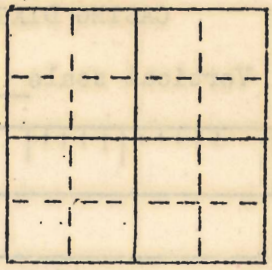
W-0742

IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: Sioux City (N E / S W): County Woodbury

NW-NW-SW-NW sec. 1 T 89 N., R. 48 W. E. Twp.

Well name and number Stone Park (St. Coons. Comm.)

Owner _____ Address _____

Tenant _____ Address _____

_____

Contractor Merkley Well Co. Address Sioux City

Drillers _____

Drilling dates 1938

Well data:

Elevations: Drilling curb 1204 feet; Land surface _____ feet

floor of pump house 1194.34'

_____

Determined by TWR

Topographic position in side of hill

Total depth: Reported 245 feet, Measured _____ feet

_____

Drilling method _____

Hole and casing data _____

_____

_____

_____

_____

Original depth to water 112 ft. ~~above~~ below curb Date _____

Original elevation of water level _____ ft.; Source of data _____

_____

Sources of water: Principal _____; Others _____

_____

Production data: Date

Static depth to water 112 Measuring point

Pumping level 112'8" at 40 g.p.m. in 8 hrs.

Specific capacity g.p.m. per ft. drawdown; Temperature 56 °F.

Pump data; Type pump Plunger Column Dia. Length

Cylinder or bowls: Dia. Length Suction pipe

Power 7½ h.p. Airline

Estimated rate of production: g.p.m. for hrs. a day

Use of water Public drinking

WATER ANALYSES (in parts per million)

Date samples	Oct. 10, 1938			
Sampled by	E. J. Marzec			
Total solids	507.			
Insoluble matter	196.5			
Alkalinity (Meo)	204.0			
Alkalinity (Phn)	0.0			
pH	7.0			
$Fe_2O_3 + Mn_2O_3 + Al_2O_3$	5.0			
Alkali as sodium	24.4			
Calcium	39.0			
Magnesium	22.5			
Iron (unfiltered)	0.3			
Manganese	trace			
Nitrate	0.32			
Fluoride	1.0			
Chloride	6.0			
Sulfate	35.6			
Bicarbonate	248.9			
Hardness (ppm)	191			
Hardness (gpg)	11.1			

Remarks

Laboratory data: Sample storage location

Sample range 0-245 No. spls. 53 No. dupls. & cond. 26 p-f

Spls. prepared by Washed range. by

Driller's log and cond.

Insoluble residues: Prepared by Studied by Strip log

Microscopic study strip log

Gen. log ✓ Correl. by

Sheet No. 1 Name of Well Stone Park Well, Sioux City Survey No. W-0742

Location Woodbury Co. NW¼ NW¼ SW¼ NW¼ Sec 1. T. 89N, R 48W C.E Date Drilled 1938 Analyst Schuldt 6/3/38 - 8/3/38

Shale, gray buff, oxodized, calc., micac., homogeneous, silty, no sd.

Shale, " " " " " " " , 1 gr. pebble

Shale, limonite yellow to gray, oxidized, non-calc, micac., Gray shale has fair shaly struct.

Shale " " " " " , " " , " .

shale, lt gray, slightly waxy, firm, non-calc, with partings of limonite yel. & 1 band well sorted, V. fine gr. ang. ss.

shale, lt. med. gray, firm, non-calc., micac., massive.

shale, " " " " " " " " .

s/s, to V. fine ss, highly micac., clay bound, light gray, non-calc., 1% pyrite concr.

Shale, lt. med. gray, non-calc. micac., massive, soft, with 3 lg. dol. pebbles, (2cm), abraded, extran.

shale, sim. to shale sple. 40-45', occas. small pebbles; 2% pyrite aggr.

Shale, " " " " " , with band of buff colored silt (strongly calc.)

s/s, lt. gray, V. fine, V. micac., massive, non-calc.

No sple

Shale, lt. med. gray, non calc., highly micac., silty massive.

No sple.

ss, lt. buff gray fine (M.G ¼-⅛, P.S. ½-¼ mm), ang, V. well sorted, 40 %; shale, gray, hard, dissem. pyrite & pyrite as concretions & agg. 50 %.

shale, drk. med. gray, firm, soft, non-calc.

No sple

ss, V. fine (M.G. ⅛-1/16, P.S ¼-⅛ mm), ang., V. well sorted, micac., 30 %

shale, med. gray, micac, non-calc. 70%; s/s pres.

shale, med. gray, micac., non-calc., with thin partings s/s to V. fine ss, highly micac.

Limestone, light gray, silty text., dol., hard; 5% pyrite as finely xline ang. frag.

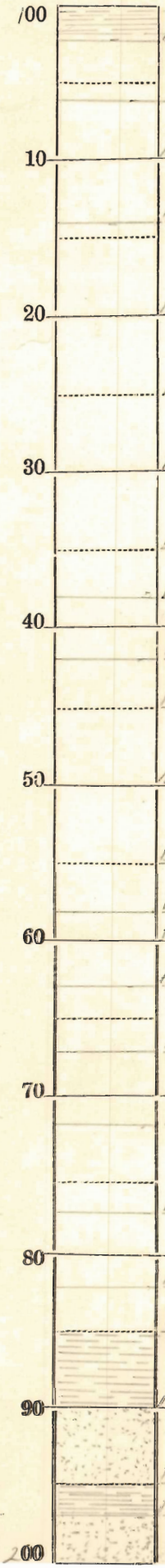
s/s, lt. buff gray, fine sdy, micac., non-calc, 93 %

shale, med. gray, non-calc, 7%

shale, med. gray, non-calc, soft, with thin seams & partings lt. gray s/s.

Sheet No. 2. Name of Well Stone Park Well #, Sioux Co. Survey No. W-0742

Location ..... Date Drilled ..... Analyst Schuldt



102' Shale, blk, soft, with minor % lt. gray micac. sh, (non-calc.) 1 round agg. fine xline pyrite.

106' Shale, lt. med. gray, non-calc., micac.; num. frag. carbonized org. matter

110' Shale " " " " " " " ; " " " " "

114'

Sls, lt. med. gray, coarse, non-calc., micac.,

120' Sls " " " fine, " " " .

125' Sls " " " fine to v. fine, non-calc., slightly micac.

130' Shale, lt. " " , non-calc., slightly waxy.

135' Shale, " " " , " " , " " .

138' Shale " " " , silty, hard, non-calc., micac.

142' Shale " " " " " " " , " .

145' Shale, " " " , non-calc., slightly waxy,

150' Shale " " " " " " " .

155' Shale, lt. gray, with bands of red, occas. siderite (?) concr., non-calc.

158'

160' Shale " " " " " " " " " " " " " .

163' Shale, " " , 50% made up of siderite (?) concretions.

Shale " " " " " " " " " " " ,

167' Shale, lt. gray, silty, non-calc., micac.

172' Shale, lt. gray, silty, non-calc., slightly micac., 20% sid. (?) concr.

177' Shale " " " " " " " " occas. " " " (Poss core)

182

185' Shale, lt med. gray, non-calc., slightly waxy

190' Shale, lt. med. gray, " " " " becoming silty toward base

SS, lt. gray, med. gr. (M.G. ½-¼ mm, P.S. 1-½ mm), ang, well sorted, cont. 20 % pyrite as matrix & 15 % siderite concr. (?)

195' Shale, lt. med. gray, non-calc., dense, structureless.

197' SS, lt. gray, med. gr. (M.G. ½-¼, P.S. ¼-¼), ang., V. Well sorted, 2 % concr.; <1% pyrite; 4 % shale, gray, ss slightly clay coated

Sheet No. 3 Name of Well Stone Park Well Sioux City Survey No. W-0742

Location .... Date Drilled .... Analyst Schuldt

200

205

SS, lt. gray, sim to sple 197-205',

10 — 210

SS, V. pale buff, sim. to sple 197-205 but sorting less perfect q sple. Clean
2% concr. ; <1% pyrite

215

SS, V. pale buff, sim. to sple 210-215'

20 — 220

SS, " " " , fine gr. (MG ¼-½, P.S. ⅛-¼); ang., good sorting slightly micac, slightly clayey
ss av. 45% med q 55% fine approx.

225

SS " " " , "sim" " sple " 220-225 " "; slightly clayey; slightly micac.

30 — 230

SS, " " " " " " " "; clean.

235

SS, " " " " " " " " slightly Clayey ; <1% pyrite ;
<1% concr.

40 — 240

SS " " " " " " " " Clean ; <1% pyrite;
slightly micac.

245

50

60

11 25/
765/0
/6

70

IOWA GEOLOGICAL SURVEY
Well or Water Sample Data Bottle No. _____

TOWN: SIOUX CITY COUNTY: WOODBURY

LOCATION: S.W. ¼ of N.W. ¼ Sec. 1 T. 89 N., R. 48 E. W. Sioux City Twp.

OWNER OF WELL: IOWA CONSERVATION COMMISSION Well No. _____

USE OF WATER: City Supply ( ); Private-Domestic ( ); Public Drinking (x); Livestock ( ); Industrial ( ); School Supply ( ); Air Conditioning ( ); Cooling ( ); _____ ( ).

CONSTRUCTION OF WELL: Drilled (x); Gravel-Pack type ( ); Driven ( ); Dug ( ); Bored ( ); _____ ( ).

CONTRACTOR: _____ DATE DRILLED: 1938

CASING OR CURBING DATA: (Show by diagram on opposite side of sheet the kind, length and depth of top and bottom of each size of pipe, the amount of overlaps, position of seals or packers, pipe perforation and screens, etc.)

WELL DATA:

Curb Elevation _____ Ft. Present Depth 243 Ft. Final Depth _____ Ft.

Topographic Position of Well: In side of hill

Static Level (Depth to Water (~~Above~~) (Below) Curb) 112 Ft. Pumping Level 112'8" Ft.

Amount of Drawdown 2/3 Ft. pumping at 40 g.p.m. in 8 hours _____ minutes.

Calculated gals. per ft. drawdown _____ g.p.m.

Capacity of Well _____ g.p.m. at _____ ft. drawdown.

Type of Pump Plunger. Power 7½ H.P. Elec.

Depth of Bottom of Pump _____ ft. with _____ ft. of suction pipe.

TEMPERATURE: Air 65 °F.; Water 56 °F., measured after well had pumped 1 hrs. 30 mins. at 40 g.p.m.; 8 ft. from pump after water had passed through the following pipe 8' of 4 inch pipe Time 11:30 (A.M.) (~~P.M.~~)

SOURCE OF WATER: Recent (Type and Depth) _____

Glacial Formations (Type) _____ at _____ ft. to _____ ft.

Limestone or Dolomite (Age) _____ at _____ ft. to _____ ft.

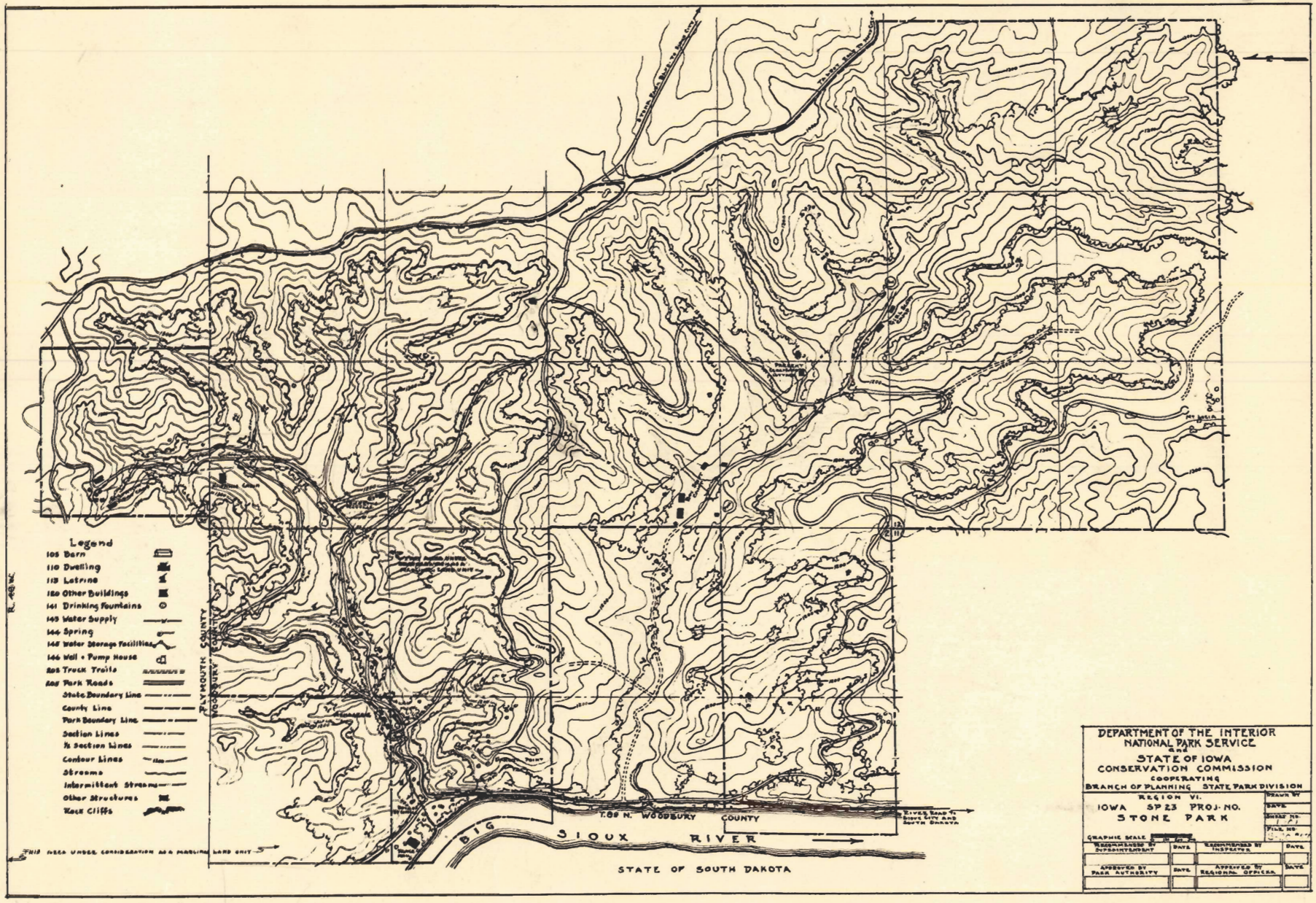
Sandstone (Age) _____ at _____ ft. to _____ ft.

Principal Producing Formation _____

REMARKS: _____

Sample taken for: Mineral Analysis ( ); Sanitary Analysis ( ).
Data Collected by E.J. MARZEC ; Date June 27, 1938.
Report Analysis to H. G. Hershey, Iowa Geological Survey, Iowa City.

Woodbury Co.


Legend
105 Barn
110 Dwelling
113 Latrine
120 Other Buildings
141 Drinking Fountains
143 Water Supply
144 Spring
145 Water Storage Facilities
146 Well + Pump House
205 Truck Trails
206 Park Roads
State Boundary Line
County Line
Park Boundary Line
Section Lines
¼ Section Lines
Contour Lines
Streams
Intermittent Streams
Other Structures
Rock Cliffs
PLYMOUTH COUNTY
WOODBURY COUNTY
R. 48 W.
T. 88 N.
WOODBURY COUNTY
DIG
SIOUX
RIVER
STATE OF SOUTH DAKOTA
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
and
STATE OF IOWA
CONSERVATION COMMISSION
COOPERATING
BRANCH OF PLANNING STATE PARK DIVISION
REGION VI.
IOWA SP 23 PROJ. NO.
STONE PARK
GRAPHIC SCALE
RECOMMENDED BY SUPERINTENDENT
DATE
RECOMMENDED BY INSPECTOR
DATE
APPROVED BY PARK AUTHORITY
DATE
APPROVED BY REGIONAL OFFICER
DATE
DRAWN BY
DATE
SHEET NO.
1 of 1
FILE NO.

IOWA GEOLOGICAL SURVEY
Well Log Record

No. W-0742

County: Woodbury

Name of Well: Stone Park (St. Cons. Comm.) Town: Sioux City

Location: NW NW SW NW Sec. 1 T. 89 N., R. 48 ~~E.~~ W. Twp.

Curb Elevation: 1194 (New Pump house floor) Crib = 1204' Ft. Present Depth ____ Ft. Final Depth 245 Ft.

Static Level: (Depth to Water (Above) (Below) Curb) ____ Ft. Pumping Level ____ Ft.

Contractor: Mel Merkley (Later H. Rasmussen) Date Drilled: 1938

Description*	FEET Thick	From	To	Description*	FEET Thick	From	To
shale	34½	0	34½				
siltstone	5½	34½	40				
shale	14	40	54				
siltstone	9	54	63				
shale	22½	63	85½				
Limestone	4½	85½	90				
siltstone	7	90	97				
shale	17	97	114				
siltstone	16	114	130				
shale	60	130	190				
sandstone	5	190	195				
shale	2	195	197				
sandstone	48	197	245				

*Abbreviate descriptions; use one line for each formation.

Remarks on water zones and casing: ____

Temperature: Air ____ °F.; Water ____ °F., at ____ (A.M.) (P.M.) 193_

Record obtained from ____ Recorded by ____

IOWA GEOLOGICAL SURVEY
Generalized Log Based on Detailed
Description of Drill Cuttings

Stone Park Well
NW¼, NW¼, SW¼, NW¼, Sec. 1, T.89N, R48W.
Sioux City, Woodbury County

Curb elevation = 1204

	Thick	From	To
CRETACEOUS SYSTEM			
1. Shale, grayish yellow, calcareous, oxidized, micaceous, homogeneous.	10	0	10
2. Shale, yellowish gray, with partings of limonite yellow oxidized shale, non-calcareous, micaceous, with a thin band of well sorted, very fine grained angular sandstone between 20 and 25 ft.	15	10	25
3. Shale, light medium gray, non-calcareous, micaceous, soft.	10	25	34.5
4. Siltstone to very fine sandstone, light gray, highly micaceous, non-calcareous, 1% pyrite aggregates (subspherical).	5.5	34.5	40
5. Shale, light medium gray, non-calcareous, micaceous, soft.	14	40	54
6. Siltstone, light gray, very fine, very micaceous, non-calcareous, but with an oxidized, calcareous band at the top.	5.5	545	59.5
7. No sample.	3.5	59.5	63
8. Shale, light medium gray, non-calcareous, highly micaceous, silty.	2.5	63.5	65.5
9. No sample.	2.5	65.5	68
10. Shale, gray, hard, with 50% pyrite as concretions and in disseminated form. One thin band light buff gray, fine, angular sandstone.	.4	68	72
11. Shale, dark medium gray, firm, soft, non-calcareous.	2.5	72	74.5
12. No sample.	2.5	74.5	77
13. Shale, medium gray, non-calcareous, micaceous, with thin partings of siltstone to very fine sandstone, and a 1 ft. band very fine sandstone between 68--72 ft.	8	77	85

Stone Park well

		Thick	From	To
14.	No sample.	0.5	85	85.5
15.	Limestone, light gray, dolomitic, silty textured, with 5% pyrite.	4.5	85.5	90
16.	Siltstone, light buff-gray, fine sandy, micaceous, non-calcareous.	7	90	97
17.	Shale, medium gray, non-calcareous, soft, with thin seams and partings of light gray siltstone.	5	97	102
18.	Shale, black, soft, with occasionaly pyrite aggregates.	4	102	106
19.	Shale, light medium gray, non-calcareous micaceous.	8	106	114
20.	Siltstone, light medium gray, coarse at the top, very fine at the base, non-calcareous, micaceous.	16	114	130
21.	Shale, light medium gray, non-calcareous, slightly waxy.	8	130	138
22.	Shale, light medium gray, silty, hard, non-calcareous, micaceous.	7	138	145
23.	Shale, light medium gray, non-calcareous, slightly waxy.	10	145	155
24.	Shale, light gray with bands of red. Occasional siderite (?) concretions.	5	155	160
25.	Shale, light gray. Siderite concretions comprise 50% of the sample.	7	160	167
26.	Shale, light gray, silty, non-calcareous, micaceous, concretions numerous.	15	167	182
27.	No sample.	3	182	185
28.	Shale, light medium gray, non-calcareous, slightly waxy, becoming silty toward the base.	5	185	190
29.	Sandstone, light gray, medium grained, angular, well sorted, with 20% pyrite as cementing material.	5	190	195
30.	Shale, light medium gray, non-calcareous, dense, structureless.	2	195	197
31.	Sandstone, light gray, medium grained, angular, very well sorted, slightly clay coated, less than 1% pyrite.	13	197	210

Stone Park Well

		Thick	From	To
32.	Sandstone, very pale buff, medium grained, angular, sorting good but inferior to #31. Sample is free of clay or silt.	10	210	220
33.	Sandstone, very pale buff, fine grained, angular, good sorting, slightly micaceous, in parts slightly clay coated, and in parts clean. Less than 1% pyrite.	25	220	245

Folger
Hager (2)
Mehr (IGR)
Horton
Reed

IOWA GEOLOGICAL SURVEY
Generalized Log Based on Detailed
Description of Drill Cuttings

Stone Park Well
NW¼, NW¼, SW¼, NW¼, Sec. 1, T.89N, R48W.
Sioux City, Woodbury County

Curb elevation = 1204

	Thick	From	To
CRETACEOUS SYSTEM			
1. Shale, grayish yellow, calcareous, oxidized, micaceous, homogeneous.	10	0	10
2. Shale, yellowish gray, with partings of limonite yellow oxidized shale, non-calcareous, micaceous, with a thin band of well sorted, very fine grained angular sandstone between 20 and 25 ft.	15	10	25
3. Shale, light medium gray, non-calcareous, micaceous, soft.	10	25	34.5
4. Siltstone to very fine sandstone, light gray, highly micaceous, non-calcareous, 1% pyrite aggregates (subspherical).	5.5	34.5	40
5. Shale, light medium gray, non-calcareous, micaceous, soft.	14	40	54
6. Siltstone, light gray, very fine, very micaceous, non-calcareous, but with an oxidized, calcareous band at the top.	5.5	54	59.5
7. No sample.	3.5	59.5	63
8. Shale, light medium gray, non-calcareous, highly micaceous, silty.	2.5	63.5	65.5
9. No sample.	2.5	65.5	68
10. Shale, gray, hard, with 50% pyrite as concretions and in disseminated form. One thin band light buff gray, fine, angular sandstone.	4	68	72
11. Shale, dark medium gray, firm, soft, non-calcareous.	2.5	72	74.5
12. No sample.	2.5	74.5	77
13. Shale, medium gray, non-calcareous, micaceous, with thin partings of siltstone to very fine sandstone, and a 1 ft. band very fine sandstone between 68-72 ft.	8	77	85

	Thick	From	To
14. No sample.	0.5	85	85.5
15. Limestone, light gray, dolomitic, silty textured, with 5% pyrite.	4.5	85.5	90
16. Siltstone, light buff-gray, fine sandy, micaceous, non-calcareous.	7	90	97
17. Shale, medium gray, non-calcareous, soft, with thin seams and partings of light gray siltstone.	5	97	102
18. Shale, black, soft, with occasionaly pyrite aggregates.	4	102	106
19. Shale, light medium gray, non-calcareous micaceous.	8	106	114
20. Siltstone, light medium gray, coarse at the top, very fine at the base, non-calcareous, micaceous.	16	114	130
21. Shale, light medium gray, non-calcareous, slightly waxy.	8	130	138
22. Shale, light medium gray, silty, hard, non-calcareous, micaceous.	7	138	145
23. Shale, light medium gray, non-calcareous, slightly waxy.	10	145	155
24. Shale, light gray with bands of red. Occasional siderite (?) concretions.	5	155	160
25. Shale, light gray. Siderite concretions comprise 50% of the sample.	7	160	167
26. Shale, light gray, silty, non-calcareous, micaceous, concretions numerous.	15	167	182
27. No sample.	3	182	185
28. Shale, light medium gray, non-calcareous, slightly waxy, becoming silty toward the base.	5	185	190
29. Sandstone, light gray, medium grained, angular, well sorted, with 20% pyrite as cementing material.	5	190	195
30. Shale, light medium gray, non-calcareous, dense, structureless.	2	195	197
31. Sandstone, light gray, medium grained, angular, very well sorted, slightly clay coated, less than 1% pyrite.	13	197	210

	Thick	From	To
32. Sandstone, very pale buff, medium grained, angular, sorting good but inferior to #31. Sample is free of clay or silt.	10	210	220
33. Sandstone, very pale buff, fine grained, angular, good sorting, slightly micaceous, in parts slightly clay coated, and in parts clean. Less than 1% pyrite.	25	220	245

TREASURY DEPARTMENT
BUREAU OF
UNITED STATES PUBLIC HEALTH SERVICE
CO-OPERATING WITH
WOODBURY COUNTY HEALTH UNIT
SIOUX CITY, IOWA

W. S. PETTY, M. D. DIRECTOR

March 19, 1938

Dr. H.G. Hershey
Iowa Geological Survey
Iowa City, Iowa

Dear Doctor:

Thank you very much for the copy of the mineral analysis of the Stone Park well in the Boy Scout Camp.

At this time drilling operations have started on the new well at Stone Park. The drilling is being done by Mr. Merkley, brother to the Merkley who obtained the contract. His address is 911 Nebraska street in Sioux City. His box number is 871.

Drilling was started during the first week of the month. The location is by the stake you found on the ground by the power line pole. The first hole was discontinued at a depth of about 40 feet. A ledge of rock terminated about half-way in the hole and threw the drill off so the drilling was stopped.

On the 14th the new hole was down to 38 feet which was in some type of rock. In the first hole no rock was encountered until after the 40 foot mark, but in the second hole the rock was encountered at about 38 feet. The holes are very close together asdthe rig was moved only slightly.

Mr. Merkley was informed by his brother to take samples every five feet or oftner if the stratta changed. He is collecting samples.

No pumping tests have been run on the Sergeant Bluffs well as yet. The driller has had difficulty in driving the casing down so he has had to underream a great deal. The last time I was there the underreamer had caught and all of the smaller casing had to be pulled and redriven. At this time the casing had stuck again a few feet below where it was before.

The casing is down about 370 and the hole is down about 420 but as yet no extensive water bearing stratta has been encountered.

I will keep you informed as to any occurrences at the above two wells.

Very truly yours,
Edmund J. Marzec
EDMUND J. MARZEC

EJM/hm

TREASURY DEPARTMENT
BUREAU OF
UNITED STATES PUBLIC HEALTH SERVICE
CO-OPERATING WITH
WOODBURY COUNTY HEALTH UNIT
SIOUX CITY, IOWA

W. S. PETTY, M. D. DIRECTOR

March 30, 1938.

Dr. Hershey
Geological Building
Iowa City, Iowa.

Dear Doctor Hershey:

An inspection of the well being drilled at Sargeant Bluffs was made on the 29th. The 8 inch casing is down 198 feet. The 6 inch casing is down to 376 foot level. The six inch casing broke above the end of the 198 feet level. The six inch casing will be cut and sealed later on. The well is down to 450 foot level. Four inch casing will be used to the water bearing formation, and then the hole in this formation is to be reamed to six inches.

The 450 foot level is at a very dense grayish sandstone. The cuttings feel like cement with very fine sharp sand. It is expected that drilling will be stopped soon.

The well in Stone Park is practically complete at this time. The 8 inch casing is down 149 '8", and then there is 95'11" of six inch casing with the last length being perforated. The water stands 111 feet from the ground. The water bearing formation is a loosly banded sandstone which has large grains.

The well is to be pumped tomorrow so will collect a sample for mineral analysis.

Very truly yours
Edmund J. Marzec

EDMUND J. MARZEC
Sanitary Engineer.

HM

TREASURY DEPARTMENT
BUREAU OF
UNITED STATES PUBLIC HEALTH SERVICE
CO-OPERATING WITH
WOODBURY COUNTY HEALTH UNIT
SIOUX CITY, IOWA

W. S. PETTY, M. D. DIRECTOR

March 23, 1938

Dr. H.G. Hershey
Iowa Geological Survey
Geology Building
Iowa City, Iowa.

Dear Sir:

A routine inspection was made of the new well at Stone Park on the 21st of March. The hole was 185 feet deep at that time and the casing was down to a depth of 151 feet. To this depth only about 30 feet of rock was encountered. At present the drill was in a shale which was easy to drill thrcugh.

Respectfully,

E J Marzec

E.J. Marzec
Sanitary Engineer.

MQ

Under date of April 20, 1938.

"The well at Stone Park is still unfinished. Most of the six inch casing was relaced with eight inch. The well will not clear up at a pumpage of 30 gpm. No work was being done on the 19th at this well."

E.J. Marzec

See Sargeant Bluff folder for original

H.J.R. 5/27/38.

March 28, 1938

Mr. C. J. Merkley
Merkley Well Company
911 South Court Street
Sioux City, Iowa

Dear Mr. Merkley:

This will acknowledge and thank you for the samples which you submitted from your Stone Park well and your letter of March 25 requesting sample bags and driller's notebooks. The samples are being prepared for study and will be examined in the near future. A supply of one hundred sample bags and two driller's notebooks are being sent to you today.

It will be helpful if you will note any changes in water level and the depth of the hole when the changes occurred. I will also be interested in knowing what casing is in the hole and what plans you have for running casing as drilling progresses.

Your cooperation in this work is much appreciated and if I can be of service at any time, please do not hesitate to call on me.

Very truly yours,

H. G. Hershey

HGH:A

April 4, 1938

Mr. Edmund J. Marzec
Sanitary Engineer
Woodbury County Health Unit
Sioux City, Iowa

Dear Mr. Marzec:

Thank you very much for the information regarding the Stone Park well and the new city well at Sergeant Bluff. I am very sorry to hear that Mr. Rasmussen encountered difficulty in the Sergeant Bluff well and hope that by this time he has corrected it. I hope also that the pumping test on the Stone Park well was successfully completed.

Your cooperation in this work is greatly appreciated.

Very truly yours,

H. G. Hershey

HGH:A

RASMUSSEN BROS. WELL CO.

RUSSELL
~~PHONE~~
Shop ~~8-4181~~ 9412

~~3603 FOURTH AVENUE~~
SIOUX CITY, IOWA
4041 Monroe

HOWARD
~~PHONE~~
~~6-6219~~
9534

6/9/38

Mr. H. G. Hershey.
Iowa City,
Ia.

Dear Sir:

We are moving a machine on the Stone Park job today. Thot you might like to come up soon.

Yours very truly,

Howard Rasmussen

June 13, 1938

Mr. Howard Rasmussen
Rasmussen Brothers' Well Co.
4041 Monroe
Sioux City, Iowa

Dear Mr. Rasmussen:

Your letter of June 9 has been received in the absence of Dr. Hershey. It will be called to his attention upon his return to the office the last of this week.

Very truly yours,

Secretary

June 20, 1938

Mr. Howard Rasmussen
Rasmussen Brothers' Well Co.
4041 Monroe
Sioux City, Iowa

Dear Mr. Rasmussen:

Thank you very much for your letter of June 9 which was called to my attention immediately upon my return to the office. I am very glad to hear that you are working on the Stone Park well. Previous commitments in eastern Iowa will prevent my visiting Sioux City for several weeks, but I am very much interested in knowing what luck you have at Stone Park.

If you find it necessary to drill a new well, will you please save us a complete set of samples?

Yours very truly,

HGH:LM

H. G. Hershey

June 23, 1938

Mr. E. J. Marzec
Woodbury County Sanitary Engineer
Woodbury County Health Unit
Sioux City, Iowa

Dear Mr. Marzec:

Your telegram regarding the well at Stone Park reached Iowa City just before Mr. Fiala and I left on a field trip into northeastern Iowa. Previous commitments make it impossible for me to get to Sioux City before July 11. If the State Park well has not been completed by that time, I should like to know about it. If, on the other hand, the well has been completed, I will defer my trip to Sioux City until some later date.

I appreciate your interest and initiative in sending me the telegram, and I am very sorry that it was impossible for me to make the trip to Sioux City.

Enclosed are twenty-five water sample data sheets which you will probably find convenient when collecting water samples for mineral analysis.

Very truly yours,

HG :LM

H. G. Hershey

TREASURY DEPARTMENT
BUREAU OF
UNITED STATES PUBLIC HEALTH SERVICE
CO-OPERATING WITH
WOODBURY COUNTY HEALTH UNIT
SIOUX CITY, IOWA

W. S. PETTY, M. D. DIRECTOR

June 25, 1938.

Dr. H. G. Hershey.
103 Geology Bldg.
Iowa City, Iowa.

Dear Sir

The well at Stone Park is practically clear at this time. I have collected material for the data sheet and will send it in soon. I have collected water for a mineral analysis. As the water looks a little cloudy in a Nessler tube, I would like to know if it would be wise to wait until a pump is installed and the water become clear before submitting the sample. Please advise as will hold the sample.

Sincerely yours,
E. J. Morgan

June 27, 1938

Mr. E. J. Marzec
Woodbury County Sanitary Engineer
Woodbury County Health Unit
Sioux City, Iowa

Dear Mr. Marzec:

Your letter has been received in the absence of Dr. Hershey. It will be called to his attention as soon as he returns to the office the last of this week.

Yours very truly,

Secretary

WOODBURY COUNTY HEALTH UNIT

SIOUX CITY, IOWA

W. S. PETTY, M. D., DIRECTOR

June 28, 1938

Dr. H.G. Hershey
Iowa Geological Survey,
Iowa City, Iowa.

Dear Doctor Hershey:

I am following up my letter of the 25th with a more complete description of the work done at the Stone Park well. The eight inch casing is down to a depth of 182 feet. The six inch was down to a depth of 240 feet.

When Rasmussen came on the job it was necessary to drill out the clay in the six inch casing. This was a hard blue clay. The driller deepened the hole 3 feet to a total depth of 243 feet. The sandstone at this depth was father fine. A 6 inch bit would not fit in the 6 inch casing, indicating it was rather crooked. It was necessary to use a smaller tool.

In the process of drilling it was noticed that the tool was catching. The packer between the two casings was pounded down to the bottom of the hole. It was then found that the drill would hit the end of the six and then cathh on the end of the eight inch casing. This distance was about 8 inches. In other words the two casings did not overlap by eight inches.

A six inch pipe with a welded flange would be flush with the eight inch casing was made. This flange hung on the last eight inch coupling. The flanged section was churned but would not go down indicating the coupling was damaged. A 20 feet section of the six inch pipe was added so that the total overlap is 26 feet. This was placed on top of the six inch casing and is the seal for the two casings. The bottom end of the six inch casing was flared so that it would fit around the broken end of the six inch casing.

When this work was done it was necessary to redrill about 25 feet of clay out of the six inch casing. Pumping was started but due to faulty mothers was not continuous. An average of about 80 gallons per minute was maintained. On the 25th the water looked clear but was slightly murky when observed in a nessler tube. So much clay was pounded into the sandstone that it will take some time before it is completely gone.

The way this well acted after Rasmussen started to pump, I believe that Merkley had a good well but did not pump at a high enough rate to flush out the clay in the formation. After he lowered his eight he ruined the well until it was repaired.

EJM/hm
Copy to-- E.G.Fiala

Very truly yours
E.J. Marzec
E.J. MARZEC, Sanitary Engineer.

July 2, 1938

Mr. E. J. Marzec, Sanitary Engineer
Woodbury County Health Unit
Sioux City, Iowa

Dear Mr. Mzrzec:

Thank you for your letters of June 25 and 28 regarding the drilling and containing data on the well at Stone Park which were received when I returned from the field. The information is clearly stated and makes our record of the project complete.

The fact that your water sample was cloudy would not greatly affect the analysis, however, since it has now stood for some time, I would suggest collecting another sample after the pump has been installed and the water is clear.

I hope to visit Sioux City again as soon as possible but at the present time cannot set a definite date.

Thanking you again for your cooperation in this work, I am,

Sincerely yours,

HGH:LM

H. G. Hershey

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
STATE PARK DIVISION

Camp S.P. #23. Sioux City, Iowa.

December 31, 1935.

Subject - Log of Well at Stone Park,
Sioux City, Iowa.

Dr. A. C. Tester,
Assistant State Geologist,
Iowa City, Iowa.

Dear Sir:

The following is a copy of the log of the well near the Boy Scout Camp in Stone Park, as you requested, - the elevation of the surface of the ground being about 1160:-

To Sioux City Water Works

Log of Well at Stone Park

0' to 20'	Yellow clay
20' to 40'	Blue Clay
40' to 138'	White Clay
138' to 155'	White Clay and Sand Stone mixed
155' to 216'	Sand Stone (Did not get through Sand Stone)

46' 10"	10" Pipe - Old Pipe
156' 2"	8" Pipe - Comes to top of ground
60' 5"	6" Perforated Pipe
6' 3"	6" Blank pipe

152' to Top of 6" Perforated Pipe

We appreciated your visit very much, and it was a real pleasure to go over the Stone Park geology with you.

Very truly yours,

N. F. Guernsey,
Landscape Architect

January 4, 1936

Mr. N. F. Guernsey
Landscape Architect
Camp S.P. #23
Sioux City, Iowa

Dear Mr. Guernsey:

Thank you for the log of the well at Stone Park in Sioux City, as you promised at the time of my visit.

Do you have any information about the quantity of water produced? Was this well tested for capacity by actual pumping tests, water measurements, and drawdown?

I enjoyed my visit and hope to meet you again.

Yours very truly,

A. C. Tester

ACT:A

Check static level

13
15
1320
660
1500
2840

DEPARTMENT OF WATER WORKS AND PARKS

CITY OF SIOUX CITY, IOWA
PHIL CARLIN
SUPERINTENDENT OF WATER WORKS

Apr. 22. 1936

Mr. Newell F. Guernsey.

Dear Sir:

The following is the log of the stone park Well.

1160
50
1110

1160
138
1022

0' to 20' yellow Clay.
20' " 40' Blue Clay.
40' " 138' White Clay.
138' " 155' White Clay and Sand stone mixed
61' 155' " 216' sand Stone (Did not get through sand stone.)

46'10" of 10" pipe.
156'2" " 8" " comes to top of ground.
60'5" " 6" perforated pipe
6'3" " 6" Blank pipe.

152' to top of 6" perforated pipe.

The Water stood 37' from surface at the time this pump was set. The drawdown was 23', pumping 400 Gal. per Min. to the surface. Under a 188 ft head this pump delivered 190 G.P.M. to reservoir. Hoping this is the information you want

I remain
Very Truly Yours.
N. I. Nelson C.E.

Iowa State Conservation Commission

10TH AND MULBERRY

Des Moines, Iowa

October 26, 1937.

Iowa Geological Survey,
Geology Building,
Iowa City, Iowa.

Gentlemen:

We are planning on drilling a well at Stone Park near Sioux City in an attempt to secure an adequate water supply for the park. We desire to secure 25 or 30 gallons of water per minute.

The location which we picked is in the vicinity of the park lodge and at elevation approximately 1150 sea level datum.

We would appreciate receiving a report from you advising us of the feasibility of getting a suitable well at this park.

Very truly yours,

H. W. Groth

H. W. GROTH, Chief
Lands & Waters Division

HWG.F

October 27, 1937

Mr. H. W. Groth
Iowa State Conservation Commission
10th and Mulberry
Des Moines, Iowa

Dear Mr. Groth:

Your letter of October 26, just now received, asking us to supply information concerning the possibility of securing a satisfactory water supply at Stone Park near Sioux City is being referred to Dr. Hershey, who is now in direct charge of ground water service for the Iowa Geological Survey. Dr. Hershey is engaged in completing a project at Mason City just now but will return to the office within a day or two. As soon as possible after his return, he will either send you the needed information or advice, or will plan with you to visit the site of the proposed well and then make his recommendations.

I am confident that you will hear from Dr. Hershey at least before the end of this week.

With best personal regards, I am,

Cordially yours,

A. C. Trowbridge

ACT:A

November 18, 1937

Mr. H. W. Groth, Chief
Lands and Waters Division
Iowa State Conservation Commission
10th and Mulberry Streets
Des Moines, Iowa

Dear Mr. Groth:

Following is the information which you requested some time ago on water possibilities in Stone Park near Sioux City. On the maps received from Mr. Price showing the topography of the park, the proposed well site was plotted at an elevation of 1157.7. Starting at that elevation, I believe the desired twenty-five or thirty gallons of water per minute can be obtained from a properly constructed well to a depth of 200 feet, ending in one of the lower members of the Dakota sandstone.

At the proposed site the following materials may be expected in drilling:

Yellow clay, underlain by blue clay	0-40 feet
White to very light gray, soft shale or clay	40-155 feet
Material similar to above, with some sandstone interbedded . . .	155-170 feet
Sandstone, possibly with some shale beds	170-200 feet.

The above forecast is somewhat open to question, because our records for the vicinity are meager, and the exact thickness and character of the various units may vary slightly. I doubt, however, that a field investigation would bring new facts to light.

The static water level should be about 37 feet, and the drawdown pumping at 30 gallons per minute will be less than 10 feet in a well of normal diameter.

The hardness will be about 30 grains per U. S. gallon.

If desired, a production of much more than 30 gallons per minute can be obtained in this locality from a properly constructed well to approximately the same depth. In all probability, it will be necessary to case the well to the top of the sandstone, and perforated pipe may be necessary through the sandstone.

I hope that your specifications will contain a clause requiring the driller to record a log and to save a representative sample of each 5-foot interval of drilling, and that the log and samples will be sent to us. If you inform me when and to whom the contract has been let, I will see to it that log books and sample containers are furnished.

If there is additional information that you desire, please do not hesitate to call on me.

Very truly yours,

H. G. Hershey

HGH:A

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

Iowa Central Design Office
10th & Mulberry Sts.
DesMoines, Iowa

Nov. 30, 1937.

Iowa Geological Survey,
103 Geology Bldg.,
Iowa City, Iowa.

Attention : H. G. Hershey

Dear Sir:

Since receiving your letter of November 18th concerning the water possibilities in Stone Park, it has been found inadvisable to construct the well at the location indicated in our letter to you.

Instead, it is now proposed to construct the well about 400 feet up the valley to the south as indicated on the large map and also on the small plot plan. The elevation of the ground at the new location is 1204.1 as indicated on the plan, or 46.4 feet higher in elevation than the original location of 1157.7.

Since a copy of your letter, and a diagram based on the information given, will both no doubt be given to the prospective well bidders, we are wondering if you would kindly inform us as to the changes this (Location change) will make in your original estimate of the depth and thickness of expected materials, as well as the approximate total depth of well. It is planned to drill the well for its entire depth of size to install a 6 inch casing if this would be satisfactory, on account of the comparitively short depth of well.

I am sorry to bother you with this second estimate, but at the time our original request was sent, the undesirable aspects of drilling the well at the location noted, were not foreseen.

Very truly yours,

S. L. Price

S. L. PRICE

SLP.F

December 14, 1937

Mr. S. L. Price
National Park Service
Iowa Central Design Office
10th & Mulberry Streets
Des Moines, Iowa

Woodbury Co.

Dear Mr. Price:

Your letter of November 30 and the accompanying maps regarding the change in location of the proposed well in Stone Park reached me only today. The delay was caused by the fact that I was in the field from December 1 to December 8. The material, received at Iowa City on December 1 after I had left, was forwarded to me in the field, but due to faulty mail service somewhere along the line was not received and consequently had to be returned to my office in Iowa City.

The change in location as shown by your maps will make changes necessary in the original forecast. At the new location the top of the sandstone to be developed should be encountered at 216 feet. The generalized log at that point, based upon a recent field investigation and the additional information in our files is as follows:

	Thickness	From (Feet)	To
Loess, yellow and blue(?) clay	32	0	32
Greenhorn Formation			
Limestone--buff to gray, chalky, argillaceous, interbedded with shale	13	32	45
Graneros Formation ?			
Sandstone and siltstone--buff to gray with some interbedded shale	9	45	54
Shale--gray carbonaceous	10	54	64
Sandstone--yellow to buff, very fine-grained, with clay binder	3	64	67
Shale--gray carbonaceous	7	67	74

Dakota Formation

Sandstone--gray to buff, fine- to medium-grained	10	74	84
Shale--with thin sandstone layers	9	84	93
Sandstone--gray to buff, fine-grained bottom 4' with clay conglomerate	11	93	104
Siltstone--buff to brown with alternating layers of shale	6	104	110
Sandstone--gray, medium- to fine-grained, interbedded with shale	20	110	130
Shale--gray, soft, possibly with sandstone and siltstone interbedded	70	130	200
Shale--gray, soft, with interbedded sandstone	15	200	215
Sandstone--with possibly some shale beds	30	215	245

The variable thickness of the glacial drift in the park area makes it possible that the limestone near the top of the section will be absent and after passing through the loess and yellow and blue clay the drill will immediately enter the soft sandstones, siltstones, and shales.

The static water level should be less than 80 feet below the surface, and the drawdown, as indicated in my letter of November 18 to Mr. Groth, will be less than 10 feet when the well is pumping at 30 gallons per minute.

I hope that this information will be serviceable to you.

Very truly yours,

H. G. Hershey

HGH:A

Dictated Dec. 13.

Stone Park
Woodbury

March 16, 1938

Mr. S. L. Price
National Park Service
Iowa Central Design Office
10th & Mulberry Streets
Des Moines, Iowa

Dear Mr. Price:

Recently I have obtained some additional information bearing on underground water conditions in the Stone Park area near Sioux City. In the proposed well, starting at an elevation of 1204.1 feet, the static water level should be approximately 120 feet and not "less than 80 feet," as reported in my letter of December 14. There are also indications that the drawdown may be somewhat greater than I predicted in the same letter.

I am passing this information on to you in the belief that you will be interested in knowing of the altered possibilities.

Very truly yours,

H. G. Hershey

HGH:A

PREVENTABLE DISEASES—EPIDEMIOLOGY
CARL F. JORDAN, M. D., C. H. P.
DIRECTOR

CHILD HEALTH AND HEALTH EDUCATION
J. M. HAYEK, M. D.
ACTING DIRECTOR

PUBLIC HEALTH ENGINEERING
A. H. WIETERS, M. S.
DIRECTOR

STATE HYGIENIC LABORATORIES
UNIVERSITY OF IOWA, IOWA CITY
M. E. BARNES, M. D., DR. P. H.
DIRECTOR

LOCAL PUBLIC HEALTH SERVICES
M. F. HAYGOOD, M. D., C. H. P.
DIRECTOR

"A Healthy State and a Happier People"

Iowa
State Department of Health
WALTER L. BIERRING, M. D., COMMISSIONER
Des Moines

PUBLIC HEALTH NURSING
EDITH S. COUNTRYMAN, R. N.
DIRECTOR

VITAL STATISTICS
MARGARET SOLUM
ACTING DIRECTOR

LICENSURE AND REGISTRATION
H. W. GREFE
DIRECTOR

LAW ENFORCEMENT
HERMAN B. CARLSON, ATTY.
DIRECTOR

EXECUTIVE CLERK
ALBERT F. VOGT

March 16, 1938.

File with - Stone Park Well
Woodbury

Dr. H. G. Hershey,
Iowa Geological Survey,
University of Iowa,
Iowa City, Iowa.

Dear Dr. Hershey:

This will acknowledge receipt of your letter of March 15th, together with the ten dollar enclosure. As for my galoshes, you might keep them until I see you or call for them myself.

I have just received a letter from Mr. E. J. Marzec, Sanitary Engineer of the Woodbury County Health Unit, in which he mentions that Mr. Merkley has started the second hole at Stone Park. Apparently he struck a defect in the first hole which threw it out of line considerably. He is now down 38 feet and into rock with the second hole. Cuttings are being collected at every five foot interval or change in formation. Mr. Marzec will observe the drilling operations from time to time and will report any unusual occurrences. It is believed that with this help, reasonably accurate information can be obtained on this new well.

From all appearances, I do not believe I will be able to meet you the latter part of the week for the Charles City investigation.

Very truly yours,

E. G. Fiala,
Asst. Sanitary Engineer.

EGF/MM

KEY MAP
SCALE: 1 INCH = 12 MILES
SOUTH DAKOTA
IOWA
BIG SIOUX
ELK POINT
DAKOTA POINT FIRE RING
LATRINE
STONY POINT LOOKOUT
PARKING
FOUNTAIN
PICNIC AREA
CONCESSION
DAKOTA VALLEY
COMBINATION BLDG.
SALVATION ARMY CAMP
TALBOT
STORM LAKE
BLACK HAWK LAKE
WANATA
CHEROKEE
IDA GROVE
CORRECTION
MOVILLE
ALTON
REMSEN
LE MARS
OAK GROVE
AKRON
SLOAN
SAC
IDA
WOODBURY
PLYMOUTH
SIOUX
STONE PARK
SIOUX CITY
Greenhorn ls
55 & 5h

PARK

BOY SCOUT CAMP

1200

1300

1 12
2 11

1200
1121
183
37
140

1121
37
1084

1200
1084
120

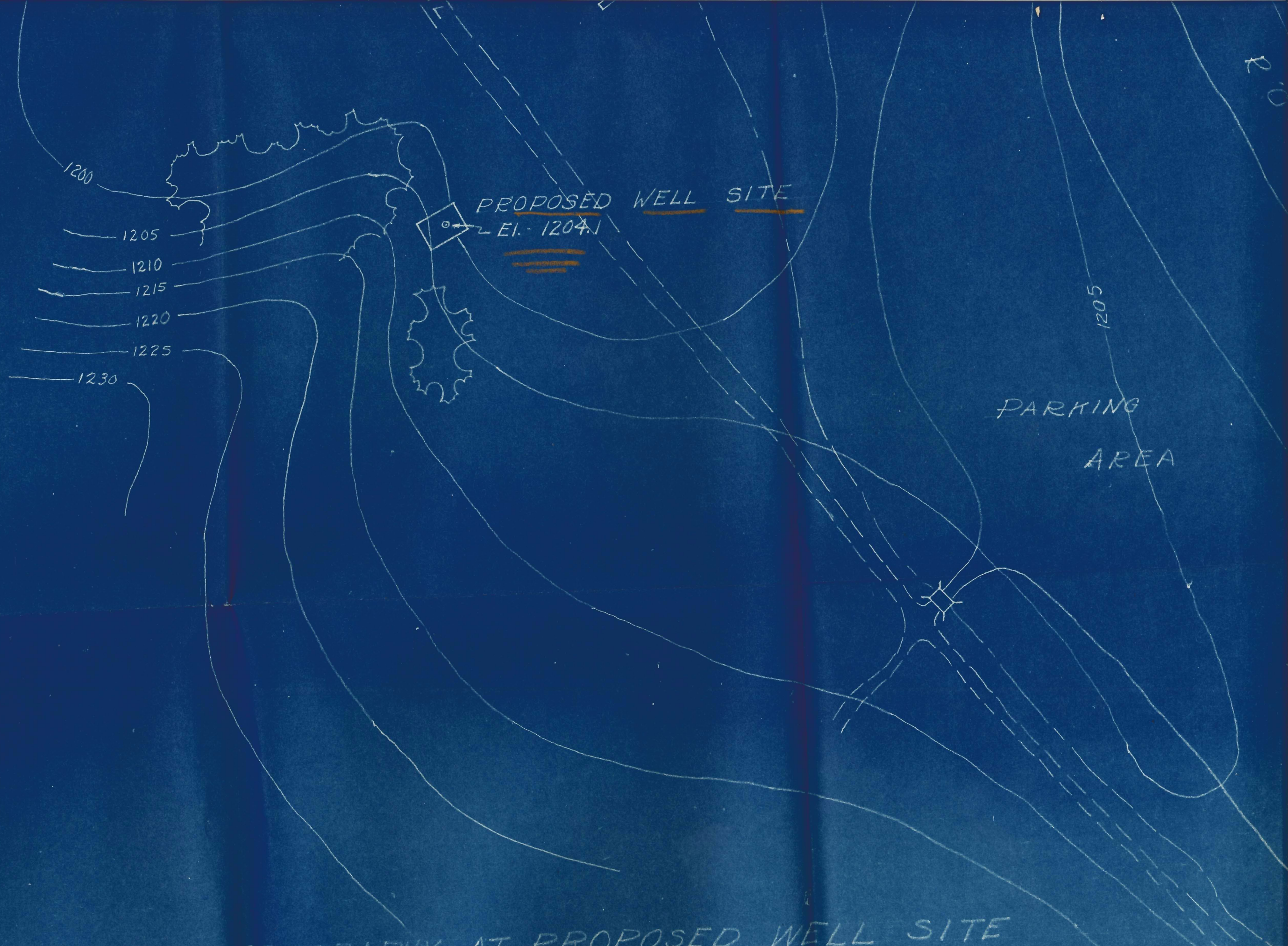
1200
1121
37
1084

83
37
120

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
COOPERATING WITH
IOWA CONSERVATION COMMISSION

DRAWN BY E.C. HORNEMAN	STONE PARK MASTER PLAN	PLAN NO
DESIGNED BY	ACREAGE 785.0	SCALE: 1"=300'
CHECKED BY		S.P. 23
		DATE 3-1-37

PREPARED BY _____ DATE 3/12/37
RECOMMENDED E.K. Morris STATE PARK AUTHORITY DATE 3/19/37
RECOMMENDED _____ INSPECTOR



TOPOGRAPHY AT PROPOSED WELL SITE
STONE PARK STATE PARK - SIOUX CITY, IA.
Scale 1" = 20'

November 5, 1937

Mr. H. W. Groth
Iowa State Conservation Commission
10th and Mulberry
Des Moines, Iowa

Dear Mr. Groth:

Your letter of October 26 regarding the proposed well in Stone Park in Sioux City was referred to me upon my return to the office recently. There are several possibilities for developing a well to produce 25 or 30 gallons a minute, and the final recommendation will depend to a certain extent on the topographic position of the proposed site. It will be very helpful, therefore, if you can furnish me with a contour map of the park on as large a scale as possible. If no such map is available, it may be necessary to visit the locality and make direct observations. It may be a week or more before it will be possible for me to leave Iowa City, but you may be assured that the desired information will be sent to you at the earliest possible moment.

Very truly yours,

H. G. Hershey

HGH:A
Dictated November 4.

WESTERN UNION

1201

(401)

R. B. WHITE, PRESIDENT — NEWCOMB CARLTON, CHAIRMAN OF THE BOARD — J. C. WILLEVER, FIRST VICE-PRESIDENT

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

Received at 110 East Washington St., Iowa City, Iowa. Dial 3141

1938 JUN 21 PM 4 43

MRF25 9=SIOUXCITY IOWA 21 415P

DR H G HERSHEY=

RM 103 GEOLOGICAL BLDG=

RASMUSSEN PUMPING RECONSTRUCTED STONE PARK WELL ADVISE WHEN COMING=

E J MARZEC.

MARZEC.

WRD Exp. (GW)
Aug. 1964

Verified PMJ
Punched PMJ

U. S. DEPARTMENT OF THE INTERIOR — GEOLOGICAL SURVEY

Water Resources Division Well Schedule Form

MASTER CARD

Record by: [illegible] — Source of data: [illegible] — Date: 7/28/65 — Map: County Highway 1:63,360

State: IOWA [16] — County (or town): WOODBURY [97]

Latitude: 42 33 25 N — Longitude: 096 23 11 A — Sequential number: 1

Lat-long accuracy: 7 — T. 89 N, R. 48 W, Sec. 1, NW NW ¼, SW ¼, NW ¼ — 5

Local well number: 089 48 W 01 BCBB — Other number: W 0742

Local use: 00742 — Owner or name: STONE PARK, STATE COMM.

Owner or name: STONE PK ST C C — Address: SIOUX CITY, IOWA

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist — S

Use of water: (A) Air cond, (C) Comm, (D) Dewatering, (F) Fire, (H) Dom, (I) Irr, (N) Ind, (P) PS, (S) Stock, (T) Instit, (U) Unused — P

Use of well: (A) Anode, (D) Drain, (G) Seismic, (O) Obs, (P) Oil-gas, (R) Recharge, (S) Spring, (T) Test, (U) Unused, (W) Withdraw, Waste, (X) Destroyed

DATA AVAILABLE: Well data 3 — Freq. W/L meas.: INVENTORY 0 — Field aquifer char.

Hyd. lab. data:

Qual. water data; type:

Freq. sampling: — Pumpage inventory: yes, no, period:

Aperture cards: yes

Log data: SAMPLE LOG — G

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD — Depth well: 245 ft 245 — Meas. rept. accuracy

Depth cased (first perf.): ft — Casing type: ; Diam. in

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Z) other

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other

Date Drilled: 1938 — 938 — Pump intake setting: ft

Driller: MERKLEY WELL CO (name), SIOUX CITY, IA (address)

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none, (P) piston, (R) rot, (S) submerg, (T) turb, (Z) other — Deep / Shallow

Power (type): diesel, elec, gas, gasoline, hand, nat gas, LPG, wind; H.P. — Trans. or meter no.

Descrip. MP: LSD — ft above/below lsd, Alt. MP 120

Alt. LSD: 1194 ? 1204 — 1204 — Accuracy (source): ALTIMETER — 7

Water Level: 112 ft above/below MP; Ft above/below lsd 112 — Accuracy: DRILLER'S LOG — 3

Date meas.: 1938 — 38 — Yield: 4— gpm 40 — Method determined

Drawdown: / ft — / — Accuracy: — Pumping period: hrs

QUALITY OF WATER DATA: Iron ppm — Sulfate ppm — Chloride ppm — Hard. ppm

Sp. Conduct. K x 10[6] — Temp. 56 °F — Date sampled

Taste, color, etc.

0 W-01 bcbb

Well Number 92 , 33 , 25 S 096 , 28 , 19.1
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD

Physiographic Province: CENTRAL LOWLAND 1 2 Section: DISSECTED TILL PLAIN

Drainage Basin: BIG SIOUX 3 6 A Subbasin: ______

Topo of well site: local depression (D), flat surface (F), hilltop (H), hillside (S), terrace (T), valley flat (V), ______

MAJOR AQUIFER: CRETACEOUS (system), LOWER (series) K 1 DAKOTA SANDST (aquifer, formation, group) X

Lithology: SANDSTONE V Origin: MARINE 6 Aquifer Thickness: ______ ft

Length of well open to: ______ ft Depth to top of: 190 ft 1 9 0

MINOR AQUIFER: ______ (system), ______ (series) ______ (aquifer, formation, group)

Lithology: ______ Origin: ______ Aquifer Thickness: ______ ft

Length of well open to: ______ ft Depth to top of: ______ ft

Intervals Screened: ______

Depth to consolidated rock: AT LAND SURFACE ft Source of data: SAMPLE LOG G

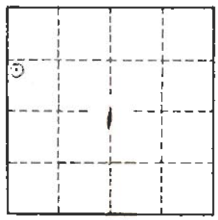
Depth to basement: ______ ft Source of data: ______

Surficial material: SHALE F Infiltration characteristics: POOR 4

Coefficient Trans: ______ gpd/ft Coefficient Storage: ______

Coefficient Perm: ______ gpd/ft²; Spec cap: 40 gpm/ft; Number of geologic cards: ______

CASING:
2" casing ...
6" casing ... to 240'



GPO 844-225

desire
May we please hear from
you in the near future.
Yours Respectfully
Murphy Well Co.
911 So Court St
Sioux City Ia.

P.S. Key.

Sioux City Ia
Mar 25. 38

Ia Geo Survey
Ia City, Ia.

Gentlemen:

We are sending you by express, samples taken from the Stone Park State well. We will be glad to give you any other information we have on any wells we drill in this territory.

Please send us some more sample bags and drillers note books.

Will send you a complete log of above well as soon as completed if you so