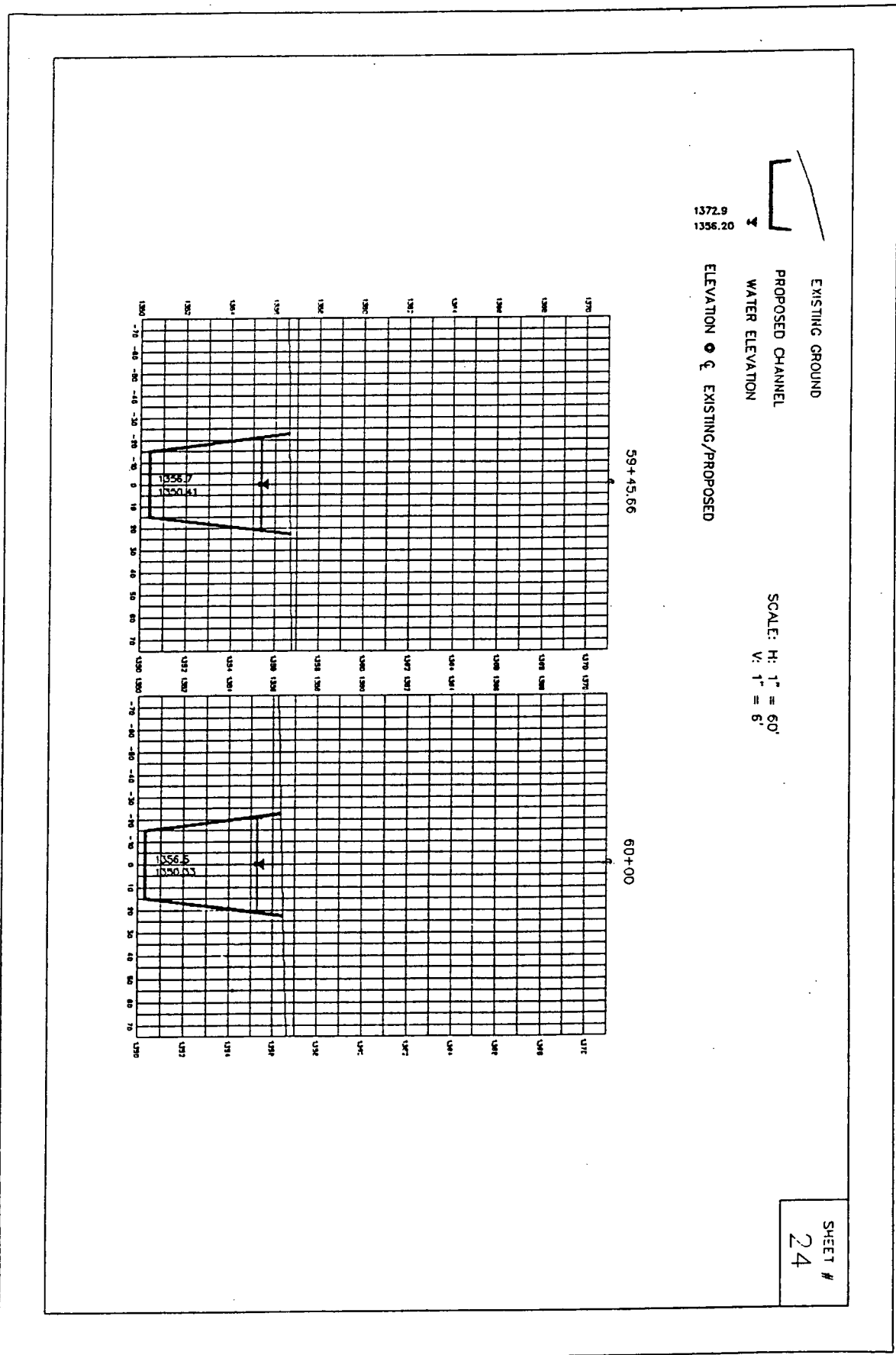
SHEET #
15

EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION $\circ$ $\&$ EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'

PURPOSE: Channel Relocation
DATUM msl
ADJACENT PROPERTY OWNERS:
1 John Eichacker
2 Calvin Heitzman

IN Wolf Creek
AT Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION BY Spencer Quarries, Inc.
SHEET 18 OF 20 DATE 8-26-98



PURPOSE: Channel Relocation

DATUM msl

ADJACENT PROPERTY OWNERS:

- 1 John Eichacker
- 2 Calvin Heitzman

IN Wolf Creek

AT Sec 24, T103N, R57W

COUNTY OF Hanson

STATE SD

APPLICATION BY Spencer Quarries, Inc.

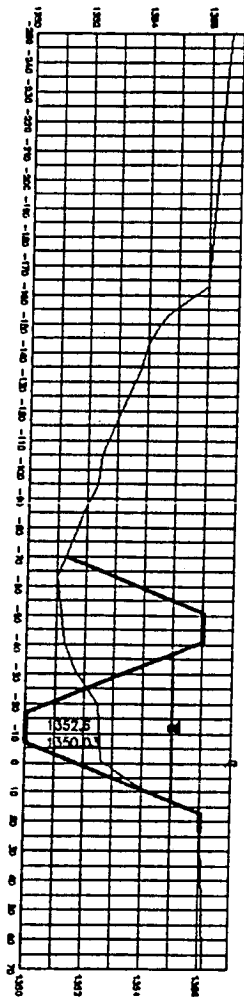
SHEET 19 OF 20 DATE 8-26-98

1372.9
1358.20

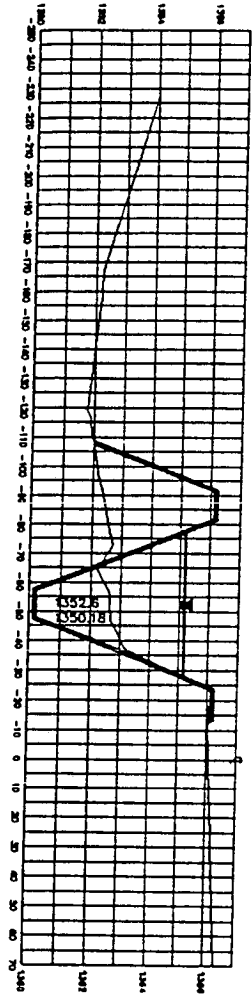
EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION • E EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'

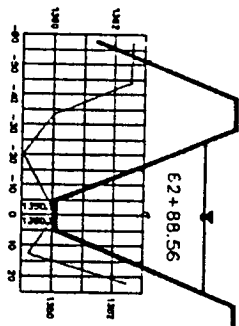
SHEET #
25



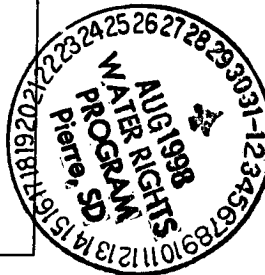
62+00



61+00



62+88.56



PURPOSE: Channel Relocation
DATUM msl
ADJACENT PROPERTY OWNERS:
1 John Eichacker
2 Calvin Heitzman

IN Wolf Creek
AT Sec 24, T103N, R57W
COUNTY OF Hanson STATE SD
APPLICATION BY Spencer Quarries, Inc.

HYDROLOGICAL STUDY

SPENCER QUARRY

CHANNEL

RELOCATION

PLANS

SPENCER
SOUTH DAKOTA

SPN #9159



SHEET 1 - PROFILE
SHEET 2 - BRIDGE CHANNEL SLOPES
SHEET 3 - NORTH BRIDGE CROSS-SECTION & MAX FLOW CALCULATION
SHEET 4 - SOUTH BRIDGE CROSS-SECTION
SHEET 5-25 - CHANNEL CROSS-SECTIONS
ENCLOSED MAP - OVERALL CHANNEL LAYOUT

schmucker, paul, nohr & associates
ENGINEERS PLANNERS SURVEYORS

620 NORTH LAWLER P.O. BOX 398
MITCHELL, SOUTH DAKOTA, zip 57301
PHONE 605-996-7761 FAX 605-996-0015

SPN
ASSOCIATES

SPENCER QUARRY NEW CHANNEL CENTERLINE PROFILE

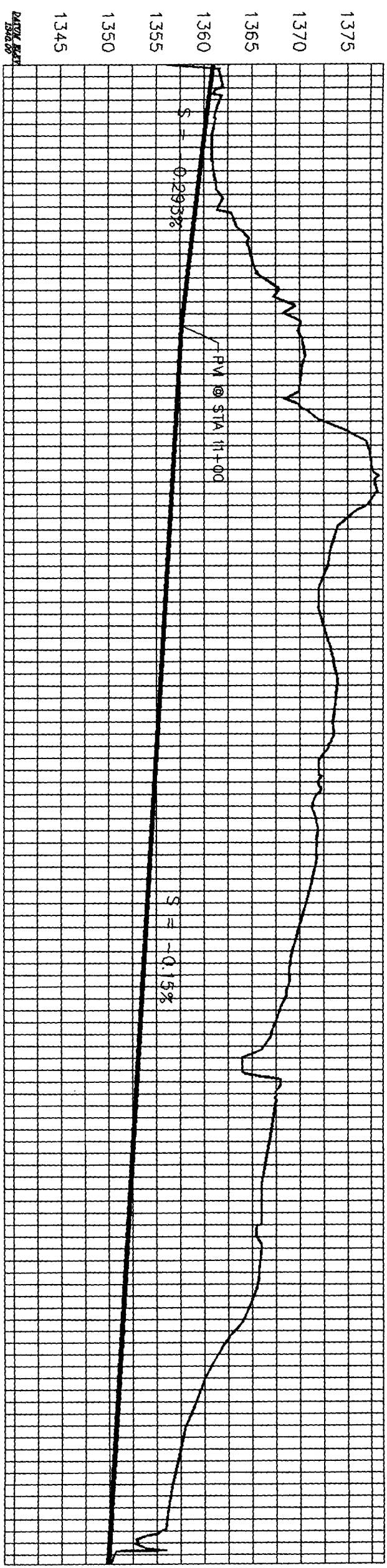
EXISTING & ELEVATION
PROPOSED & ELEVATION

SCALE: H: 1" = 500'
V: 1" = 5'

SHEET 1

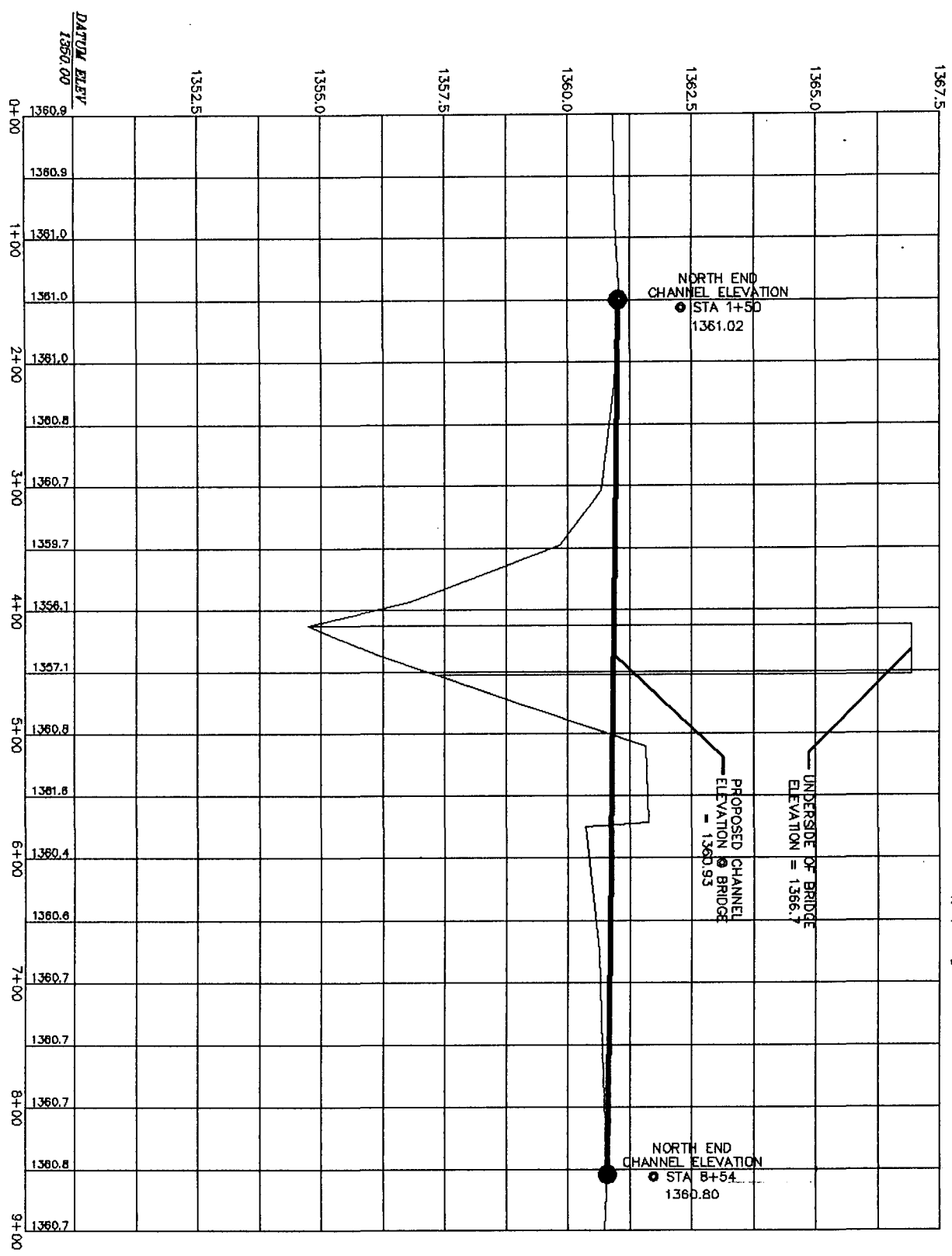
CHANNEL CENTERLINE ELEVATIONS

	EXISTING	PROPOSED	
0+00	1356.2	1360.93	0+00
1+00	1361.5	1360.64	1+00
2+00	1361.3	1360.34	2+00
3+00	1360.8	1360.05	3+00
4+00	1360.8	1359.76	4+00
5+00	1361.3	1359.46	5+00
6+00	1361.5	1359.17	6+00
7+00	1363.9	1358.87	7+00
8+00	1364.9	1358.58	8+00
9+00	1366.3	1358.29	9+00
10+00	1368.7	1357.99	10+00
11+00	1370.0	1357.70	11+00
12+00	1370.5	1357.55	12+00
13+00	1370.2	1357.40	13+00
14+00	1368.7	1357.25	14+00
15+00	1372.6	1357.10	15+00
16+00	1377.1	1356.95	16+00
17+00	1377.6	1356.80	17+00
18+00	1377.9	1356.65	18+00
19+00	1375.0	1356.50	19+00
20+00	1373.5	1356.35	20+00
21+00	1372.9	1356.20	21+00
22+00	1372.0	1356.05	22+00
23+00	1372.2	1356.90	23+00
24+00	1372.9	1355.75	24+00
25+00	1373.5	1355.60	25+00
26+00	1373.9	1355.44	26+00
27+00	1373.6	1355.29	27+00
28+00	1373.5	1355.14	28+00
29+00	1372.2	1354.99	29+00
30+00	1372.0	1354.84	30+00
31+00	1371.3	1354.69	31+00
32+00	1371.9	1354.54	32+00
33+00	1371.8	1354.39	33+00
34+00	1371.3	1354.24	34+00
35+00	1370.7	1354.09	35+00
36+00	1369.9	1353.94	36+00
37+00	1369.2	1353.79	37+00
38+00	1368.9	1353.64	38+00
39+00	1368.4	1353.49	39+00
40+00	1367.4	1353.34	40+00
41+00	1366.2	1353.19	41+00
42+00	1364.0	1353.04	42+00
43+00	1367.6	1352.89	43+00
44+00	1367.2	1352.74	44+00
45+00	1366.8	1352.59	45+00
46+00	1366.4	1352.44	46+00
47+00	1366.0	1352.29	47+00
48+00	1366.0	1352.14	48+00
49+00	1365.6	1351.99	49+00
50+00	1365.9	1351.84	50+00
51+00	1365.6	1351.69	51+00
52+00	1364.7	1351.54	52+00
53+00	1363.1	1351.39	53+00
54+00	1361.4	1351.24	54+00
55+00	1360.1	1351.08	55+00
56+00	1359.1	1350.93	56+00
57+00	1358.1	1350.78	57+00
58+00	1357.5	1350.63	58+00
59+00	1356.9	1350.48	59+00
60+00	1356.5	1350.33	60+00
61+00	1356.1	1350.18	61+00
62+00	1352.8	1350.03	62+00
62+88	1350.3	1349.90	62+88



SPENCER QUARRY - PROFILES OF NORTH & SOUTH BRIDGES ADJACENT TO PROPERTY

NORTH BRIDGE
SCALE: H: 1" = 120'
V: 1" = 3'

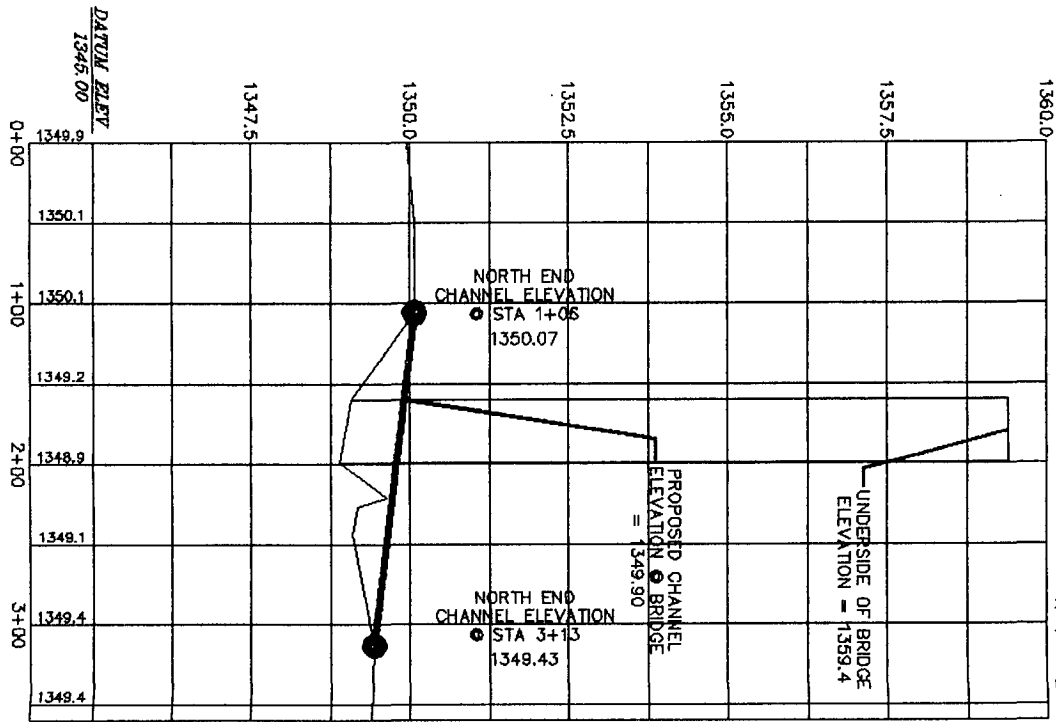


CHANGE IN ELEVATION BETWEEN STATIONS 1+50 & 8+54 = 1361.02 - 1360.80 = 0.22 FEET

DISTANCE BETWEEN STATIONS 1+50 & 8+54 = 800 - 150 = 704 FEET

EXISTING SLOPE BETWEEN STATIONS 1+50 & 8+54 = 0.22 FEET / 704 FEET = 0.0003156 FT/FT

SOUTH BRIDGE (HIGHWAY 38)
SCALE: H: 1" = 120'
V: 1" = 3'



CHANGE IN ELEVATION BETWEEN STATIONS 1+06 & 3+13 = 1350.07 - 1349.43 = 0.64 FEET

DISTANCE BETWEEN STATIONS 1+06 & 3+13 = 313 - 106 = 207 FEET

EXISTING SLOPE BETWEEN STATIONS 1+06 & 3+13 = 0.64 FEET / 207 FEET = 0.003092 FT/FT

NOTE: STATIONS SHOWN ON THIS SHEET ARE FOR THE BRIDGE AREAS ONLY AND DO NOT COINCIDE WITH STATIONING SHOWN ON OTHER SHEETS.

$$A = \frac{(38+45)}{2} \times 1.9' + \left(\frac{45+58}{2}\right) \times 0.9 + 58 \times 3.4 = 322.4 \text{ ft}^2$$

SHEET 3

$$WP = 3.7 + 7 + 3.5 + 38 + 4.5 + 5.6 + 3.5 = 65.8 \text{ ft}$$

$$n = 0.025$$

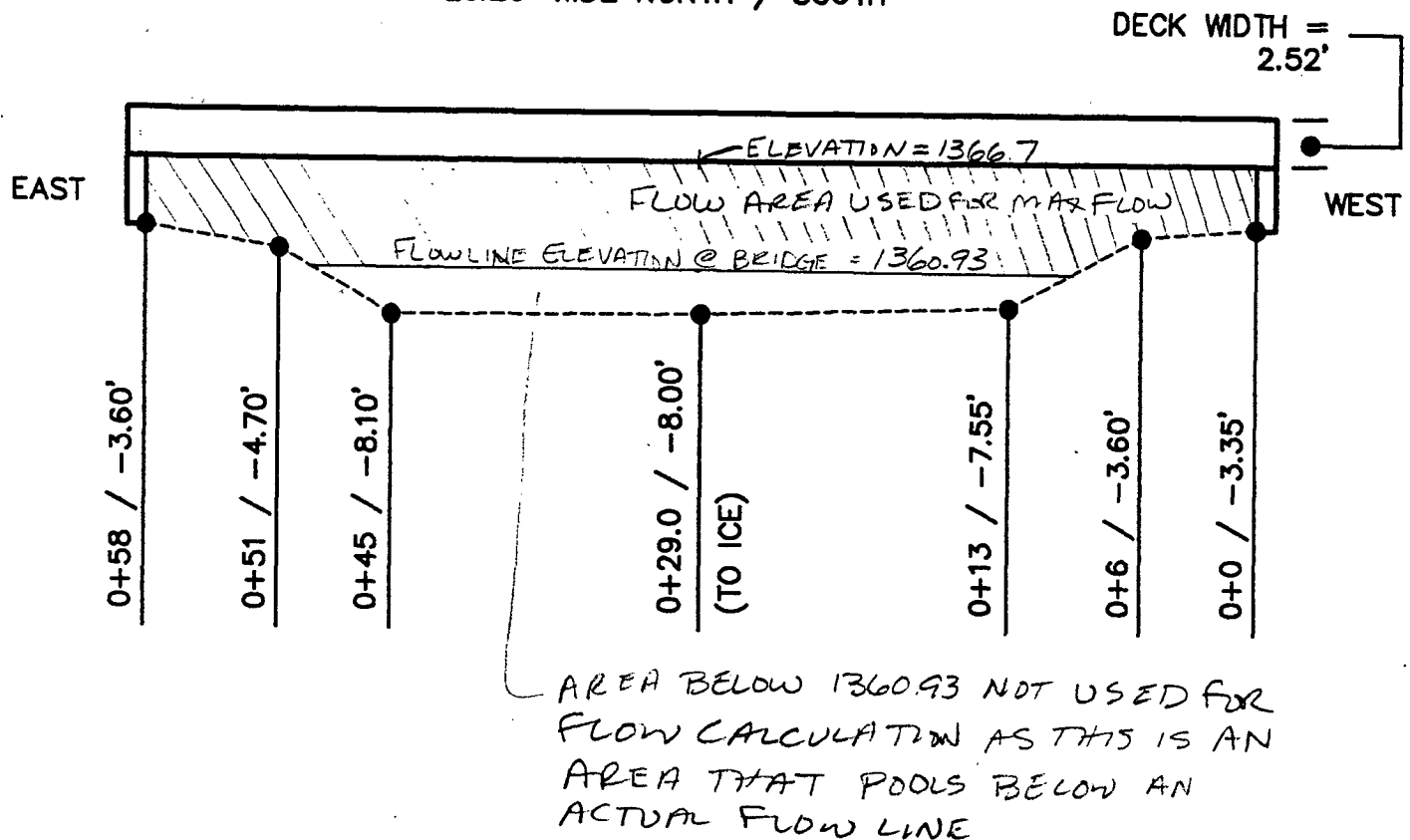
$$S = 0.0003156 \text{ ft/ft}$$

$$Q = 984.7 \text{ CFS}$$

LOOKING SOUTH

SCALE; 1" = 10'

23.20' WIDE NORTH / SOUTH



NORTH

BRIDGE AT GRAVEL ROAD

schmucker, paul, nohr & associates

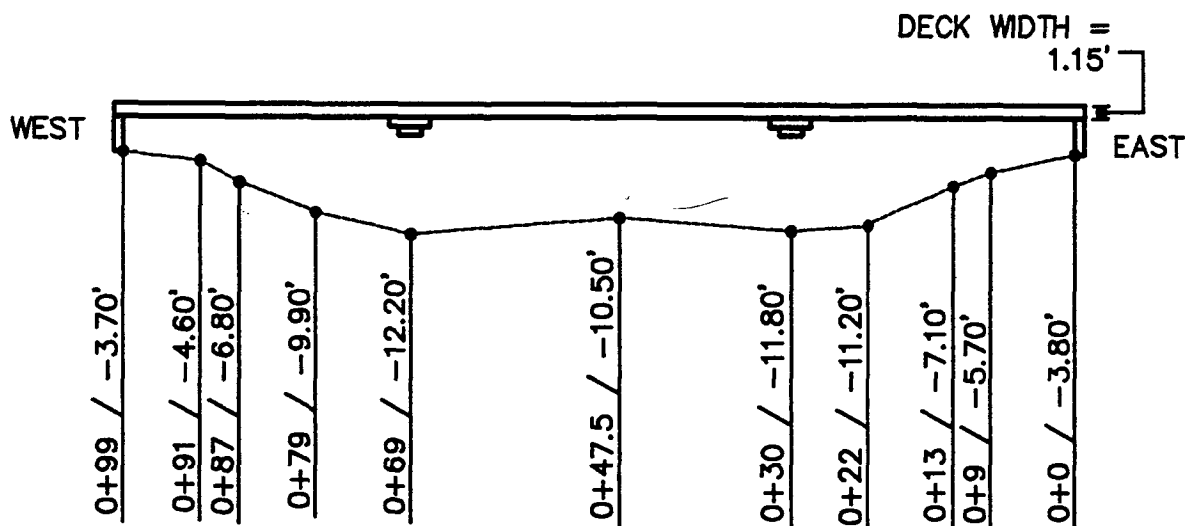
ENGINEERS-PLANNERS-SURVEYORS - 620 north lawler p.o. box 398
 MITCHELL SOUTH DAKOTA, zip 57301 - PHONE 605-996-7761 FAX 605-996-0015

SPN
 ASSOCIATES

SHEET 4

LOOKING NORTH

SCALE; 1" = 20'

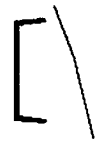


SOUTH SIDE OF HIGHWAY BRIDGE

schmucker, paul, nohr & associates

ENGINEERS-PLANNERS-SURVEYORS - 620 north lawler p.o. box 398
 MITCHELL SOUTH DAKOTA, zip 57301 - PHONE 605-996-7761 FAX 605-996-0015

SPN
 ASSOCIATES

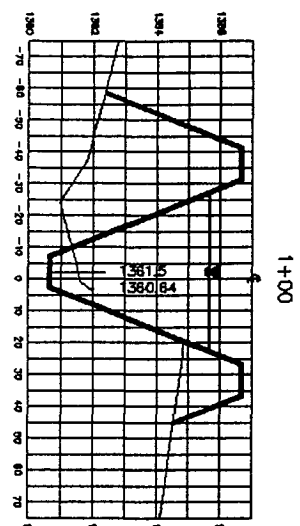


1372.9
1356.20

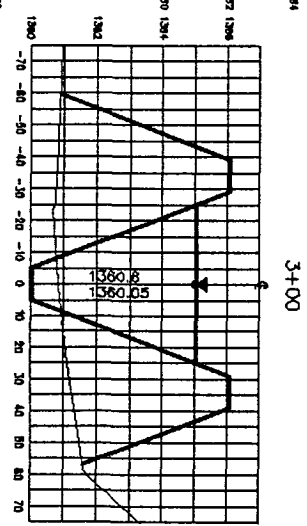
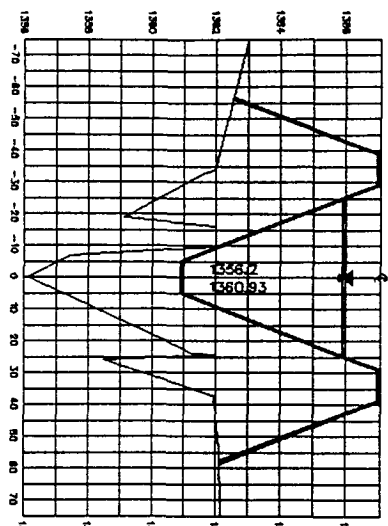
EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION ● $\bar{x}$ EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'

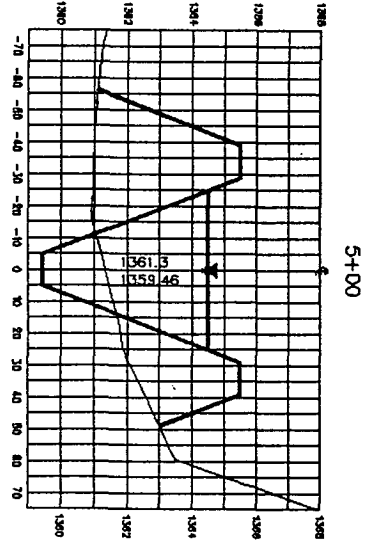
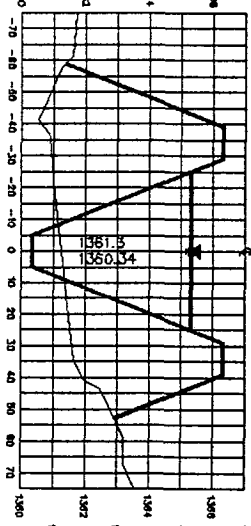
SHEET #
5



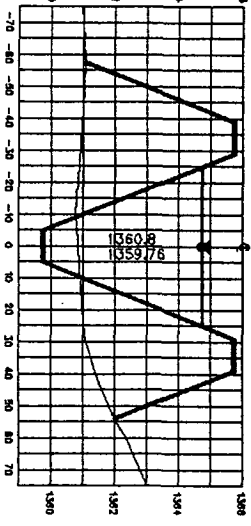
0+00



2+00



4+00



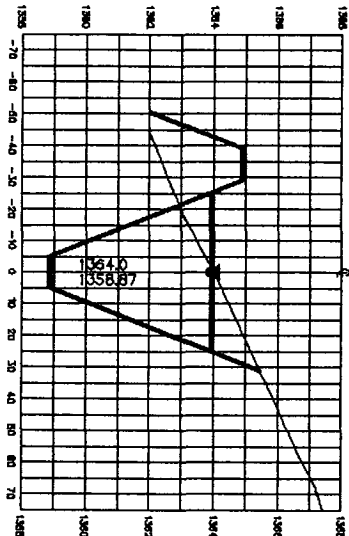


1372.9
1358.20

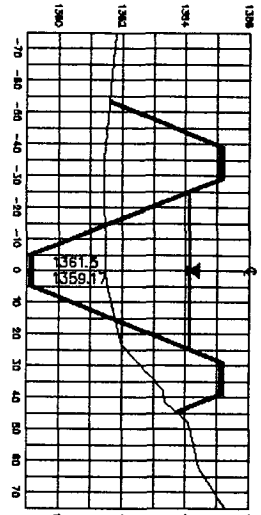
ELEVATION @ EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 5'

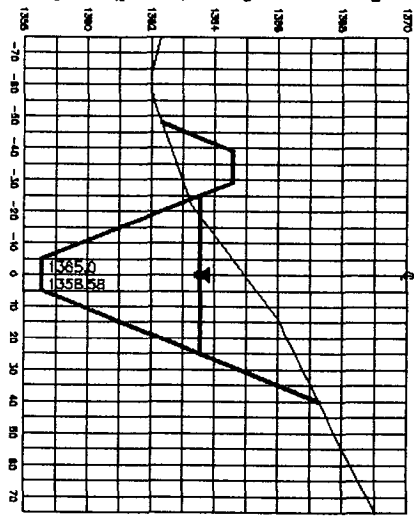
7+00



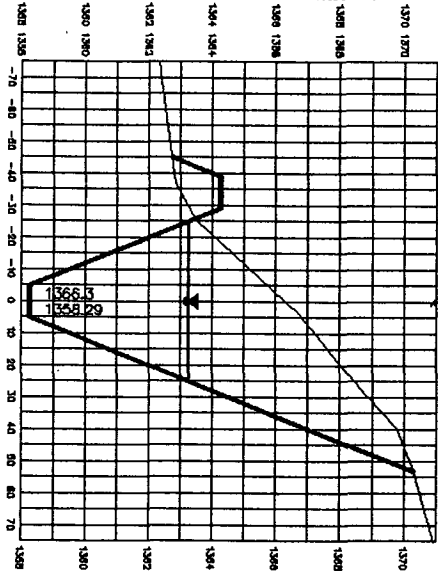
6+00



8+00



9+00



EXISTING GROUND



PROPOSED CHANNEL

WATER ELEVATION

1372.9
1358.20

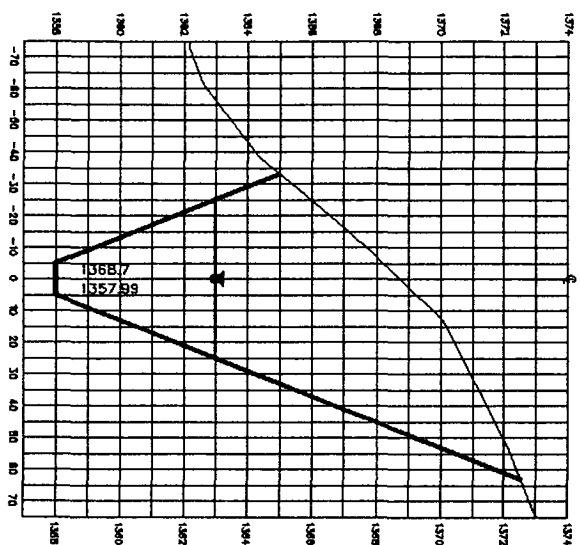
ELEVATION EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'

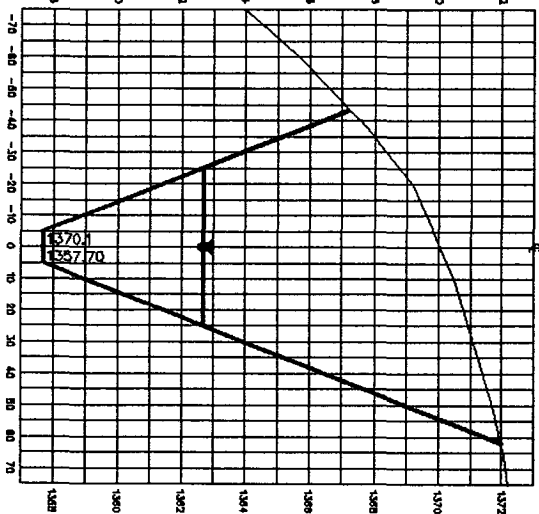
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7

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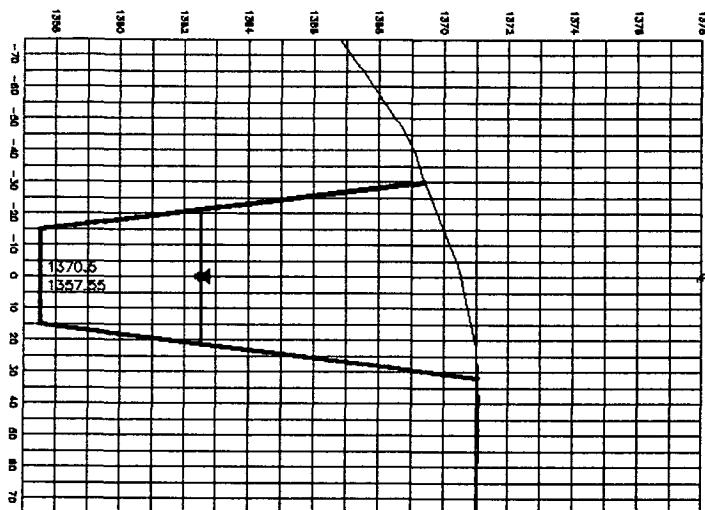
EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION

1372.9
1356.20

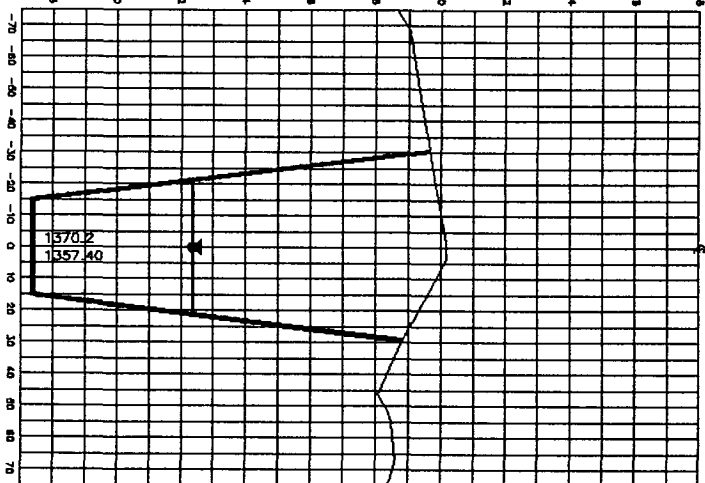
ELEVATION $\odot$ ∇ EXISTING/PROPOSED

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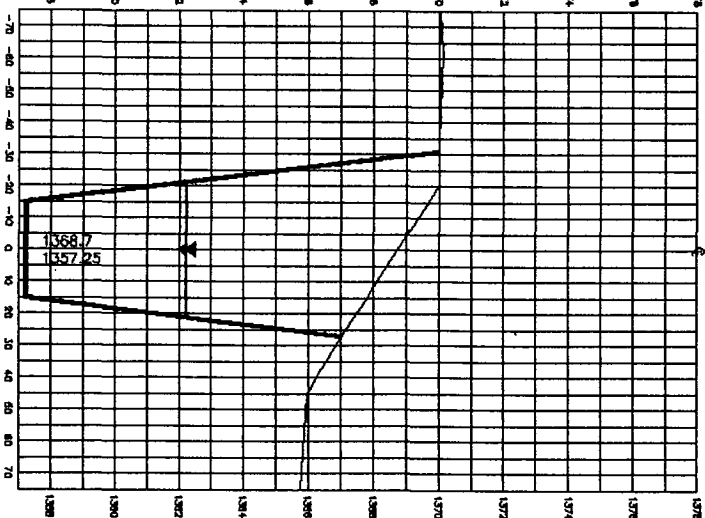
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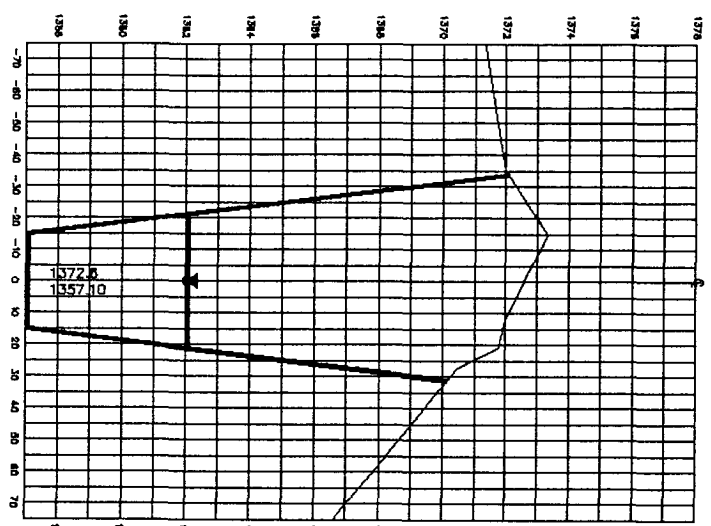
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EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION @ EXISTING/PROPOSED

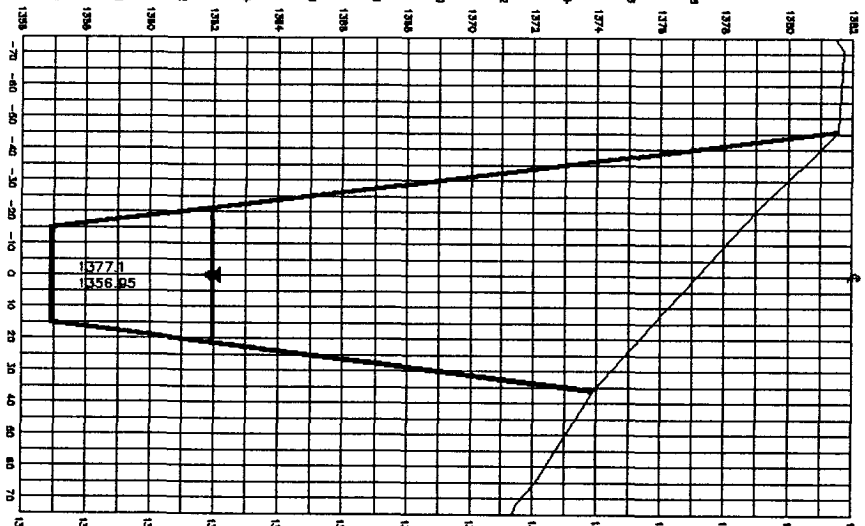
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9

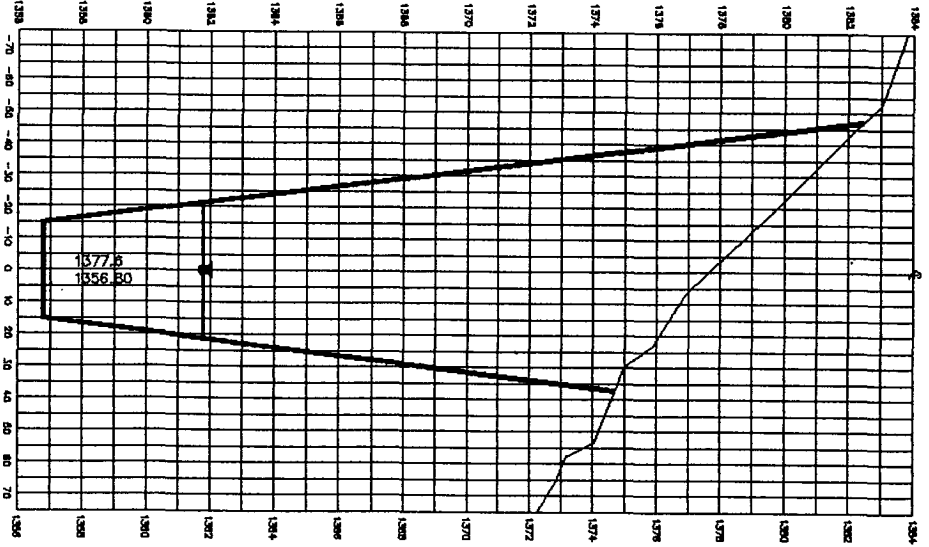
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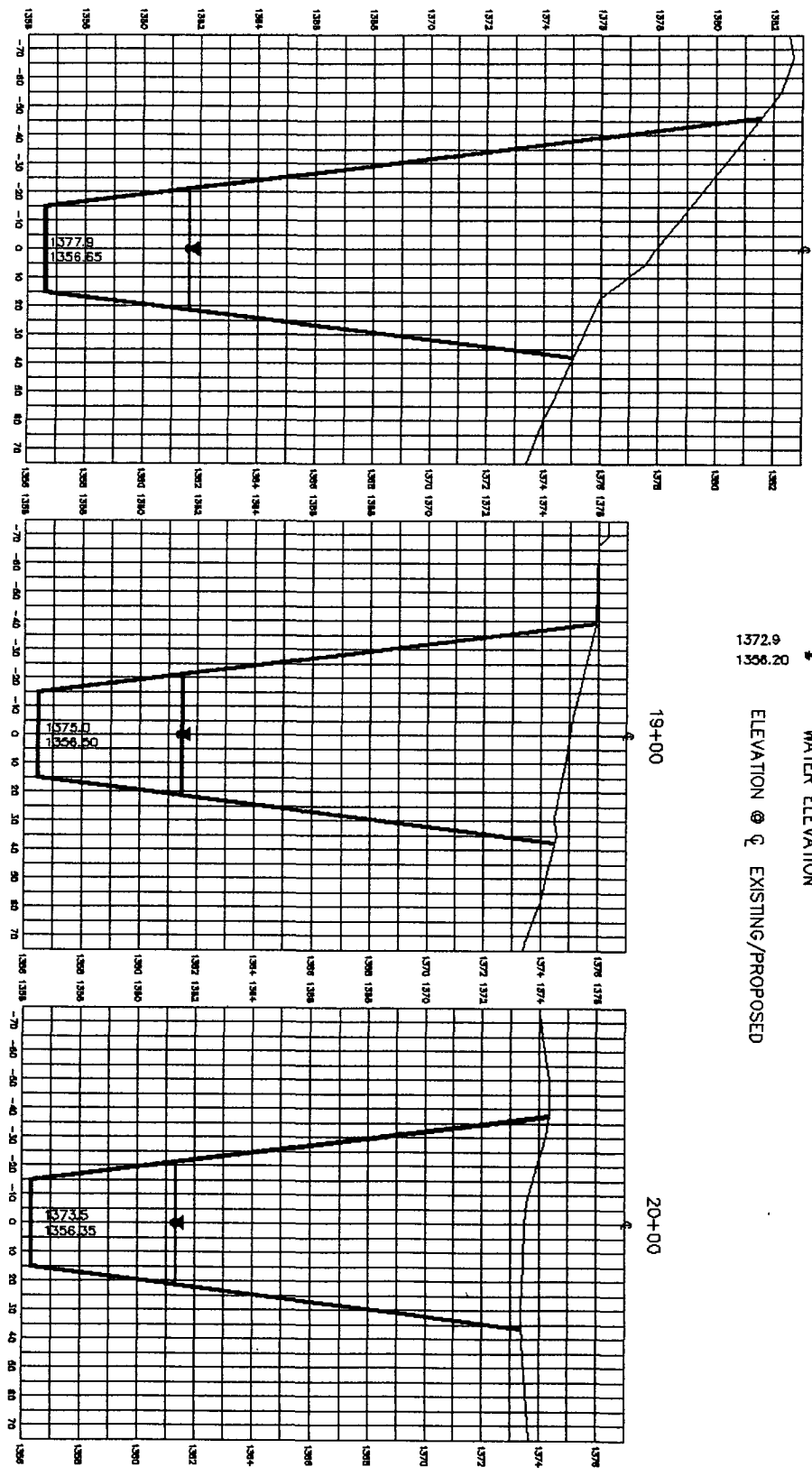


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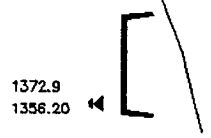
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EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION @ C EXISTING/PROPOSED

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SHEET #
11

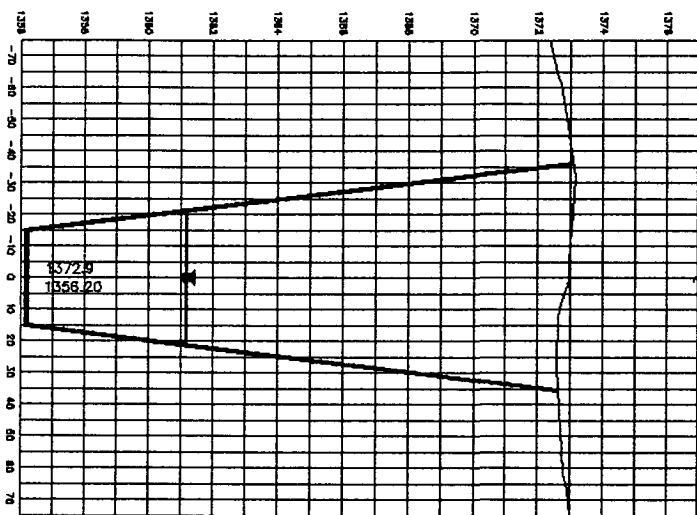


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WATER ELEVATION

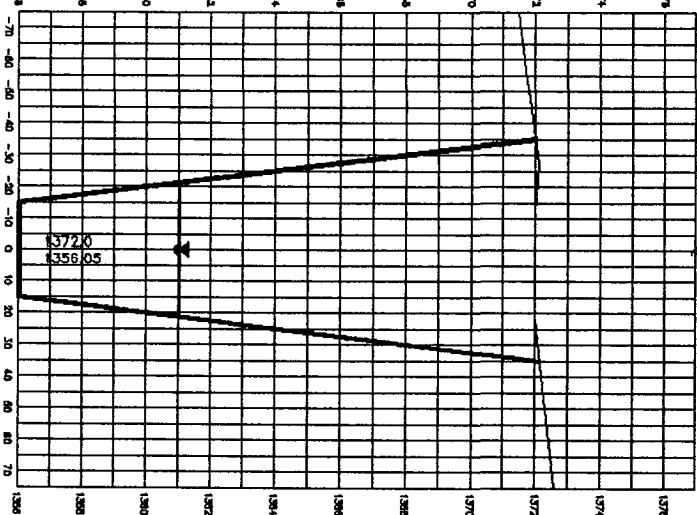
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ELEVATION @ EXISTING/PROPOSED

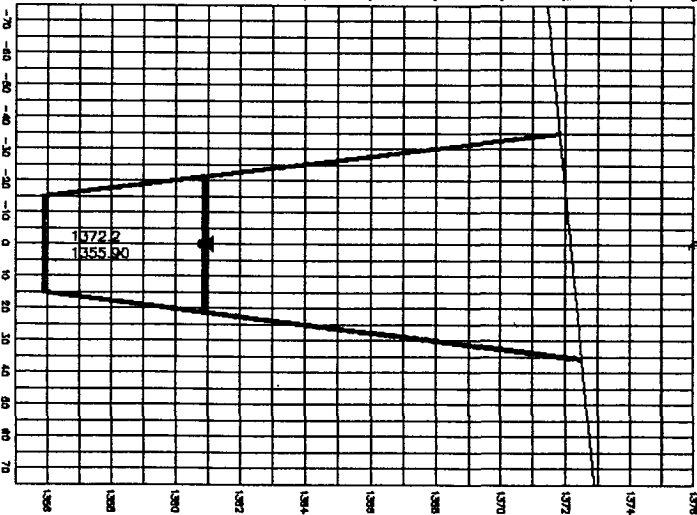
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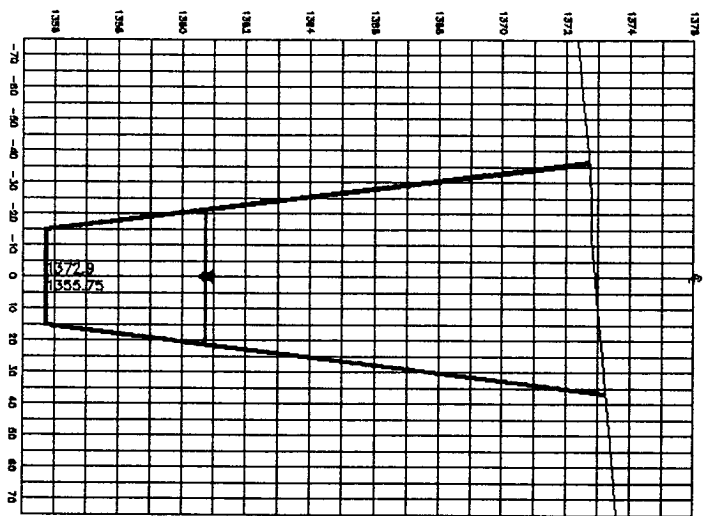
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EXISTING GROUND
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WATER ELEVATION
ELEVATION @ C EXISTING/PROPOSED

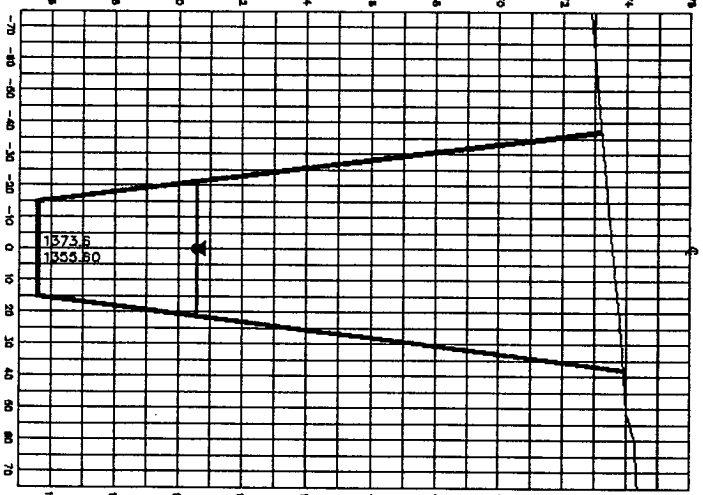
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SHEET #
12

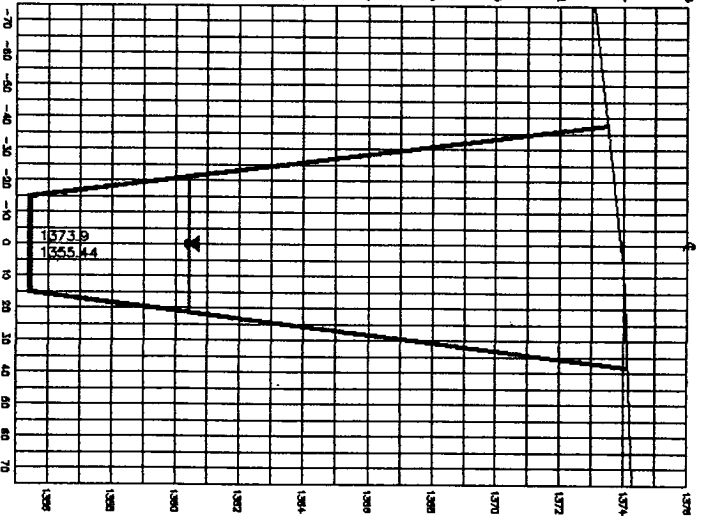
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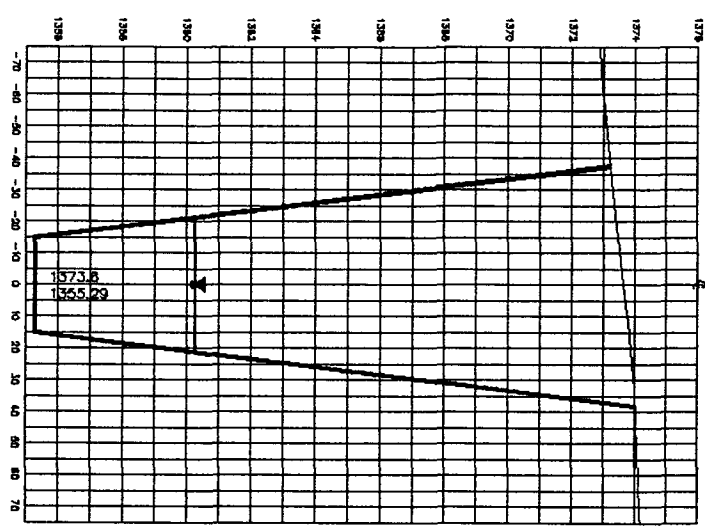
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EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION @ EXISTING/PROPOSED

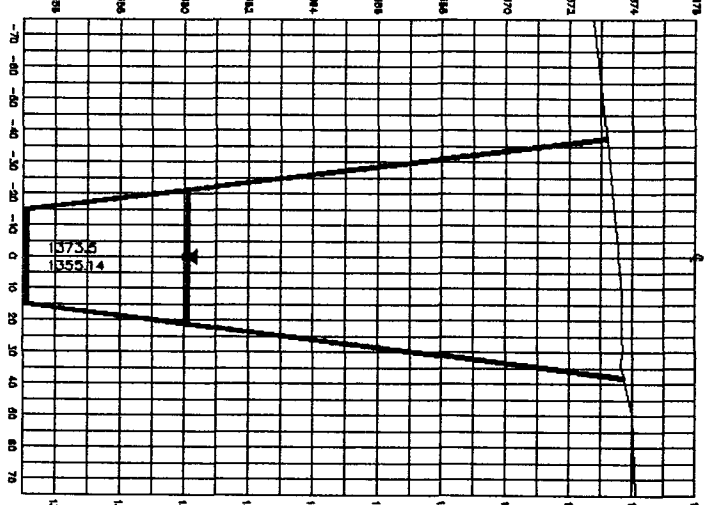
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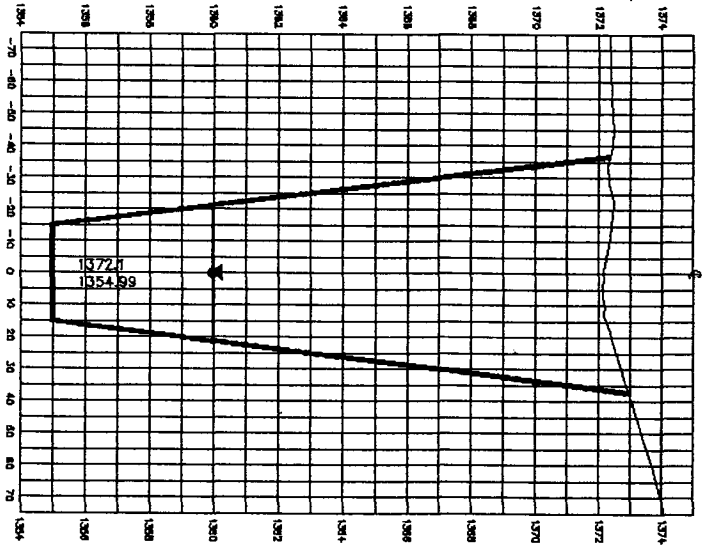
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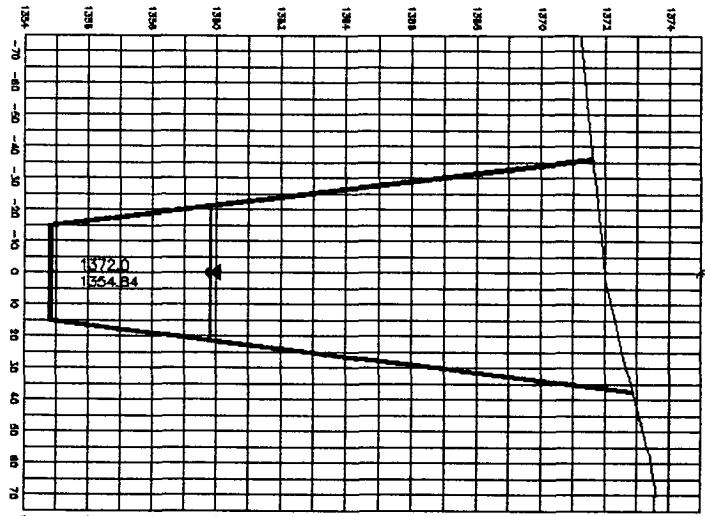


EXISTING GROUND
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 WATER ELEVATION
 ELEVATION @ EXISTING/PROPOSED

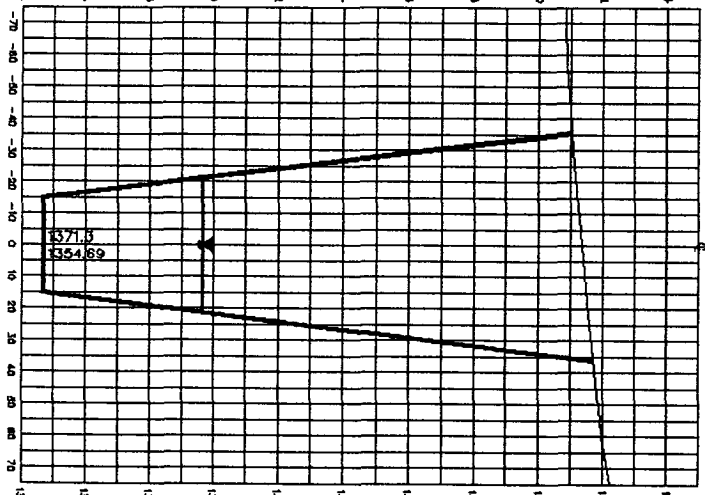
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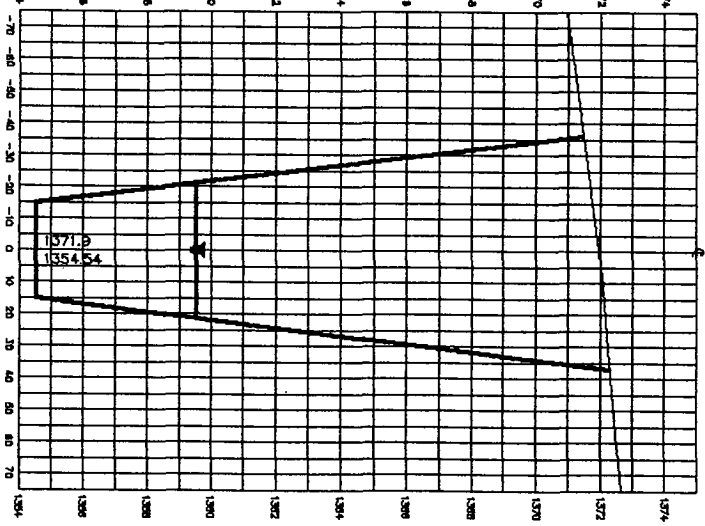
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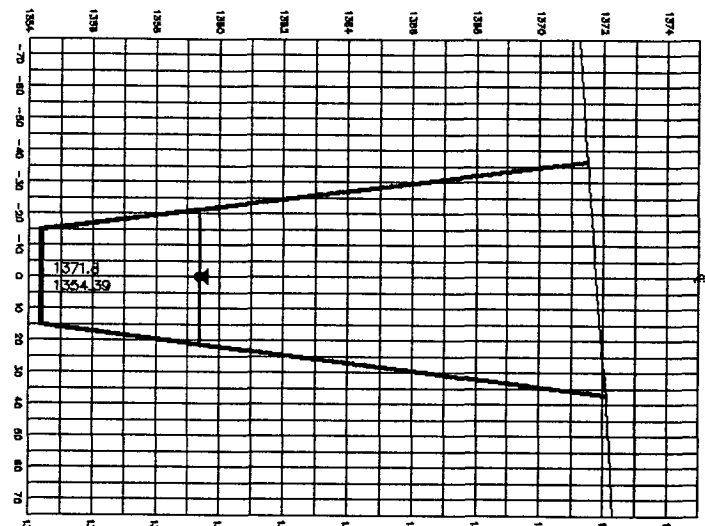


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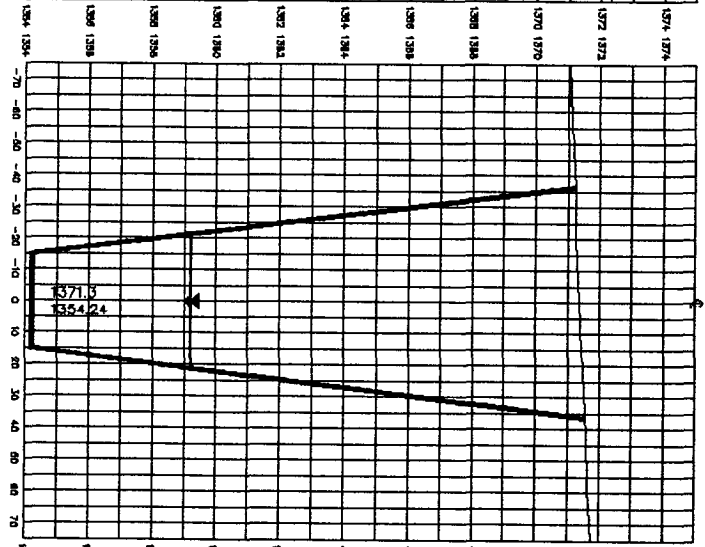
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WATER ELEVATION
ELEVATION @ C EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'

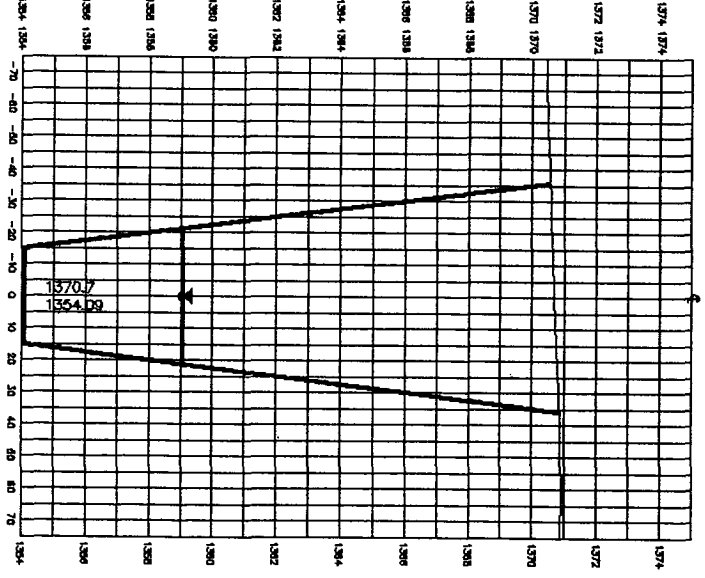
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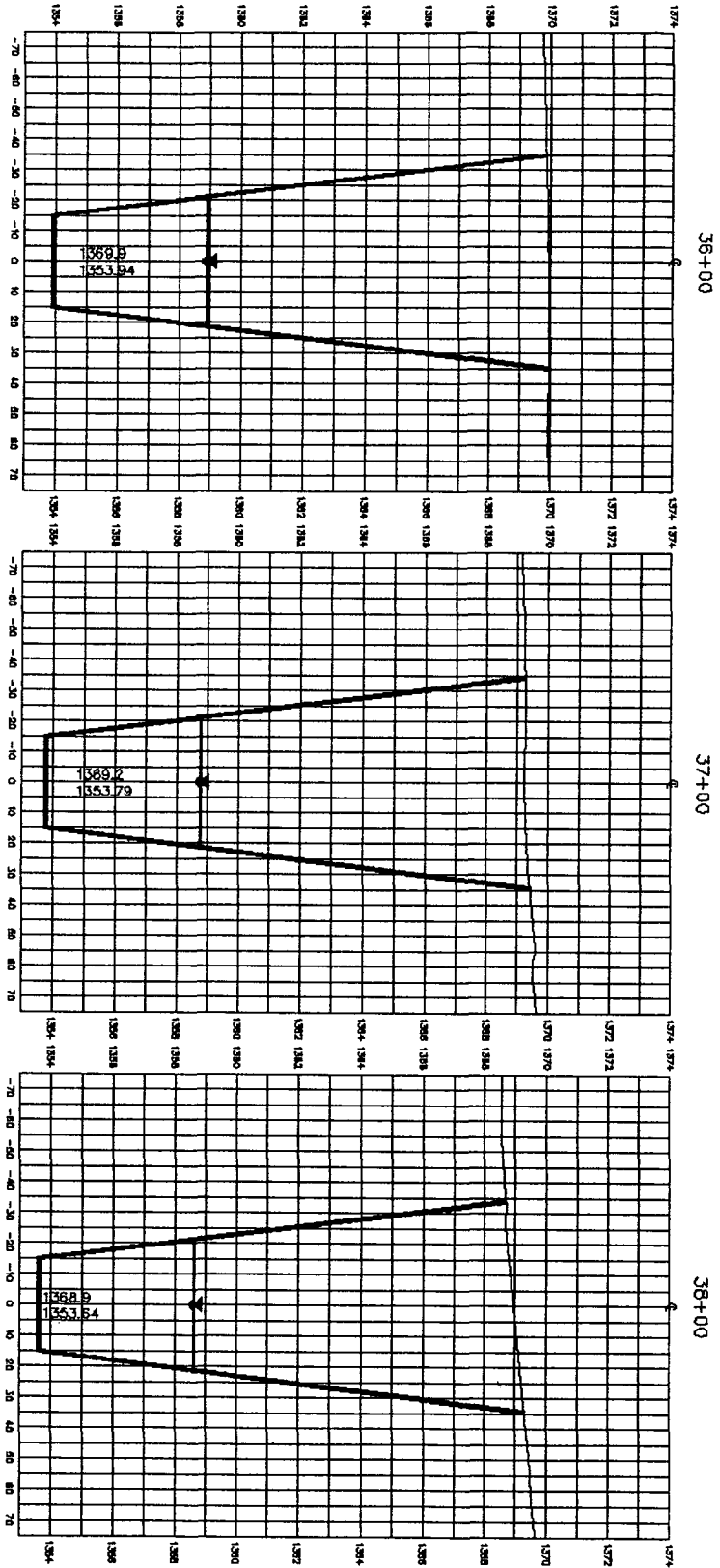


EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION

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ELEVATION @ EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'





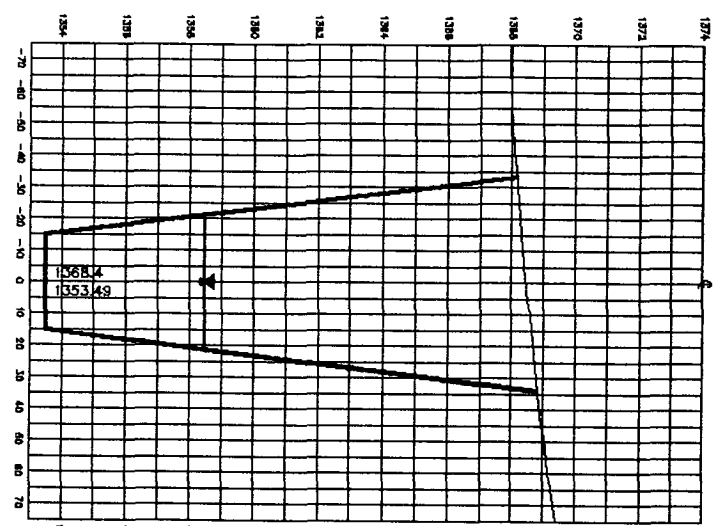
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EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION @ EXISTING/PROPOSED

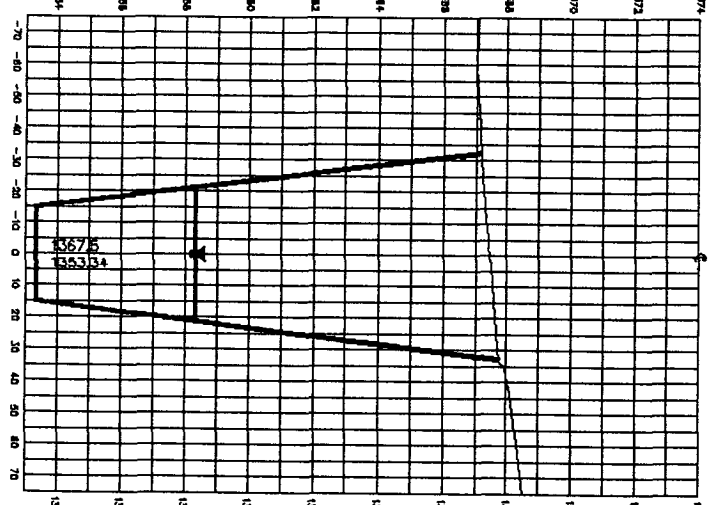
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17

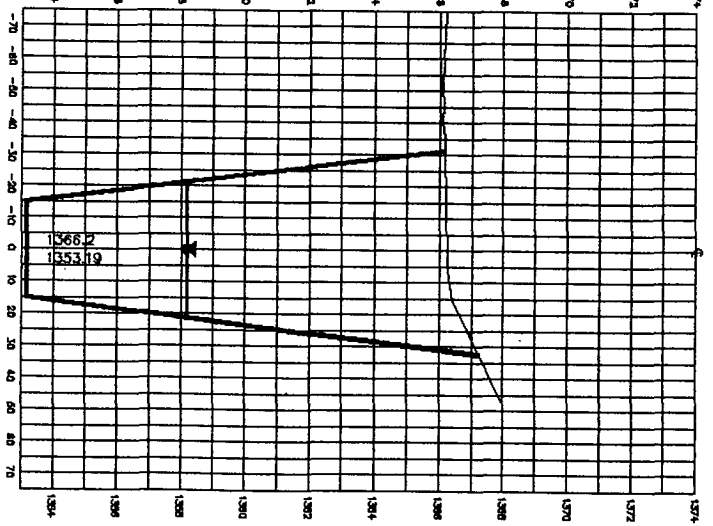
39+00



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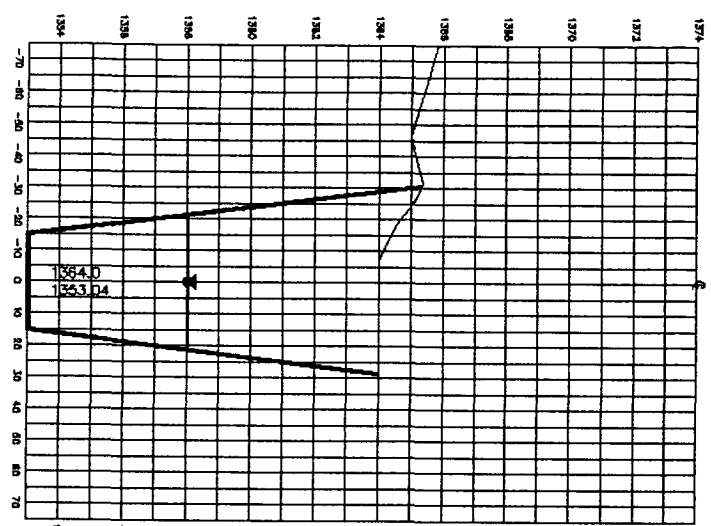
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EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION @ C EXISTING/PROPOSED

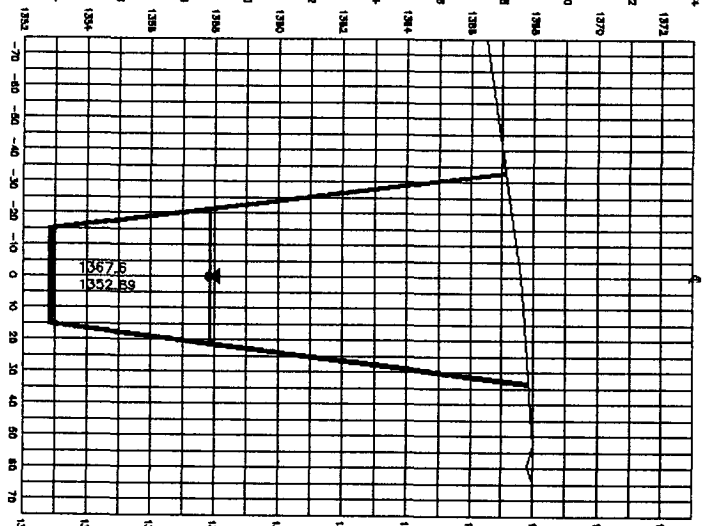
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SHEET #
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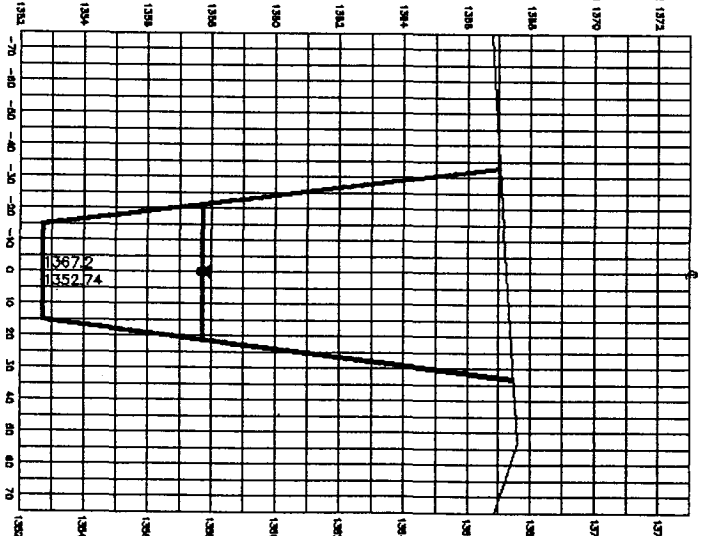
42+00

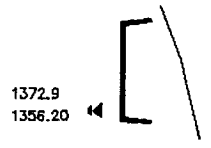


43+00



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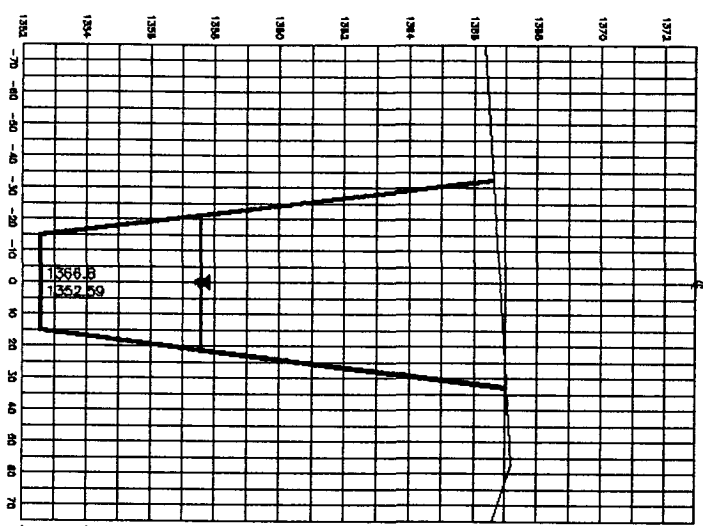




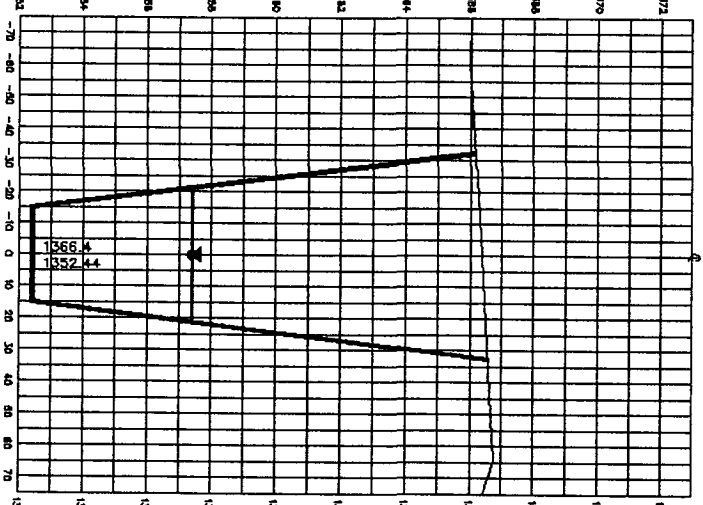
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WATER ELEVATION
ELEVATION @ EXISTING/PROPOSED

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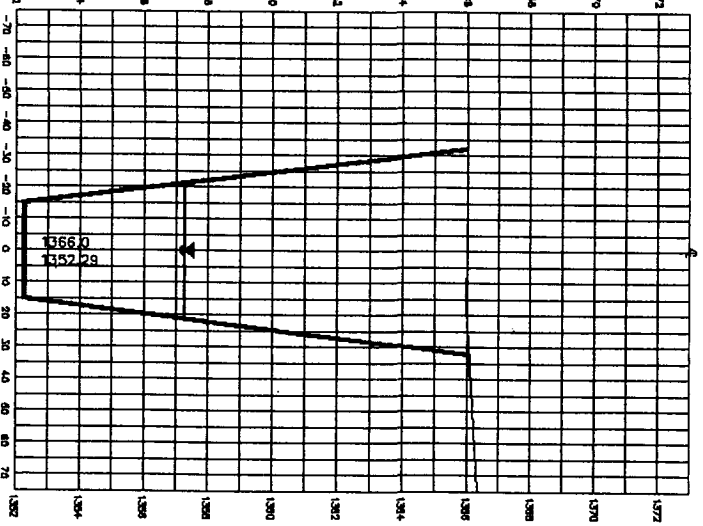
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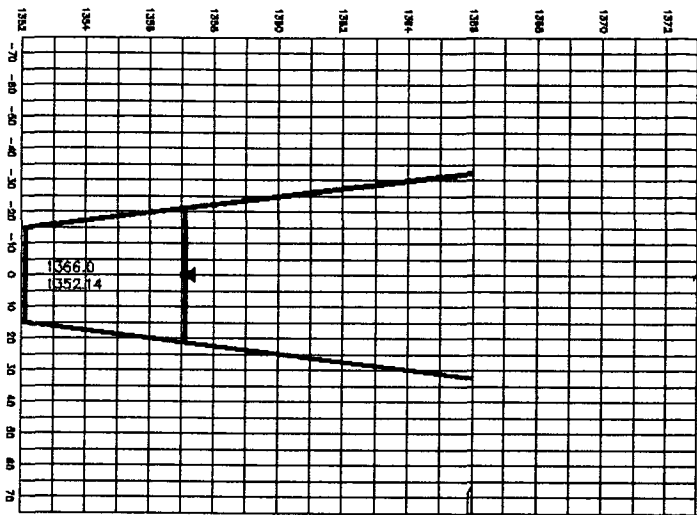


EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION @ EXISTING/PROPOSED

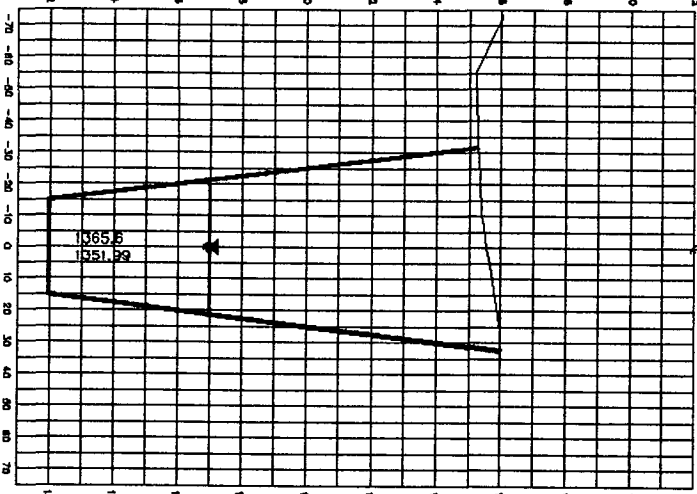
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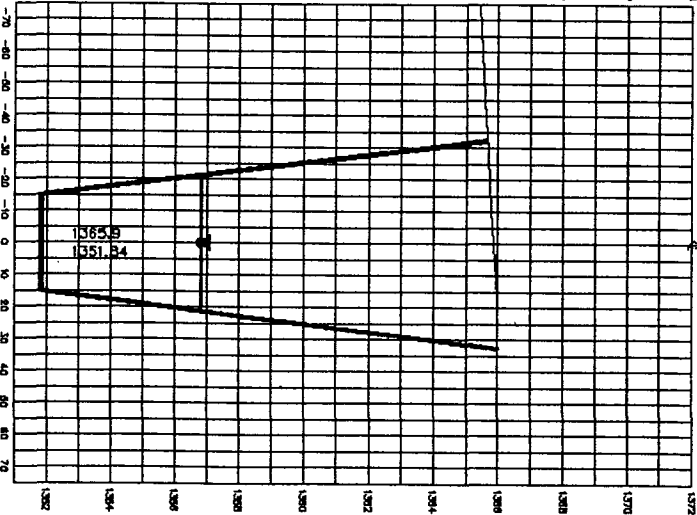
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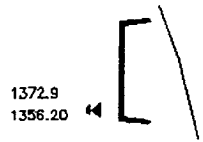


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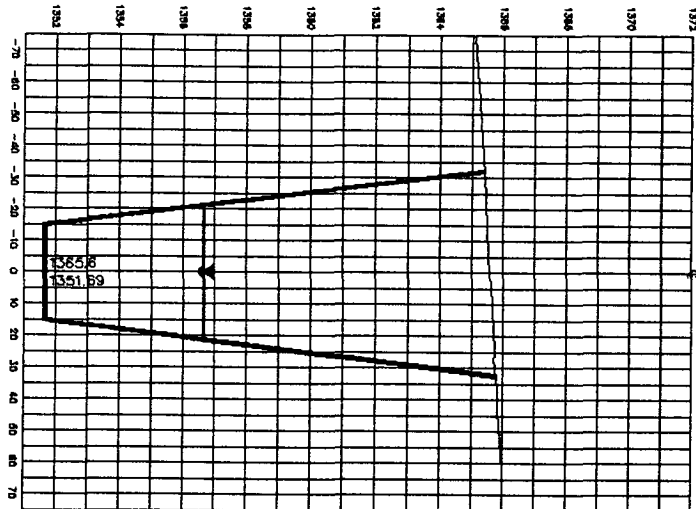


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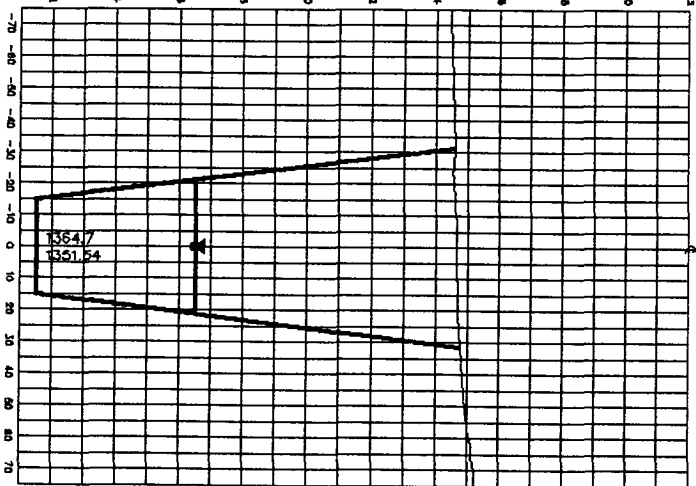
ELEVATION @ EXISTING/PROPOSED

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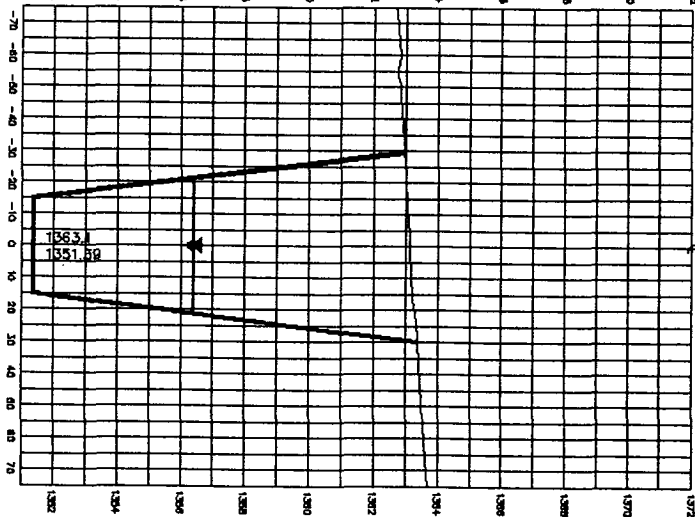
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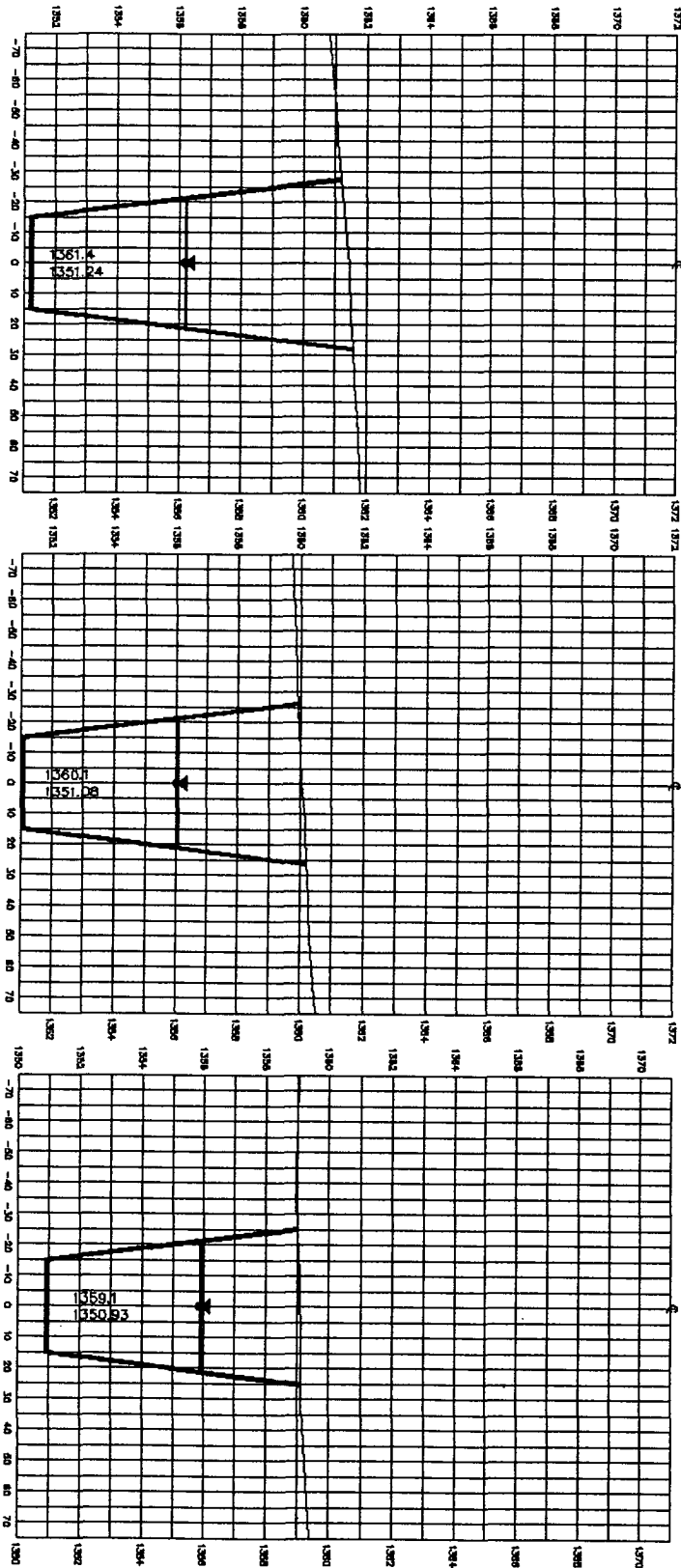


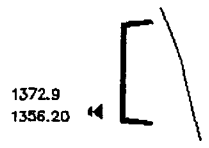
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EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION @ EXISTING/PROPOSED

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V: 1" = 6'

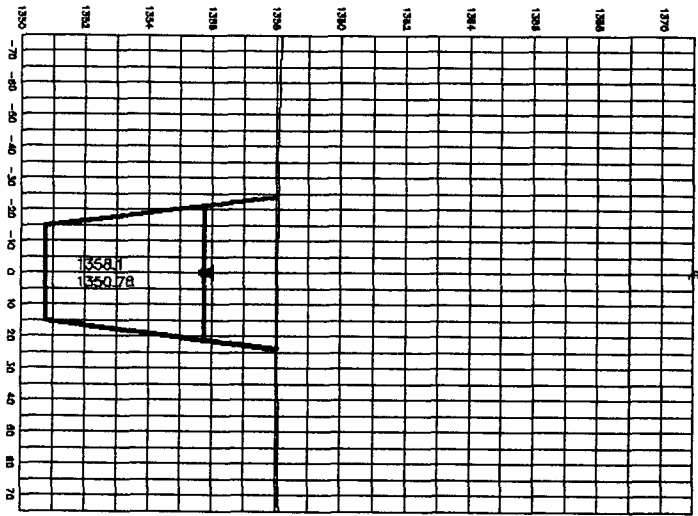




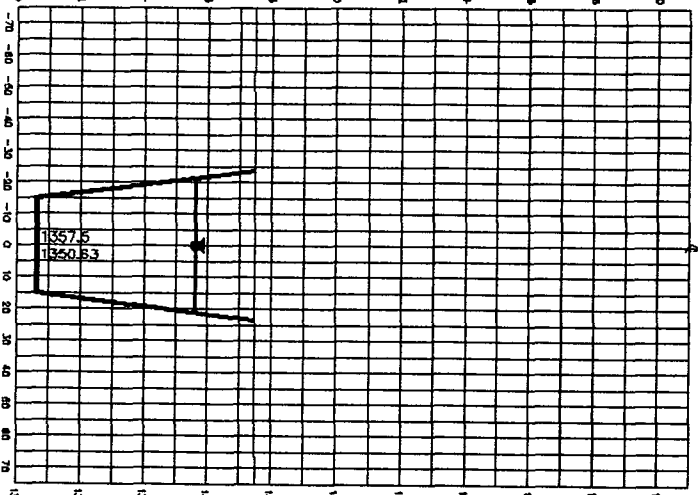
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WATER ELEVATION
ELEVATION @ EXISTING/PROPOSED

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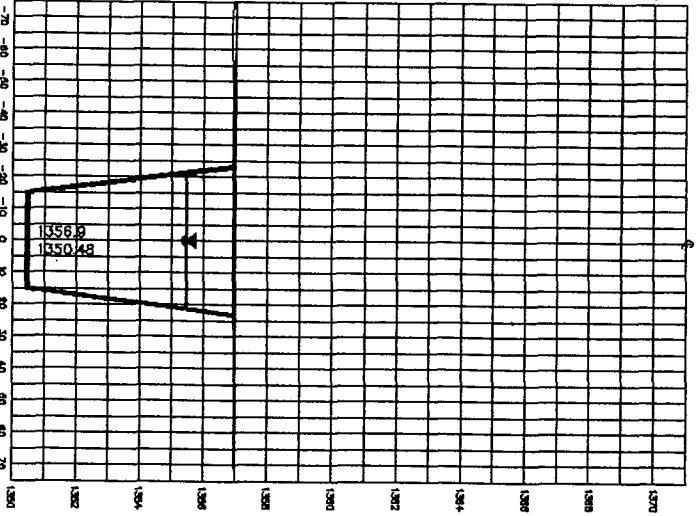
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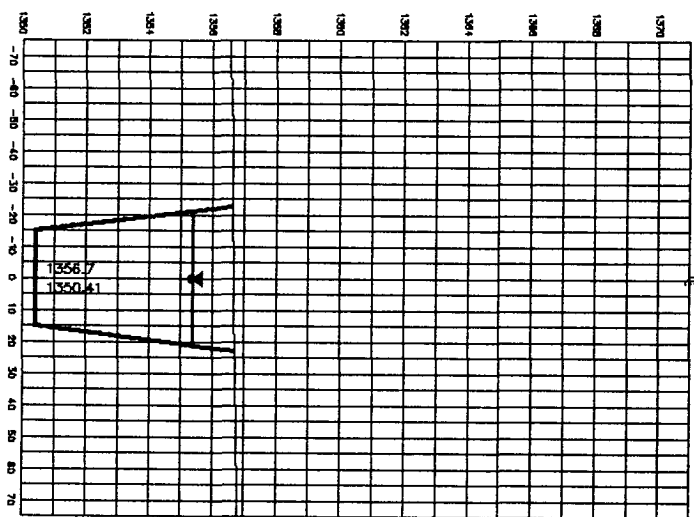
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EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION

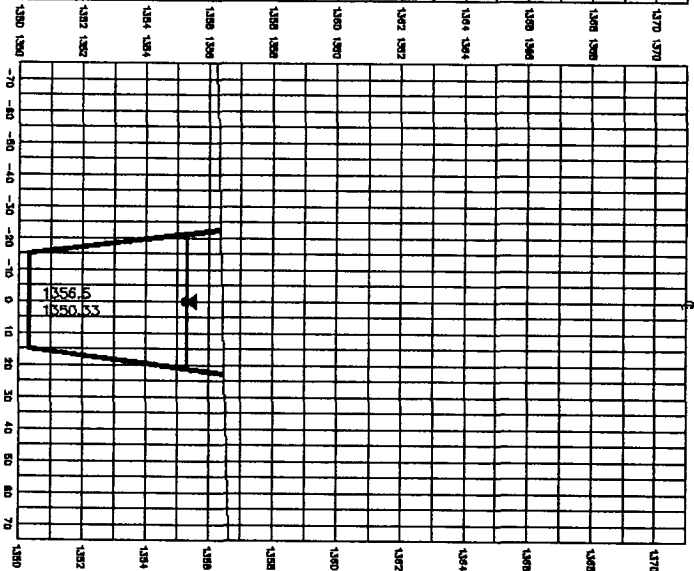
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ELEVATION @ EXISTING/PROPOSED

59+45.66



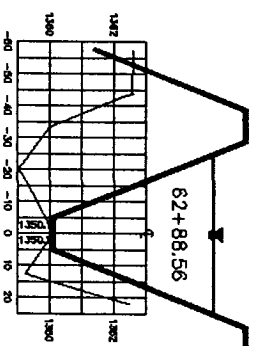
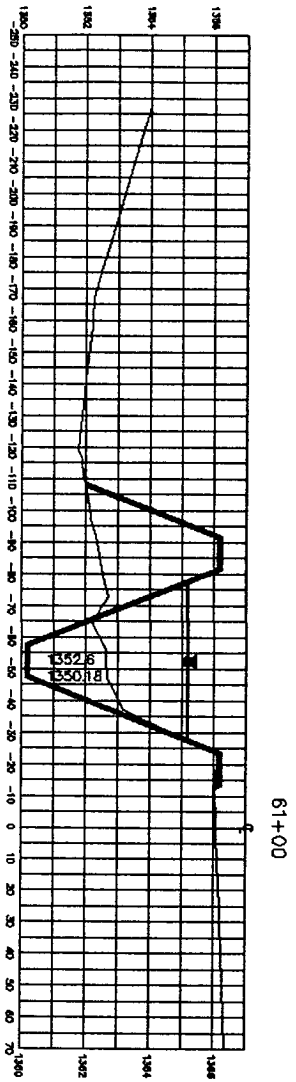
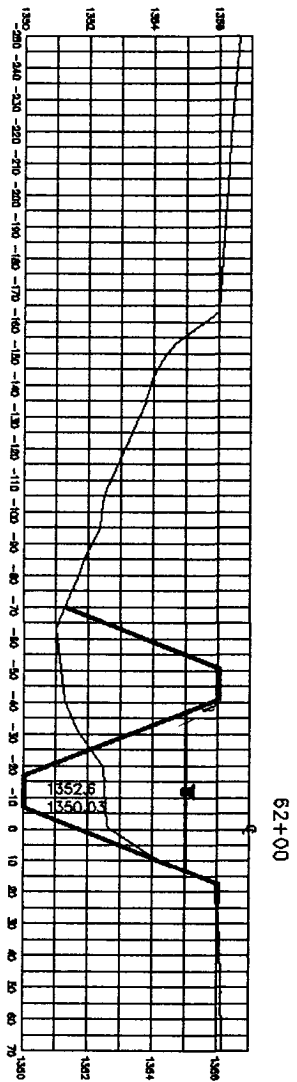
60+00



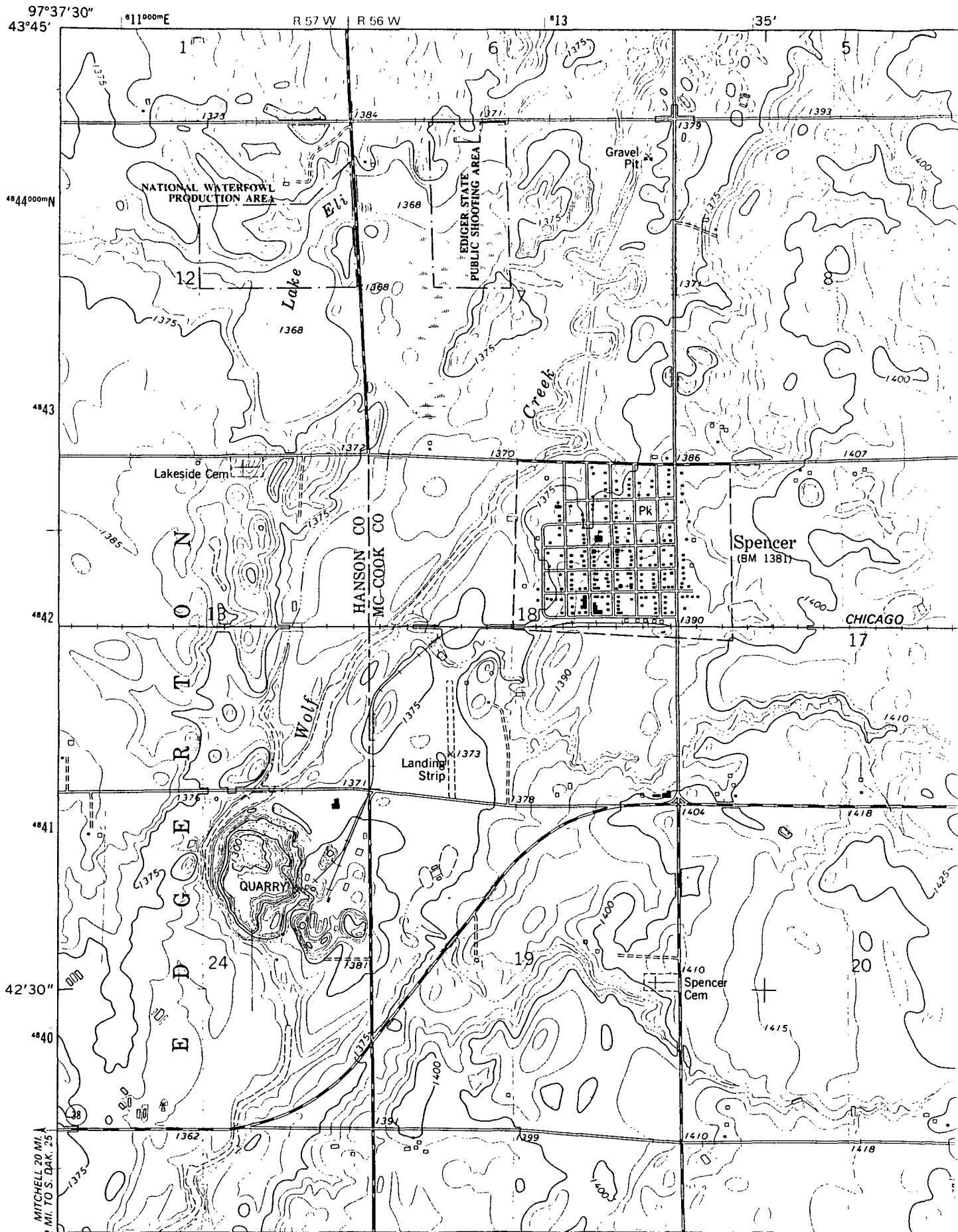
SHEET #
24

EXISTING GROUND
PROPOSED CHANNEL
WATER ELEVATION
ELEVATION $\oplus$ $\ominus$ EXISTING/PROPOSED

SCALE: H: 1" = 60'
V: 1" = 6'



64711 SW
(EPIPHANY)



REPORT ON FLOOD CONTROL PERMIT NO. FC-25

Spencer Quarries

September 9, 1998

Flood Control Application No. FC-25, Spencer Quarries, proposes to reroute a portion of Wolf Creek to allow for an expansion of an existing hard rock quarry. The proposed rerouted section of Wolf Creek runs through section 24 T103N-R57W and is located in Hanson County.

Review of the Existing Creek and Flows

Wolf Creek flows across property of Spencer Quarries (section 24 T103N-R57W) from north to south and along the west edge of the quarry. The approximate length of the creek reach is 6500 feet. The upstream control on the reach is a small county gravel road bridge. There is another bridge at the south edge of the reach at South Dakota Highway 38. The south bridge was designed by the South Dakota Department of Transportation (SD DOT) for a 25 year storm, with a design flow of 1119 cubic feet of water per second (cfs) and a worst case velocity of 4.2 feet per second.

Review of the Proposed Channel Geometry

The project proposes to move Wolf Creek west of its present route. The new channel length will be approximately 6300 feet. The proposed channel geometry for the first 1100 feet will be a trapezoid with a 10 foot bottom, 4:1 side slopes, and a slope of 0.00293 ft/ft. The cross sections for the next 4900 feet will be a trapezoid with a 30 foot bottom, 1.25:1 side slopes, and a slope of 0.0015 ft/ft. The channel will be trapezoidal with 4:1 side slopes and with a 40 to 60 foot bottom transition over the last 288 feet of the reach.

Review of Proposed Channel Effects

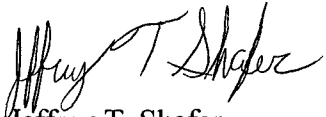
The bridge at the upstream edge of the property has a computed capacity of 985 cfs. Flows higher than the bridge capacity will be backed up by the bridge onto areas upstream. Flows less than the bridge capacity are less than the proposed channel capacity and will be passed downstream without problem.

The proposed channel capacity is greater than the 25 year downstream bridge design flow and the capacity of the upstream bridge. The proposed channel should not spill from the channel onto adjacent land.

The water velocity into the downstream bridge will be approximately 3.0 feet per second. This value is less than the worst case velocity used by the SD DOT to design the bridge.

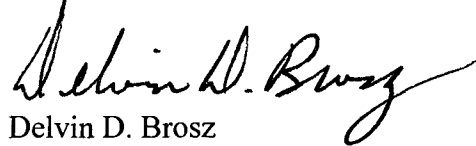
Conclusions

1. This application proposes to reroute the flow of Wolf Creek through property owned by Spencer Quarries. This will allow for an expansion of the quarry to maintain production.
2. The proposed channel geometry will not cause any adverse impacts to upstream, downstream, or adjacent areas.
3. A 404 permit from the US Army Corps of Engineers will be necessary for this project. A 404 permit application has been submitted for this project



Jeffrey T. Shafer
Natural Resources Engineer I

Approved by:



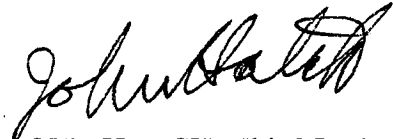
Delvin D. Brosz
Natural Resources Engineer IV

**RECOMMENDATION OF CHIEF ENGINEER FOR FLOOD CONTROL
APPLICATION NO. FC-25, Spencer Quarries**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Flood Control Application No. FC-25, Spencer Quarries, c/o Richard Waldera, 25341 430th Avenue, Spencer SD 57374.

The Chief Engineer is recommending APPROVAL of Application No. FC-25 because 1) the project will reduce damage from flooding and erosion, 2) will not increase the likelihood or the severity of flood damages downstream, 3) will not impair existing water rights, and 4) it is in the public interest.

See report on application for additional information.

A handwritten signature in black ink, appearing to read "John Hatch", with a stylized flourish at the end.

JOHN HATCH, Chief Engineer
September 14, 1998



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPER RIGHT AWAY.

October 6, 1998

Spencer Quarries, Inc.
%Richard Waldera, General Manager
25341 430th Ave.
Spencer, SD 57374

Dear Mr. Waldera:

Flood Control Application No. FC-25 for flood control has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Alexandria Herald printed at Alexandria, SD (Ph # (605) 239-4521). For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. The newspaper has been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,


Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

Alexandria Herald
Box 450
Alexandria, SD 57311-0450

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Flood Control Application No. FC-25 to Appropriate Water to be published twice. Please publish the first notice on October 16, 1998, with the second publication 7 days later.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Spencer Quarries, Inc., %Richard Waldera, General Manager, 25341 430th Ave., Spencer, SD 57374 (Ph # (605) 246-2344).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CU T HERE-----

No. FC-25

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of October 6, 1998, enclosing Notice of Hearing to Appropriate Water by Flood Control Application No. FC-25 which was first published in our issue of _____.
ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper

Instruction to Newspaper - Publish first Notice October 16, 1998, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Flood Control Application No. FC-25

Notice is given that Spencer Quarries, Inc., c/o Richard Waldera, General Manager, 25341 430th Avenue, Spencer SD 57374 has filed application proposing to reroute a portion of Wolf Creek to allow for an expansion of an existing hard rock quarry. The proposed rerouted section of Wolf Creek runs through Section 24, T103N, R57W between the county road bridge and SD Highway 38.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No FC-25 because 1) the project will reduce damage from flooding and erosion, 2) will not increase the likelihood or the severity of flood damages downstream, 3) will not impair existing water rights, and 4) it is in the public interest.

Any person interested in opposing or supporting the application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 20, 1998. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider this application at 9:30 a.m., December 2, 1998, Floyd Matthew Training Center, Joe Foss Building, 523 East Capitol, Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by November 20, 1998.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by November 20, 1998, at the above Water Rights Program address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

This application are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-47, 46-5-48; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15. Nettie Myers, Secretary, Department of Environment and Natural Resources.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County of Hanson) SS

I, Jerry Janssen
 certify that the attached printed Notice was taken
 from the Alexandria Herald

printed and published in Alexandria

County of Hanson and

state of South Dakota. The notice was published
 in the newspaper on the following two dates:

Oct 15, 1998

Oct 22, 1998

Cost of Printing 50.37

Kathy Hoffman
 (Signature)

Bookkeeper
 (Title)

10-15-98
 (Date Signed)



NOTICE OF HEARING

ON FLOOD CONTROL APPLICATION NO FC-25

Notice is given that Spencer Quarries, Inc., c/o Richard Waldera, General Manager, 25341 430th Avenue, Spencer SD 57374 has filed application proposing to reroute a portion of Wolf Creek to allow for an expansion of an existing hard rock quarry. The proposed rerouted section of Wolf Creek runs through Section 24, T103N, R57W between the county road bridge and SD Highway 38.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of application No FC-25 because 1) the project will reduce damage from flooding and erosion, 2) will not increase the likelihood or the severity of flood damages downstream, 3) will not impair existing water rights, and 4) it is in the public interest.

Any person interested in opposing or supporting the application must file a written petition with BOTH the applicant and Chief engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief engineer's address is "Water Rights Program, Foss building, 523 E. Capitol, Pierre SD 57501 (605-773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 20,

1998. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider this application at 9:30 a.m., December 2, 1998, Floyd Matthew Training Center, Joe Foss Building, 523 East Capitol, Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public

hearing. The hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by November 20, 1998.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by November 20, 1998, at the above Water Rights Program address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

This application are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12, thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-47, 46-5-48; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15, Nettie Myers, Secretary, Department of Environment and Natural Resources.

June 24, 1998

BOX 398 • MITCHELL, S. DAK. 57301 • PHONE (605) 996-7761 • FAX (605) 996-0015

Dick Waldera
Spencer Quarries Inc
PO Box 198
Spencer SD 57374

RE: Hydrological Study & Channel Re-routing
SPN #9159

SCHMUCKER, PAUL, NOHR & ASSOCIATES

ENGINEERS
SURVEYORS

Dear Mr. Waldera:

As per your request earlier this year, we have completed a Hydrological Study for the re-routing of the creek channel that runs through Spencer Quarry property. The intent of this study is to determine the amount of flow coming from upstream through a bridge opening and to design a channel that will accommodate the maximum flow through Spencer Quarries' property without impeding flow. We have completed this study utilizing information provided by you, field topographic surveys and USGS topographical information that is available. The enclosed set of drawings labeled "Spencer Quarry Channel Relocation Plans" represents the information for submittal to the Corps of Engineers for its review.

The steps that were taken to complete this study and to determine the required flow capacity of the channel are included in the following information.

Determination of Upstream Maximum Flow Capacity

A cross-section of the stream at the location of the bridge at the north side of the quarry property, approximately 1,600 feet west of the northeast section corner of Section 24, T103N, R57W was taken and the flow area is as shown on Sheet 3 of the enclosed plans. Also, cross-sections of the stream were taken for at least 250 feet north and 250 feet south of the bridge to determine the channel flowline elevations. Once the flowline was determined, a slope of the existing channel as it passes through the bridge was determined as shown on Sheet 2 of the plans. The slope was calculated to be approximately 0.03156%. Next, the flow area and wetted perimeter were calculated so that Manning's Formula could be used to determine the maximum capacity of the bridge section. As can be seen in the detail of the bridge cross-section, there is a pool of water approximately six feet deep near the bridge that was not used in determining the area or wetted perimeter of the channel. An "n" value of 0.025 for earth channel was used. Using the above information the maximum flow through the channel at the bridge section was calculated to be 984.7 cfs.

New Channel Layout and Slope of the New Channel

Based on the aerial photograph you provided with an approximate new channel location sketched on it, I created an alignment from the bridge referred to above through the Highway 38 bridge located at approximately 2,100 feet west of the southeast section corner of Section 24, T103N, R57W. The new alignment of the creek will be approximately 6,288 feet in length and generally arc from the bridge at the north towards the southwest nearly one-half mile south of the north section line of Section 24 near the west property line of the quarry, approximately 3,400 feet west of the east section line of Section 24. From this area it will continue on its arc back to the southeast until it connects with the existing channel as it passes through the Highway 38 bridge on the south.

The areas south and north of the Highway 38 bridge were also cross-sectioned to determine the channel elevation as it passes under the bridge, as seen on Sheet 2 of the enclosed plans. The elevation of the channel will be 1360.93 at the north bridge and 1349.90 at the south bridge, for a difference in elevation of 11.03 feet. With a channel length of 6,288 feet, a continuous slope from one bridge to the other would be 0.1756%, but a change was made at station 11+00 to allow for a deeper channel at the north stretch of the channel. The slope of the relocated creek will be 0.293% from the north bridge to station 11+00 and 0.15% from station 11+00 through the south bridge.

New Channel Cross-Sections

After determining the maximum stormwater flow through the north bridge and the slope of the new channel, a cross-section able to carry the flows expected could be determined. As we discussed, a dike will need to be built on both sides of the new channel to maintain a depth of flow through the new channel alignment and not allow the water to spread over the low areas in the beginning and ending stretches of the new channel.

In the first 1,100 feet of the channel the depth will be 6 feet with a depth of flow of approximately 5 feet during maximum flow. The cross-section will consist of a 10 feet wide ditch bottom with 4 to 1 side slopes, 10 feet wide top of dike and 4 to 1 outside slopes to natural ground. Based on the above information the channel will be able to carry approximately 990 cfs to 1,238, with "n" values ranging from 0.025 to 0.020 respectively.

Somewhere in the area of station 11+00 it is anticipated that the bottom of the channel will be constructed in rock. This will make a change in the cross-section of the channel to a bottom width of 30 feet and side slopes of approximately 1.25 to 1. This channel cross-section will be utilized through station 60+00. As we discussed, this change in side slopes should not pose any major problems with construction or with stability or erosion as the slopes are anticipated to be solid rock. The change in cross-section will also decrease the overall volume of material that must be removed in the construction process.

Dick Waldera
June 24, 1998
Page 3

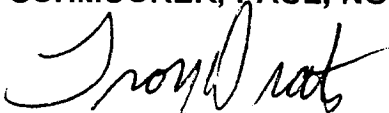
There will be some very deep cuts that would lead to a great deal of material removal above the required depth of the channel if the side slopes of 4 to 1 were to be maintained. The above information regarding the channel will have a flow capacity of approximately 1,304 cfs using an "n" value of 0.02 which should be acceptable for the rock material used for the channel in this stretch of the channel.

There is some uncertainty in this design as it is not known for sure where the rock material will be encountered, but it is fairly safe to assume that since there is an outcropping of rock near the middle of the length of the new channel and the depth of rock that you are currently mining in the quarry, there will be rock for most of the bottom of the channel. As you and I discussed there will most likely be some field modification to the alignment and possibly to the slopes of the channel once the construction begins, but the plan as discussed above and as shown in the enclosed drawings are a general guideline that should be quite usable in most areas of construction of the new channel. If there are any areas that require changes based on field conditions encountered during construction, we will be able to assist you in making those changes.

If you have any questions or need any more information, please do not hesitate to contact me.

Sincerely,

SCHMUCKER, PAUL, NOHR & ASSOCIATES

A handwritten signature in black ink, appearing to read "Troy Drath", written in a cursive style.

Troy Drath, P.E.

TD:rh

Enclosures

SPENCER QUARRIES, INC.

Quartzite Materials

TELEPHONE 605, 246-2344

FAX # 605, 246-2362

P.O. BOX 198

SPENCER, SOUTH DAKOTA 57374



The Spencer Quarries Inc. quarry is located near the town of Spencer, SD and the quarry has been in operation for approximately 100 years. Originally the quarry was used to produce building stones. Since that time the product line and rate of production has changed dramatically. The primary products now are aggregates for concrete and asphalt, railroad ballast, and rip rap.

Spencer Quarries is presently in the construction phase of upgrading its crushing and screening capacity with the addition of two new rock crushers, four new grizzly feeders, and an a 3-deck screen. When completed in mid 1998 the project cost will be in excess of \$2,000,000.

The present pit area is approximately 35 acres. In the deepest portion of the pit quartzite rock is being removed at the 135 ft. level. This level is approximately 20 feet above a layer of pipestone, a low quality material with no market. The pipestone layer is estimated to be 40 feet thick and lays in a uniform layer under the quartzite sloping from north to south. The top of the pipestone is approximately 100 feet deep at the north end and 155 feet deep at the south end of the quarry. A large portion of the current pit has been mined to within 20 feet of this layer.

The quarry needs to be expanded in order to maintain production. Wolf Creek borders the quarry on the 2 sides where expansion is possible and it must be rerouted to allow the quarry boundaries to be increased. The attached maps and pictures show the proposed new location for a portion of Wolf Creek.

The new location of the creek should pose no environmental threat. The wetlands map obtained from the local Soil Conservation Office shows that no wetlands will be disturbed. The bed of the new creek location will primarily be rock, which will produce virtually no sedimentation of the downstream waterway.

Spencer Quarries Inc. is a strong contributor to the local economy. The quarry has 18 full time employees and hires farmers, and college students as part-time help during portions of the year. The quarry payroll for 1997 was approximately \$700,000. The quarry also paid \$130,000 in sales, use, and truck tax in 1997.

One of the attached maps shows the general trade area of the quarry and indicates the need for the quarry to continue its production of high quality aggregates and stone products. A short list of entities using Spencer Quarries products are: the States of South Dakota and Nebraska, various cities, townships, and counties, federal government.

SPENCER QUARRIES, INC.

Quartzite Materials

TELEPHONE 605, 246-2344

FAX # 605, 246-2362

P.O. BOX 198

SPENCER, SOUTH DAKOTA 57574

agencies such as the Corps of Engineers and Soil Conservation Service, farmers, ready mix producers, and contractors

As the quality and quantity of natural gravel continues to decline, the need for good aggregates from sources such as the Spencer quarry will increase. To continue to be a source of quality rock products Spencer Quarries, Inc. needs to increase the size of the quarry, which can only be done by relocating a portion of Wolf Creek.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

July 17, 1998

Richard Waldera
Spencer Quarries
25341 430th Avenue
Spencer, SD 57374

Dear Mr. Waldera:

I am writing in regard to Spencer Quarries flood control application to reroute a segment of Wolf Creek. This project is intended to allow for quarry expansion.

The map showing the reroute of Wolf Creek will need to be signed by one of the following: registered land surveyor, registered professional engineer or by any government employee who normally prepares maps as part of their assigned duties. I have enclosed the map that was submitted with the application.

To assess the impact of the proposed rerouting project the Water Rights Program believes that further information is necessary. A flow routing analysis needs to be conducted for the proposed project. This routing will require existing channel cross-sections of Wolf Creek, representative cross-sections of the proposed new channel and a profile of the channel bottom from the existing and rerouted channel in the affected area. As part of the application, we request a copy of this cross-section and profile information. This routing is necessary to show that the proposed new channel will not constrict flow and cause an increase of flooding during periods of high flow.

State law provides that flood control works may be issued only if the project will reduce the damage from flooding or erosion in the area proposed to be benefited and the project will not increase the likelihood or the severity of flood damages in areas other than the project area.

Upon receiving this requested information we will proceed with processing the flood control application. Please contact us if you have any questions.

Sincerely,

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosure

SPENCER QUARRIES, INC.

Quartzite Materials

TELEPHONE 605, 246-2344

FAX # 605, 246-2362

P.O. BOX 198

SPENCER, SOUTH DAKOTA 57874

RE: SPENCER QUARRIES FLOOD CONTROL APPLICATION

TO: ERIC GRONLUND
WATER RIGHTS PROGRAM



DEAR MR. GRONLUND:

I AM ENCLOSING THE ADDITIONAL INFORMATION YOU REQUESTED FOR OUR FLOOD CONTROL APPLICATION. THESE INCLUDE THE ENGINEER SIGNED MAP, THE HYDROLOGICAL STUDY, AND A PROFILE OF THE EXISTING CREEK.

I AM NOT INCLUDING AT THIS TIME THE X-SECTIONS OF THE EXISTING CREEK AS I BELIEVE THE HYDROLOGICAL STUDY MAY COVER THIS REQUEST.

IF THERE IS ANY FURTHER INFORMATION NEEDED PLEASE LET ME KNOW.

SINCERELY;

A handwritten signature in cursive script, appearing to read "Dick".

RICHARD WALDERA
GEN. MGR.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

Richard Waldera
Spencer Quarries
25341 430th Ave
Spencer SD 57374

Dear Mr. Waldera,

I am writing in regard to Spencer Quarries flood control application to reroute a segment of Wolf Creek.

In addition to the engineering report you submitted, I am using information obtained from the South Dakota Department of Transportation (SD DOT) to review and prepare a report on the proposed channel realignment.

In reviewing the project it appears that our concerns are on the potential impacts near the Highway 38 bridge at the south end (downstream edge of the project). The channel geometry appears to be lacking capacity at the last cross sections before the Highway 38 bridge. For both the Schmucker, Paul, Nohr & Associates flow value at the upstream bridge and the SD DOT 25 year design flow for the Highway 38 bridge, my analysis showed the creek spilling out of its banks.

The other problem lies in the worst case flow velocity I received from the SD DOT. In the bridge design they list a worst case water velocity of 4.2 feet per second. In reviewing the project, it appears that the channel velocities entering the bridge will be 6 feet per second or greater.

South Dakota Code Law (SDCL) 46-2A-11 requires that a flood control permit can only be issued if it can be shown that the project will reduce the damage due to flooding or erosion in the area proposed to be benefited, will not increase the likelihood or severity of flood damages in other areas, and the project cannot endanger human life or property.

If you have any questions, please contact me at (605) 773-3352.

Sincerely,

Jeff Shafer
Natural Resources Engineer

August 26, 1998

BOX 398 • MITCHELL, S. DAK. 57301 • PHONE (605) 996-7761 • FAX (605) 996-0015

Dick Waldera
Spencer Quarries Inc
PO Box 198
Spencer SD 57374

RE: Hydrological Study & Channel Re-routing
SPN #9159

SCHMUCKER, PAUL, NOHR & ASSOCIATES

ENGINEERS
SURVEYORS

Dear Mr. Waldera:

I have reviewed the letter you received from Jeff Shafer of the SD DENR dated August 14, 1998. It appears that his main concern is in the area of the Highway 38 bridge both in the cross-sections at Stations 61+00, 62+00 and 62+88 and the anticipated worst case velocity as water enters the bridge. I have modified Sheet 25 of the cross-sections provided previously, a copy of which is enclosed. The new cross-sections listed above increase in bottom width from the 30 foot width at Station 60+00 to 60 feet wide at Station 62+88 (north side of the Highway 38 bridge). These changes have increased the capacity of the channel as well as decreased the flow velocities in this reach of the channel.

The channel will transition from 1.25:1 side slopes with a 30 foot bottom width at Station 60+00, as shown on Sheet 24, to 4:1 side slopes with a 41 foot bottom width at Station 61+00. The 4:1 side slopes will be continued to the bridge at Station 62+88 with the bottom width of the channel increasing in width to 51 feet at Station 62+00 and 60 feet at Station 62+88.

The modification of the cross-sections will decrease the flow velocity to the approximate values shown in the following table:

<u>Station</u>	<u>Flow Velocity (fps)</u>
60+00	5.76
61+00	4.78
62+00	4.68
62+88	4.40

The value for Station 62+88 is somewhat greater than the 4.2 fps value described in the letter but considering the methods used for determining the flows to be carried to the channel by both the SD DOT and me, the numbers are relatively close and are considerably less than the 6 fps Mr. Shafer had calculated with the previous cross-sections.

Dick Waldera
August 26, 1998
Page 2

I feel that the above changes and explanations should address all requests and comments included in Mr. Shafer's letter. If you have any questions or need any more information, please do not hesitate to contact me.

Sincerely,

SCHMUCKER, PAUL, NOHR & ASSOCIATES



Troy Drath, P.E.

TD:rh

Enclosure

SPENCER QUARRIES, INC.

Quartzite Materials

TELEPHONE 605, 246-2344

FAX # 605, 246-2362

P.O. BOX 198

SPENCER, SOUTH DAKOTA 57574



August 28th, 1998

Jeff Shafer
Natural Resources Engineer
Joe Foss Building
523 East Capital
Pierre, South Dakota 57501

RE: Wolf Creek Reroute

Dear Mr. Shafer,

Enclosed is a review of your concerns with the Hwy. 38 down stream channel geometry from Mr. Troy Drath P.E. of Schmucker, Paul Nohr & Assoc. Also, a new X-Section sheet number 25 which shows the new design entering the bridge area.

I am confident this will address the concern you have. If there is anything more I can do please let me know.

Sincerely,

Richard Waldera
Gen. Mgr.

SPENCER QUARRIES, INC.

Quartzite Materials

TELEPHONE 605, 246-2344

FAX # 605, 246-2362

P.O. BOX 198

SPENCER, SOUTH DAKOTA 57574



October 8, 1998

Mr. Eric Gronlund
Department of Environment
and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Dear Mr. Gronlund:

I have reviewed the Notification you have sent to the Alexandria Herald.

I find everything satisfactory and have notified the Herald office to publish as per your instructions.

Thank you,

Richard J. Waldera
Spencer Quarries, Inc.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

JAN 19 1999

Spencer Quarries, Inc.
%Richard Waldera, General Manager
25341 430th Ave.
Spencer, SD 57374

Dear Mr. Waldera:

Enclosed is Flood Control Permit No. FC-25 as approved by the Water Management Board. If you have any questions pertaining to the permit, please contact this office.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Program
(605) 773-3352

Enclosure

Permit No. FC-25
James River - Water District

Report of Examination of Works and/or Application of Water to Beneficial Use

TO: Chief Engineer, Water Rights Program, DENR, Foss Bldg., Pierre, SD 57501

I have this day, June 16, 2010, made a thorough examination of the water use system constructed by Spencer Quarries, Inc of 25341 430th Ave., Spencer, SD 57374 holder of Permit No. FC-25, bearing the priority of July 16, 1998 authorizing the Rerouting of Wolf Creek for Flood Control purposes, in Hanson County.

Inspection contact & relationship **Dick Waldera**
to permit holder, if applicable:

A. Compliance with Permit Requirements:

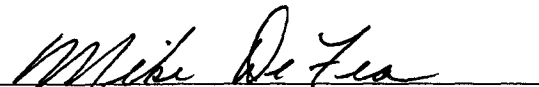
- 1) Permit qualifications being abided by NA
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period NA
- 3) Exceptions to compliance are: None

The system is in Good condition.

All structures, wells and lands on map Y

Comments or other permit(s) associated with the project:

Flood Control Permit N0. FC-25 authorizes rerouting of a portion of Wolf Creek to allow for expansion of an existing rock quarry. The project has been completed as permitted with the creek being rerouted through Section 24-T103N-R57W between the county road bridge and SD Highway 38.



Mike DeFea
Natural Resources Project Engineer
DENR, Water Rights Program

Date report completed: June 17, 2010

Spencer Quarries Water Permit No. FC-25



Mike DeFea

Mike DeFea
Natural Resources Engineer
DENR, Water Rights Program
June 17, 2010

0 462.5 925 1,850 2,775 3,700 Feet



South Dakota
Department of Environment
& Natural Resources
Protecting SD's Tomorrow... Today



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
PMB 2020
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

June 23, 2010

FC 25

Dick Waldera
Spencer Quarries Inc
25341 430th Ave
Spencer SD 57374

Dear Mr. Waldera:

On June 16, 2010 the investigation of the project authorized by Flood Control Permit No. FC-25, was completed by Mike DeFea, a staff engineer with our program. The license can now be issued.

State law requires that we charge a \$50.00 fee for the investigation and issuance of the license. Upon receipt of the \$50.00 fee from you, we will complete processing your license. The check or money order for the fee should be made payable to the "Water Rights Program".

If you have any questions regarding the flood control permit, the staff investigation of the project or payment of the fee, please contact me.

Sincerely,

A handwritten signature in cursive script that reads "Genny McMath".

Genny McMath
Environmental Scientist
Water Rights Program
(605) 773-3352

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 7/6, 20 10

RECEIVED OF Spencer Quarries Inc 25341 430th Ave Spencer SD 57374

The following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use	50	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>FC 25</u>		
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	50 00

No. 04579

By Garland E. Schelske
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
PMB 2020
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

JUL 14 2010

FC 25

Dick Waldera
Spencer Quarries Inc
25341 430th Ave
Spencer SD 57374

Dear Mr. Waldera:

Enclosed is Water License No. FC-25. The license is the final document which completes the process of obtaining a water right. Included with the license is a map prepared by the staff engineer who conducted the investigation.

As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

A handwritten signature in black ink, which appears to read "Garland Erbele". The signature is fluid and cursive.

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

STATE OF SOUTH DAKOTA

WATER LICENSE NO. FC-25

(1) Spencer Quarries Inc, 25341 430th Ave, Spencer SD 57374 made Application No. FC-25, July 16, 1998 for a flood control permit to reroute a portion of Wolf Creek to allow for an expansion of an existing hard rock quarry. The project is in Hanson County, South Dakota. Permit No. FC-25, with a priority date of July 16, 1998 was approved December 2, 1998 and issued to the applicant with construction and operation of the project to be completed on or before December 2, 2003.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the flood control project. Wolf Creek has been rerouted through Section 24, T103N, R57W between the county road bridge and SD Highway 38. Rerouting of the creek allowed for an expansion of the existing rock quarry.

(3) Pursuant to South Dakota Water Law 46-5-30.1 Spencer Quarries Inc, 25341 430th Ave, Spencer SD 57374 the holder and/or owner of Permit No. FC-25 is issued a license for flood control purposes. No. FC-25 carries a priority date of July 16, 1998.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Flood Control Permit No. FC-25.



Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JUL 14 2010

date

