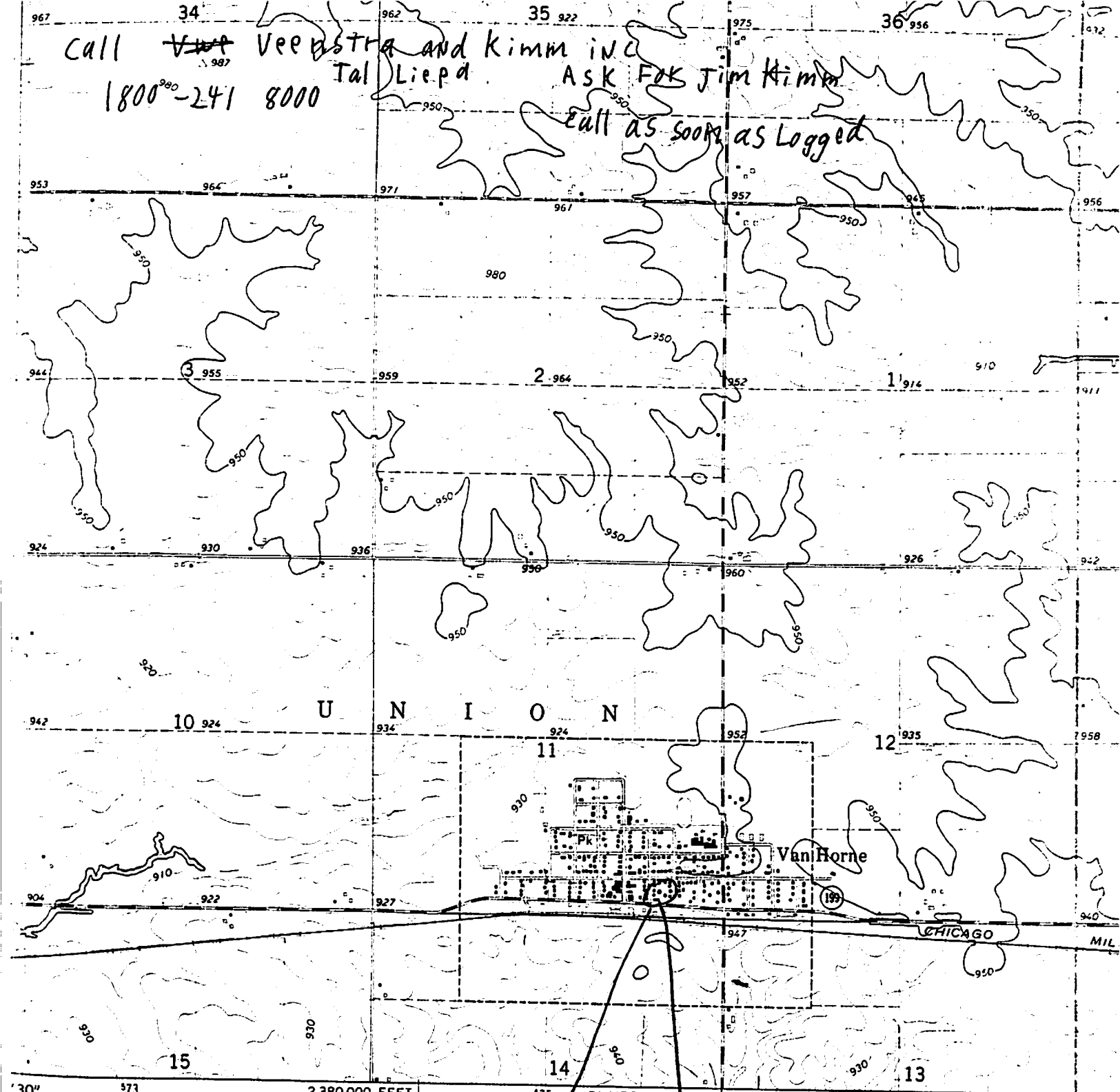


Call ~~Via~~ Veebstra and Kimm INC  
Tal Liepa  
1800-241 8000

ASK FOR Jim Kimm

call as soon as Logged



Map compiled, edited, and published by the Geological Survey  
Control by USGS and USC&GS

Topography by photogrammetric methods from aerial  
photographs taken 1967. Field checked 1971

Polyconic projection. 1927 North American datum  
3,000-foot grid based on Iowa coordinate system, north zone  
200-meter Universal Transverse Mercator grid ticks,  
zone 15, shown in blue

The red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1971 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET

# 30520

Quad - COOR = M38

Benton Co.

T83N R11W Sec 11

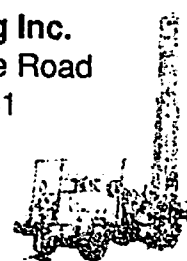
THIS MAP COMPLIES WITH NAT  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER  
AND BY THE IOWA GEOLOGICAL SURVEY  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS

Job: Van Horn City Well

Date:

Phone:

Freese Well Drilling Inc.  
10301 Feather Ridge Road  
Toddville, Iowa 52341  
(319) 393-7267



---

Aug 4 Dug mud pit

Aug 7 4:00 pm - 8:00 pm  
moved mud pump & support equipment in & started test hole,  
Drilled to 125' using 77/8 bit

Aug 8 9:00 am - 8 pm  
Drilled from 125' to 345' (Rock 267)  
Pulled out of hole to inspect bit. Rock hard formation  
Drilling rate 1hr pr 20' drill rod

Aug 9 10:00 am - 8 pm  
Removed small mud tub & replaced with 2000 gal tub started drilling  
by 2:00 pm rock very hard 20' takes 2 hrs.  
Drilled to 405'

Aug 10 8:30 am - 8:30 pm  
Rock hard down to 515', soft formation 515'-527' shale at 450'-460'  
Brown in color, soft layer light gray & brown in color.

Aug 11 9:00 - 6:30  
Started 105/8 hole opener, drilled to 330'

Aug 12 8:30-5:00 Sheared 8 bolts & destroyed 2 plates.

Aug 13 8:00 am - 10:00  
Ordered parts needed metric bolts allen head. 5days UPS on bolts alone  
out of Oregon

Aug 25 10:00 am - 6:30 pm  
Reassembled table

Aug 30 11:00 am - 8:30  
Drilled from 380' - 425'

Sept 1 9:30 Am - 8:00 pm  
Started to drill 13" hole drilled to 260'

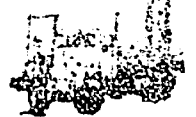
Sept 4 9:30am - 4:30 PM  
Drilled from 260' - 320'

.o:

Date:

Phone:

Freese Well Drilling Inc.  
10301 Feather Ridge Road  
Toddville, Iowa 52341  
(319) 393-7267



---

Sept 15 10:30 am - 4:00 pm  
Drilled from 320' - 340' water swivel with new packing  
leaking bad. Need to repair  
Parts flown in from Texas

Sept 18 Ordered parts out of King Swivel in Houston Texas

Sept 19 Parts arrived at 10:00 am  
Worked on swivel to disassemble need to torch apart major  
parts due to damage from last owners machine work need to  
repair threads. could not start to repair until approx 1:00  
on the 21st

Sept 22 Picked up spindel from machine shop  
started to assemble wrong seals, need double lip, received  
single lip.

Sept 23 Ordered seals next day air freight

Sept 24 Assembled

Sept 25 2:00 pm - 3:30 pm  
Placed swivel back in rig discovered bearings needed shims

Sep 26 10:00 am - 6:30 pm  
Placed in .025 shims, had to fabricate shims used dia indicator  
need total of .050 thousands (bearing adjustment jamed)

Sept 27 9:30 am - 7:00 pm  
Drilled to 380' (fuel filter problems ) found grass in fuel  
filters

Sept 28 8:00 am - 7:30 pm  
Drilled from 380' - 420' rock formation very hard from 360' - 515'  
drilling rate in the 420' area  $4\frac{1}{2}$  hr per 20'

JO:

Date:

Phone:

Freese Well Drilling Inc.  
10301 Feather Ridge Road  
Toddville, Iowa 52341  
(319) 393-7267



---

Sept 29 8:30 am - 5:00 pm  
Drilled from 420' - 460'

Oct 2 10:00 am - 7:00 pm  
Drilled from 460' - 500' (very hard)

Oct 3 10:30 am - 2:00 am  
Unloaded casing on site started drilling at 12:20 pm finished drilling to 525' by 5:35 pm. Pumped 30 bags of bentonite down hole pulled out of hole, found top of stabilizer broke off. Ran down taper tape & screwed in to stabilizer. Pulled up off bottom 420' came loose & dropped. Screwed back in stabilizer & could not move off of bottom. Left taper tape in got 2 hrs sleep

Oct 4 at shop 7:00 am - 2:00 pm  
Started circulation at 11:30 am could not move off bottom, lift front wheels of drill rig off ground, Rig pulling 70,000 lbs.

Oct 5 Rain

Oct 6 10:00 am - 6:30 pm  
Moved drill rig, capped old well

Oct 7 10:00 am - 2:20 pm  
Started drilling 13" hole, drilled to 145'

Oct 9 10:00 - 9:30  
drilled from 145' - 250' in depth

Oct 10 10:00 am - 6:30 pm  
Serviced equipment started drilling at 11:00 am  
Drilled to 285' with 13" bit, very hard

Oct 11 9:00 am - 7:00  
Changed back to hole opener on end of stabilizer to enter hole. Went back to 8" hole, Drilled to 330'

Oct 12 9:00 am - 4:00  
Drilled to 385'

Oct 13 9:00am - 6:00  
Drilled from 385' - 435'

Job:

Date:

Phone:

Freese Well Drilling Inc.  
10301 Feather Ridge Road  
Toddville, Iowa 52341  
(319) 393-7267



---

Oct 16 9:00 am - 3:00  
Drilled from 435' - 455' Windy weather & rain

Oct 17 9:00 am - 5:00 pm  
Drilled from 455' to 490 pulled out of hole, bearings out of new 8" bit

Oct 18 9:30 am - 5:00 pm  
Serviced drill rig & changed bits, Drilled from 455 to 510 bit ran smooth pulled out, bearings going out changed to another new bit

Oct 19 8:00 am - 9:30 pm  
Finished pilot hole to 527' pulled out & drilled with 13" hole to 350'

Oct 20 8:00 am - 9:00 pm  
Drilled from 350 - 420' fuel filters plugged on drill rig 45 min delay

Oct 21 7:30 am - 12:00 pm  
Drilled from 420' - 433' Transmission broke (new) 4 hrs. ago pulled out of rig went to shop

Oct 22 7:00 am - 7:00 pm  
Worked on drill rig & back up mud pump

Oct 23 8:00 am  
ordered transmission through Sweet water in Ind.  
(next day air)

Oct 24 Transmission arrived at 10:00 am - 6:00 pm assembled to turn table

Oct 25 8:30 am - 9:30 pm  
Drilled from 433' - 505'

Oct 26 8:00 am - 10:00 pm  
Moved back up mud pump, drilled to 527' approx 1:45 pm  
Eng. Jim Kimmer order not to case open hole until we ran rock samples to Ia Geological for examination of samples.

Job:

Date:

Phone:

Freese Well Drilling Inc.  
10301 Feather Ridge Road  
Toddville, Iowa 52341  
(319) 393-7267



- 
- Oct 26 Tried to reach Don Garden by phone at 2:30 (not in).  
Rick Funler reached Mr Garden by 3:00 and discussed  
formation with Mr Gordne felt may need to run another  
15' or to next hard formation. Only because of soft  
formation, Drilled to 537'.  
Was ready to set casing at 1:45 pm. Had to thin drilling  
mud, drill & thicken drilling back up, 14 hrs delay.  
Wasted 45 bags of bentonite at \$5.75 per bag.  
Broke double roller chain no 80 on draw worke. Repaired  
in 1½ hr.
- Oct 27 8:00-9:30  
Ran drill rods back to bottom & flushed out hole. Cleaned  
mud tub & thickened drilling mud back up, used 35 bags  
more. Started setting 8" casing at 12:00 pm finished at 9:00 pm. .  
Placed trico float shoe on bottom of casing, centraliser  
every 75', 2 welding passes.
- Oct 28 8:30am - 2:00 pm  
Cut off & ran drill rods with stinger on the end, inserted  
float shoe.  
Got circulation going at 10:30 am, 10:50 am started pumping  
cement grout. 22 bags of portland cement per yd with 6 gals of  
water per bag. 1½ bags of bentonite per 6 ¾ yds.  
Finished pumping grout by 11:20 am. Total 13½ yds.

GSB SAMPLE TRACKING FORM

WNUMBER 30520 DATE RECEIVED 11-07-1989 BIN LOCATION  
 RESTRICTED F LID LIFT (DATE CONFIDENTIALITY ENDS)  
 SITE NAME VAN HORNE, CITY OF  
 OTHER IDENTIFICATION #2  
 PROJECT OR FIELD  
 OPERATOR , VEENSTRA & KIM INC.  
 DRILL NUMBER 278 DRILL METHOD A  
 DRILLER FREESE WELL CO DRILL DATE 11-01-1989  
 LOCATION BY WATER TOWER  
 TOWNSHIP NUMBER 83 NORTH (POLITICAL TOWNSHIP \_\_\_\_\_)  
 RANGE EAST OR WEST 11 W SECTION NUMBER 11  
 QUARTER SECTIONS DDGE<sup>AC</sup> SECTION BREAKDOWN  
 STATE AND COUNTY 19 6 (\_\_\_\_\_, \_\_\_\_\_)  
 TOTAL DEPTH 725 (FEET BELOW SURFACE) TYPE OF EXPOSURE A (CODE)  
 WELL TYPE B (CODES)  
 BEDROCK DEPTH 230 (FEET BELOW SURFACE)  
 TYPE OF DATA G (CODES)  
 STRATIGRAPHIC DATA (CODE) SAMPLE GAP T T/F  
 GAPS 535-537'  
 SAMPLE TOP 0 (FEET) SAMPLE BOTTOM 725 (FEET)  
 WASH TOP 225 (FEET) WASH BOTTOM 725 (FEET)  
 NUMBER OF SAMPLES 145 (BAGS OR SPECIMENS)  
 NUMBER OF BOXES 2 (CORE OR SPECIMENS)  
 TYPES OF GEOPHYSICAL LOGS AVAILABLE

## GSB SAMPLE TRACKING FORM

PAGE 2

WNUMBER 30520

DUP SAV F

DUP LOC

CASING T PROD F CAS. DEPTH 537 PL 0

WATER T WATER ANAL F SWL 260

CASING 8" .322 CSG 0-537', GROUTED IN 13" HOLE

PROD

WATER SWL 260'

ELEV 945

ELEV ACC 3

YIELD 0 GPM

LATITUDE 420027 LONGITUDE 920521

LL ACC A

QUAD LOC M38

CUT STORE OD2-519 &amp; 520

CUT DATE 11-01-1989

CORE STORE

STRIPLOG BY MJB

STRIPLOG DATE 11-09-1989

REF\_ANAL

QUESTION F

REMARKS

QUESTIONS (MEMO FIELD)

14381

LAST ENTRY DATE:

11/22/89



WELL# 30520

P(2) 1 BOT(2) 6 BR TOP(12) 5 1 2 1 0 BR BOT(12) 6 0 0 0 0 ACC(5) 1

ER 83 RANGE E/W 11 / W SECTION 11 QTRS D D C B

TO BR 230 LOG TYPES (6) C EXPOSURE TYPE (7) A

RFACE LITH (8) I BASEMENT LITH (9) \_\_\_\_\_

ON VALUE-SYSTEM (10-2) \_\_\_\_\_ DRLR# (11) 278

[illegible]

12/07/89 - SL PF rec'd from RH

12/21/89 - Checkod, received PF

- QUESTIONS: BRTOP - BRBOT - SURFLIT+  
- GEOSTRAT.DBF record entry  
- Audited (Geodei. doc)

- QUESTIONS: Same as 12/21/89 above

01/05/90 - SL PF to Dick as requested Today

05/03/90 - DECF from Ray again ...

05/24/90 - enter WUNO30520, run CSBCHHEIC, clicking PENCON code results = VERIFIED WUNO30520

07/05/90 - Verified AIC merged to GVERP0524.DTH

12-07-89 SL + PF recd from RA

12-21-89 coding checked, recopied, highlighted for questions/return to RA, dbfrec entered

12-27-89 audited (GEODE.DOC)

01-05-90 SL + PF to Dick

D T  
05/24/90 15:02:25  
\*SLIST GSBCEK.LOG  
Concurrent Computer Corp 05/32 COPY32 03-215 R08-02.3

Input sequence number of first and last well you want to verify.

Enter Well Count of first well:

1

Enter Well Count of last well:

1

WELL COUNT: 1 BEGINNING AT IN LINE 1

\*\*\*COUNTY: 6 WELL: T 83R 11W 11 DDCB W-30520

ERROR SUMMARY:

INVALID CONTACT ACCURACY CODE ON CARD NUMBER 16

RECORD WITH ERRORS:

1 642002792052115616

251210600000 945 725

32108311W11DDCB30520

42306 AD 278

5 1000 DJ 11 0 230

551210 XQ A1 230 267

552111 N 11 267 295

552110 NQ211 295 424

552121 N 11 424 450

552122 NQ 11 450 484

552123 Q 11 484 502

552124 Q 11 502 535

552130 QN 11 535 552

561120 Q2X11 552 630

560000 Q2X11 630 712

571110 QX 62 712 725

change 2 to 7 to verify

WELLS READ COUNT: 1

PAT -END OF TASK CODE= 0 PROCESSOR=1.179 TSK-ELAPSED=10

\*

[illegible]

# WELL DETAIL RECORD (12/27/59)

County Number 6 Well Number 30520

Stratigraphy	Lithology (primary, secondary, minor)	Penetration Code	Contact Accuracy	Depth to Top	Depth to Bottom
SSGFM					

\*\*\* PARTIAL SCREEN DISPLAY OF DETAIL RECORDS \*\*\*

71110	QX	6	2	712	725
0				0	0

30520

06 BENTON

## WELL HEADER RECORD

1695

County Number 6 Well Number 30520  
Latitude 420027 Longitude 920521 Accuracy 2  
Sequence# 1 BR Top 5 Hole Bottom 7  
BR Strat 51210 Bottom Strat 71110 Strat Code 1  
Altitude 945 Accuracy Well Depth 725  
Location: Tier 83 Range 11 E/W W Section 11 Quarter DDCB  
Depth to Bedrock 230 Data available G Types of Exposures A  
Surficial Lith D Basement Lith  
Economic properties Driller# 278

12/21/89 ENTRY

## WELL DETAIL RECORD (12/27/59)

County Number 6 Well Number 30520

Stratigraphy	Lithology (primary, secondary, minor)	Penetration Code	Contact Accuracy	Depth to Top	Depth to Bottom
SSGFM					
1000	DJ	1	1	0	230
51210	XQ	A	1	230	267
52111	N	1	1	267	295
52110	NQ2	1	1	295	424
52121	N	1	1	424	450
52122	NQ	1	1	450	484
52123	Q	1	1	484	502
52124	Q	1	1	502	535
52130	QN	1	1	535	552
61120	Q2X	1	1	552	630
60000	Q2X	1	1	630	712

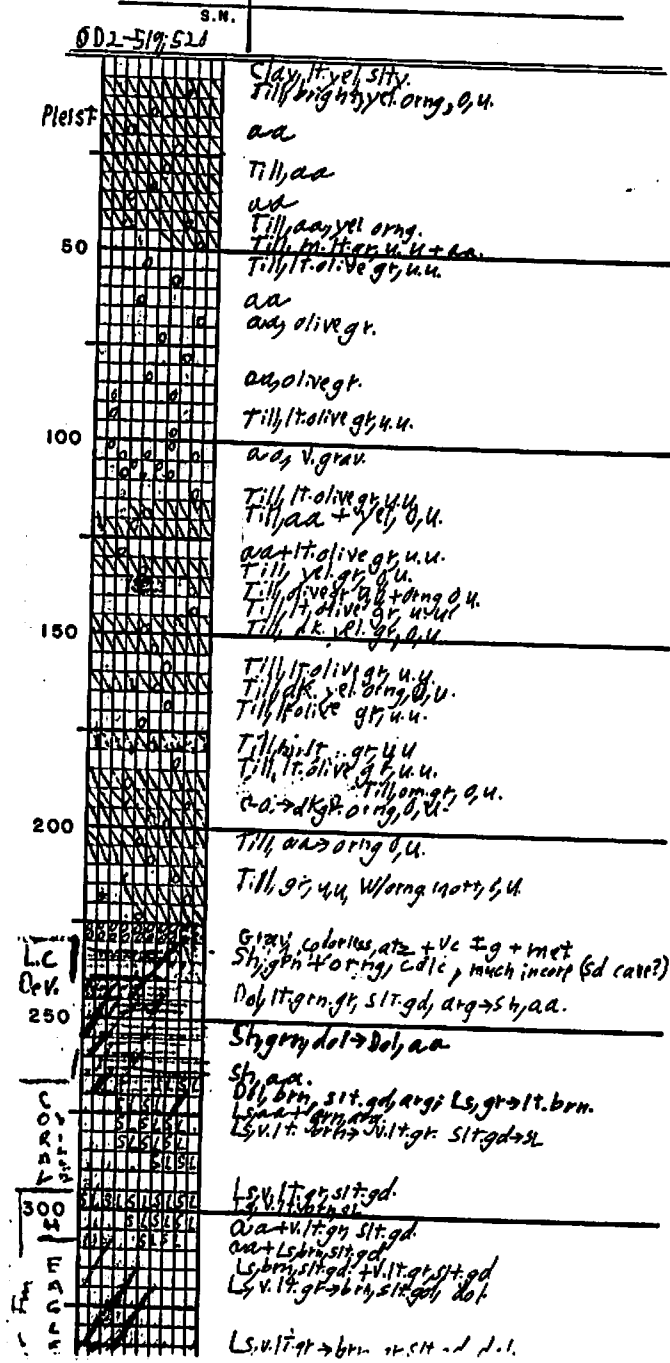
\*\*\* Detail records exceed screen. Hit return to continue

12/27/89 AUDIT - ☒ CHECK BR TOP  
BR BOT  
SURF LITH



W-30520

STATE Iowa	TOWN Van Hone	W-30520	COUNTY (Benton)
SE. SW. 1/4	OWNER City of Van Hone #2		
SEC. 11			
TWP. 12N	RGE. 12W	COMMENCED Aug. 7, 1989	COMPLETED Oct. 31, 1989
		DRILLER Freese Well Co.	
		CASING RECORD 537' of 8" csg. 0'-537'	
		LOGGED Nov. 9, 1989	BY M.T. Bounk
		SWL 260 PL _____ @ 10-20 GPM	
EI. ~ 745'	MAIN WATER 541'-556'		
T.D. 725	REMARKS		
S.N. 002-519520			





[illegible]



# 3 0 5 2 0

**VEENSTRA & KIMM, INC.**

CONSULTANT GROUP

515-225-8000

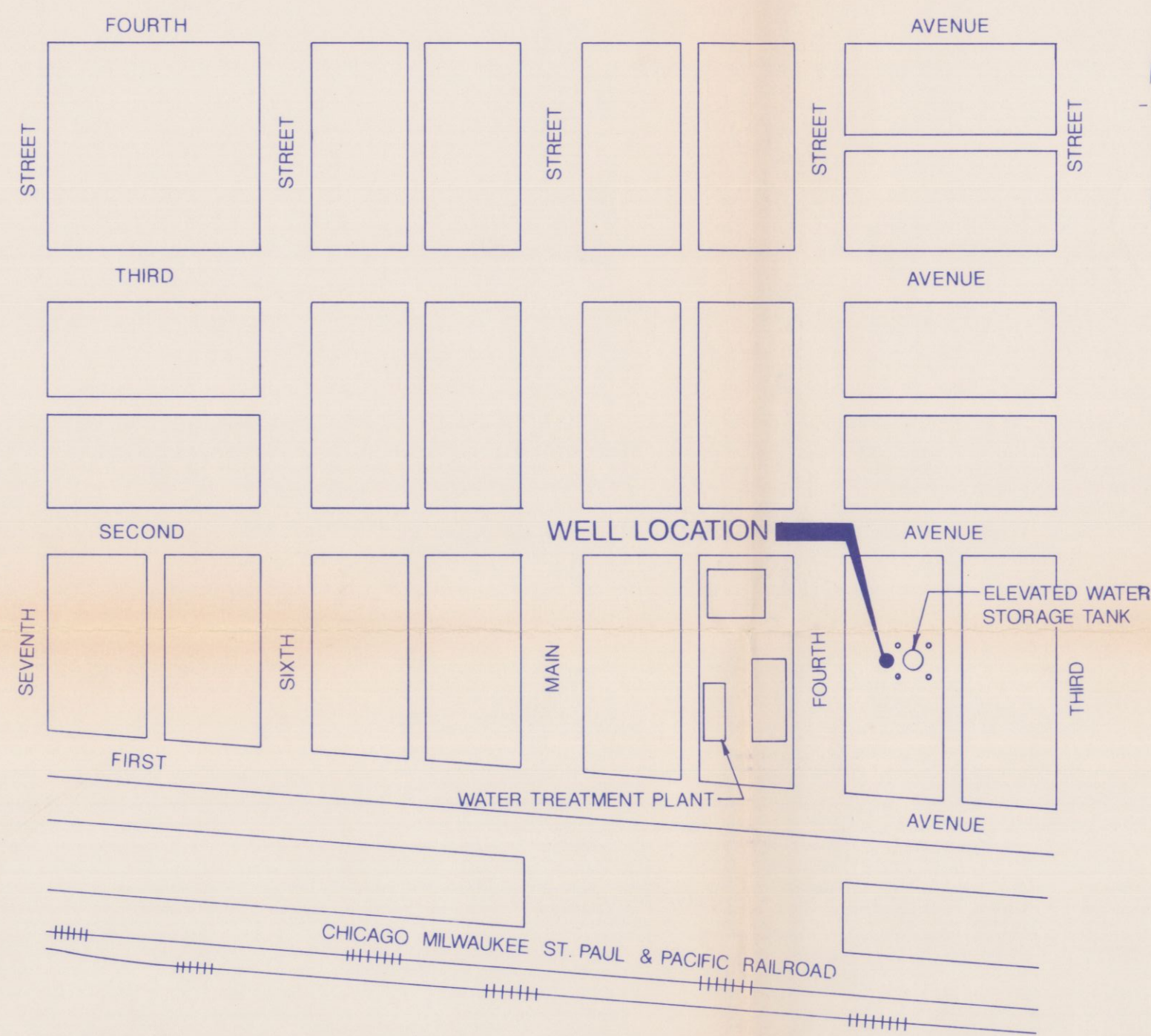
800-241-8000 (Iowa Wats)

**TAL LIEPA**

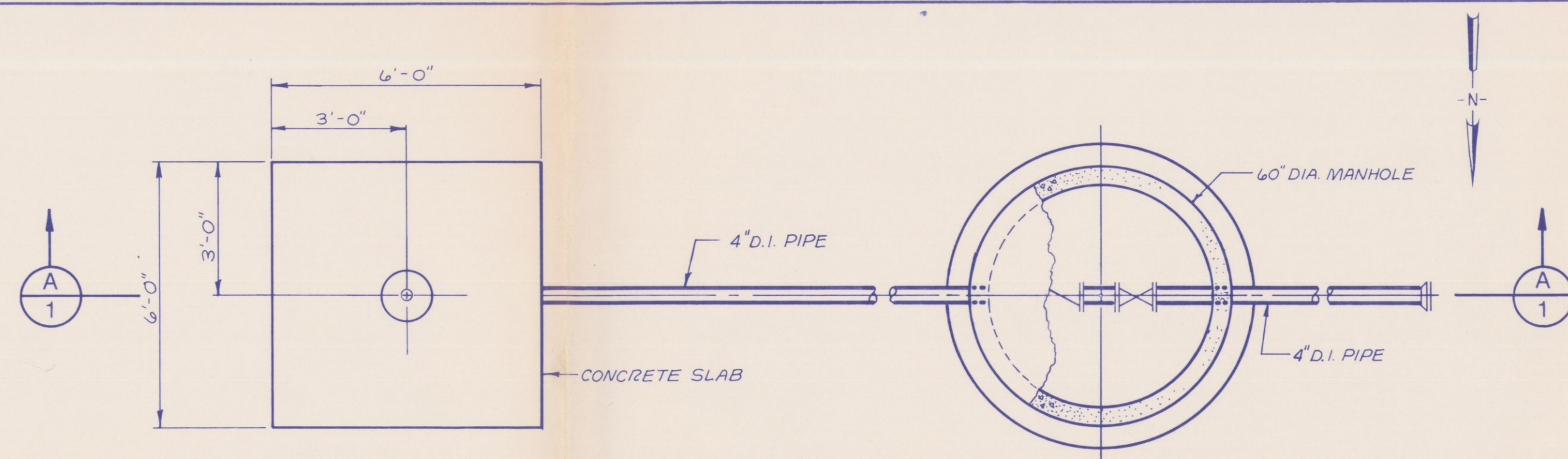
300 West Bank • 1601 Twenty-Second Street

West Des Moines, Iowa 50265-1488

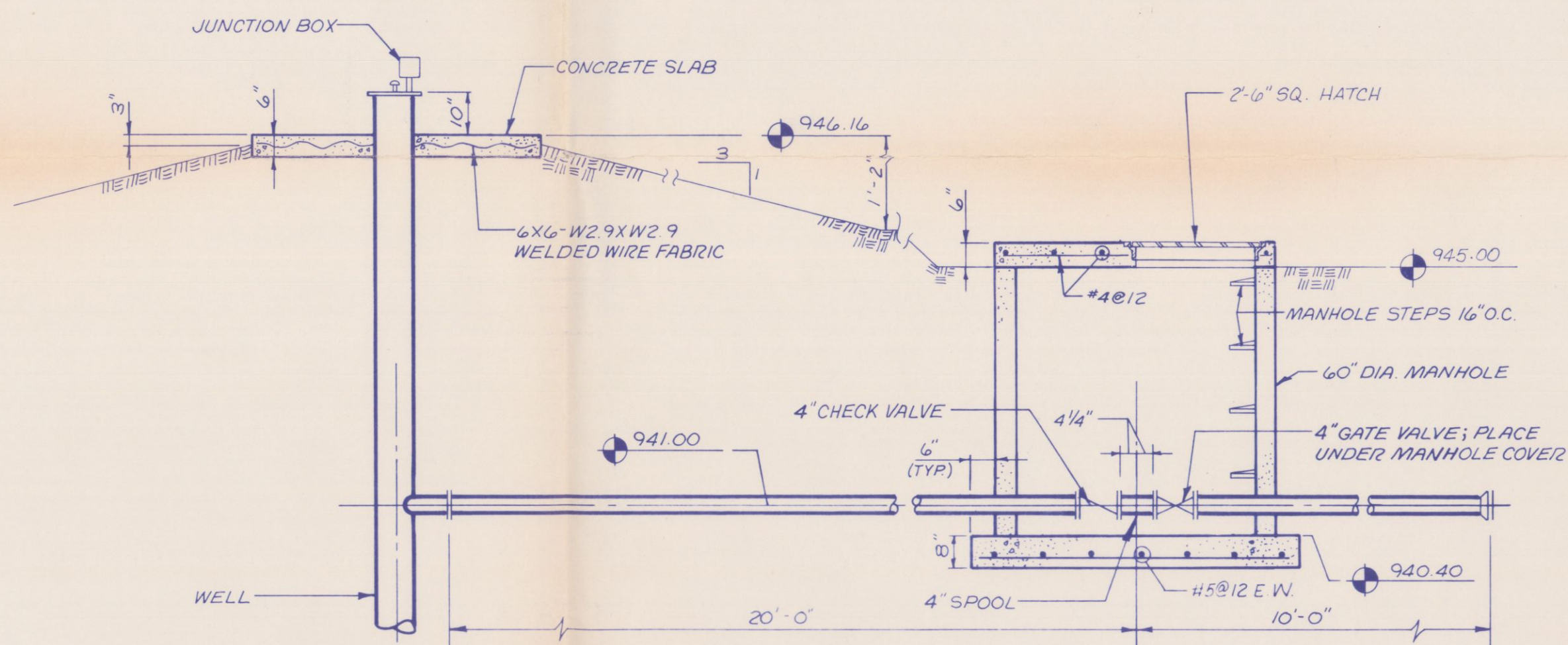




VICINITY MAP  
SCALE: 1" = 200'



PLAN

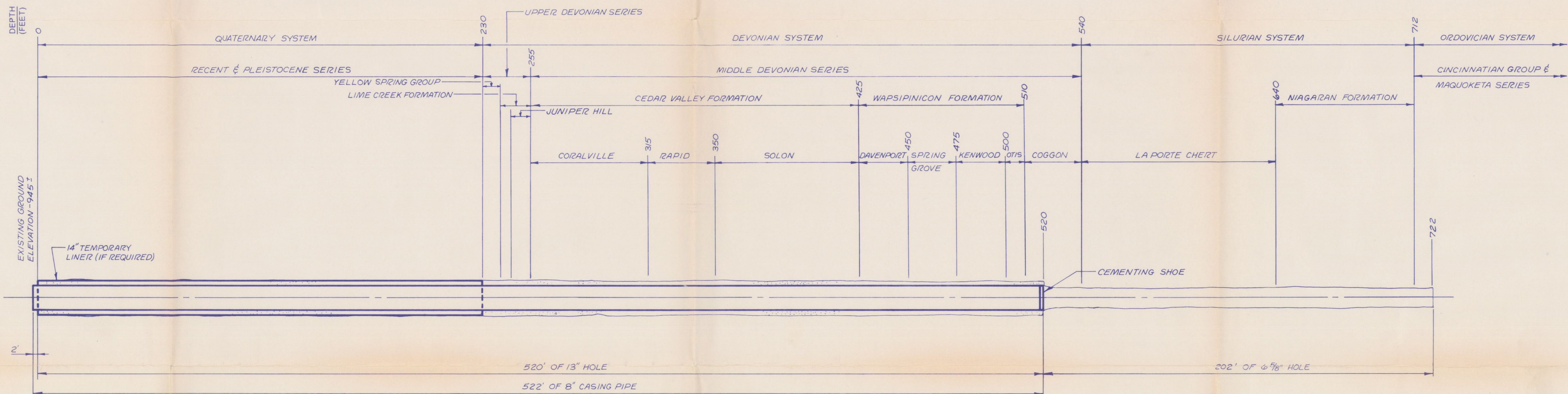


SECTION A

WELL AND VALVE MANHOLE DETAIL  
SCALE: 3/8" = 1'-0"

GENERAL LEGEND

- NEW PIPE
- GATE VALVE
- CHECK VALVE
- ELEVATION MARKER
- D.I.A. DIAMETER
- (TYP) TYPICAL
- D.I. DUCTILE IRON
- EARTH SECTION



WELL LOG

I hereby certify that these plans and specifications were prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa

Signed: *J.W. Kimm* Date: MARCH 27, 1989  
J.W. Kimm, P.E., Iowa Reg. No. 2989

#30520

SCALE	AS NOTED	REVISION		
DRAWN	TPM	NO.	APP.	DATE
CHECKED	JPB			
APPROVED	<i>J.W. Kimm</i>			
DATE	MARCH 27, 1989			
A. C.				
DWG. NO.				
1				
PROJECT 2285				

**V&K**  
VEENSTRA & KIMM, INC.  
ENGINEERS & PLANNERS  
300 WEST BANK BUILDING  
WEST DES MOINES, IOWA 50265  
1601 22ND STREET  
DES MOINES, IOWA 50319

VAN HORNE, IOWA  
WELL LOG AND DETAILS



**DRILLER'S NOTEBOOK**

# 30520

**WELL RECORD**

Driller Frese Well Drilling

Address Toddville IA

Owner Van Horn

Address \_\_\_\_\_

**RETURN TO**

**Iowa Department of Natural Resources  
GEOLOGICAL SURVEY BUREAU**

123 North Capitol Street  
IOWA CITY, IOWA 52240

(319) 335-1575

**WHEN RECORD IS COMPLETED PUT IN ENVELOPE AND MAIL TO**

**THE DIRECTOR**

**Iowa Department of Natural Resources  
GEOLOGICAL SURVEY BUREAU**  
123 North Capitol Street  
IOWA CITY, IOWA 52240  
(319) 335-1575

**IOWA**

## DRILLER'S NOTE

It is important that a driller's notebook, filled out as completely as possible, be sent to the Iowa Geological Survey at the completion of each hole. A number of drillers have found it convenient to string samples from a single well on a heavy wire and attach the log book to them. A hole has been punched in the log book for this purpose.

Sample sacks and log books will be furnished by the Geological Survey. A copy of the log book will be made and returned if desired by the driller.

## SUGGESTIONS TO DRILLERS

1. Samples should be taken from each bed passed through, and never more than 5 feet apart, even in the same bed.

2. Samples should not be washed, except to remove excess drilling mud, as washed samples may give a wrong idea of the character of the bed.

3. Fill out the label on each sample bag with the name of the well and the depth interval which the sample represents.

4. Make frequent use of the "Description" column to explain the material being drilled.

5. Note depth and thickness of all water-bearing layers.

6. Note the quality of the water from each layer: as hard, soft, salty, alkaline, or sulphur bearing.

7. Note height to which water from each layer rises in well, and give flow or capacity in gallons per minute.

8. Fossils, such as oyster, clam, and other shells, are important and should be placed in bags with the material with which they are found and carefully labeled as to the depth from which they were obtained.

9. If you do not understand what is wanted, or desire information on any point, write to the Iowa Geological Survey, Iowa City, Iowa.

10. Samples may be boxed and sent to IOWA GEOLOGICAL SURVEY, IOWA CITY, IOWA, EXPRESS COLLECT.

The Iowa Geological Survey desires to assist and cooperate with owners and drillers in every way possible, and will be glad to answer questions and assist in the solution of problems at any time.

## WELL RECORD

Well is located \_\_\_\_\_ miles S and \_\_\_\_\_ miles S from  
N E  
E E  
W W

\_\_\_\_\_ in \_\_\_\_\_  
(Nearest Town) (County)

in the \_\_\_\_\_  $\frac{1}{4}$  \_\_\_\_\_  $\frac{1}{4}$  Sec. \_\_\_\_\_ T. \_\_\_\_\_ R. \_\_\_\_\_

Owner Van Horn Well No. 2

Postoffice address \_\_\_\_\_

Contractor Greiner Well Service

Address Toddville IA

Driller Freese Well Drilling

Well begun Aug 7, 1989

completed Oct 31, 1989

Rig used—Cable, Rotary, Jet, or Rotary

Depth of well 72.5'  
(Feet)

Size of hole (note total amount of each size) \_\_\_\_\_

(537 of 13") (188 of 8")

Main water supply at 541-556  
(Feet below surface)

Final water head 260  
(Feet above or below surface)

Is well pumped? \_\_\_\_\_

Yield 10-20 GPM  
(Gallons per minute)

Water level when pumping \_\_\_\_\_

Position of well \_\_\_\_\_  
(Upland, valley, side hill, etc.)

# 30520

### RECORD OF PERMANENT CASING

[illegible]

**NOTE: Water levels should be recorded at time of change AND at regular intervals; for example each morning before drilling starts or at the end of each 100 feet of drilling.**

Size Pipe	Amount of Pipe	Depth to Bottom of Pipe	Depth to Top of Pipe	Type° and Weight of Pipe	DIAGRAM OF WELL
8"	537	537		1322 w/hole	
					<p>Ground</p> <p>13" hole</p> <p>188'</p> <p>7 7/8" hole</p>

\*As cast, wrought iron, steel, concrete, etc.

Is screen used?----- Diameter-----  
(Inches)

Length\_\_\_\_\_ Depth to bottom\_\_\_\_\_  
(Feet)

Depth to top\_\_\_\_\_ Slot size\_\_\_\_\_

Are packers or seals used?\_\_\_\_\_

Kind

Where used\_\_\_\_\_

Kind of pump----- Dia.-----  
(Inches)Capacity of pump-----  
(g.p.m.)

Power used \_\_\_\_\_  
(Kind and amount)

Depth to bottom of pump line-----feet,

including \_\_\_\_\_ feet tailpiece.

Remarks on construction of well\_\_\_\_\_



# 30520

SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	0	5	
	5	8	
	8	55	
	55	85	
	85	102	
	102	105	
	105	108	
	108	115	
	115	123	
	123	125	2' area
	125	227	6" 10" boulders
	227	267	
	267	275	
	275	315	
	315	345	330-336
	<del>345</del>	<del>405</del>	
	345	405	

## DESCRIPTION OF BEDS

KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.

Black dirt to light colored clay

Green colored clay to red clay

red clay

gray clay

gray clay mixed with sand

gray clay sand &amp; gravel mix

Sand &amp; gravel clay mix

Gray clay

light olive green

Wood fibers light olive clay

olive Green Clay

Blue colored Shale

Ledar Valley formation soft.

White &amp; beige in color (Hard)

Rock formation softer, some fracture mix

with small areas of shale (330-336) <sup>area</sup>

Very hard 2 hrs per 20 (7 7/8 ft)

# 30520

SAMPLE NO.	DEPTH		THICKNESS
	From	To	
	405	450	
	450	460	
	460	505	
	505	537	
	537	540	
	540	556	
	556	560	
	585	595	
	610	615	
	630	635	
	635	640	
	640	645	
	645	650	
	650	675	
	675	680	
	690	695	
	715	718	
	718	725	

DESCRIPTION OF BEDS
KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
Very hard
<del>Soft</del> <sup>formation</sup> <del>drilling</del> Brown cutting <del>some</del> <sup>shale</sup> Brown
Very hard 2 1/2 hrs per 20'
soft area 1' per min
Hard
fractured chert & shale blue in color
Gray shale
White colored
White & Gray marble chert
Black & gray & white
Gray & white
Light gray
Light gray
Light gray white & Brown
<del>porous</del> <sup>porous</sup> looking rock light Gray
Black shale
Gray & white
Maquoketa Shale



FOR FIGURING, CASING TALLY, ETC.

450 - 460 bridges over

FOR FIGURING, CASING TALLY, ETC.