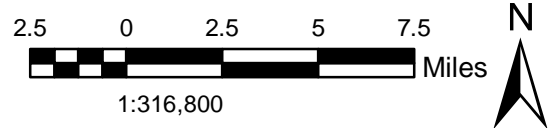


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PROJECT: 009-1684, 101, 101001
 DRAWN BY: RD
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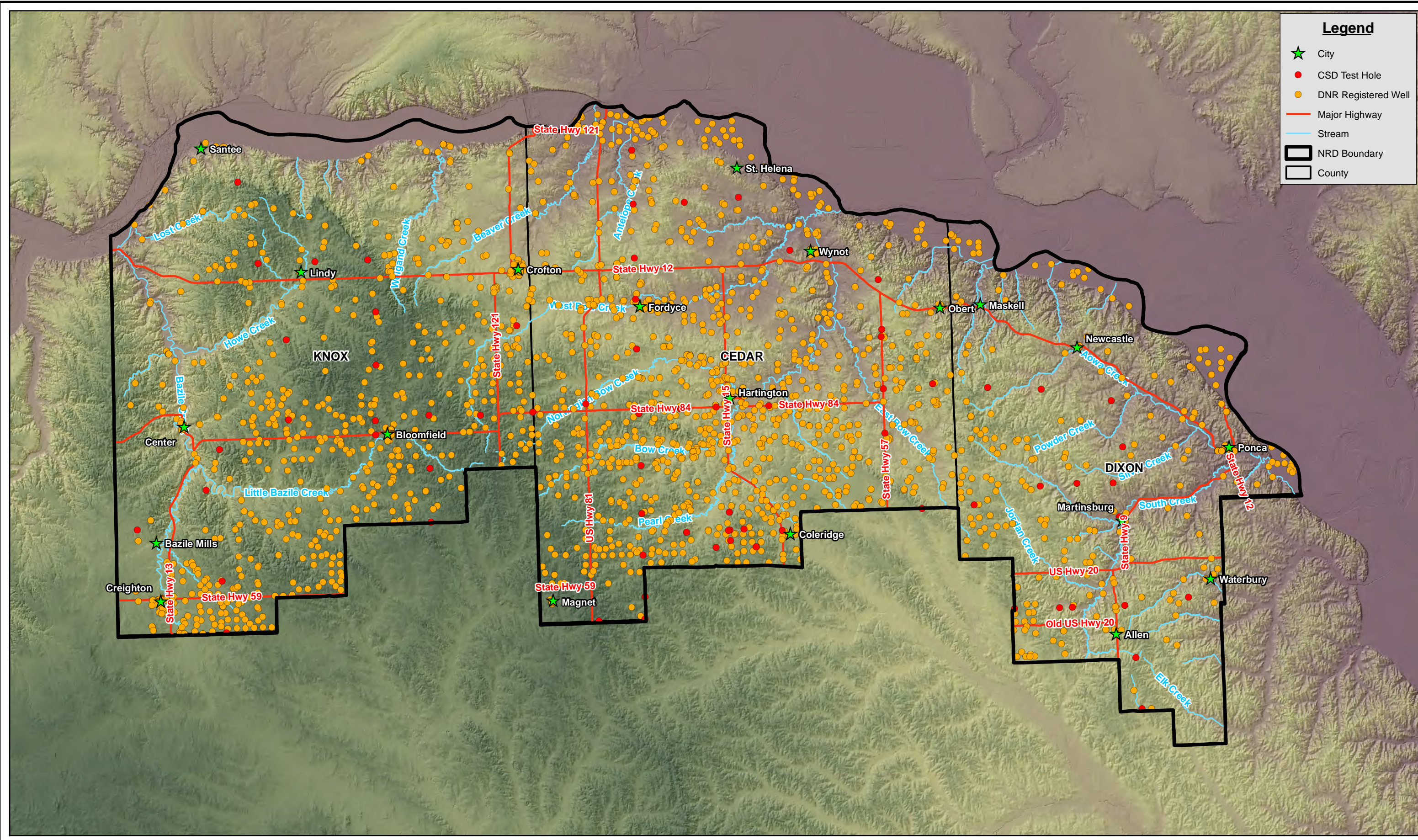
Sources:
 DNR: City, County, Major Highway, NRD Boundary
 USGS: Stream, Watershed Boundary, Lewis & Clark Lake
 Hillshade - Developed from DNR DEM



LOCATION MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska



FIGURE
 1



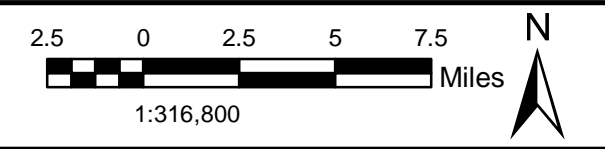
Legend

- ★ City
- CSD Test Hole
- DNR Registered Well
- Major Highway
- Stream
- ▭ NRD Boundary
- ▭ County

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PROJECT: 009-1684, 101, 101001
 DRAWN BY: RD
 DATE: June 24, 2010

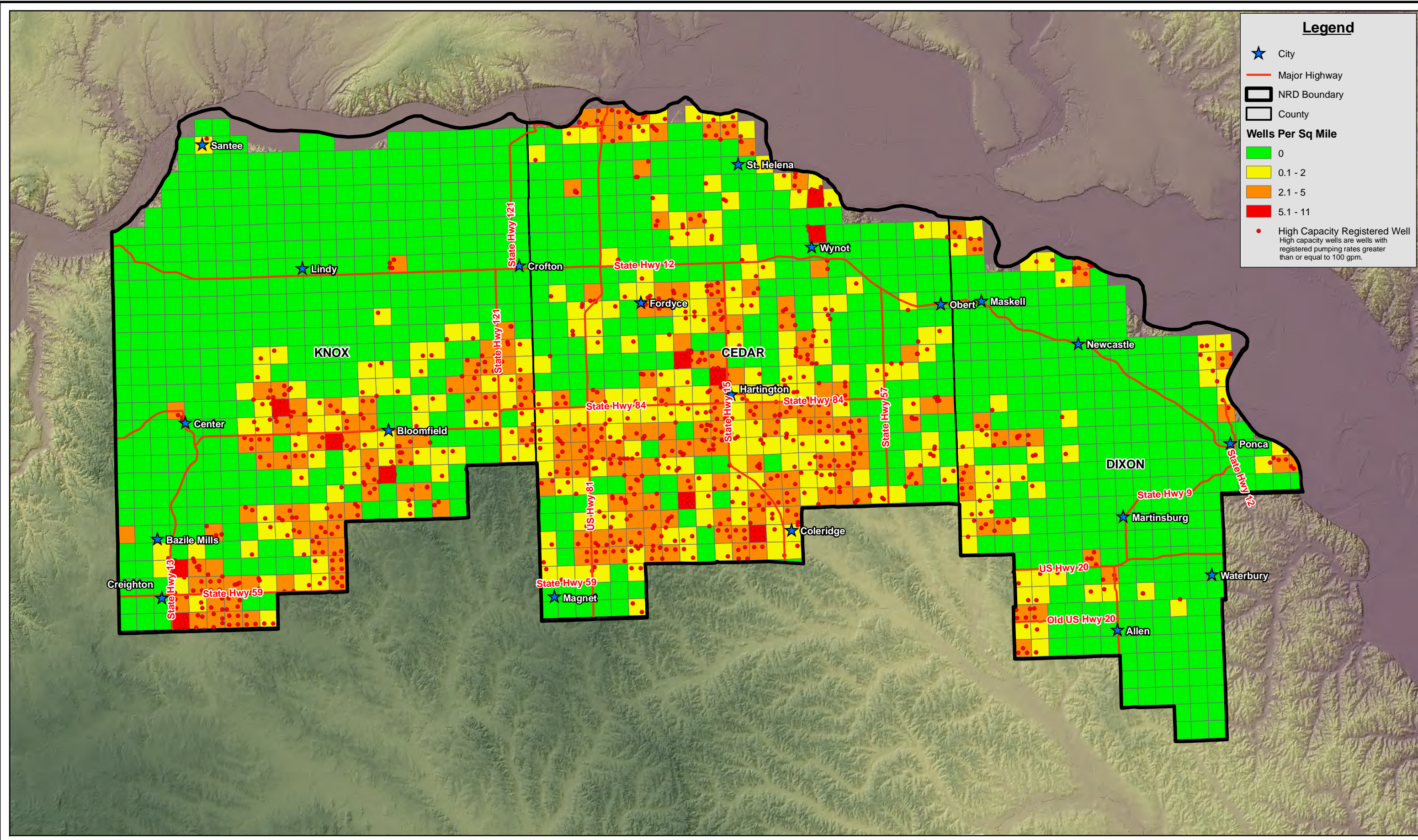
Sources:
 UNL - CSD: Test Hole
 DNR: City, County, Major Highway, NRD Boundary, Registered Well
 USGS: Stream
 Hillshade - Developed from DNR DEM



REGISTERED WELL LOCATION MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska



FIGURE
 2



Legend

- ★ City
- Major Highway
- ▭ NRD Boundary
- ▭ County

Wells Per Sq Mile

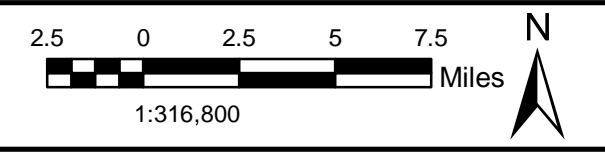
- 0
- 0.1 - 2
- 2.1 - 5
- 5.1 - 11

- High Capacity Registered Well
High capacity wells are wells with registered pumping rates greater than or equal to 100 gpm.

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PROJECT: 009-1684, 101, 101001
 DRAWN BY: RD
 DATE: June 24, 2010

Sources:
 UNL - CSD: Test Hole
 DNR: City, County, Major Highway, NRD Boundary, Registered Well
 USGS: Stream
 Hillshade - Developed from DNR DEM



HIGH CAPACITY REGISTERED WELL DENSITY MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska

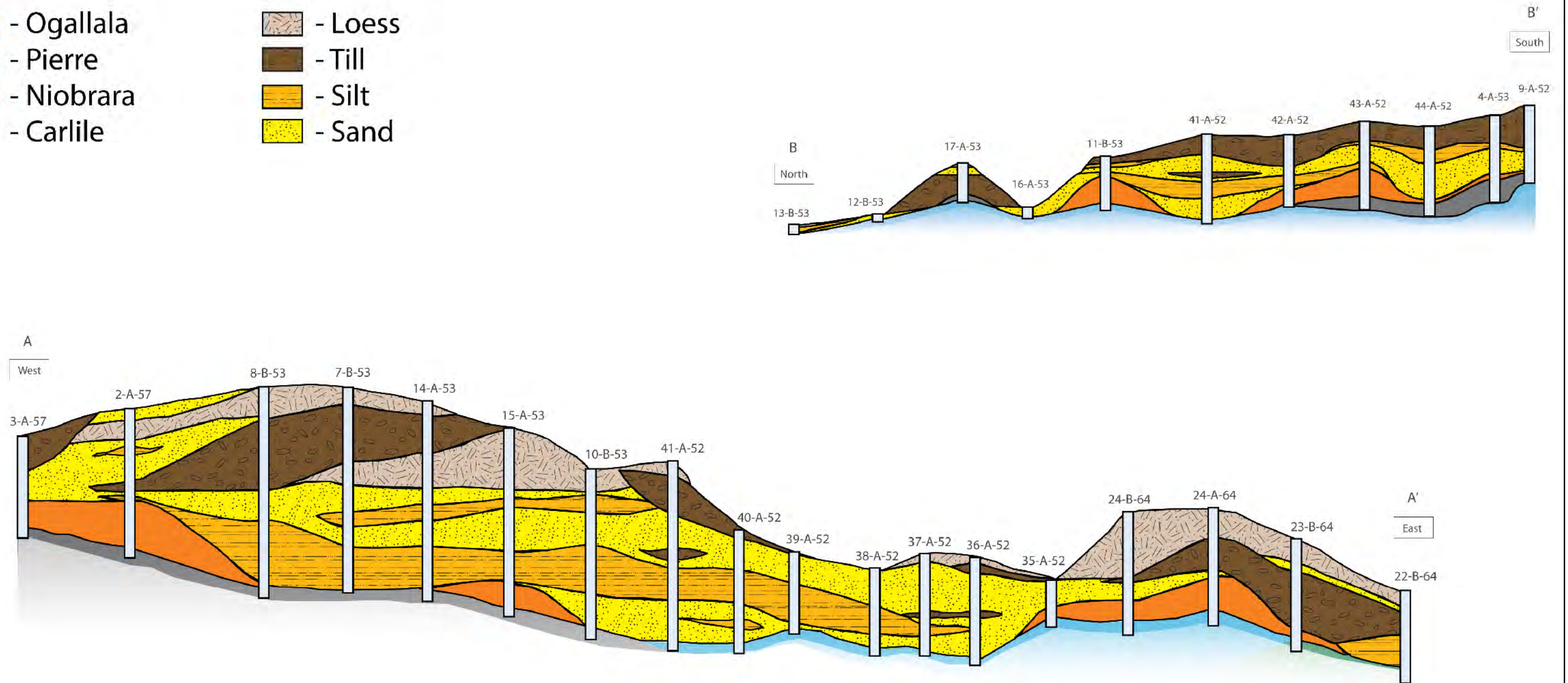


Bedrock Formations

Unconsolidated Alluvium

- Ogallala
- Pierre
- Niobrara
- Carlile

- Loess
- Till
- Silt
- Sand



Not to Scale

PROJECT: 009-1684, 101, 101001

DRAWN BY: RD

DATE: June 24, 2010

Sources:

UNL-CSD: Testhole lithology and stratigraphy.
 Geologic correlations based on unpublished cross sections by Vincent Dreeszen, former Director of the Nebraska Conservation Division.

Note:

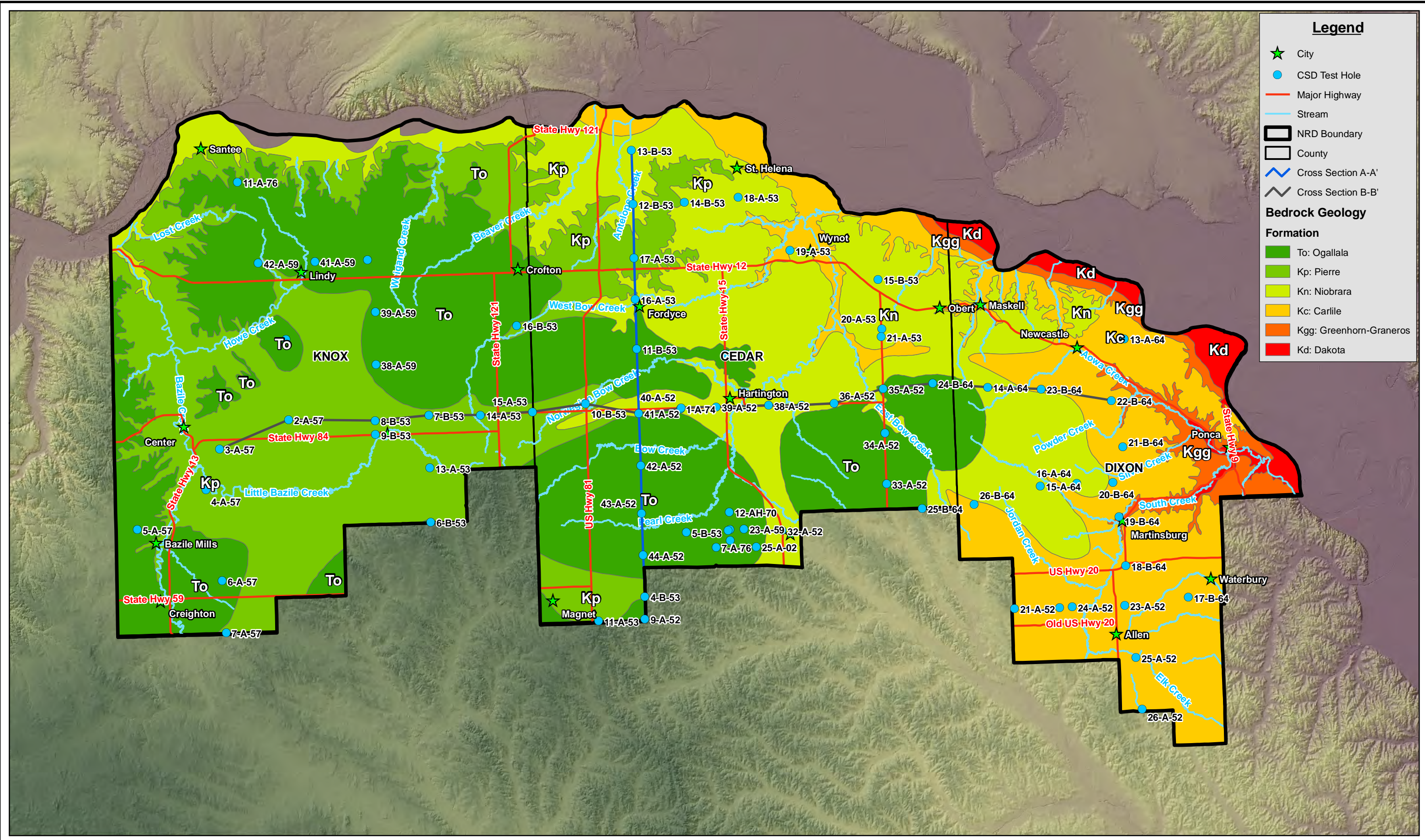
Generalized cross sections are approximately 51 miles in length for A-A' and 27 miles in length for B-B'. The vertical exaggeration is extreme (50:1) in order to illustrate the geologic units. The test hole depths range from 30 ft (12-B-53) to 410 ft (8-B-53).

GEOLOGIC CROSS SECTIONS
Lewis and Clark Natural Resource District
Northeast, Nebraska



FIGURE

4



Legend

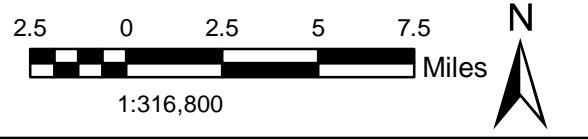
- ★ City
- CSD Test Hole
- Major Highway
- Stream
- ▭ NRD Boundary
- ▭ County
- Cross Section A-A'
- Cross Section B-B'

Bedrock Geology Formation

- To: Ogallala
- Kp: Pierre
- Kn: Niobrara
- Kc: Carlile
- Kgg: Greenhorn-Graneros
- Kd: Dakota

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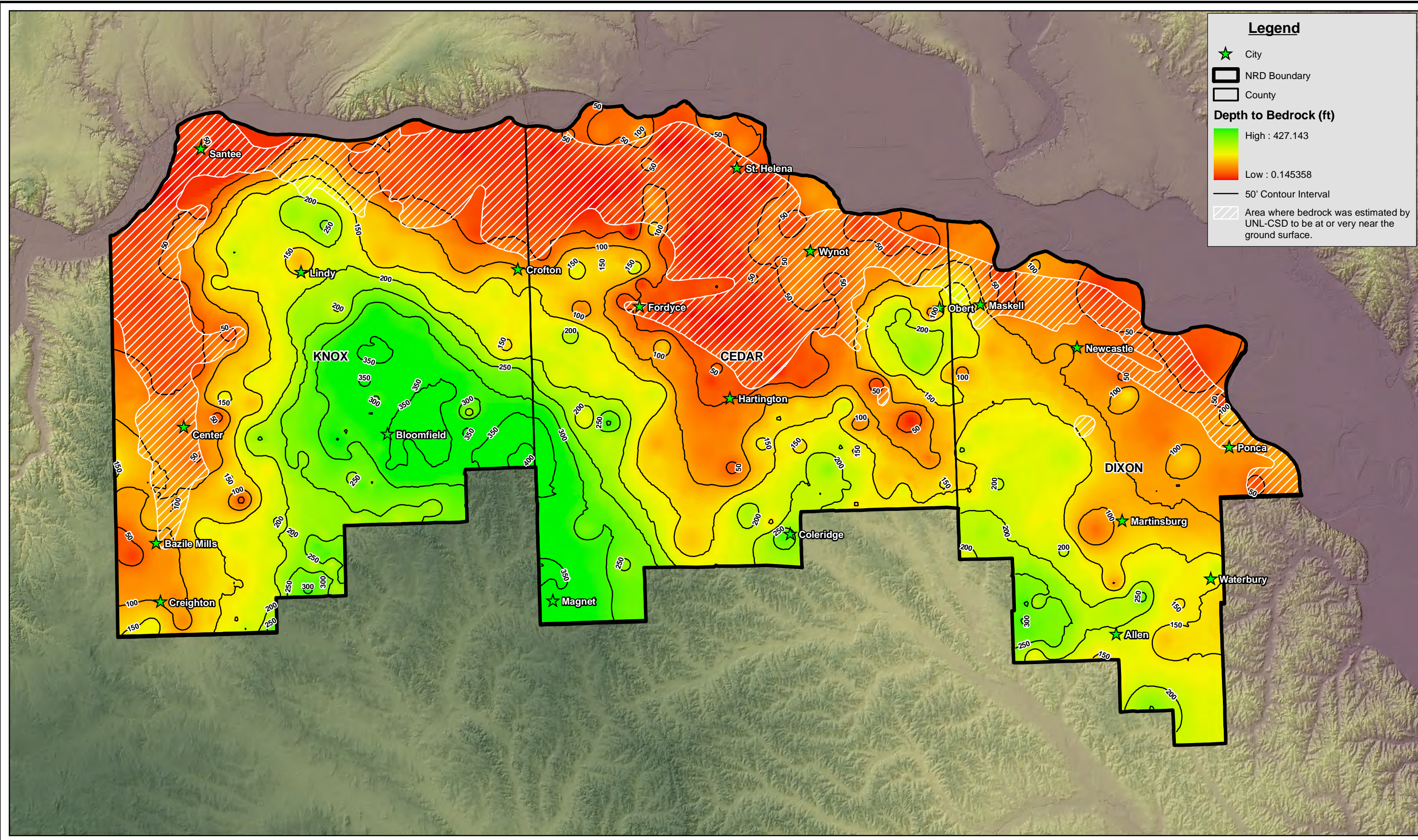
PROJECT: 009-1684, 101, 101001
 Sources:
 UNL - CSD: Test Hole
 DNR: City, County, Major Highway, NRD Boundary, Registered Well
 USGS: Stream
 Hillshade - Developed from DNR DEM



UNL-CSD BEDROCK GEOLOGY MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska



FIGURE
 5



Legend

- ★ City
- ▭ NRD Boundary
- ▭ County

Depth to Bedrock (ft)

High : 427.143

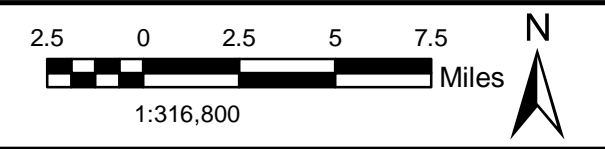
Low : 0.145358

— 50' Contour Interval

▨ Area where bedrock was estimated by UNL-CSD to be at or very near the ground surface.

PROJECT: 009-1684, 101, 101001
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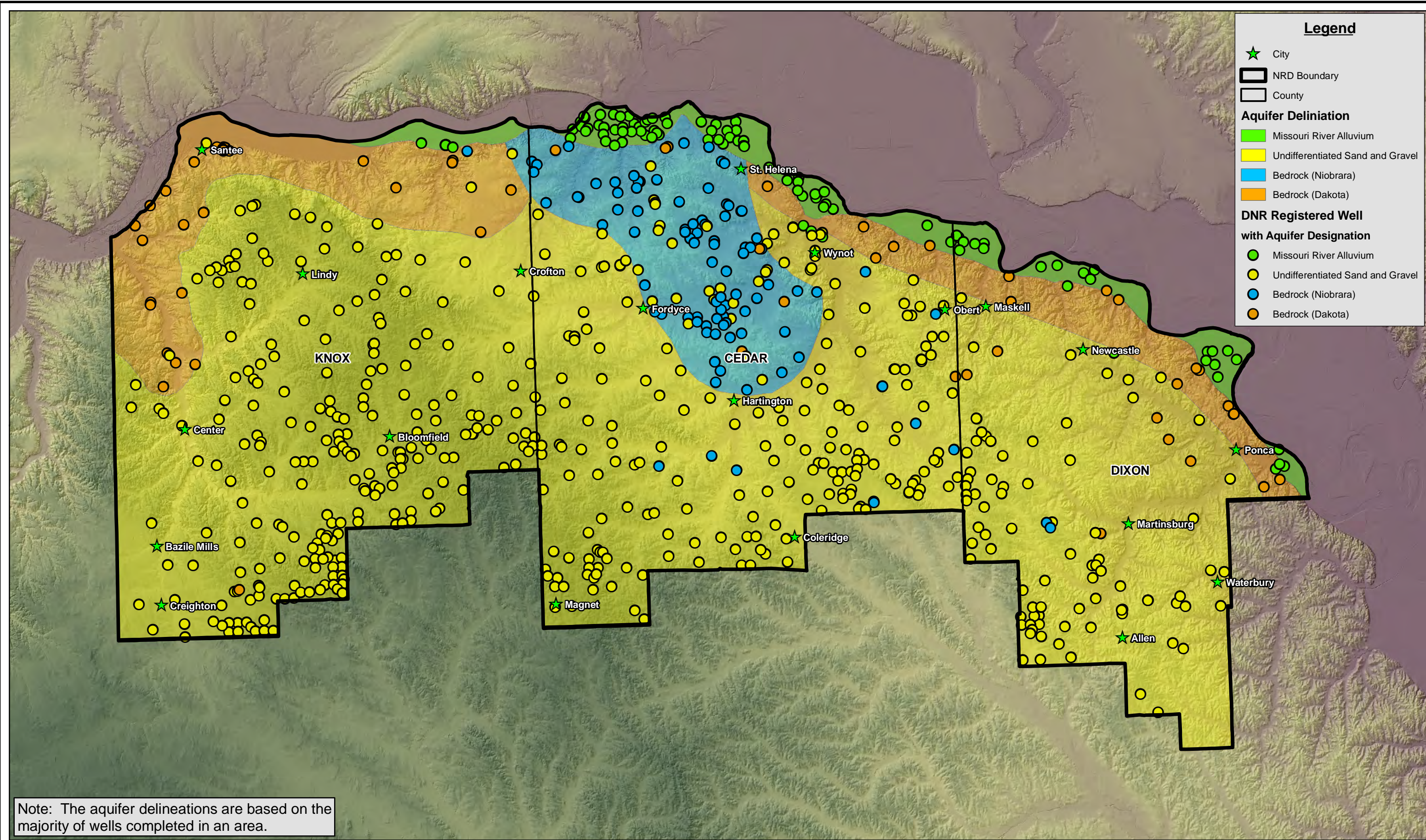
Sources:
 UNL - CSD: Test Hole
 DNR: City, County, Major Highway, NRD Boundary, Registered Well
 USGS: Stream
 Hillshade - Developed from DNR DEM
 Depth to Bedrock - Interpreted from DNR and CSD Well logs.



DEPTH TO BEDROCK MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska



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Legend

- ★ City
- ▭ NRD Boundary
- ▭ County

Aquifer Delineation

- Missouri River Alluvium
- Undifferentiated Sand and Gravel
- Bedrock (Niobrara)
- Bedrock (Dakota)

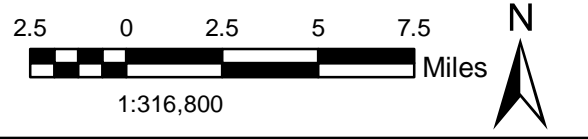
DNR Registered Well with Aquifer Designation

- Missouri River Alluvium
- Undifferentiated Sand and Gravel
- Bedrock (Niobrara)
- Bedrock (Dakota)

Note: The aquifer delineations are based on the majority of wells completed in an area.

PROJECT: 009-1684, 101, 101001
 DRAWN BY: RD
 DATE: June 24, 2010

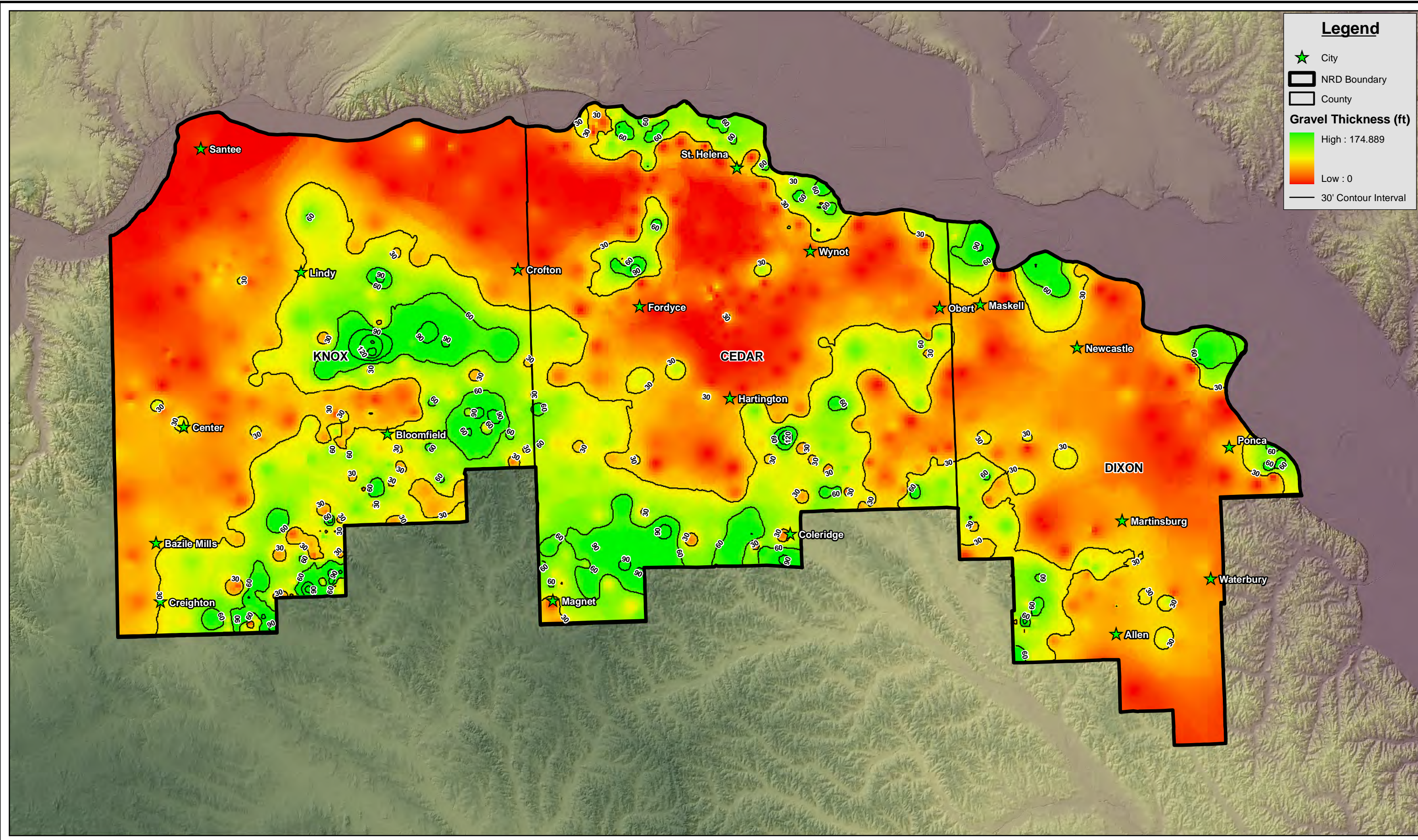
Sources:
 UNL - CSD: Test Hole
 DNR: City, County, Major Highway, NRD Boundary, Registered Well
 USGS: Stream
 Hillshade - Developed from DNR DEM
 Aquifer Delineation - Interpreted from DNR and CSD well logs.



AQUIFER DELINEATION MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska



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Legend

- ★ City
- ▭ NRD Boundary
- ▭ County

Gravel Thickness (ft)

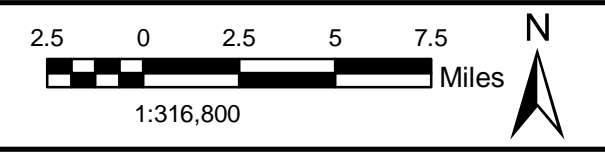
High : 174.889

Low : 0

— 30' Contour Interval

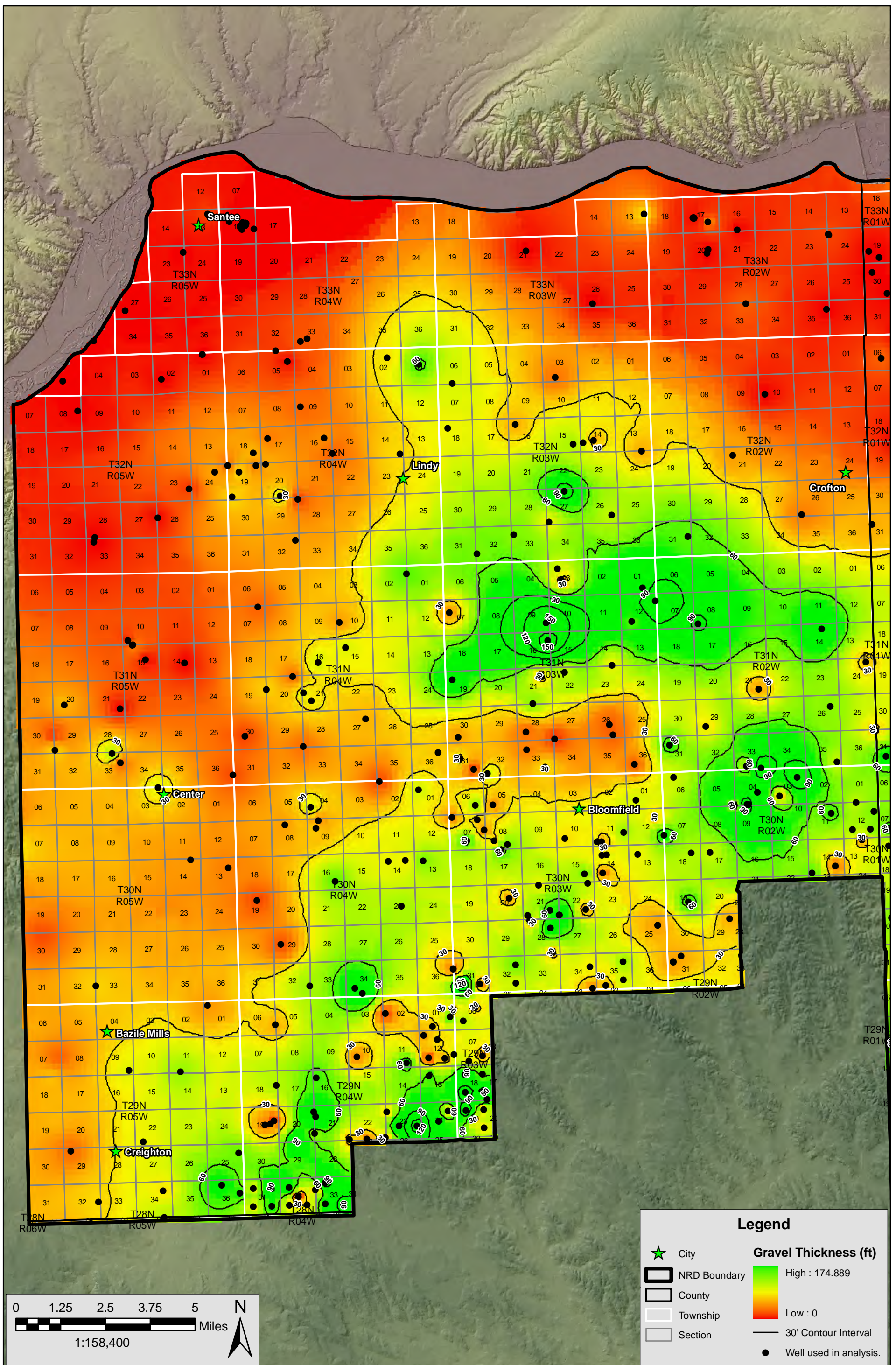
F:\Projects\009-1684_GOHY\gis\Final Maps.mxd

PROJECT: 009-1684, 101, 101001	Sources: UNL - CSD: Test Hole DNR: City, County, Major Highway, NRD Boundary, Registered Well USGS: Stream Hillshade - Developed from DNR DEM Gravel Thickness - Interpreted from DNR and CSD well logs.
DRAWN BY: RD	
DATE: June 24, 2010	



SAND AND GRAVEL THICKNESS MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska





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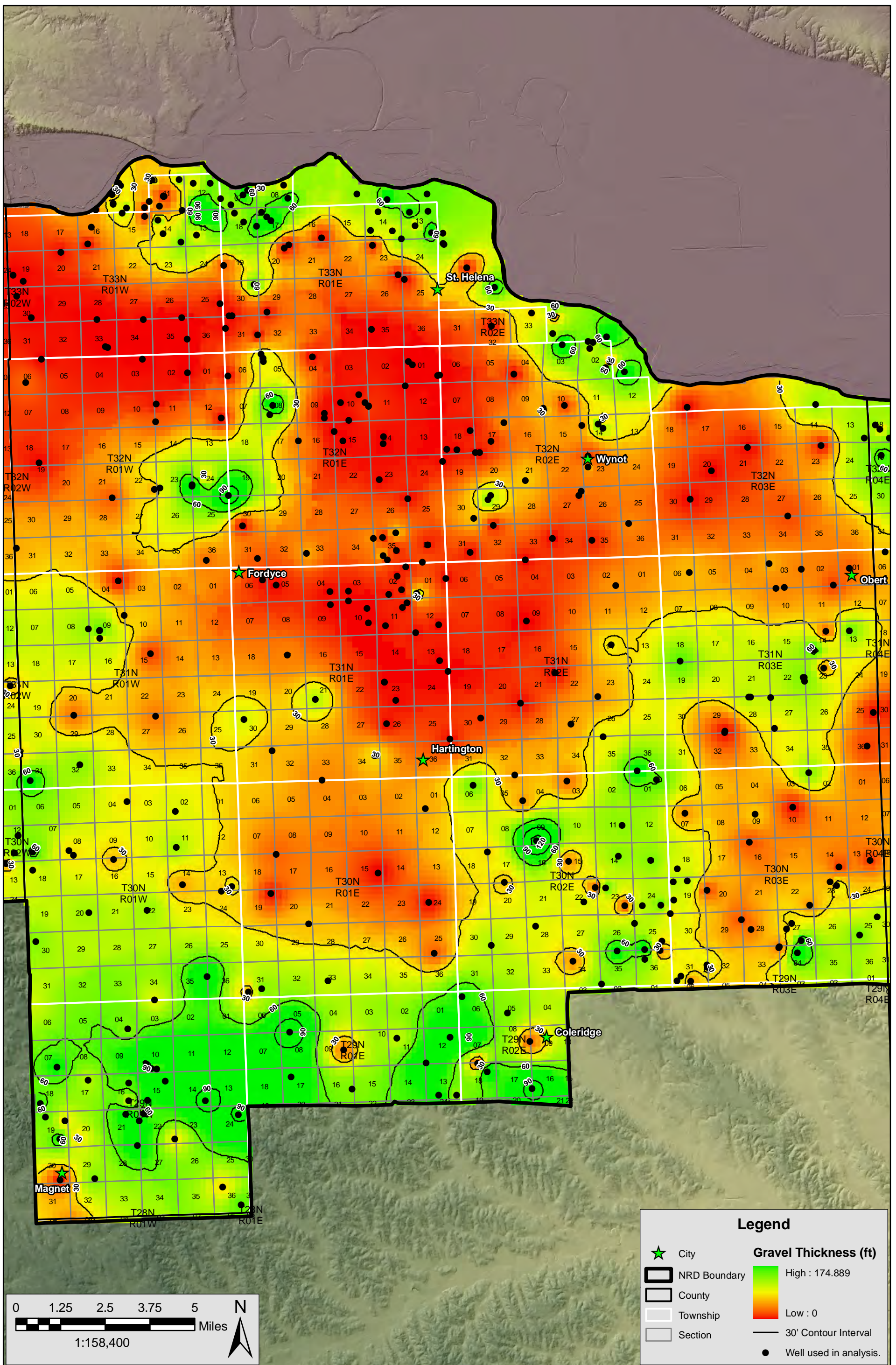
PROJECT: 009-1684
 DRAWN BY: RD
 DATE: June 24, 2010

Sources: DNR: City, County, NRD
 Boundary - Developed from DNR
 Hillshade - DEM
 Gravel Thickness - Interpreted from
 DNR and CSD well logs.

SAND AND GRAVEL THICKNESS MAP - KNOX COUNTY
 Lewis and Clark Natural Resource District
 Northeast, Nebraska

OLSSON ASSOCIATES
 1111 Lincoln Mall, Suite 111
 P.O. Box 64608
 Lincoln, NE 68501-4608
 TEL 402.474.6311
 FAX 402.474.5160
 www.oaconsulting.com

FIGURE
 8b



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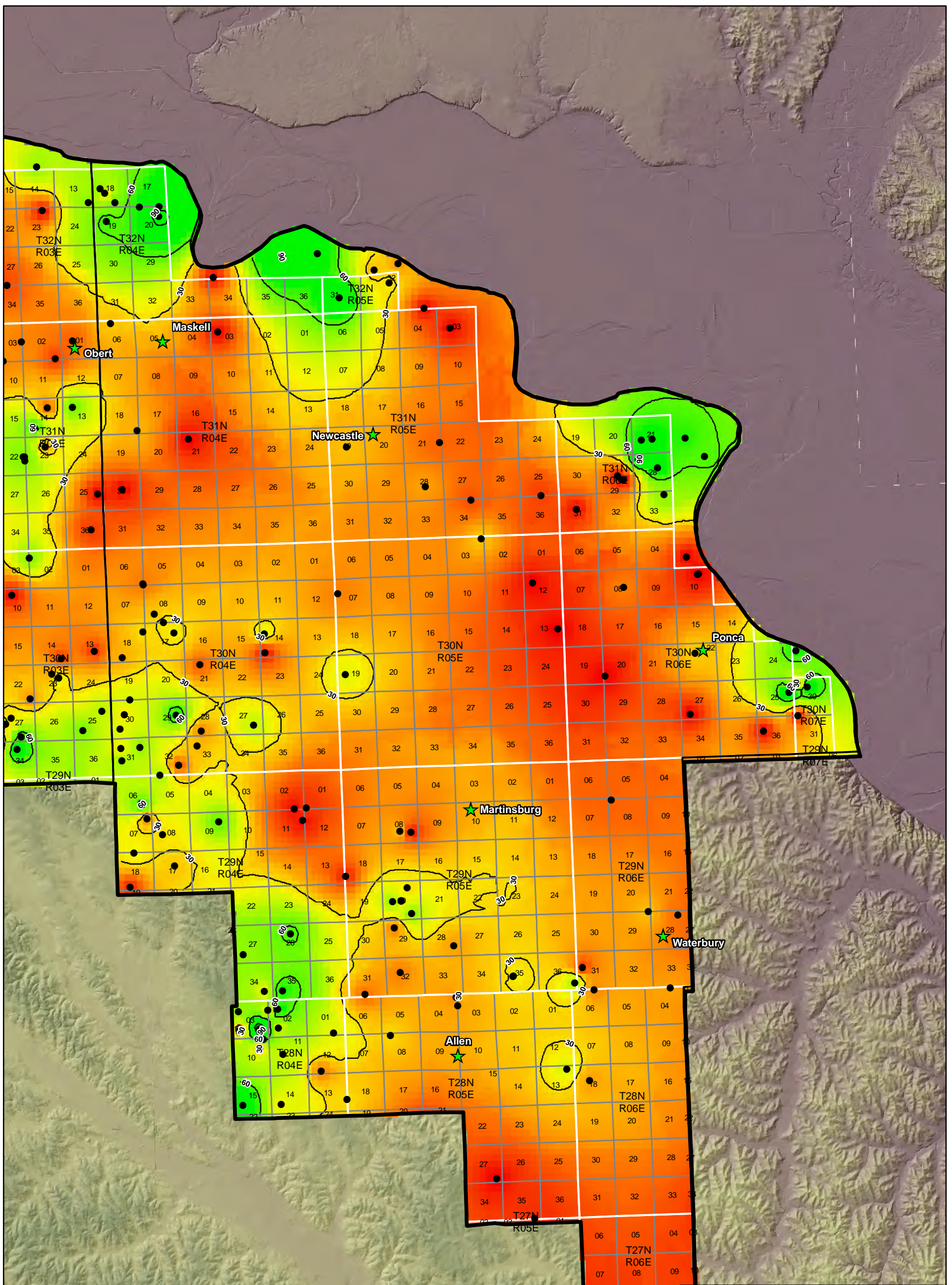
PROJECT: 009-1684
 DRAWN BY: RD
 DATE: June 24, 2010

Sources: DNR: City, County, NRD
 Boundary
 Hillshade - Developed from DNR
 DEM
 Gravel Thickness - Interpreted from
 DNR and CSD well logs.

SAND AND GRAVEL THICKNESS MAP - CEDAR COUNTY
 Lewis and Clark Natural Resource District
 Northeast, Nebraska

OLSSON ASSOCIATES
 1111 Lincoln Mall, Suite 111
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 Lincoln, NE 68621-4608
 TEL 402.474.6311
 FAX 402.474.5160
 www.oaconsulting.com

FIGURE
 8c



Legend

- ★ City
- ▭ NRD Boundary
- ▭ County
- ▭ Township
- ▭ Section

Gravel Thickness (ft)

- High : 174.889
- Low : 0
- 30' Contour Interval
- Well used in analysis.

0 1.25 2.5 3.75 5 Miles

1:158,400

N

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PROJECT: 009-1684
 DRAWN BY: RD
 DATE: June 24, 2010

Sources: DNR: City, County, NRD
 Boundary
 Hillshade - Developed from DNR
 DEM
 Gravel Thickness - Interpreted from
 DNR and CSD well logs.

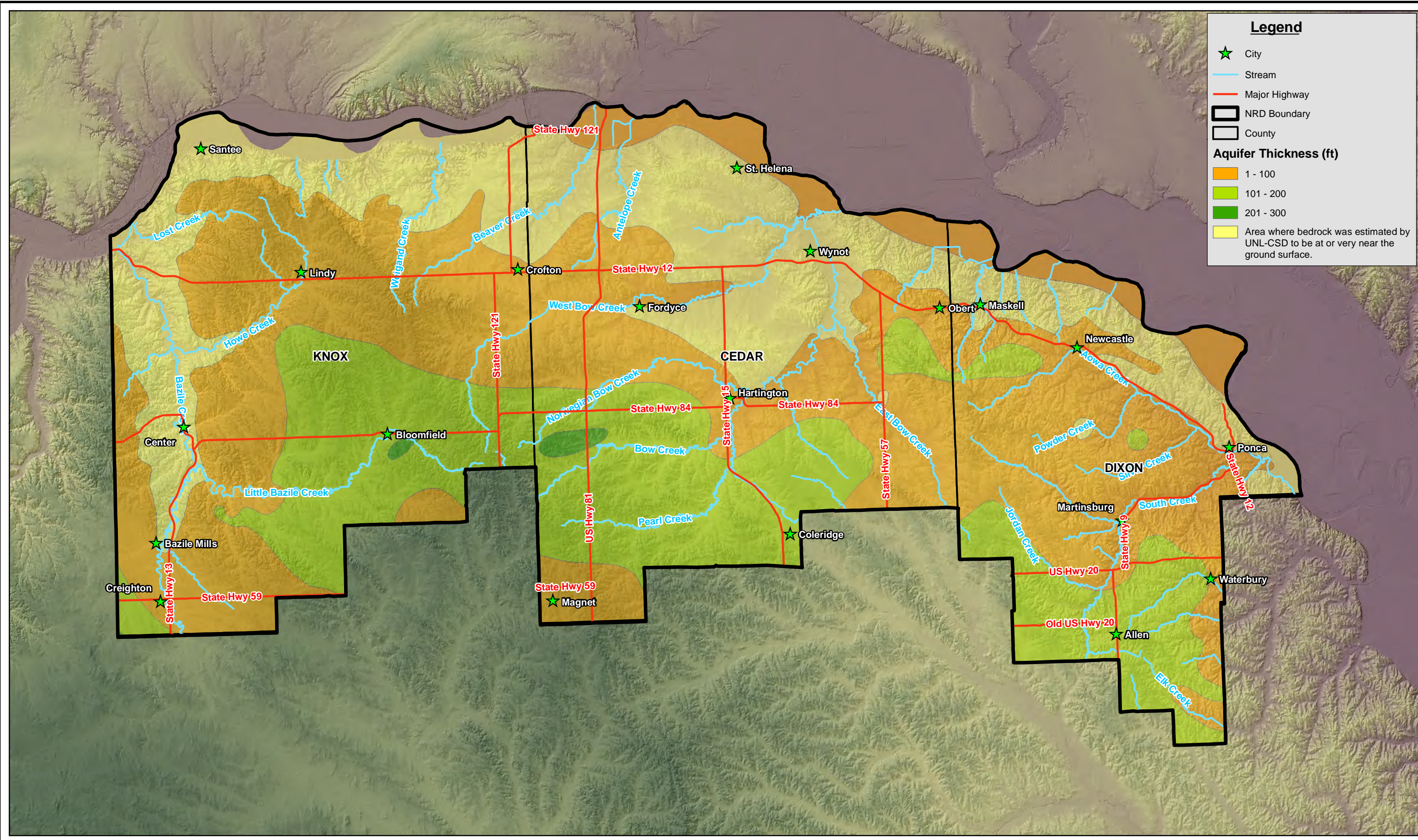
SAND AND GRAVEL THICKNESS MAP - DIXON COUNTY
 Lewis and Clark Natural Resource District
 Northeast, Nebraska

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1111 Lincoln Mall, Suite 111
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 Lincoln, NE 68601-4608

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 FAX 402.474.5160
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FIGURE
 8d



Legend

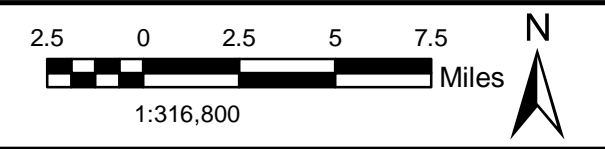
- ★ City
- Stream
- Major Highway
- ▭ NRD Boundary
- ▭ County

Aquifer Thickness (ft)

- 1 - 100
- 101 - 200
- 201 - 300
- Area where bedrock was estimated by UNL-CSD to be at or very near the ground surface.

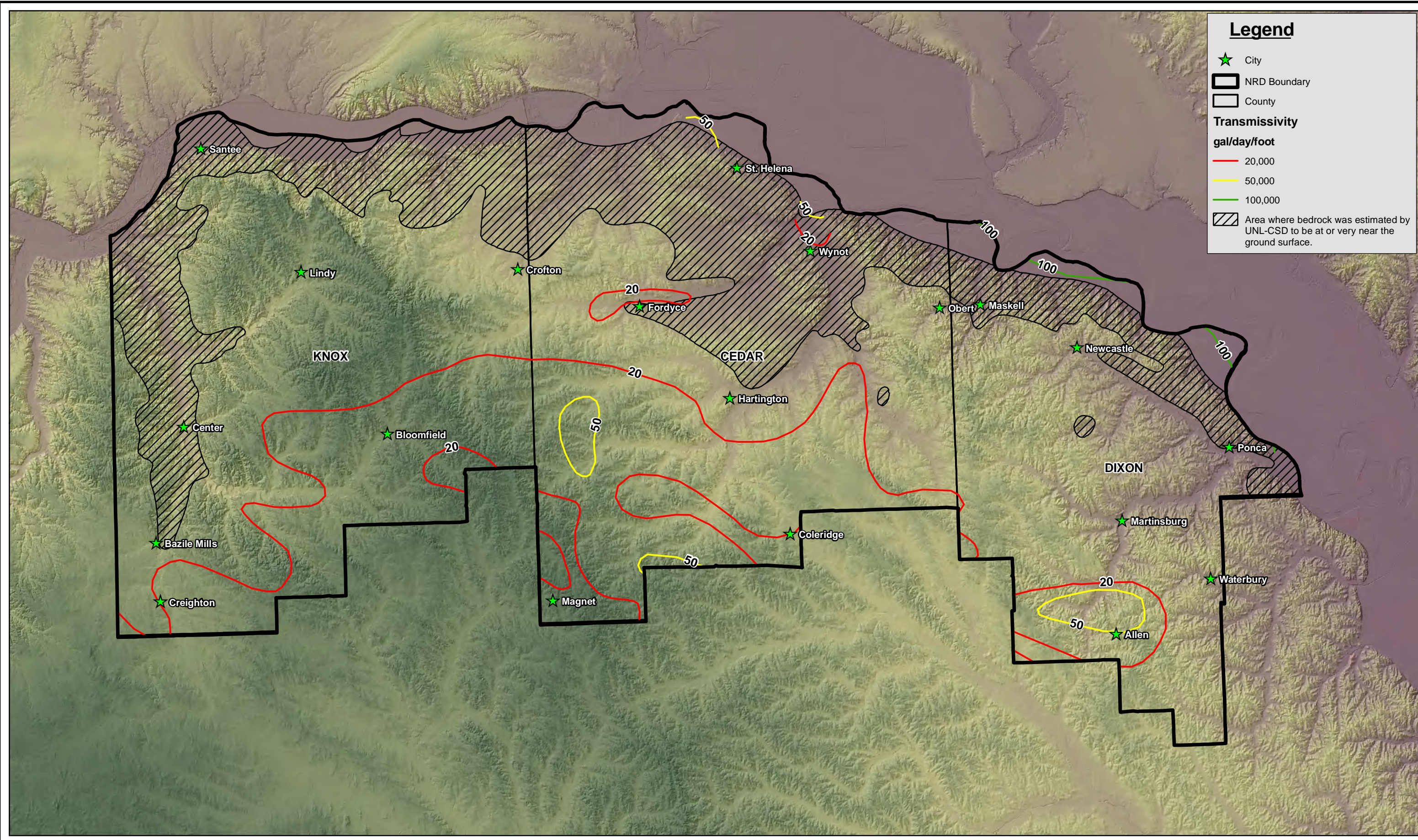
F:\Projects\009-1684_GOHY\gis\Final Maps.mxd

PROJECT: 009-1684, 101, 101001	Sources: UNL - CSD: Test Hole DNR: City, County, Major Highway, NRD Boundary, Registered Well USGS: Stream Hillshade - Developed from DNR DEM
DRAWN BY: RD	
DATE: June 24, 2010	



UNL-CSD AQUIFER SATURATED THICKNESS MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska





Legend

- ★ City
- ▭ NRD Boundary
- ▭ County

Transmissivity
gal/day/foot

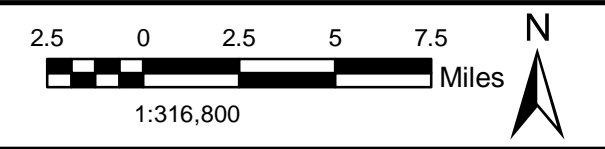
- 20,000
- 50,000
- 100,000

▨ Area where bedrock was estimated by UNL-CSD to be at or very near the ground surface.

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PROJECT: 009-1684, 101, 101001
 DRAWN BY: RD
 DATE: June 24, 2010

Sources:
 UNL - CSD: Test Hole
 DNR: City, County, Major Highway, NRD Boundary, Registered Well
 USGS: Stream
 Hillshade - Developed from DNR DEM



UNL-CSD AQUIFER TRANSMISSIVITY MAP
 Lewis and Clark Natural Resource District
 Northeast, Nebraska



FIGURE
 10