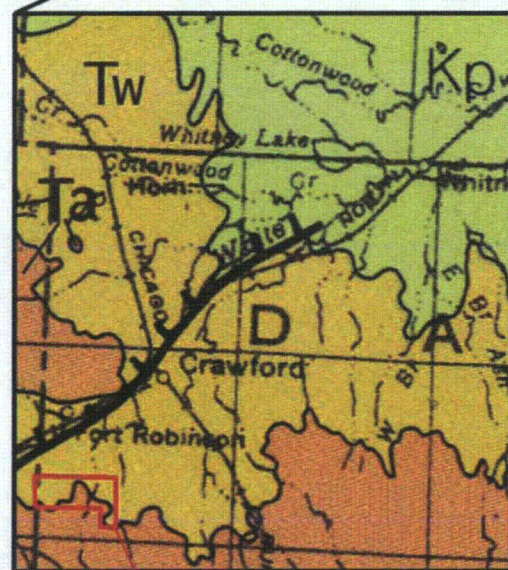
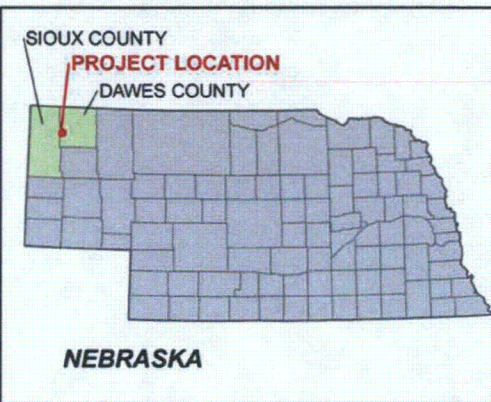


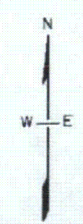


GEOLOGIC PERIOD		SERIES		GROUP OR FORMATION	
T	TERTIARY	MIOCENE		OGALLALA	To
				ARIKAREE	Ta
		OLIGOCENE		WHITE RIVER	Tw
				Fox Hills	Kf
K	CRETACEOUS	UPPER CRETACEOUS		Pierre	Kp
				Niobrara	Kn
				Carlile	Kc
				Greenhorn-Graneros	Kgg
J	JURASSIC	LOWER CRETACEOUS		DAKOTA	Kd
				CHASE	Pc
				COUNCIL GROVE	Pcg
				ADMIRE	Pa
P	PERMIAN	BIG BLUE		WABAUNSEE	Pw
				SHAWNEE	Ps
				DOUGLAS	Pd
				LANSING	Pl
P	PENNSYLVANIAN	VIRGIL		KANSAS CITY	Pkc
				MARMATON	Pm
M	MISSISSIPPIAN				
D	DEVONIAN				
S	SILURIAN				
O	ORDOVICIAN (Middle & Upper)				
CO	CAMBRIAN & ORDOVICIAN (Lower)				
PC	PRECAMBRIAN				

LEGEND

(PLIOCENE AND QUATERNARY deposits not shown)

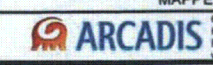
Source: Nebraska Geological Survey



CROW BUTTE RESOURCES, INC.

FIGURE 2.6-1
BEDROCK GEOLOGY OF
THE THREE CROW EXPANSION AREA

PROJECT: CO001396.00001 MAPPED BY: JC CHECKED BY: MS
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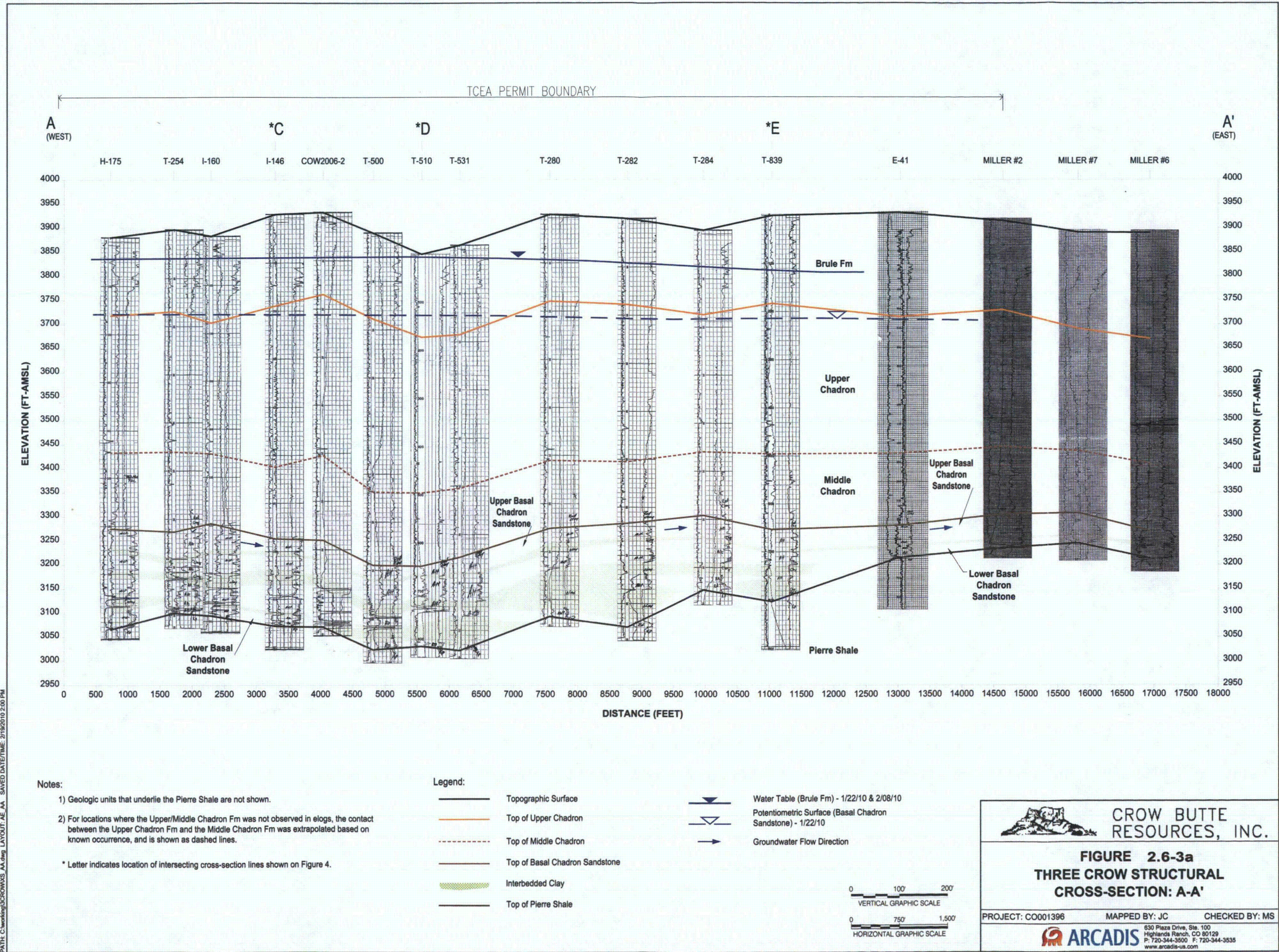


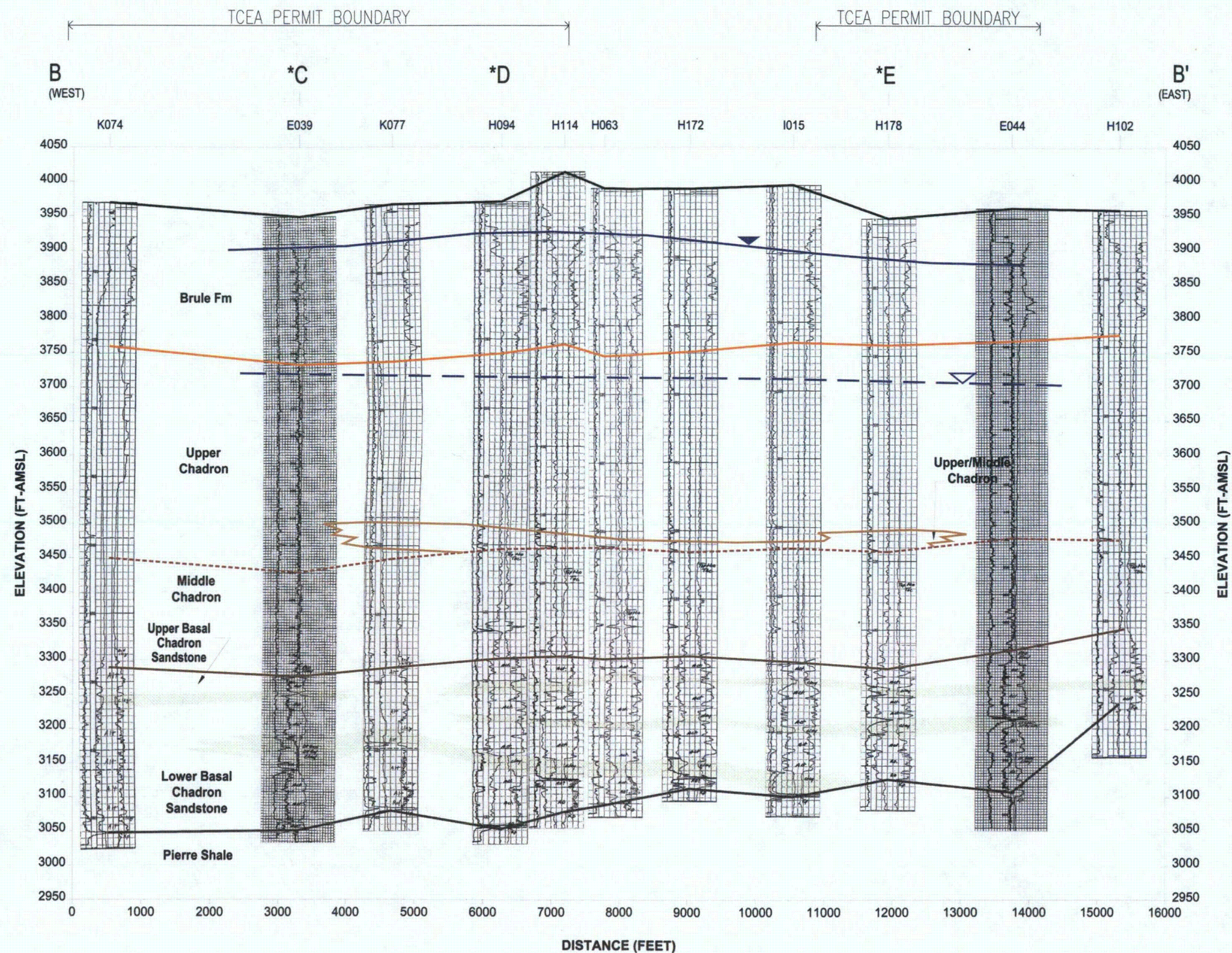
**THIS PAGE IS AN
OVERSIZED DRAWING OR
FIGURE,
THAT CAN BE VIEWED
AT THE RECORD TITLED:**

**“FIGURE 2.6-2
THREE CROW
CROSS-SECTION LOCATION
MAP”**

**WITHIN THIS PACKAGE...OR
BY SEARCHING USING THE
DOCUMENT/REPORT NO.**

D-01



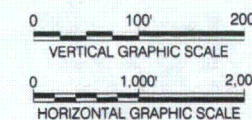


Notes:

- 1) Geologic units that underlie the Pierre Shale are not shown.
- 2) For locations where the Upper/Middle Chadron Fm was not observed in logs, the contact between the Upper Chadron Fm and the Middle Chadron Fm was extrapolated based on known occurrence, and is shown as dashed lines.
- * Letter indicates location of intersecting cross-section lines shown on Figure 4.

Legend:

- | | | | |
|--|--------------------------------|--|--|
| | Topographic Surface | | Water Table (Brule Fm) - 1/22/10 |
| | Top of Upper Chadron | | Potentiometric Surface (Basal Chadron Sandstone) - 1/22/10 & 2/08/10 |
| | Top of Upper/Middle Chadron | | Groundwater Flow Direction |
| | Top of Middle Chadron | | |
| | Top of Basal Chadron Sandstone | | |
| | Interbedded Clay | | |
| | Top of Pierre Shale | | |



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**FIGURE 2.6-3b
THREE CROW STRUCTURAL
CROSS-SECTION: B-B'**

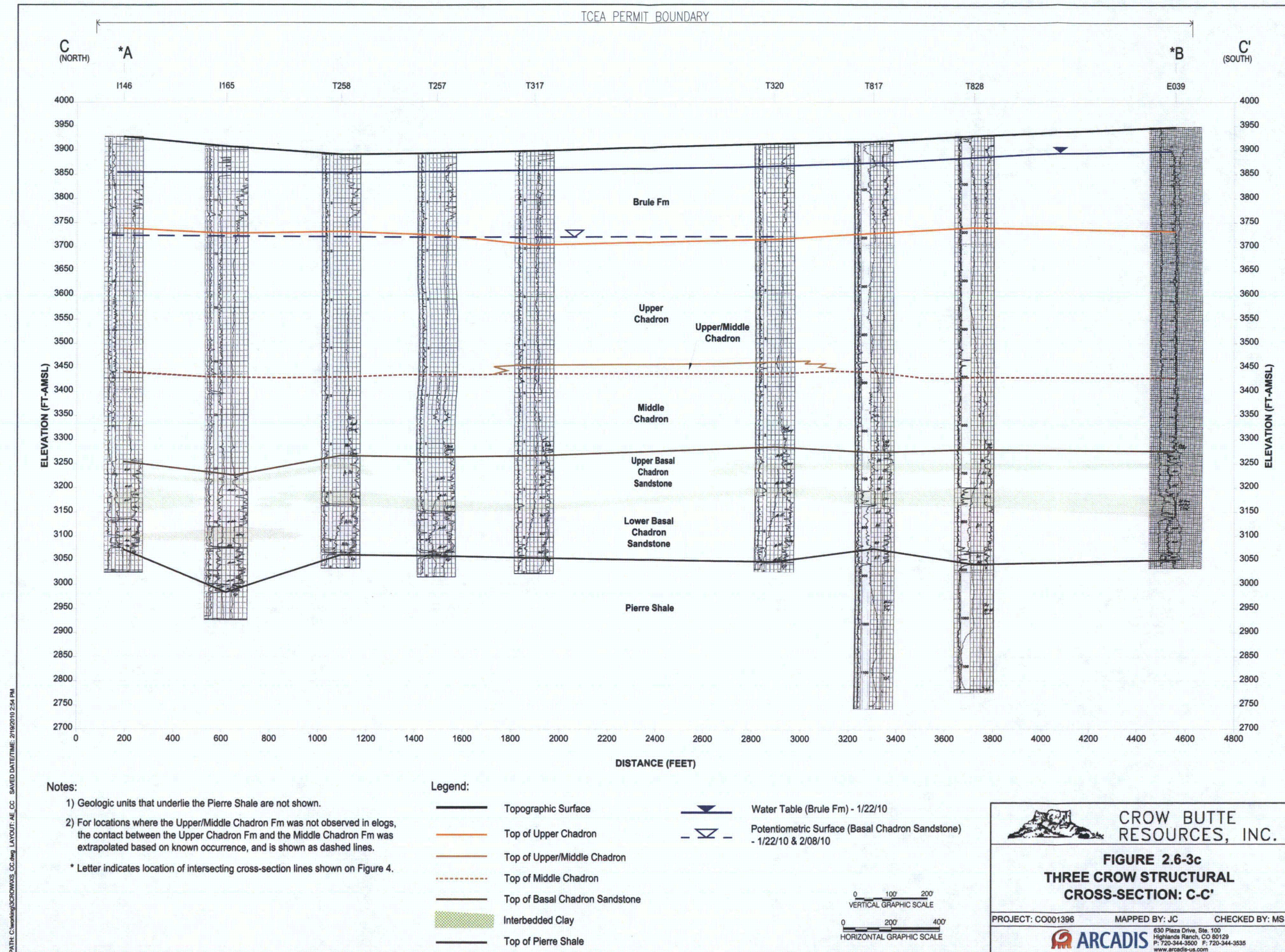
PROJECT: CO001396

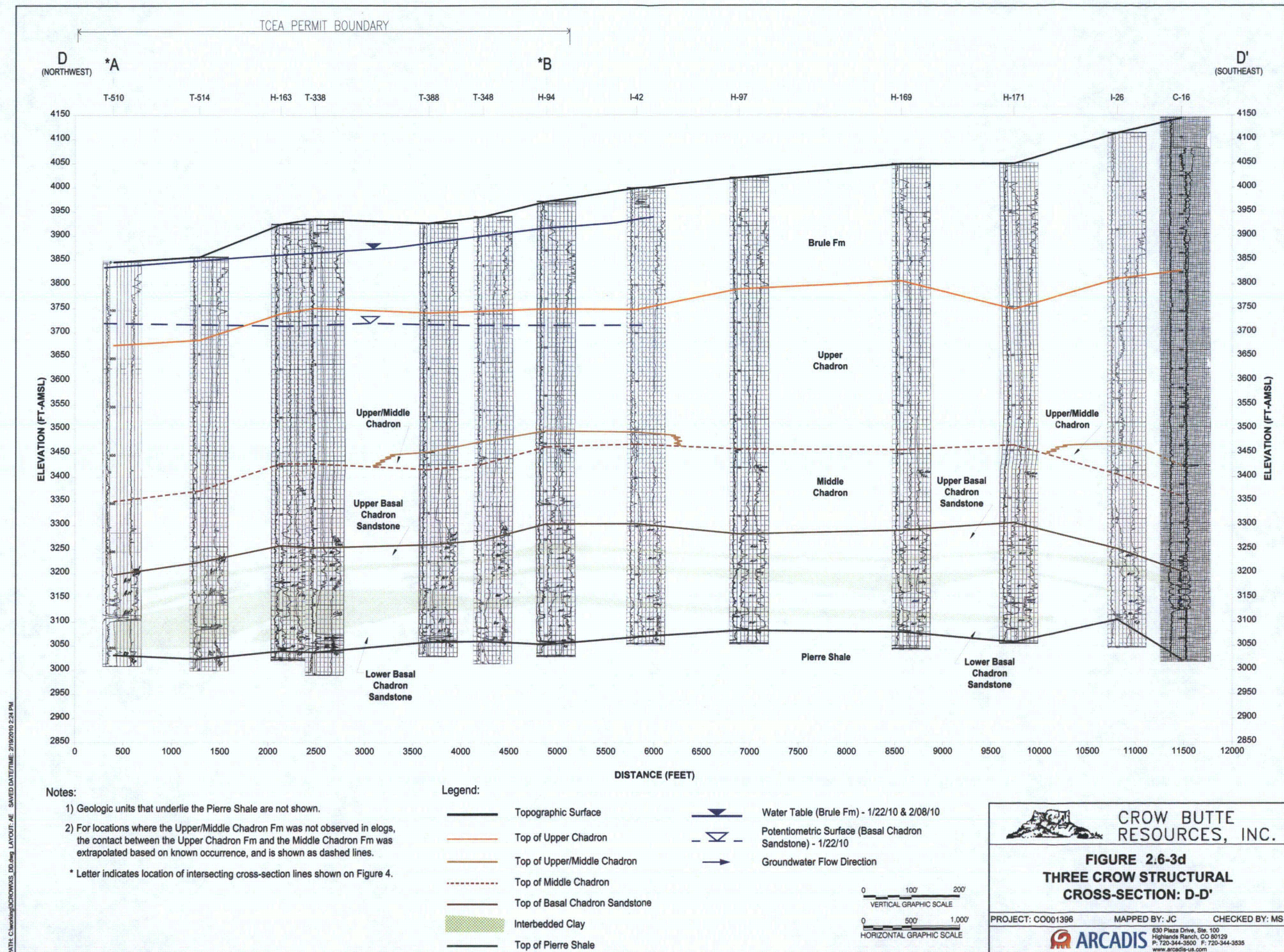
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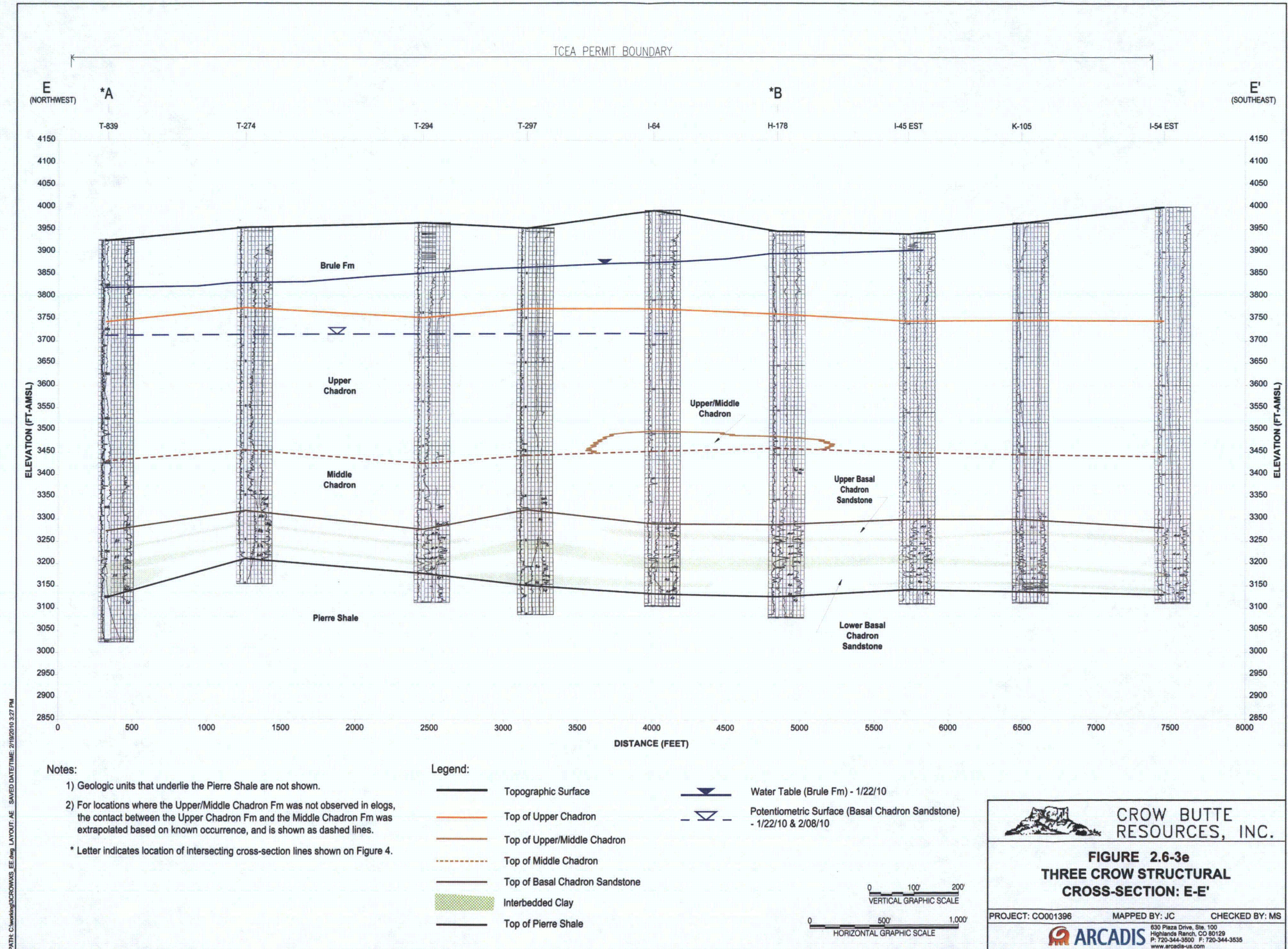
CHECKED BY: MS



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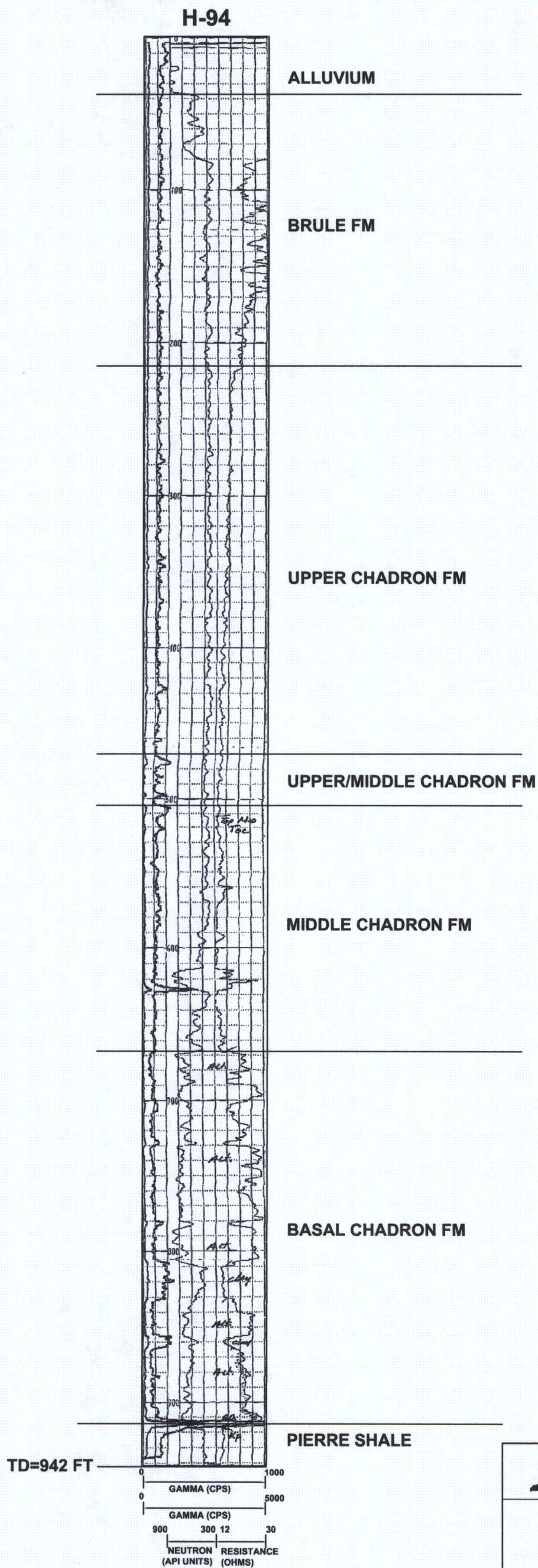


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**FIGURE 2.6-3e
THREE CROW STRUCTURAL
CROSS-SECTION: E-E'**

PROJECT: CO001396 MAPPED BY: JC CHECKED BY: MS

PATH: K:\CBR_Projects\CO001396_ThreeCrow1\ACAD\ie-transmit\TypeLog.dwg LAYOUT: tr SAVED DATE/TIME: 6/3/2010 10:42 PM



NOTE:

1). E-LOGS NEWER THAN 1990 USE SP RATHER THAN NUETRON LOGGING.



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**FIGURE 2.6-4
THREE CROW EXPANSION AREA
TYPE LOG (H-94)**

PROJECT: CO001396

MAPPED BY: JC

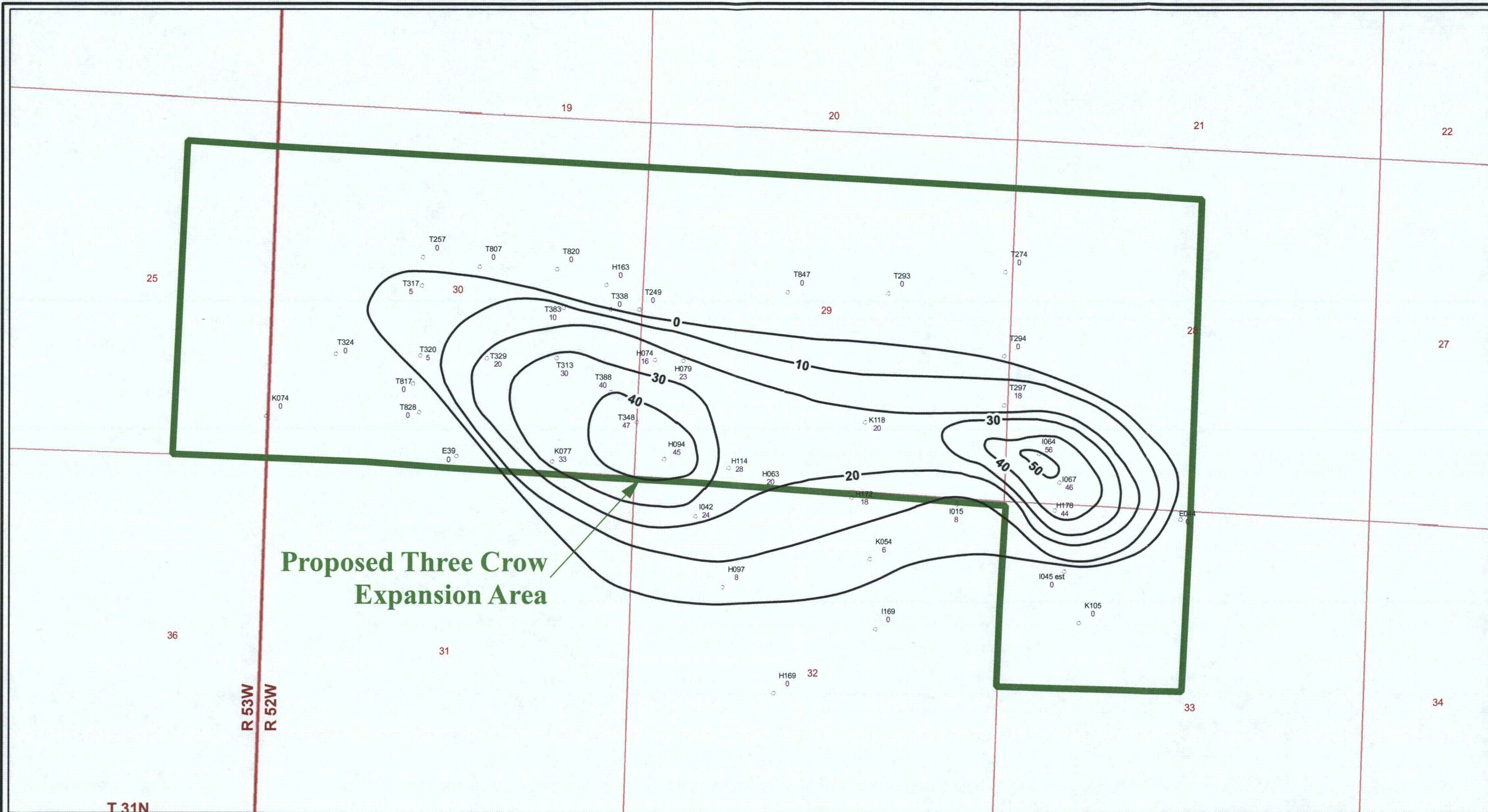
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K:\CIBR_Projects\CO001396_ThreeCrow2_GIS\ArcMap\0001_TR1R Fig 2.6-5_3Crow_Isopach_BasalChadron.mxd - 6/4/2010 @ 5:33:14 PM

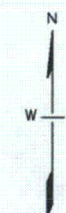


LEGEND

- Exploration Borehole
- Isopach Contour (Feet)
- Proposed Three Crow Expansion Area
- T828
238 Borehole/Well ID
Unit Thickness (Feet)

0 1,000 2,000
Scale in Feet

PROJECTION:
NAD 1927, STATE PLANE
NEBRASKA NORTH FIPS 2601



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FIGURE 2.6-5
THREE CROW ISOPACH MAP -
UPPER/MIDDLE CHADRON FORMATION

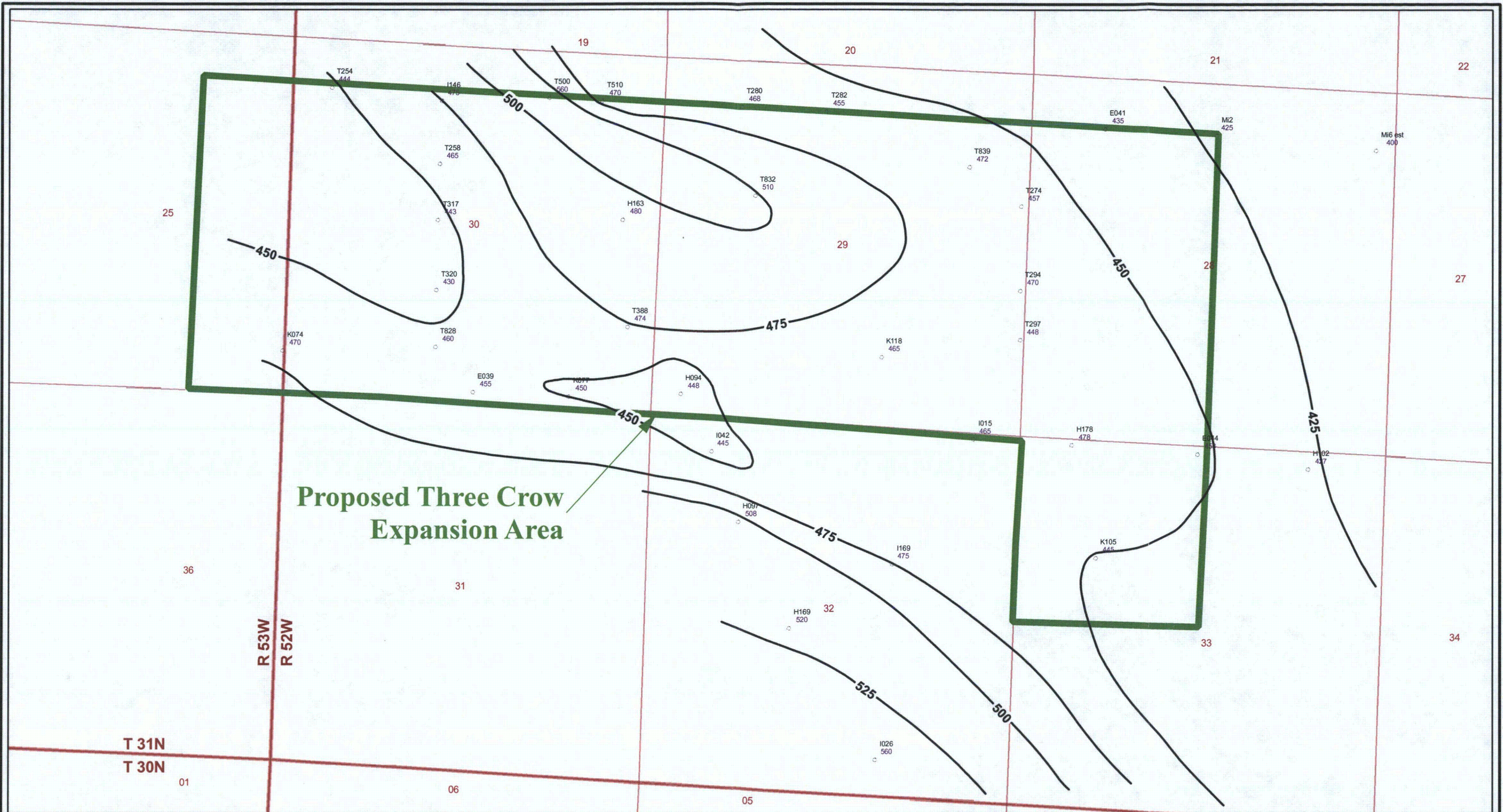
PROJECT: CO001396.00003

MAPPED BY: JC

CHECKED BY: MS

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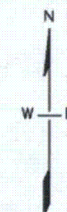
LEGEND

- Exploration Borehole
- Thickness Contour (Upper Confining Zone)
- Proposed Three Crow Expansion Area
- Borehole/Well ID
- Unit Thickness (Feet)

Note: 1) The upper confining zone represents the interval between the base of the Brule Formation and the top of the underlying Basal Chadron Sandstone.

0 1,000 2,000
Scale in Feet

PROJECTION:
NAD 1927, STATE PLANE
NEBRASKA NORTH FIPS 2601



CROW BUTTE
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**FIGURE 2.6-6
THREE CROW ISOPACH MAP -
UPPER CONFINING ZONE**

PROJECT: CO001396.00003

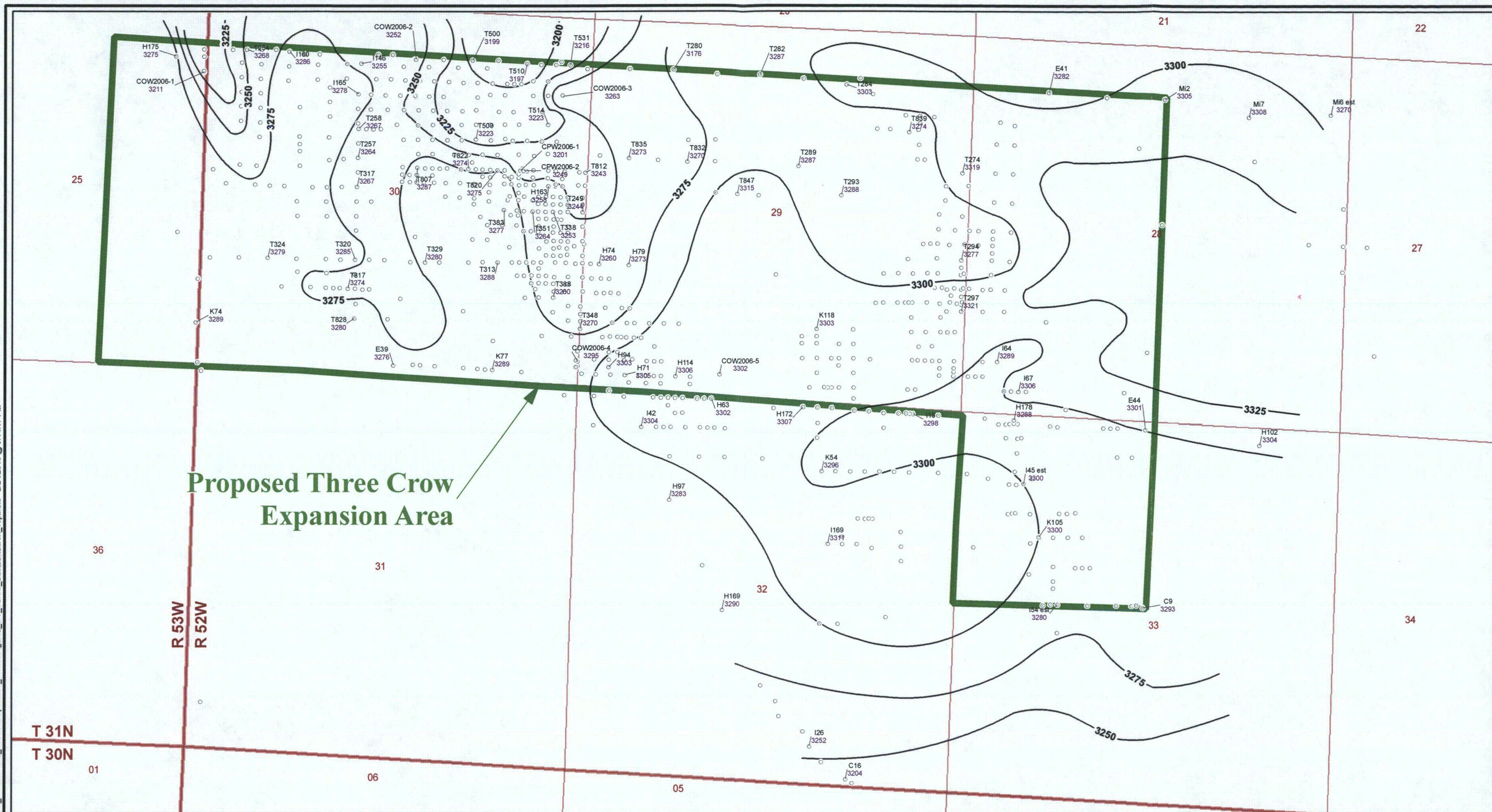
MAPPED BY: JC

CHECKED BY: MS



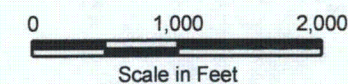
830 Plaza Drive, Ste. 100
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\\Co3\pjis-cadd\CBR_P\Projects\CO001396_ThreeCrow2_GIS\ArcMap\0001_TR1TR Figure2_6-7_3Crow_BasalChadron_Top.mxd - 2/24/2010 @ 9:14:17 PM

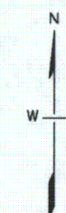


LEGEND

- Exploration Borehole
- Top of Basal Chadron Contour (FT-AMSL)
- ▭ Proposed Three Crow Expansion Area
- ↖ Borehole/Well ID
- ↖ Top of Basal Chadron (FT-AMSL)



PROJECTION:
NAD_1927_STATEPLANE
NEBRASKA_NORTH_FIPS_2601



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RESOURCES, INC.

FIGURE 2.6-7
THREE CROW STRUCTURE CONTOUR MAP
TOP OF BASAL CHADRON SANDSTONE

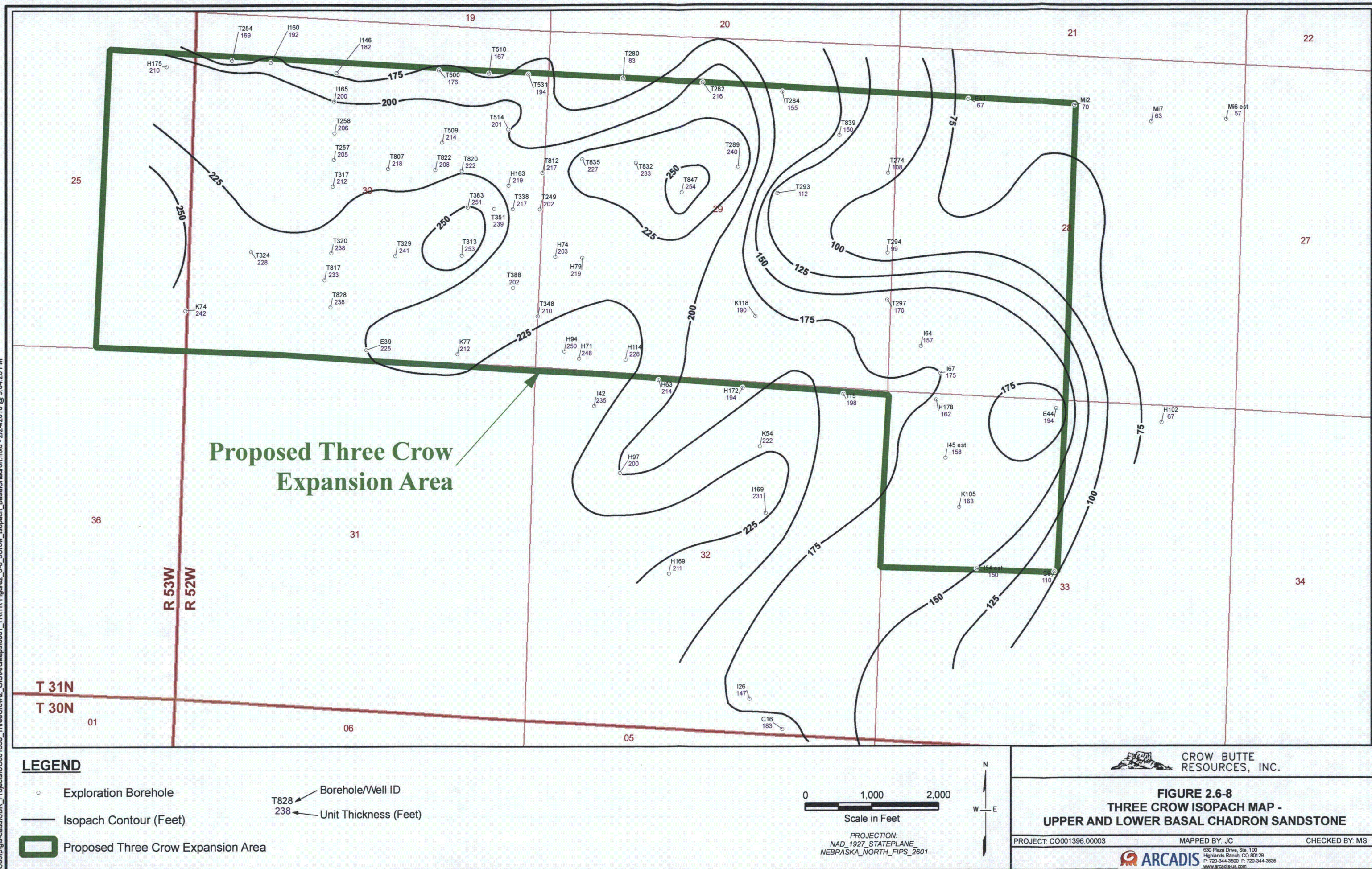
PROJECT: CO001396.0003

MAPPED BY: JC

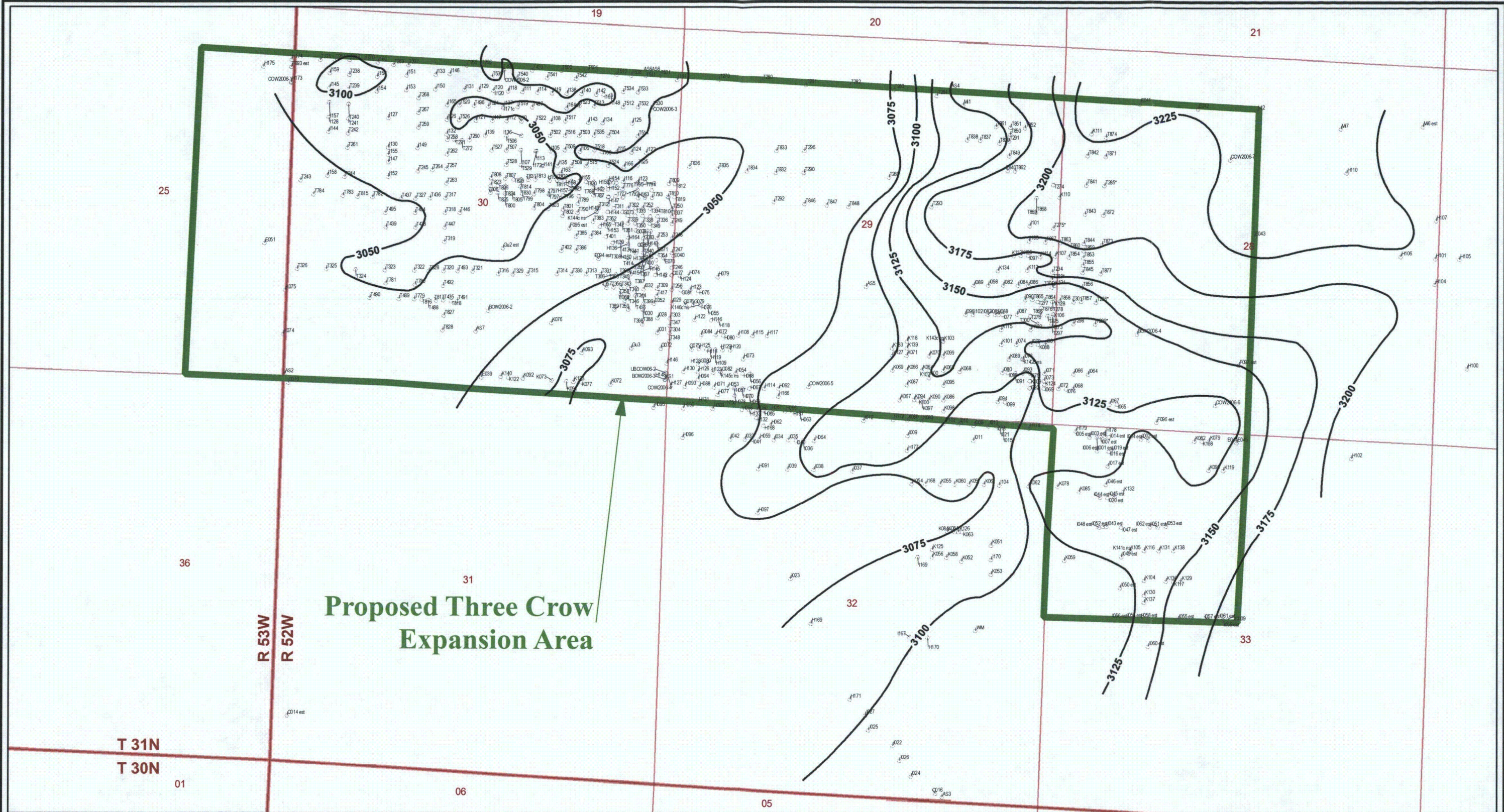
CHECKED BY: MS



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K:\CBR_P\Projects\CO001396_ThreeCrow2_GIS\ArcMaps\0001_TRITR Fig. 2.6-9_3Crow_PierreShale_Top.mxd - 6/27/2010 @ 10:16:51 AM



LEGEND

- Exploration Borehole
- Top of Pierre Shale Contour (FT-AMSL)
- Proposed Three Crow Expansion Area

0 1,000 2,000
Scale in Feet

PROJECTION:
NAD_1927_STATEPLANE
NEBRASKA_NORTH_FIPS_2601

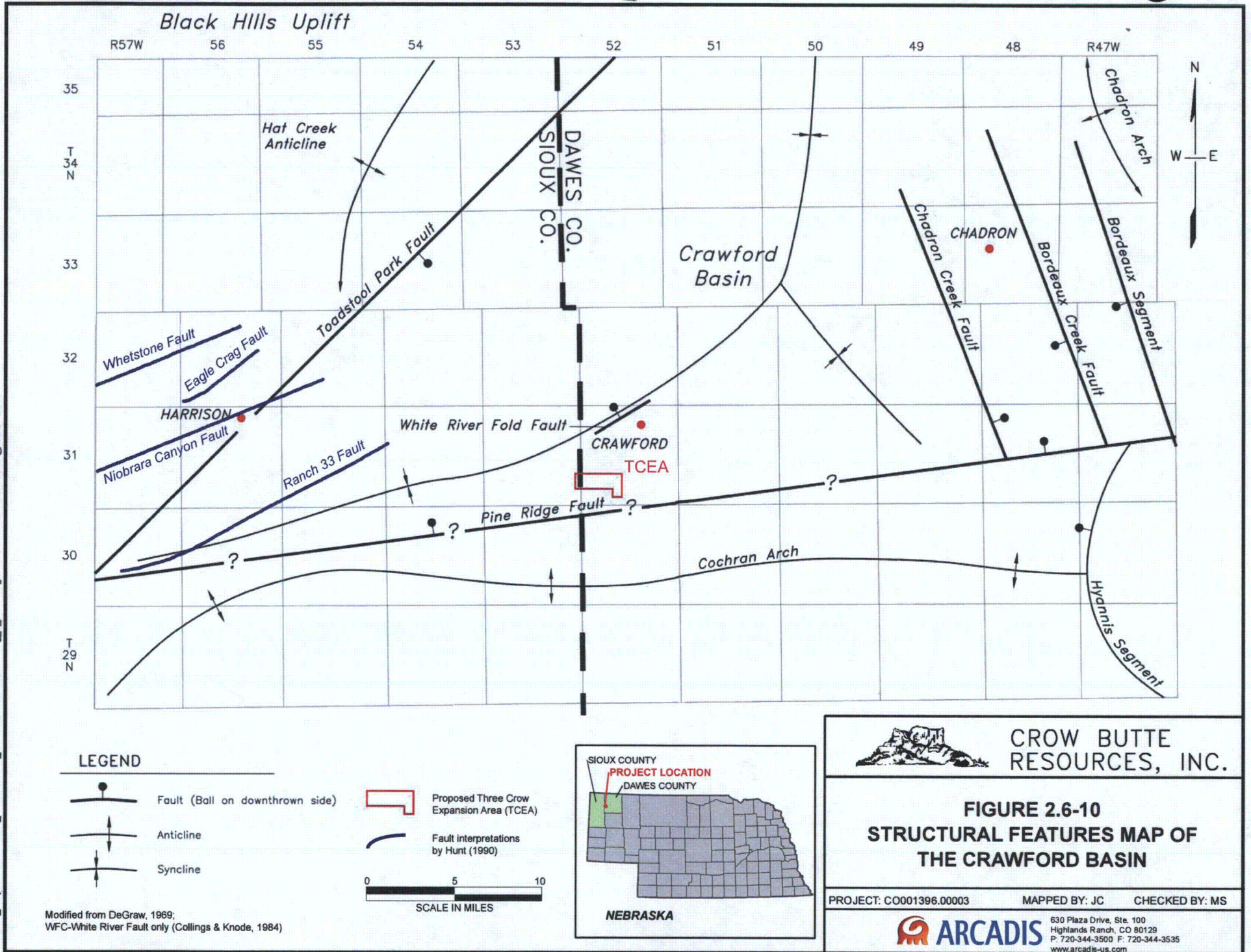
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 CROW BUTTE RESOURCES, INC.

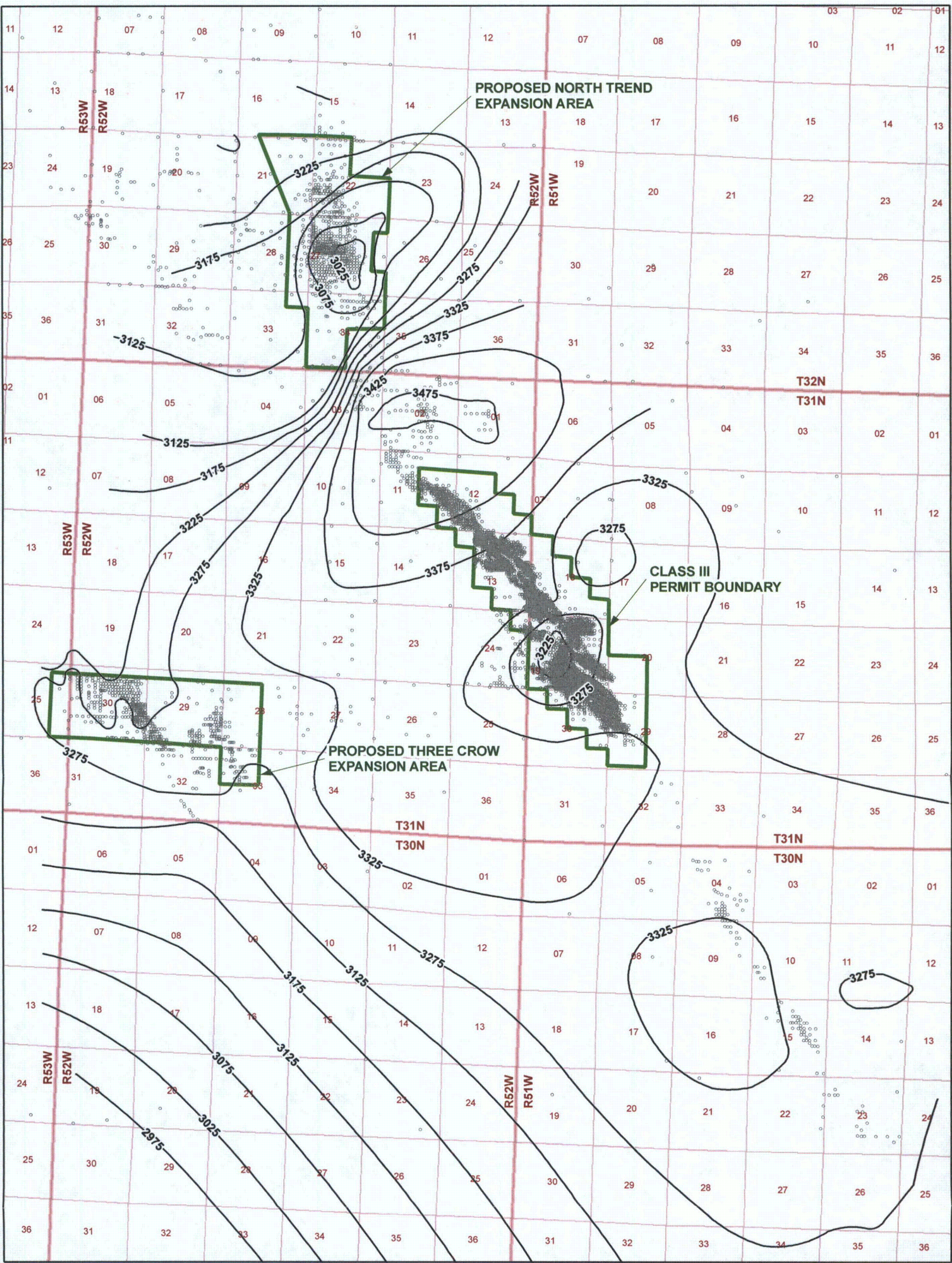
FIGURE 2.6-9
THREE CROW STRUCTURE CONTOUR MAP -
TOP OF PIERRE SHALE

PROJECT: CO001396.0003 MAPPED BY: JC CHECKED BY: MS

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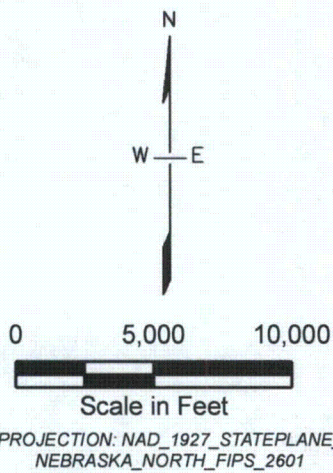


Modified from DeGraw, 1969;
WFC-White River Fault only (Collings & Knode, 1984)



LEGEND

- Exploration Borehole
- Groundwater Potentiometric Surface (FT-AMSL)



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FIGURE 2.6-11 REGIONAL STRUCTURE CONTOUR MAP - TOP OF BASAL CHADRON SANDSTONE

PROJECT: CO001396.0003

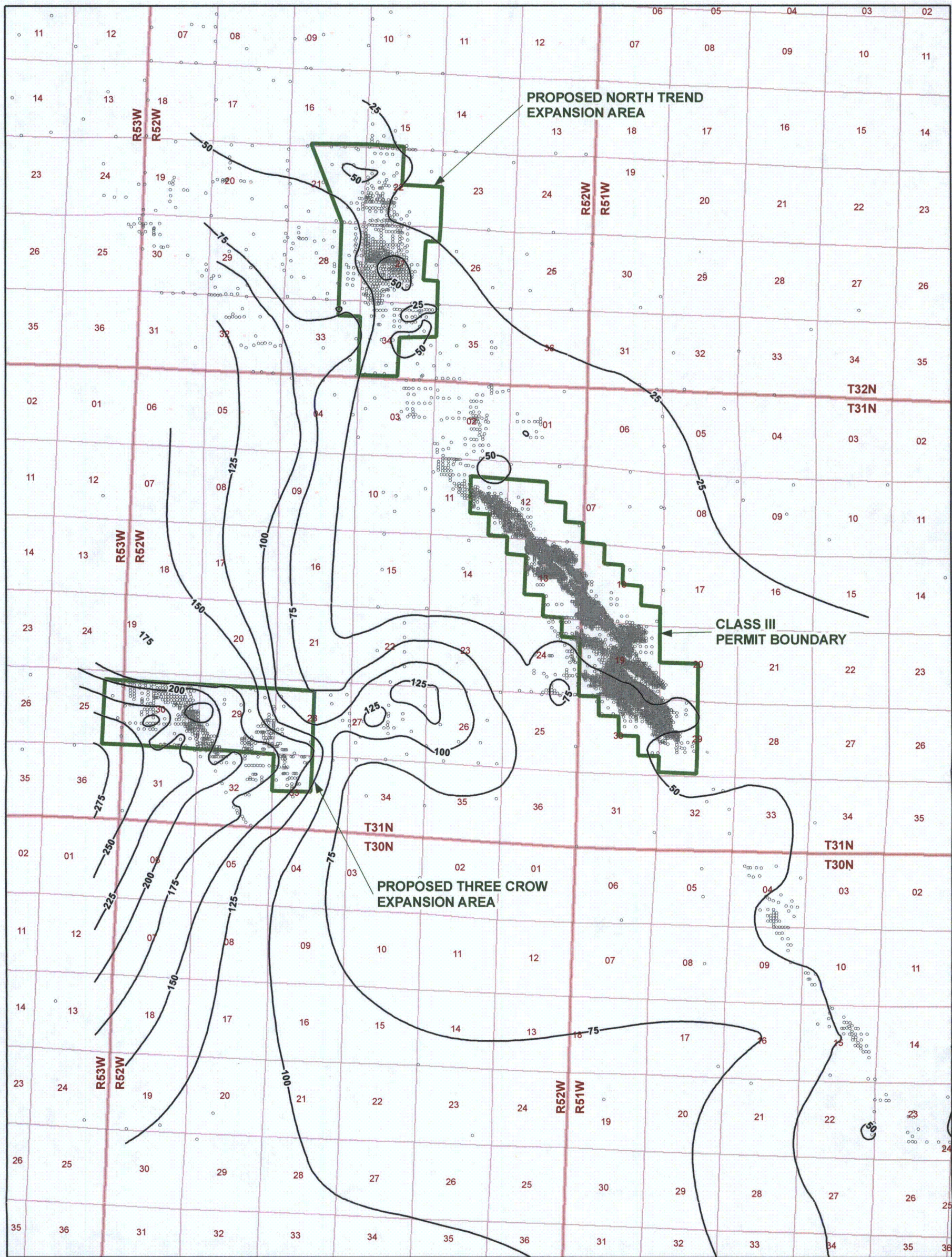
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CHECKED BY: MS



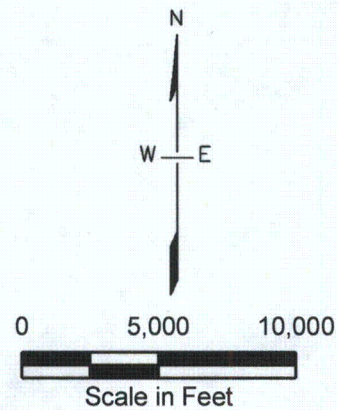
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\\co3p\gis-cadd\CBR_Projects\CO001396_ThreeCrow2_GIS\ArcMap0001\TRVTR Figure2_6-12_Regional_Isopach1_Map_BasalChadron.mxd - 2/24/2010 @ 9:42:33 PM



LEGEND

- Unit Thickness (Feet)
- Exploration Borehole



PROJECTION: NAD_1927_STATEPLANE_NEBRASKA_NORTH_FIPS_2601



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FIGURE 2.6-12 REGIONAL ISOPACH MAP - BASAL CHADRON SANDSTONE

PROJECT: CO001396.0003

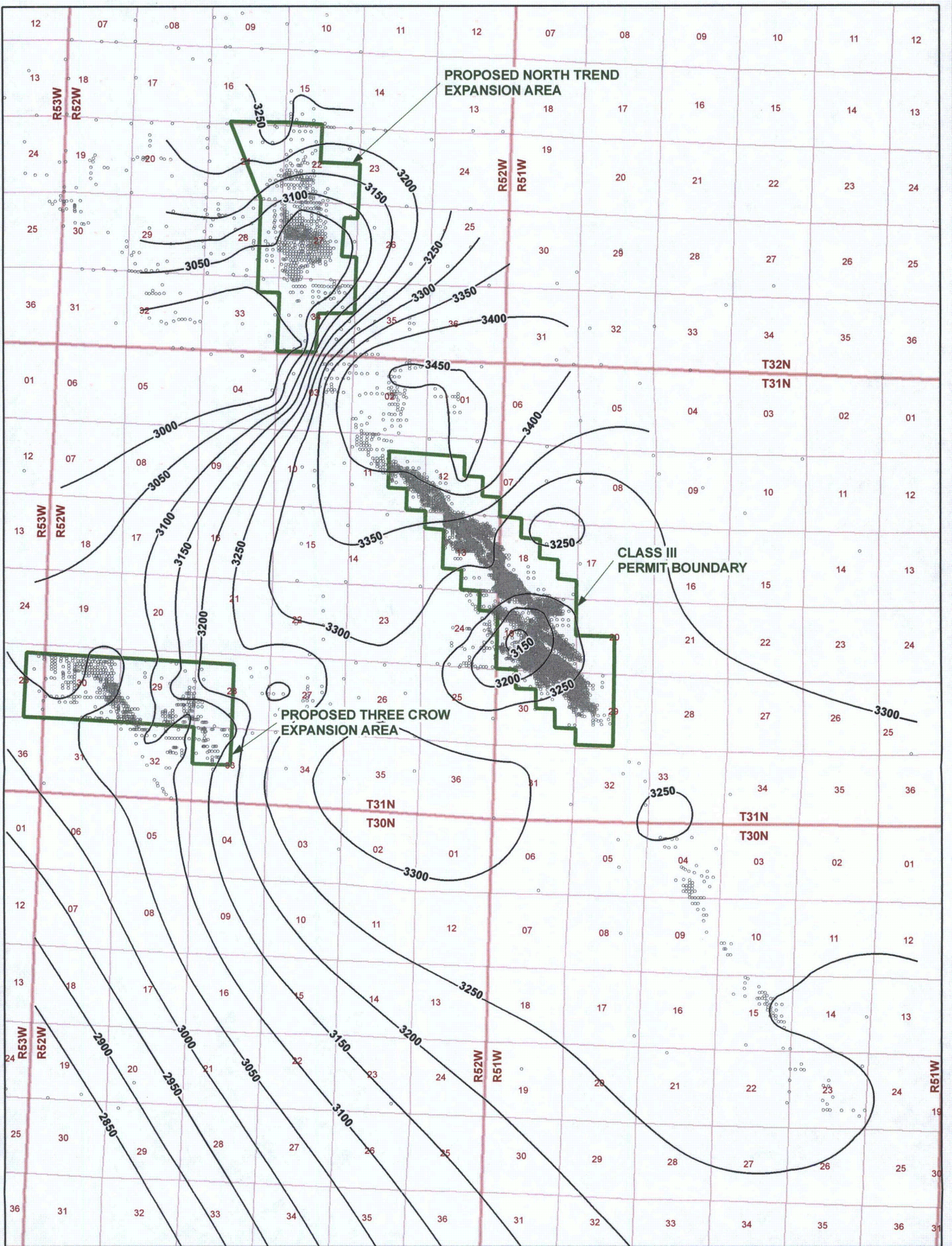
MAPPED BY: JC

CHECKED BY: MS



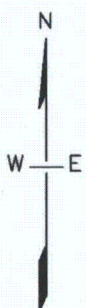
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LEGEND

- Elevation Contour (FT-AMSL)
- Exploration Borehole



0 5,000 10,000

Scale in Feet

PROJECTION: NAD_1927_STATEPLANE_ NEBRASKA_NORTH_FIPS_2601



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FIGURE 2.6-13
REGIONAL STRUCTURE CONTOUR MAP -
TOP OF PIERRE SHALE

PROJECT: CO001396.0003

MAPPED BY: JC

CHECKED BY: MS



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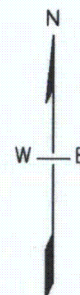


LEGEND

- Proposed Three Crow Expansion Area (TCEA)
- Nebraska County Boundary
- Nebraska State Boundary

0 15 30
Miles

PROJECTION:
NAD 1927, STATE PLANE
NEBRASKA NORTH FIPS 2601
SOURCE: STIX, J. 1982



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RESOURCES, INC.**

**FIGURE 2.6-13a
LOCATION OF CHADRON ARCH
AND CAMBRIDGE ARCH IN NEBRASKA**

PROJECT: CO001396.00003

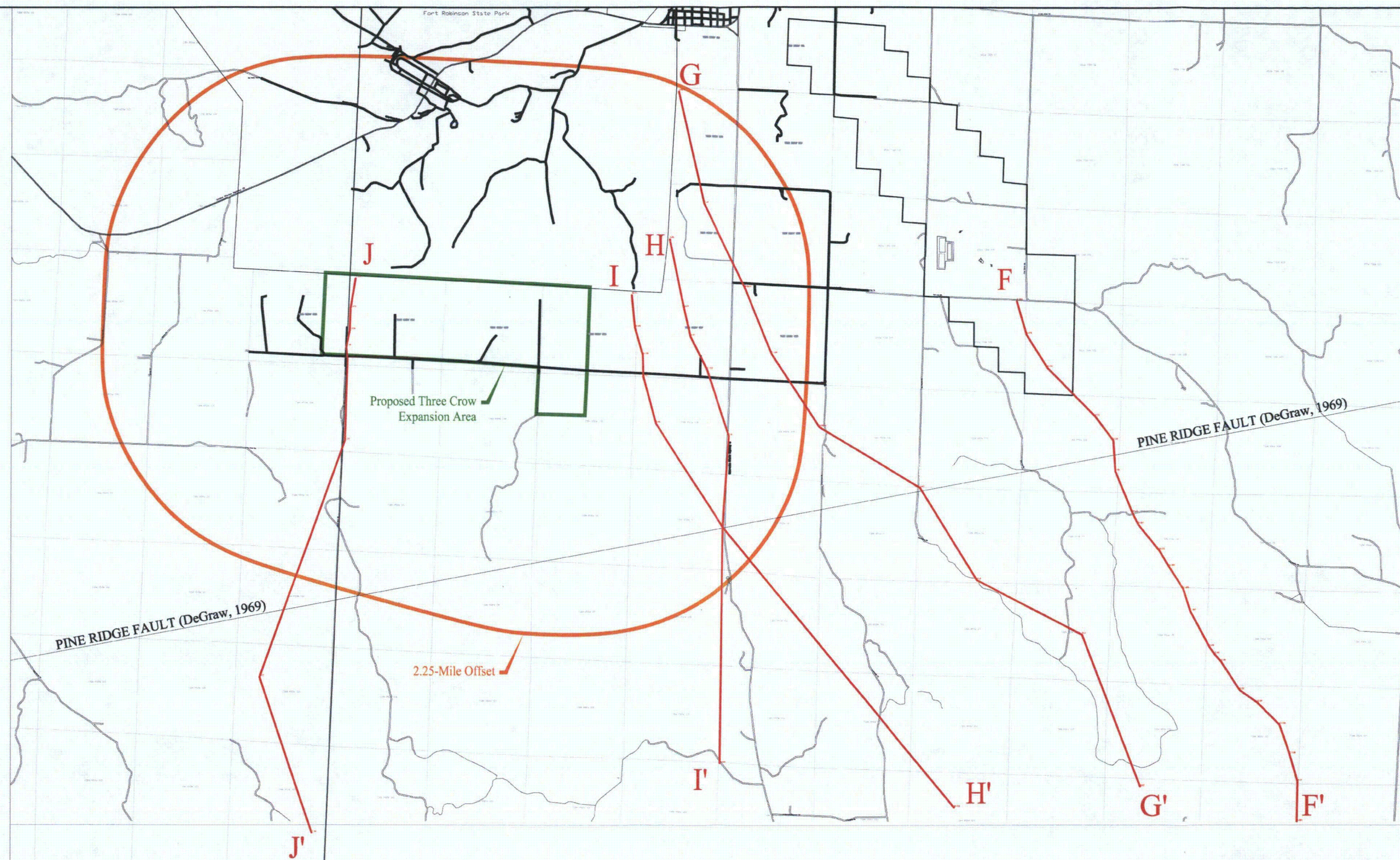
MAPPED BY: JC

CHECKED BY: JEC



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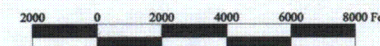
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FIGURE 2.6-14
THREE CROW SECTION LOCATION MAP

PROJECT: CO001396

MAPPED BY: JC

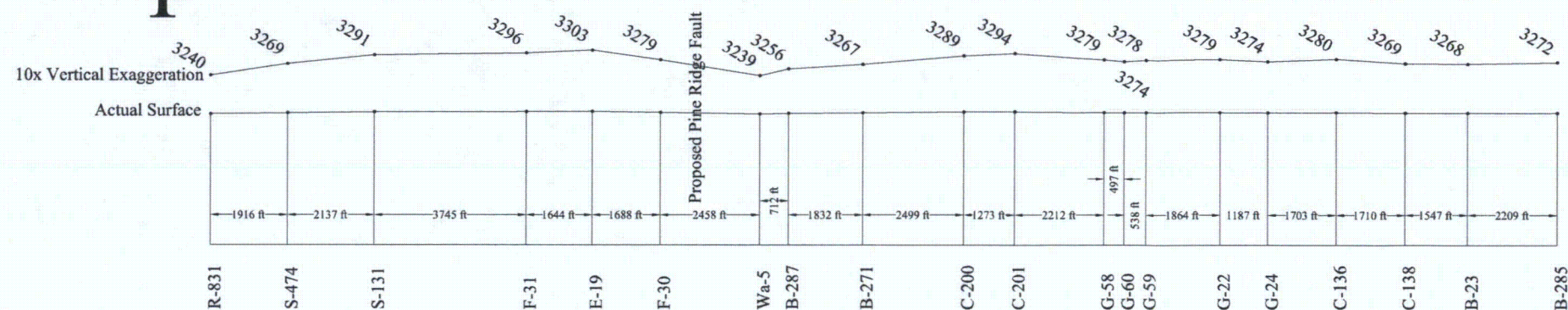
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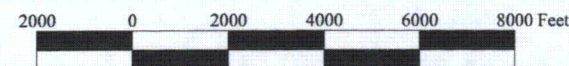
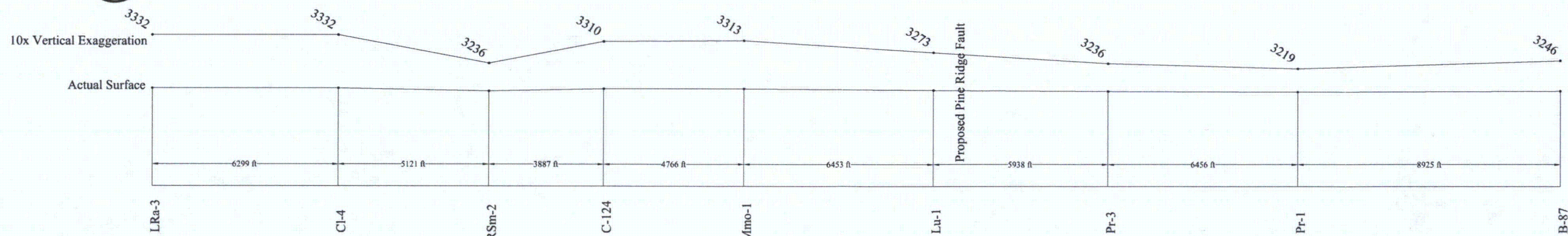
630 Plaza Drive, Ste. 100
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North **F** **F'** South



North **G** **G'** South



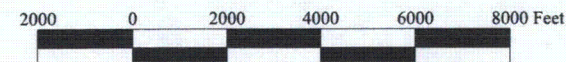
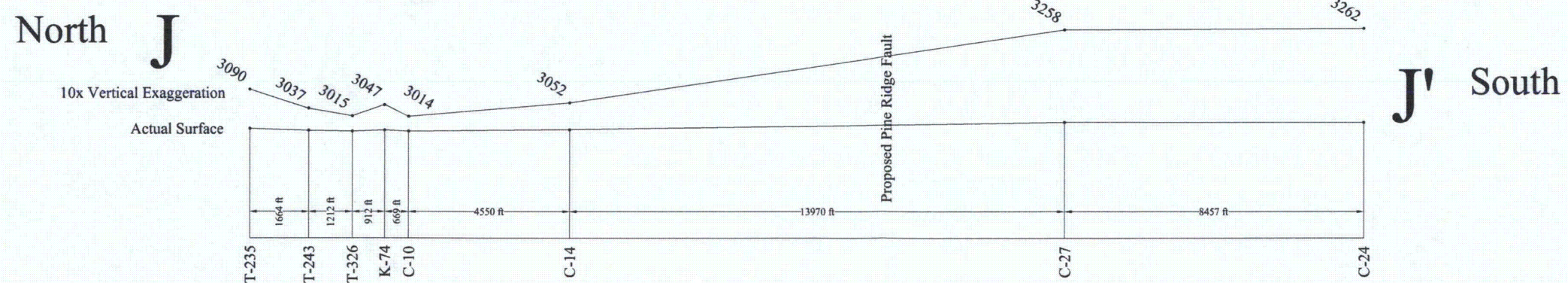
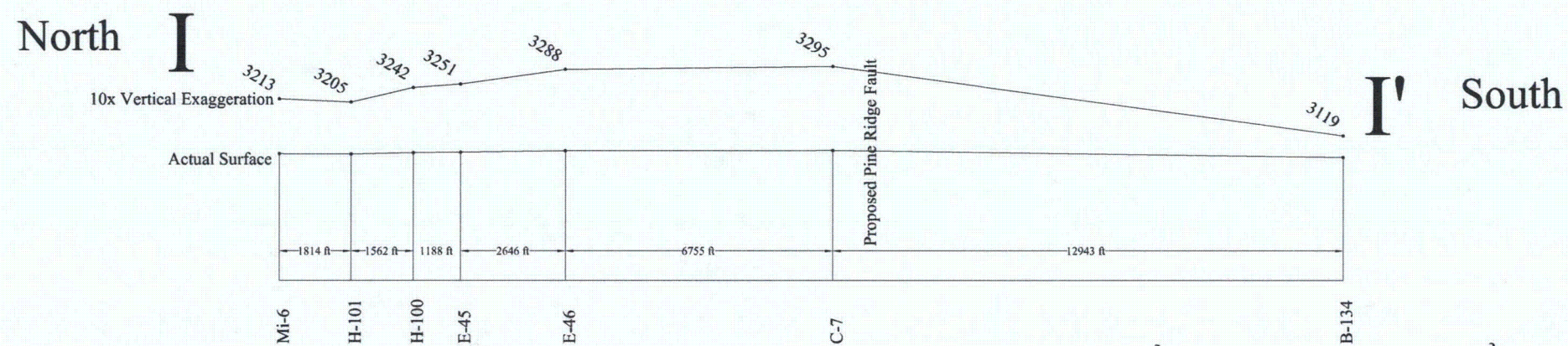
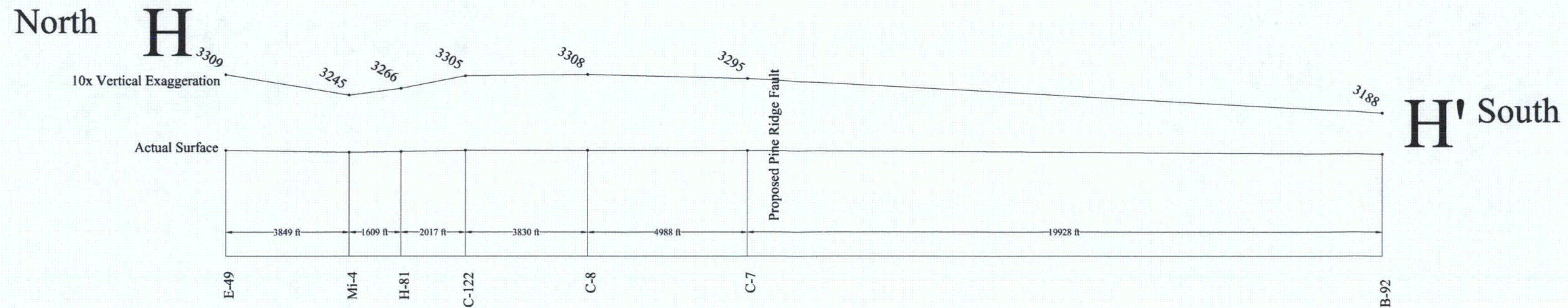
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FIGURE 2.6-15a
THREE CROW STRUCTURAL
CROSS-SECTIONS F-F' AND G-G'
(TOP OF PIERRE SHALE)

PROJECT: CO001396 MAPPED BY: JC CHECKED BY: MS



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FIGURE 2.6-15b
THREE CROW STRUCTURAL
CROSS-SECTIONS H-H', I-I', AND J-J'
(TOP OF PIERRE SHALE)

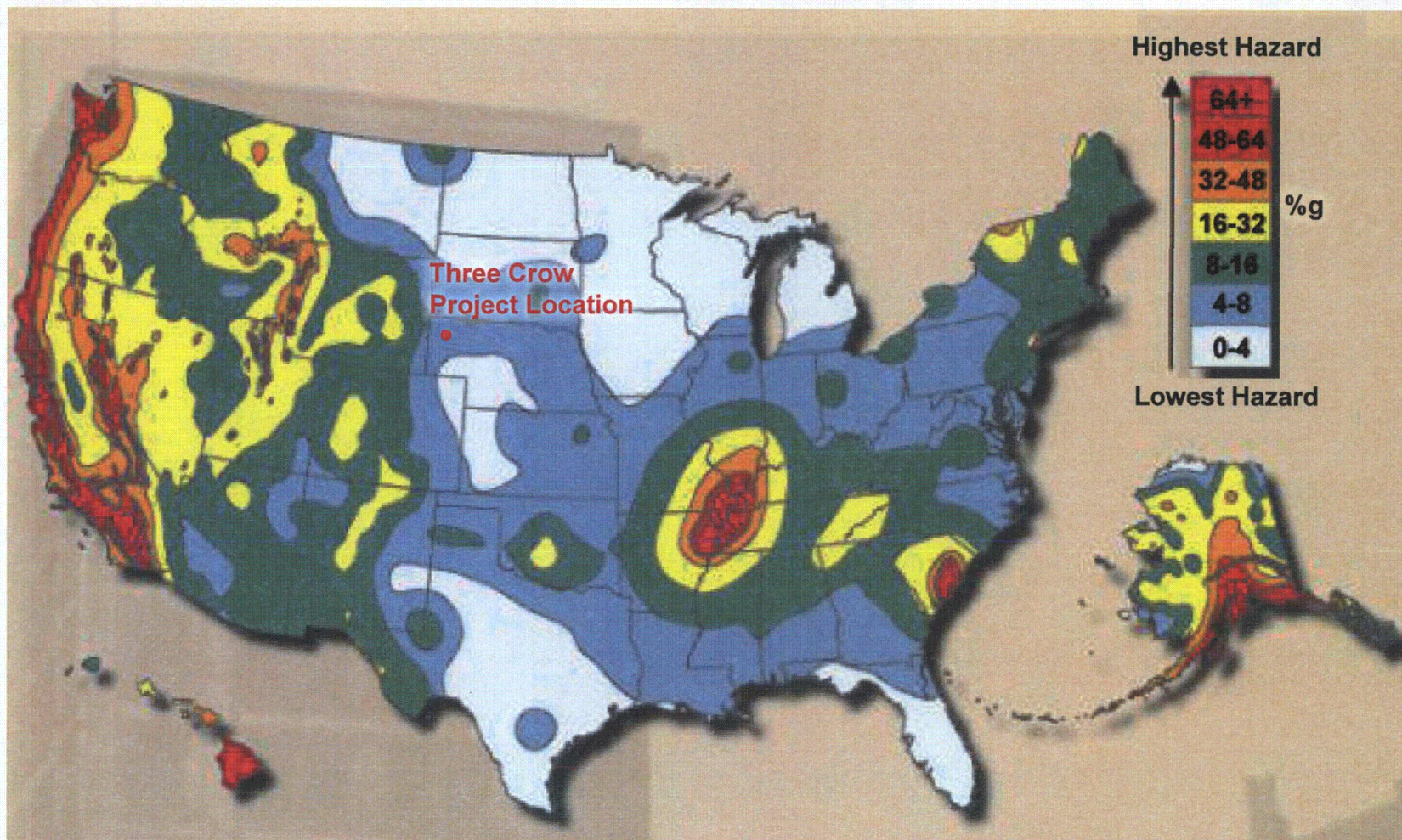
PROJECT: CO001396

MAPPED BY: JC

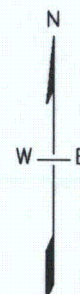
CHECKED BY: MS



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Source: SD 2008.



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**FIGURE 2.6-16
EARTHQUAKE HAZARD RANKING
IN THE U.S.**

PROJECT: CO001396.00001

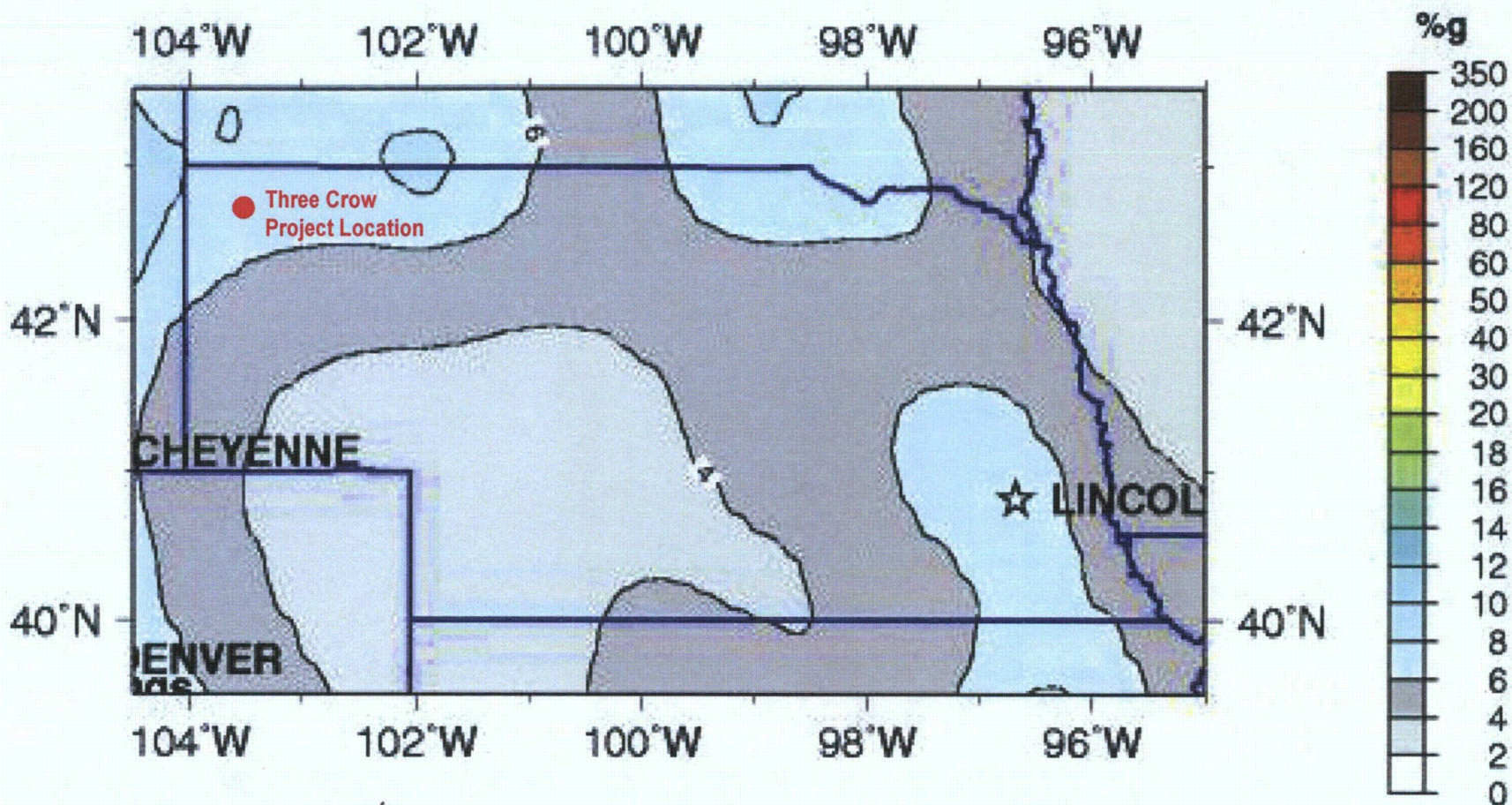
MAPPED BY: JC

CHECKED BY: JEC



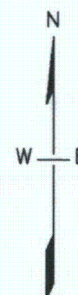
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P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

SOURCE: SD 2008



Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
 Site: NEHRP B-C boundary
 National Seismic Hazard Mapping Project (Peterson, M.D. 2008)

SOURCE: USGS 20009a



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**FIGURE 2.6-17
 SEISMIC HAZARD MAP
 FOR NEBRASKA (2008)**

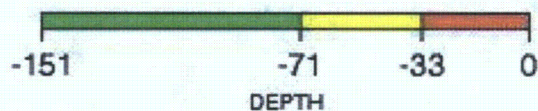
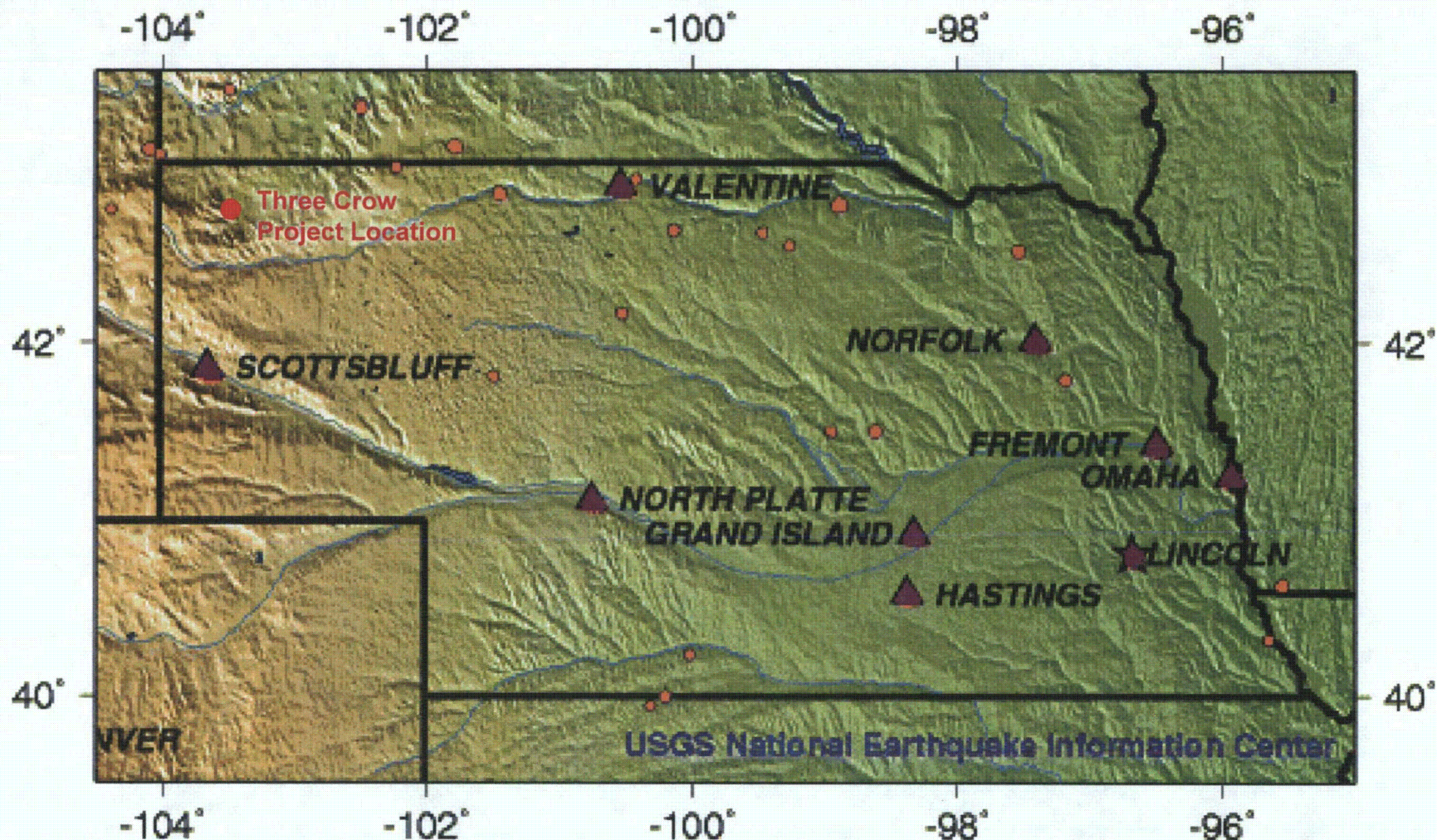
PROJECT: CO001396.00001

MAPPED BY: JC

CHECKED BY: LW

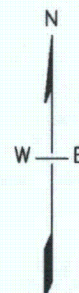


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Depth is in kilometers.
 Purple Triangles: Cities
 Purple Star: Capital City
 Circles: Earthquakes (color represents depth range)
 Earthquake locations are from the USGS/NEIC PDE catalog

SOURCE: USGS 2009e



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FIGURE 2.6-18
SEISMICITY OF NEBRASKA
1990-2006

PROJECT: CO001396.00001

MAPPED BY: JC

CHECKED BY: LW



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