

## Memorandum

DATE **April 8, 2020**

TO Dillon Dittmer, Joseph Haines, Taylor Eman, Mercy Manzanares

FROM Robert Carnazzo

THRU Julie Ramirez and Jason Dayton

SUBJECT Floodplain Certification — N-133 East, 36-7(117)), CN 22598

N-133 East is a Mill and Overlay project located in Douglas County, Nebraska, along Highway US-36. The project will begin approximately 1500 feet west of North 108<sup>th</sup> Street (Mile Marker (MM) 18.78) and extends east and southeast to the start of the divided highway just north of Interstate 680, about 500 feet north of Sargent Plaza (MM 23.86).

The highway improvements on this project consist of concrete pavement repair, bridge repair, milling and overlay, pavement widening, placement of pavement flumes, and culvert work. The project will for the length of the project complete pavement repair of the underlying concrete pavement, followed by the removal of two (2) inches of existing asphalt pavement, and then placement of a four (4) inch asphalt overlay. This will increase the pavement elevation by two (2) inches. The south bridge over Lake Cunningham will be repaired: the existing asphalt will be removed; the bridge rail will be removed and replaced; the bridge approach pavement will be removed, a grade beam installed on new piles, and a new pavement placed; the bridge abutment and wings will be repaired and the abutment piles will be encased; riprap will be placed on the existing abutment berm; and a new asphalt overlay will be placed across the bridge for no change in deck elevation. Bridge guardrail will be removed and replaced. To allow bridge repair work, the highway traffic will be diverted to the normally unused north lanes; pavement will be placed in the median between the lanes to allow this then removed at the end of the project. The surface shoulders on the north lanes will be widened three (3) feet to accommodate the temporary traffic. This will have no impact on the highway pavement elevation. Additional cable guardrail throughout the project will be removed and replaced. Work to construct flumes used to drain the highway pavement will be done down the highway embankment slopes. Several cross-road culverts will be extended, repaired or replaced.

Please review the attached mapping showing where this project encroaches into flood zones. Enclosed you will find certifications for these encroachments:

### Community of City of Omaha

#### **Glen Cunningham Reservoir, S036 02040R, Sec 10 T16N R12E**

The project encroaches upon the Base Floodplain for the Glen Cunningham Reservoir in Section 10, T16N R12E. The reservoir pool is conveyed through the highway by a 156-foot long bridge, structure S036 02040R. At this location the project will complete bridge repair that includes removal and replacement of an asphalt overlay, bridge rails and guardrail. The bridge approach pavement will be rebuilt. The bridge abutment and wings will be repaired and exposed piles encased with the abutment. Riprap will be placed on the existing abutment berm. The floodplain for the Glen Cunningham Reservoir represents both the reservoir's flood pool and the necessary flow of water from the upstream watershed in to the main body of the reservoir downstream of the highway. A 2010 letter from the U.S. Army Corps of Engineers provides the most recent evaluation of the base flood (100 year) elevation for the Reservoir at 1127.98 feet NAVD 88. This is

April 8, 2020

approximately 14 feet below the highway elevation, and will not be impacted by the project work. The flow of water from the upstream watershed through the bridge opening in to the downstream reservoir is controlled by a dam weir structure located approximately 150 feet upstream of the highway. NeDNR records show that the base flood elevation for this weir is 1129.0 feet NAVD 88 and discharge 4,400 cfs. This places the flood pool more than 13 feet below the highway. This elevation is also below the elevation that riprap will be placed. The project work will not cause a change in the base flood elevation (BFE) of the Glen Cunningham Reservoir.

**Glen Cunningham Reservoir Tributary, Sec 10 T16N R12E**

The project encroaches upon the Base Floodplain for a Glen Cunningham Reservoir Tributary in Section 10, T16N R12E. The tributary's ordinary high water flow is conveyed through the highway by a box culvert with an eight (8) foot wide by eight (8) foot high (8x8 box culvert) opening. At this location the project will complete pavement repair, milling and overlay work resulting in a two (2) inch increase in pavement elevation, placement then removal of pavement in the median, and widening of the north lanes. There will be no flume or culvert work at this location. A hydrology and hydraulic analysis completed for this floodplain certification indicates that the base flood (100 year storm event) of 1600 cfs is conveyed by the box culvert at an elevation of 1150.1 feet (NAVD 88), which is slightly less than an inch higher than the height of the existing highway pavement. The Project's proposed two (2) inch increase in the pavement elevation causes the base flood depth to increase approximately one (1) inch to an elevation of 1150.2 feet. The project work will cause the base flood elevation (BFE) of the Glen Cunningham Reservoir Tributary to increase one (1) inch from 1150.1 feet to 1150.2 feet (NAVD).

Enclosures:      Certificates (2)  
                     FIRMettes covering project (9)  
                     Location Map

April 8, 2020

**Permit Information:**

Community of City of Omaha

**Glen Cunningham Reservoir, S036 02040R, Sec 10 T16N R12E**

Is the work substantial improvement?	No
Is the work in an identified floodplain?	Yes
Elevation of the base flood (100-year event)?	1129.0 feet NAVD 88
Elevation/floodproofing requirement (if applicable)?	NA
Is the work in a designated floodway?	No

**Glen Cunningham Reservoir Tributary, Sec 10 T16N R12E**

Is the work substantial improvement?	No
Is the work in an identified floodplain?	Yes
Elevation of the base flood (100-year event)?	1150.1 feet NAVD 88
Elevation/floodproofing requirement (if applicable)?	NA
Is the work in a designated floodway?	No

## FLOODPLAIN/ FLOODWAY LOCATION

Section(s) 10 T 16 N R 12 E



*Certification of Compliance  
Floodplain and Floodway Regulations*

FLOODPLAIN/ FLOODWAY LOCATION

Project Name N-133 East Stream Glen Cunningham Reservoir Trib.  
Project No. 36-7(117) County Douglas  
Control No. 22598 Section(s) 10 T 16 N R 12 E

FEMA LOCATION

County/Community City of Omaha, Nebraska  
Panel No. 31055C 0206H  
Effective Date 12/02/2005

TYPE OF STRUCTURE

☐ Bridge ☒ Culvert 8x8 Box Culvert ☒ Roadway  
Structure No.                      ☐                     

TYPE OF IMPROVEMENT

☐ Modify Existing ☐ Replace Existing ☒ Other  
Details Highway – Mill and Overlay for 2-inch increase, widen north lanes, place and remove  
median crossover pavement.

Highway Profile Change: ☒ Yes ☐ No

THE FOLLOWING IS HEREBY CERTIFIED

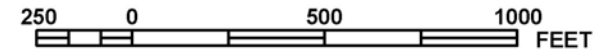
- ☐ Floodplain in Un-mapped Community (State Minimum Standards Apply)  
Proposed construction will not increase the base  
(100 year) flood heights more than one foot at any location.
- ☒ Floodplain (without Designated Floodway) or Flood Fringe  
Proposed construction will not increase the base  
(100 year) flood heights more than one foot at any location.
- ☐ Designated Floodway  
Proposed construction will result in no rise along the base  
(100 year) floodway water surface profile.

Completed By: ROBERT A. CARNAZZO, P.E., CFM  
NDOT Roadway Design Hydraulics





MAP SCALE 1" = 500'



NFIP

PANEL 0202H

**FIRM**

FLOOD INSURANCE RATE MAP

**DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS**

**PANEL 202 OF 360**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
OMAHA, CITY OF	315274	0202	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



**MAP NUMBER  
31055C0202H**

**EFFECTIVE DATE  
DECEMBER 2, 2005**

**Federal Emergency Management Agency**

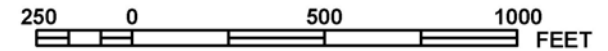
This is an official copy of a portion of the above referenced flood map. It was extracted using FIRMette - Desktop version 3.0. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. Further information about National Flood Insurance Program flood hazard maps is available at <http://www.msc.fema.gov/>.



JOINS PANEL 0206



MAP SCALE 1" = 500'



NFIP

PANEL 0202H

**FIRM**

FLOOD INSURANCE RATE MAP

DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS

PANEL 202 OF 360

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
OMAHA, CITY OF	315274	0202	H

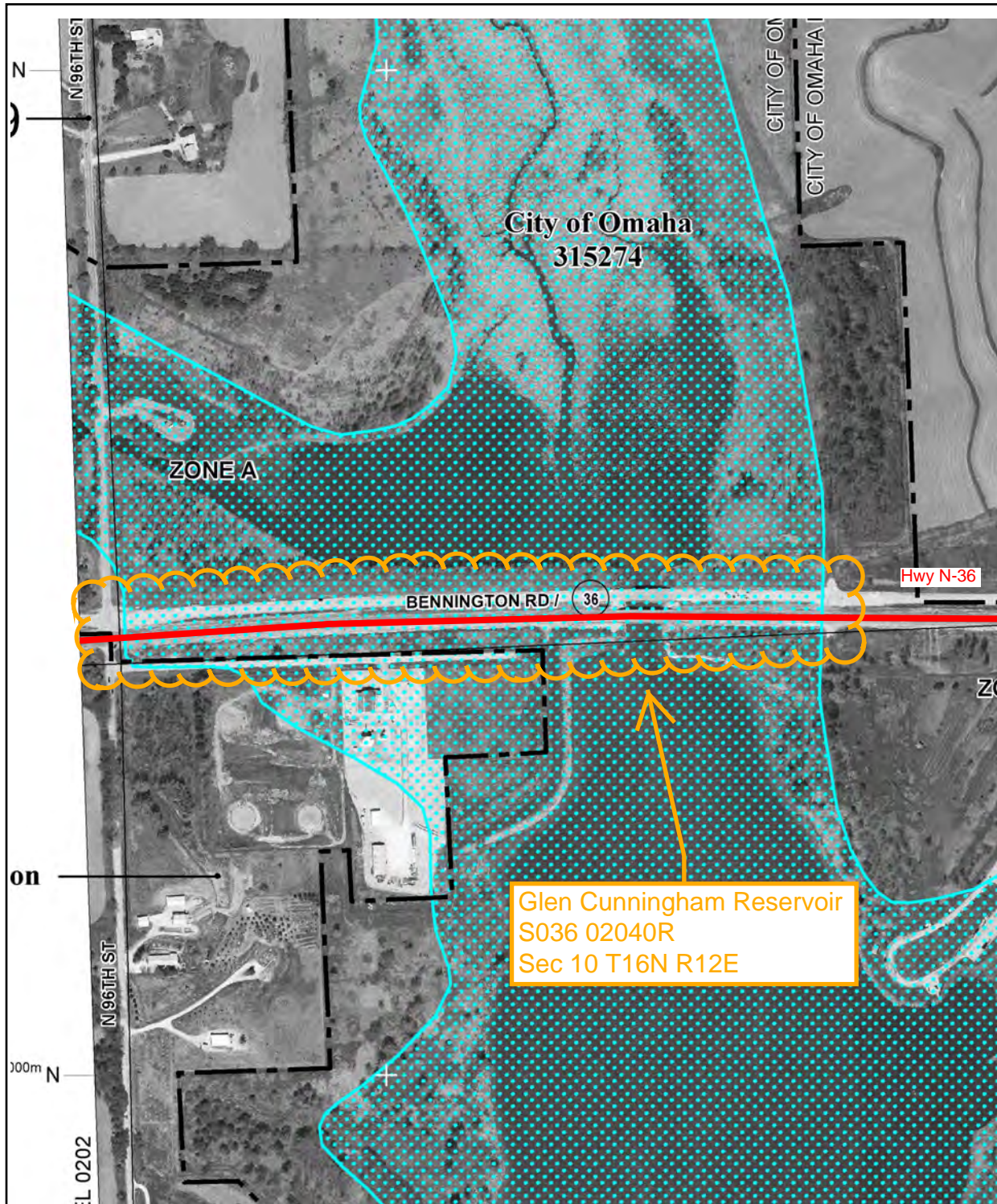
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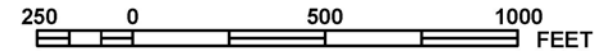
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MAP SCALE 1" = 500'



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NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0206H

**FIRM**

FLOOD INSURANCE RATE MAP

DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS

PANEL 206 OF 360

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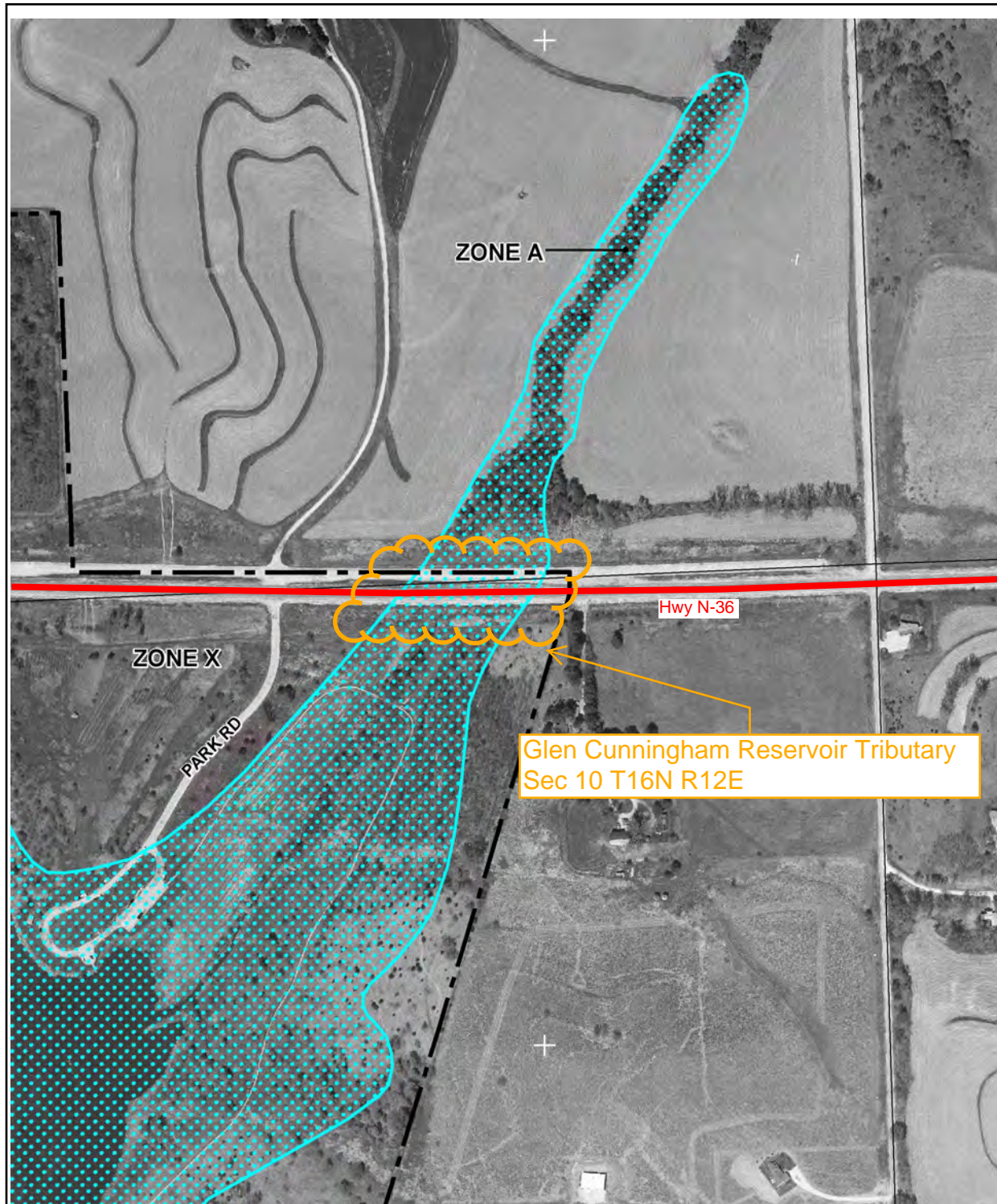
COMMUNITY	NUMBER	PANEL	SUFFIX
OMAHA, CITY OF	315274	0206	H

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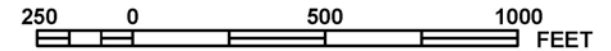

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**31055C0206H**
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MAP SCALE 1" = 500'



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NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0206H

**FIRM**

FLOOD INSURANCE RATE MAP

**DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS**

**PANEL 206 OF 360**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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OMAHA, CITY OF	315274	0206	H

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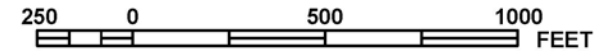
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MAP SCALE 1" = 500'



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NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0206H

**FIRM**

FLOOD INSURANCE RATE MAP

**DOUGLAS COUNTY,  
NEBRASKA  
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**PANEL 206 OF 360**

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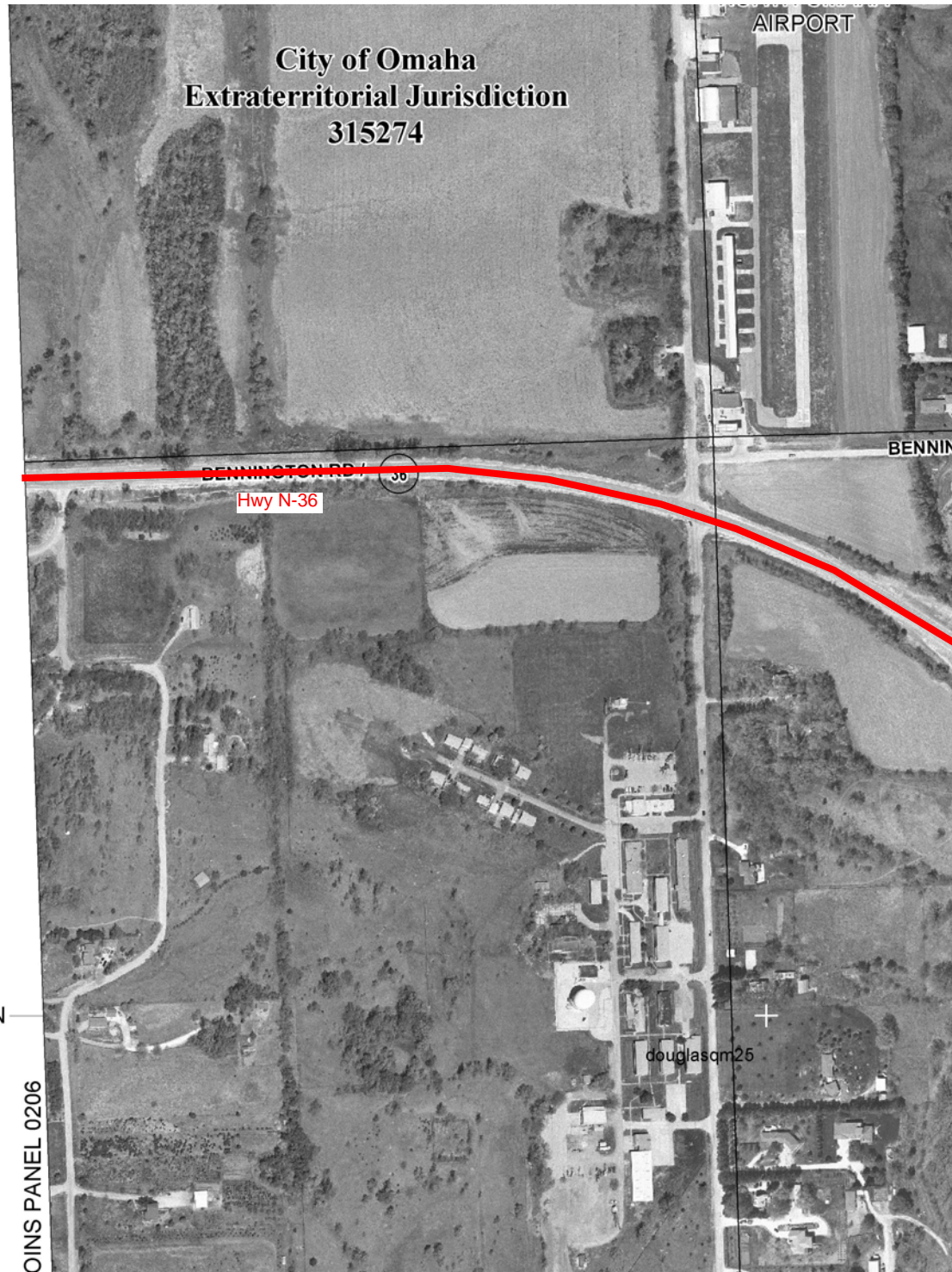


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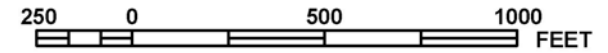
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NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0207H

**FIRM**

FLOOD INSURANCE RATE MAP

DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS

PANEL 207 OF 360

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

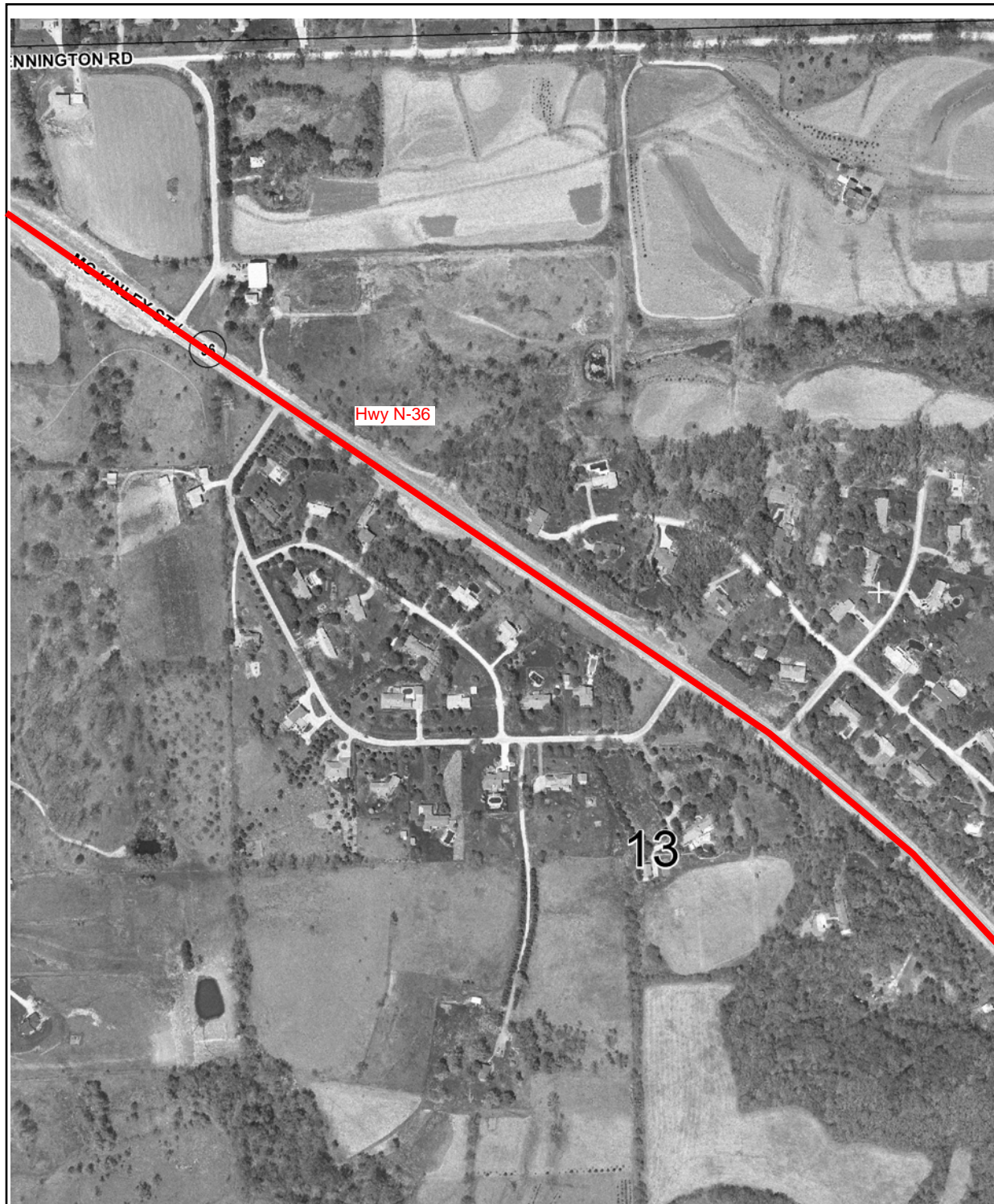
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OMAHA, CITY OF	315274	0207	H

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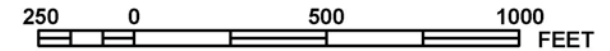

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MAP SCALE 1" = 500'



**NFIP**

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0207H

**FIRM**

FLOOD INSURANCE RATE MAP

**DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS**

PANEL 207 OF 360

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OMAHA, CITY OF	315274	0207	H

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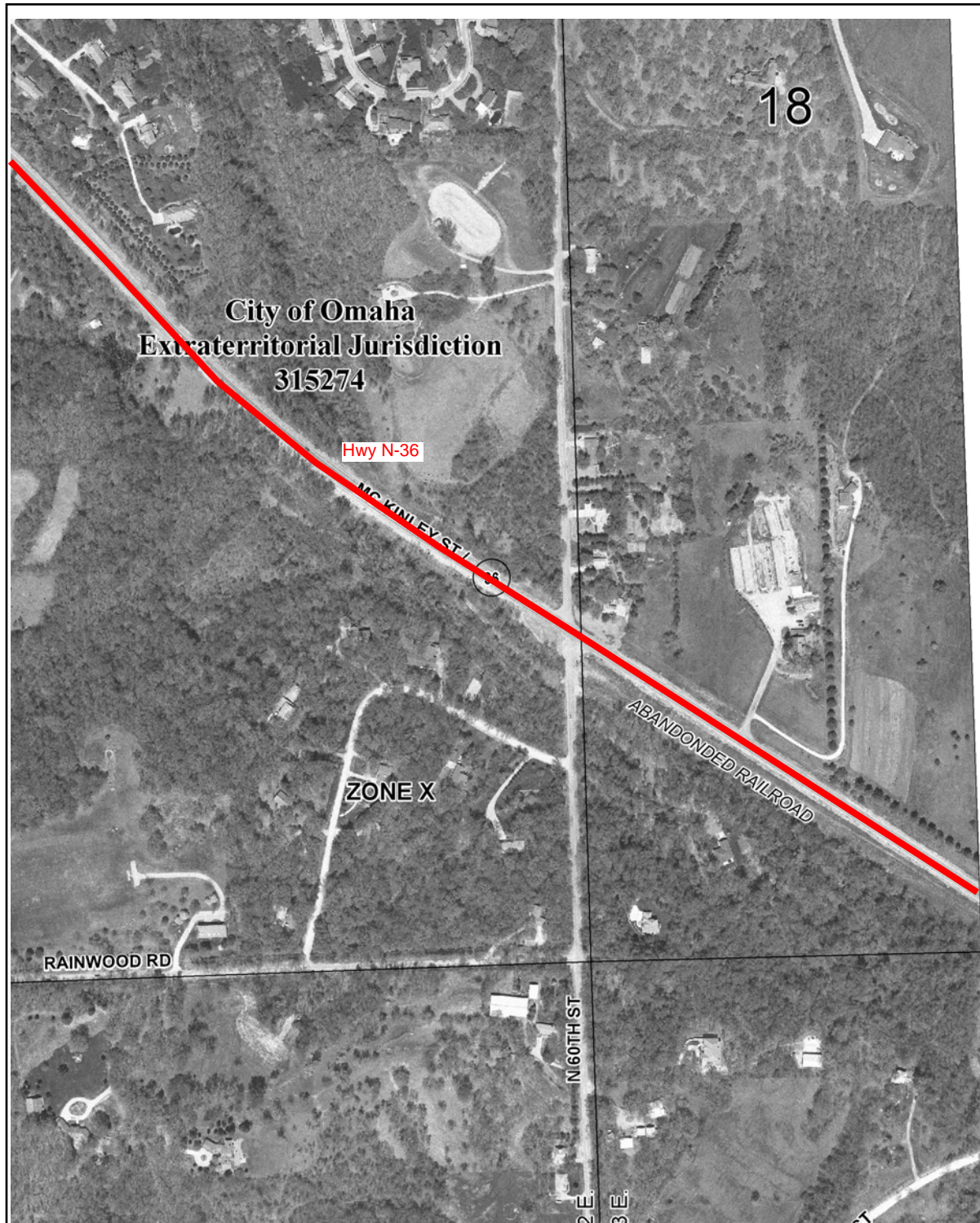


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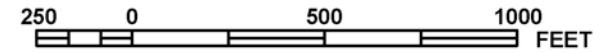
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MAP SCALE 1" = 500'



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NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0207H

**FIRM**

FLOOD INSURANCE RATE MAP

**DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS**

**PANEL 207 OF 360**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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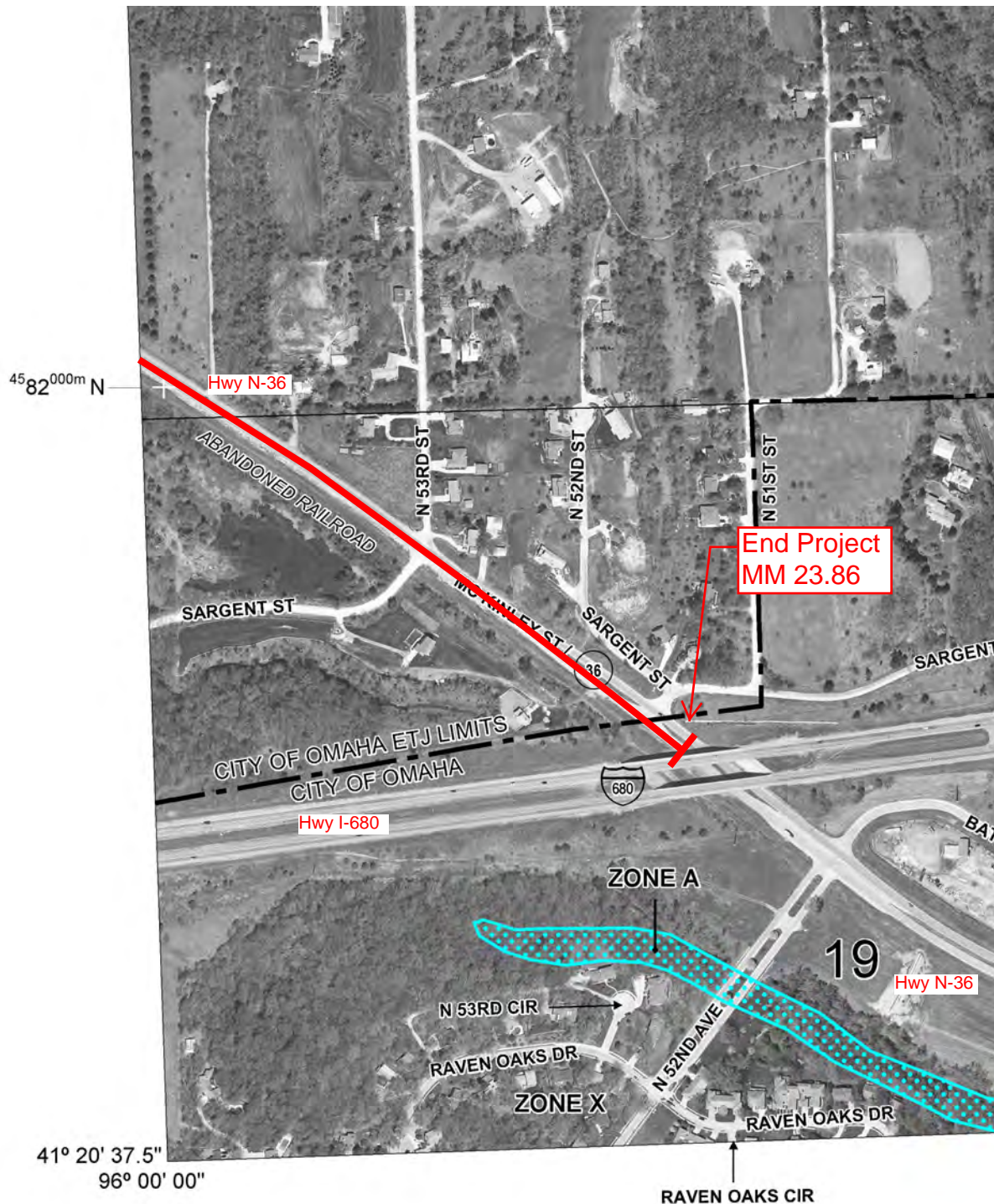


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MAP SCALE 1" = 500'

250 0 500 1000  
FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0226H

**FIRM**

FLOOD INSURANCE RATE MAP

DOUGLAS COUNTY,  
NEBRASKA  
AND INCORPORATED AREAS

PANEL 226 OF 360

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

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OMAHA, CITY OF	315274	0226	H

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**C.N. 22598 BOOK N/A**  
**DOUGLAS COUNTY**

R.P. 23+86 HWY. N-36  
STA. 0+00  
END PROJECT

