WELL RECORD (Page 1 of 2)

PWTS Permit No. 2008-0497W

Iowa Department of Natural Resources – Geological Survey
109 Trowbridge Hall, Iowa City, IA 52242-1319 PH (319) 335-1575

PWTS Well No. 94250114

County Permit No. _____

Site identification

Property Owner City of Dayton Other ID Well #4

Address 202 1st Avenue SW, P.O. Box 45

Tenant City of Dayton

Well Depth 1,250 ft Date completed 06 / 12 / 09

Location

County Webster

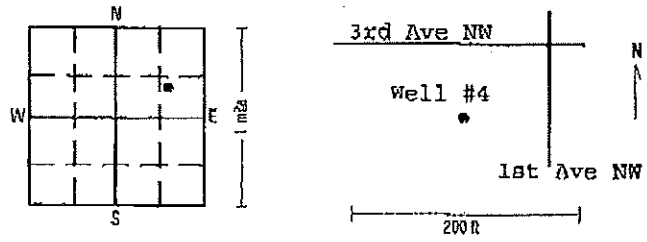
1/32 mi (N) (S) and 1/32 mi (E) (W) of intersection of 3rd Ave NW and 1st Ave NW

NW 1/4 of the SE 1/4 of the NE 1/4 of Sec 14 TWP 86 RNG 28 (E) (W)

GPS Coordinates (NAD83 datum only) decimal degrees:

_____ . _____ N. Latitude _____ . _____ W. Longitude.

Show exact location of well in section grid with a dot (•). Sketch map of well location on property.



☐ upland ☐ hillside ☐ valley ☒ level surface Elevation (if known) _____

Formation log

From	To	Color	Hardness	Formation description
0	166	Dk. Green		Till
166	390	Green		Shale
390	421			Limestone
421	422	Lt. Green		Shale
422	437			Limestone
437	444			Limestone w/shale layers
444	457		Hard	Limestone
457	570	Lt. Brown		Limestone
570	697			Dolomite
697	712			Shaley limestone
712	721	Green		Shale
721	740	Green/Gray		Limestone
740	763	Gray/Brown		Limestone
763	799	Lt. Brown		Limestone
				use additional sheets as needed

Remarks (including depth of lost drilling fluids, materials, or tools)

Log Continued on Page 2

Well use

☐ Domestic ☐ Heat pump ☐ Commercial
☐ Livestock ☒ Municipal ☐ Monitoring
☐ Test well ☐ Public supply ☐ Other _____
☐ Irrigation

Drill method

☒ rotary ☐ auger ☐ cable other _____

Hole size

18 inch from 0 ft to 457 ft

11 inch from 457 ft to 900 ft

Hole size continued

7 inch from 900 ft to 1250 ft

_____ inch from _____ ft to _____ ft

Record all depth measurements from ground level (GL). Use (+) for above GL measurements.

Casing

Drive shoe (yes) (no) Press adapter (yes) (no)

Size (ID/OD)	Type / Wt	Depth top	Depth bottom	Amount (length)
12"	0.375"	8'	455'	447'
8"	0.322"	669'	900'	231'

Perforated or slotted casing? (yes) (no)

Perforated / slotted from _____ ft to _____ ft

Perforated / slotted from _____ ft to _____ ft

Casing grouted? (yes) (no)

Placement method Pressure

Type	Depth top	Depth bottom	Amount (vol/wt)
Neat Cement	0'	457'	16 cyd

Well screen? (yes) (no)

Diameter	Slot size	Depth top	Depth bottom	Length	Material
	D.____				
	D.____				

Bottom capped (yes) (no) with _____

Seals / Packers (yes) (no) kind _____ depth _____ ft

Gravel packed (yes) (no) from _____ ft to _____ ft

type _____ amount _____

Well developed? (yes) (no)

Explain Airlift pumping after drilling

(pumped, airlifted, bailed) for 4 hrs at 200-400 GPM

Pump installed? (yes) (no)

Date 06 / 12 / 09

Installer's name Carlisle/Dooling

Type of pump Submersible Depth to intake 266 ft

Pump diameter 6" Rated capacity 150 GPM

Water information

Aquifer: ☐ sand / gravel ☒ limestone ☐ sandstone

Main water-supply zone from 538 ft to 900 ft ☐ seepage well

Static water level 142 ft (below) (above) GL; ☐ tape ☐ airline ☒ E-line ☐ estimate

Pumping water level 221 ft below GL; ☐ tape ☐ airline ☒ E-line ☐ estimate

At yield of 227 GPM; ☒ orifice ☐ volumetric ☐ estimate for 18 hours

Measurements taken at 9 : 00 (AM) PM) Date 05 / 20 / 09

Water quality test? (yes) (no)

Date tested ____ / ____ / ____

Tested by By City of Dayton

Contractor Layne-Western

Address 5600 Gateway Drive, Suite B, Grimes, IA

Driller Duane Trask Certification no. 5509

Send original form to: **Iowa Department of Natural Resources – Geological Survey**

Make photocopies for: **Well Contractor, Customer, and County Health Department**

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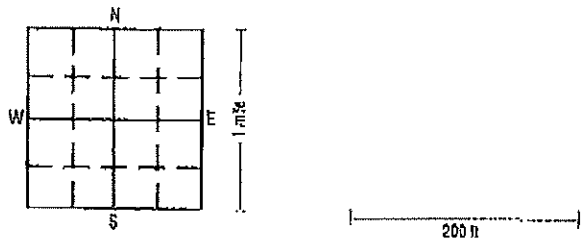
_____ mi, N/S and _____ mi, E/W of intersection of _____ and _____

_____ 1/4 of the _____ 1/4 of the _____ 1/4 of Sec _____ TWP _____ RNG _____ E/W

GPS Coordinates (NAD83 datum only) decimal degrees:

_____ . _____ N. Latitude _____ . _____ W. Longitude.

Show exact location of well in section grid with a dot (•). Sketch map of well location on property.



☐ upland ☐ hillside ☐ valley ☐ level surface Elevation (if known) _____

Formation log

From	To	Color	Hardness	Formation description
799	812	Gray		Limestone
812	844	Gray/Brown		Limestone
844	847	Green/Gray		Limestone
847	880	Lt. Gray/White		Limestone
880	889	Dk. Gray		Limestone
889	894	Green		Shale w/limestone
894	940	Brown		Limestone
940	1015	Gray		Dolomite
1015	1098	Brown		Limestone
1098	1108	Blue/gray		Dolomite
1108	1119	Brown		Dolomite
1119	1201	Gray		Dolomite w/trace shale
1201	1250	Gray		Dolomite

(use additional sheets as needed)

Remarks (including depth of lost drilling fluids, materials, or tools)

Well use

☐ Domestic ☐ Heat pump ☐ Commercial
☐ Livestock ☐ Municipal ☐ Monitoring
☐ Test well ☐ Public supply ☐ Other _____
☐ Irrigation

Drill method

☐ rotary ☐ auger ☐ cable other _____

Hole size

_____ inch from 0 ft to _____ ft
_____ inch from _____ ft to _____ ft

Hole size continued

_____ inch from _____ ft to _____ ft
_____ inch from _____ ft to _____ ft

Record all depth measurements from ground level (GL). Use (+) for above GL measurements.

Casing

Drive shoe (yes / no) Pitless adapter (yes / no)

Size (ID/OD)	Type / Wt	Depth top	Depth bottom	Amount (length)

Perforated or slotted casing? (yes / no)

Perforated / slotted from _____ ft to _____ ft

Perforated / slotted from _____ ft to _____ ft

Casing grouted? (yes / no)

Placement method _____

Type	Depth top	Depth bottom	Amount (vol/wt)

Well screen? (yes / no)

Diameter	Slot size	Depth top	Depth bottom	Length	Material
	0.___				
	0.___				

Bottom capped (yes / no) with _____

Seals / Packers (yes / no) kind _____ depth _____ ft

Gravel packed (yes / no) from _____ ft to _____ ft

type _____ amount _____

Well developed? (yes / no)

Explain _____

(pumped, airlifted, bailed) for _____ hrs at _____ GPM

Pump installed? (yes / no)

Date ____ / ____ / ____

Installer's name _____

Type of pump _____ Depth to intake _____ ft

Pump diameter _____ Rated capacity _____ GPM

Water information

Aquifer: ☐ sand / gravel ☐ limestone ☐ sandstone

Main water-supply zone from _____ ft to _____ ft ☐ seepage well

Static water level _____ ft (below / above) GL; ☐ tape ☐ airline ☐ E-line ☐ estimate

Pumping water level _____ ft below GL; ☐ tape ☐ airline ☐ E-line ☐ estimate

At yield of _____ GPM; ☐ orifice ☐ volumetric ☐ estimate for _____ hours

Measurements taken at ____ : ____ (AM / PM) Date ____ / ____ / ____

Water quality test? (yes / no)

Date tested ____ / ____ / ____

Tested by _____

Contractor _____

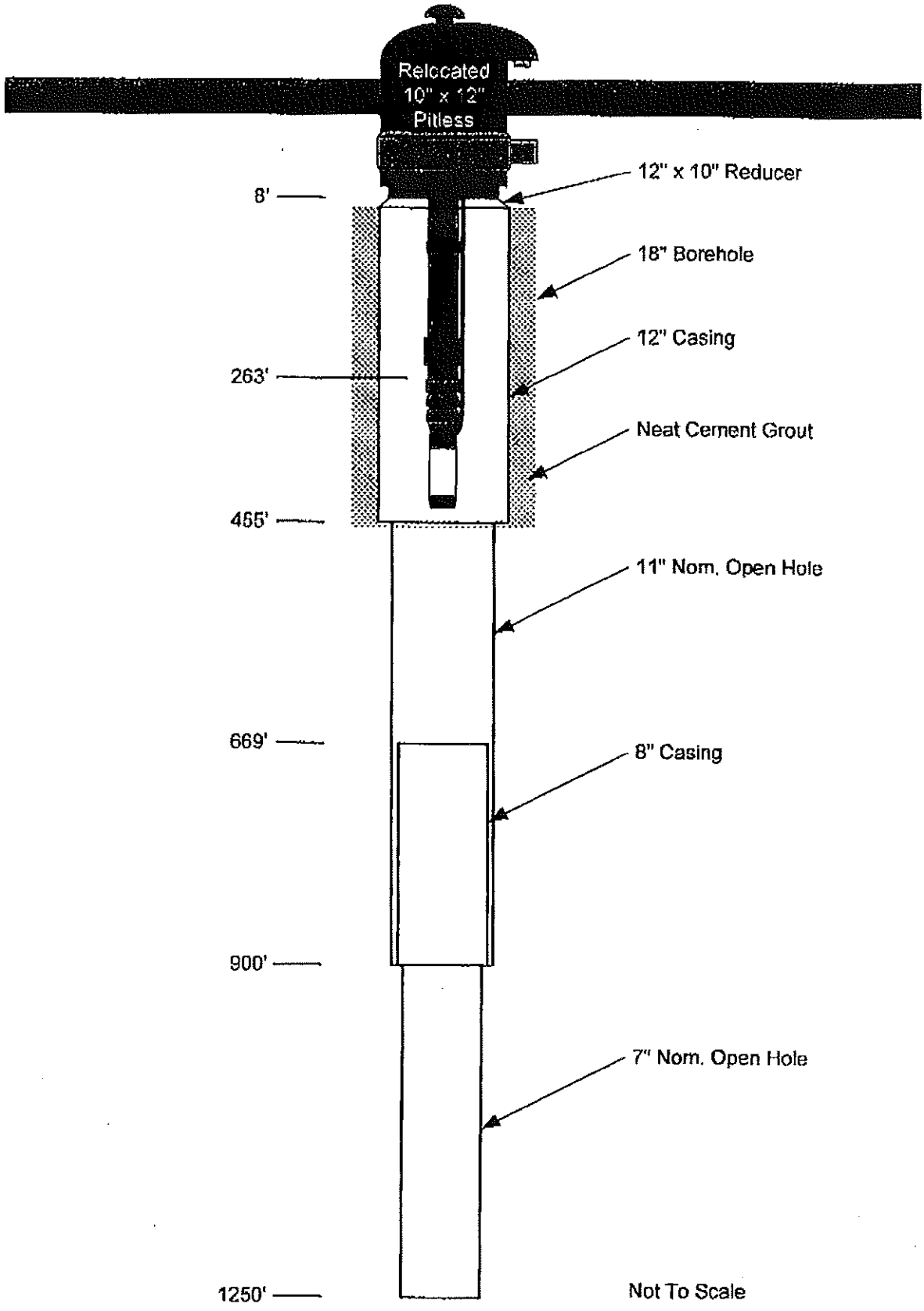
Address _____

Driller _____ Certification no. _____

Send original form to: Iowa Department of Natural Resources – Geological Survey

Make photocopies for: Well Contractor, Customer, and County Health Department

Well #4 Construction Detail
City of Dayton, Iowa
July 17, 2009



Layne-Western
5600 Gateway Drive, Suite B
Grimes, IA 50111
(515) 986-3462 / 3474 Fax

WELL TEST DATA REPORT

PROJECT:	City of Dayton		DATE TESTED:	5/19/09 - 5/20/09
LOCATION:	Dayton, IA		TESTED BY:	D. Carlisle
WELL NO:	4		DRIVER:	40-HP submersible motor
WELL DIAMETER:	12.00	inches I.D.	COLUMN AND SHAFT:	4" T&C drop pipe
WELL DEPTH:	1250.0	feet - from grade	BOWL SIZE & MAKE:	300S
CASING POINT:	455.0	feet - from grade	MANUFACTURER:	Grundfos Pumps
STATIC LEVEL:	142.0	feet - from top of casing	SERIAL NUMBER:	N/A
ORIFICE SIZE:	4" x 3"			

TIME	PIEZ. READ. (IN)	FLOW RATE (GPM)	AIRLINE READING (FEET)	WATER LEVEL (FEET)	DRAW DOWN (FEET)	DISCHARGE PRESSURE (LBS.)	DISCHARGE PRESSURE (FEET)	SPEC. CAPACITY (GPM/FT)	REMARKS
3:00 pm				142.0					Test started at 3:00 pm
5 min.		227.0		202.8	60.8			3.7	
10		227.0		202.5	60.5			3.8	
15		227.0		204.8	62.8			3.6	
20		227.0		205.3	63.3			3.6	
25		227.0		209.3	67.3			3.4	
30		227.0		210.0	68.0			3.3	
35		227.0		211.0	69.0			3.3	
40		227.0		211.5	69.5			3.3	
45		227.0		212.0	70.0			3.2	
50		227.0		212.3	70.3			3.2	
55		227.0		212.8	70.8			3.2	
60		227.0		213.3	71.3			3.2	
65		227.0		213.5	71.5			3.2	
70		227.0		213.3	71.3			3.2	
75		227.0		214.0	72.0			3.2	
80		227.0		214.3	72.3			3.1	
85		227.0		214.3	72.3			3.1	
90		227.0		215.8	73.8			3.1	
95		227.0		219.8	77.8			2.9	
100		227.0		220.0	78.0			2.9	
105		227.0		220.5	78.5			2.9	
110		227.0		220.8	78.8			2.9	
115		227.0		221.0	79.0			2.9	
120		227.0		221.3	79.3			2.9	
150		227.0		222.8	80.8			2.8	
180		227.0		221.8	79.8			2.8	
210		227.0		221.5	79.5			2.9	
240		227.0		221.5	79.5			2.9	

Layne-Western
5600 Gateway Drive, Suite B
Grimes, IA 50111
(515) 986-3462

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CASING POINT:	455.0 feet - from grade	MANUFACTURER:	Grundfos Pumps
STATIC LEVEL:	142.0 feet - from top of casing	SERIAL NUMBER:	N/A
ORIFICE SIZE:	4" x 3"		

TIME	PIEZ. READ. (IN)	FLOW RATE (GPM)	AIRLINE READING (FEET)	WATER LEVEL (FEET)	DRAW DOWN (FEET)	DISCHARGE PRESSURE (LBS.)	DISCHARGE PRESSURE (FEET)	SPEC. CAPACITY (GPM/FT)	REMARKS
300		227.0		218.5	76.5			3.0	
360		227.0		220.0	78.0			2.9	
420		227.0		221.5	79.5			2.9	
480		227.0		221.5	79.5			2.9	
540		227.0		221.5	79.5			2.9	
600		227.0		221.8	79.8			2.8	
660		227.0		221.8	79.8			2.8	
720		227.0		222.0	80.0			2.8	
780		227.0		222.0	80.0			2.8	
840		227.0		222.0	80.0			2.8	
900		227.0		221.8	79.8			2.8	
960		227.0		221.8	79.8			2.8	
1020		227.0		221.8	79.8			2.8	
1080		227.0		221.3	79.3			2.9	Test stopped at 9:00 am
RECOVERY READINGS:									
5 min.				157.0					
30				147.5					
90				143.5					