APPENDIX D

Other Relevant Environmental Data

Proposed National Cemetery
NEC S. 144th Street and Scram Road
Omaha, NE 68138

Inquiry Number: 3260238.1s
February 16, 2012

EDR NEPACheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR NEPACheck® DESCRIPTION

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects and actions, analyze potential environmental effects of proposed actions and their alternatives for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

The EDR NEPACheck provides information which may be used, in conjunction with additional research, to determine whether a proposed site or action will have significant environmental effect.

The report provides maps and data for the following items (where available). Search results are provided in the Map Findings Summary on page 2 of this report.

Section	Regulation
Natural Areas Map	
• Federal Lands Data:	
- Officially designated wilderness areas	47 CFR 1.1307(1)
- Officially designated wildlife preserves, sanctuaries and refuges	47 CFR 1.1307(2)
- Wild and scenic rivers	40 CFR 6.302(e)
- Fish and Wildlife	40 CFR 6.302
• Threatened or Endangered Species, Fish and Wildlife, Critical Habitat Data (where available)	47 CFR 1.1307(3); 40 CFR 6.302
Historic Sites Map	
• National Register of Historic Places	47 CFR 1.1307(4); 40 CFR 6.302
• State Historic Places (where available)	
• Indian Reservations	
Flood Plain Map	
• National Flood Plain Data (where available)	47 CFR 1.1307(6); 40 CFR 6.302
Wetlands Map	
• National Wetlands Inventory Data (where available)	47 CFR 1.1307(7); 40 CFR 6.302
FCC & FAA Map	
• FCC antenna/tower sites, FAA Markings and Obstructions, Airports, Topographic gradient	47 CFR 1.1307(8)
Key Contacts and Government Records Searched	

MAP FINDINGS SUMMARY

The databases searched in this report are listed below. Database descriptions and other agency contact information is contained in the Key Contacts and Government Records Searched section on page 38 of this report.

TARGET PROPERTY ADDRESS

PROPOSED NATIONAL CEMETERY
NEC S. 144TH STREET AND SCRAM ROAD
OMAHA, NE 68138

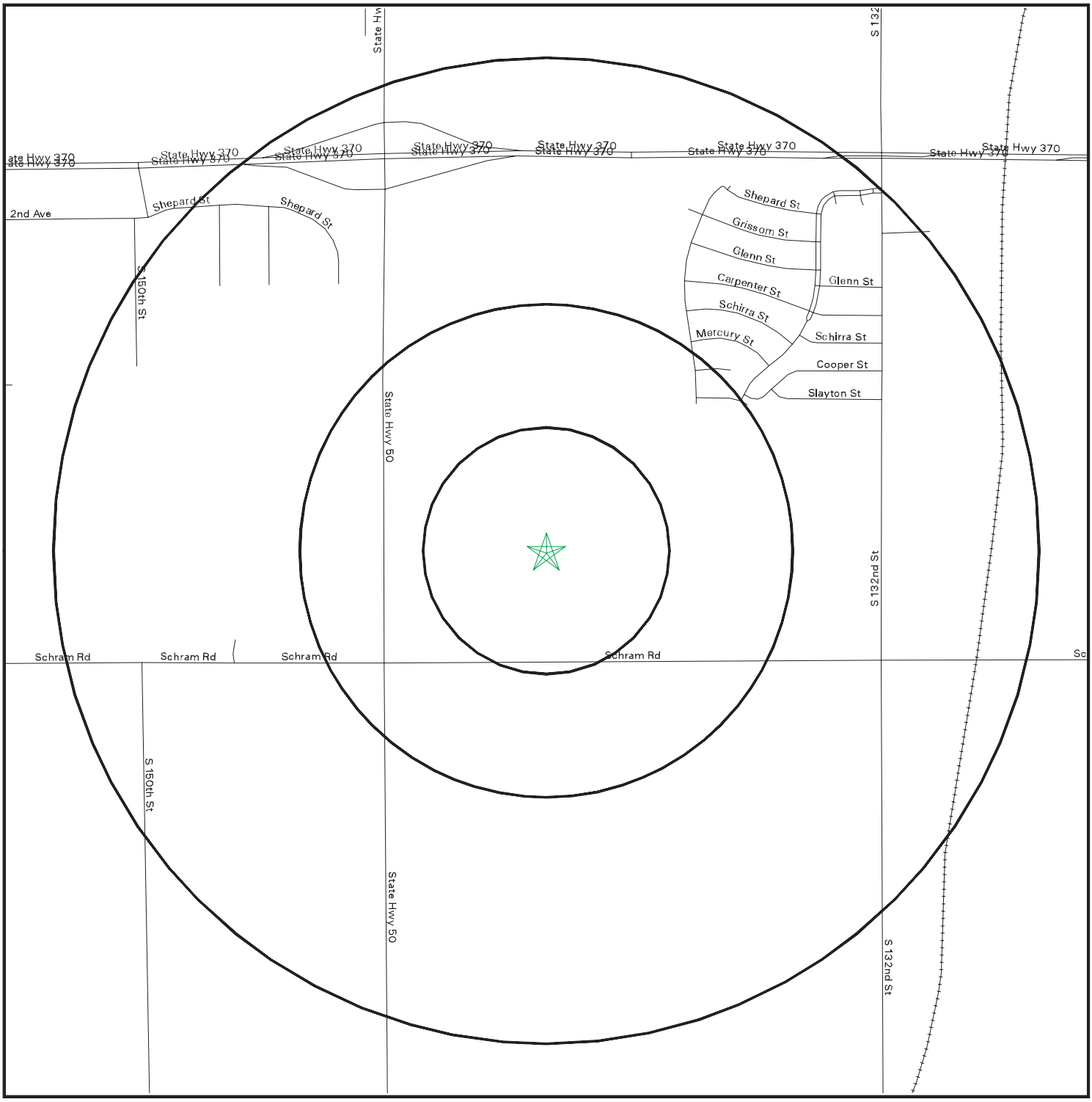
Inquiry #: 3260238.1s
Date: 2/16/12

TARGET PROPERTY COORDINATES

Latitude (North):	41.135799 - 41° 8' 8.9''
Longitude (West):	96.132599 - 96° 7' 57.4''
Universal Tranverse Mercator:	Zone 14
UTM X (Meters):	740677.3
UTM Y (Meters):	4557584.0

Applicable Regulation from 47 CFR/FCC Checklist	Database	Search Distance (Miles)	Within Search	Within 1/8 Mile
NATURAL AREAS MAP				
1.1307a (1) Officially Designated Wilderness Area	US Federal Lands	1.00	NO	NO
1.1307a (2) Officially Designated Wildlife Preserve	US Federal Lands	1.00	NO	NO
1.1307a (3) Threatened or Endangered Species or Critical Habitat	County Endangered Species	County	YES	N/A
HISTORIC SITES MAP				
1.1307a (4) Listed or eligible for National Register	National Register of Hist. Pla	1.00	NO	NO
1.1307a (4) Listed or eligible for National Register	NE Historic Sites	1.00	NO	NO
	Indian Reservation	1.00	NO	NO
FLOODPLAIN MAP				
1.1307 (6) Located in a Flood Plain	FLOODPLAIN	1.00	YES	NO
WETLANDS MAP				
1.1307 (7) Change in surface features (wetland fill)	NWI	1.00	YES	NO
FCC & FAA SITES MAP				
	Cellular	1.00	NO	NO
	4G Cellular	1.00	NO	NO
	Antenna Structure Registration	1.00	NO	NO
	Towers	1.00	NO	NO
	AM Antenna	1.00	NO	NO
	FM Antenna	1.00	NO	NO
	FAA DOF	1.00	NO	NO
	Airports	1.00	NO	---
	Power Lines	1.00	YES	---

Natural Areas Map



- Target Property
- Roads
- County Boundary
- Waterways
- Water
- Locations
- Federal Areas
- Federal Linear Features
- State Areas
- State Linear Features

SITE NAME:	Proposed National Cemetery	CLIENT:	TTL Associates, Inc
ADDRESS:	NEC S. 144th Street and Scram Road Omaha NE 68138	CONTACT:	Paul Jackson
LAT/LONG:	41.1358 / 96.1326	INQUIRY #:	3260238.1s
		DATE:	February 16, 2012

NATURAL AREAS MAP FINDINGS

Endangered Species Listed for: SARPY County, NE.

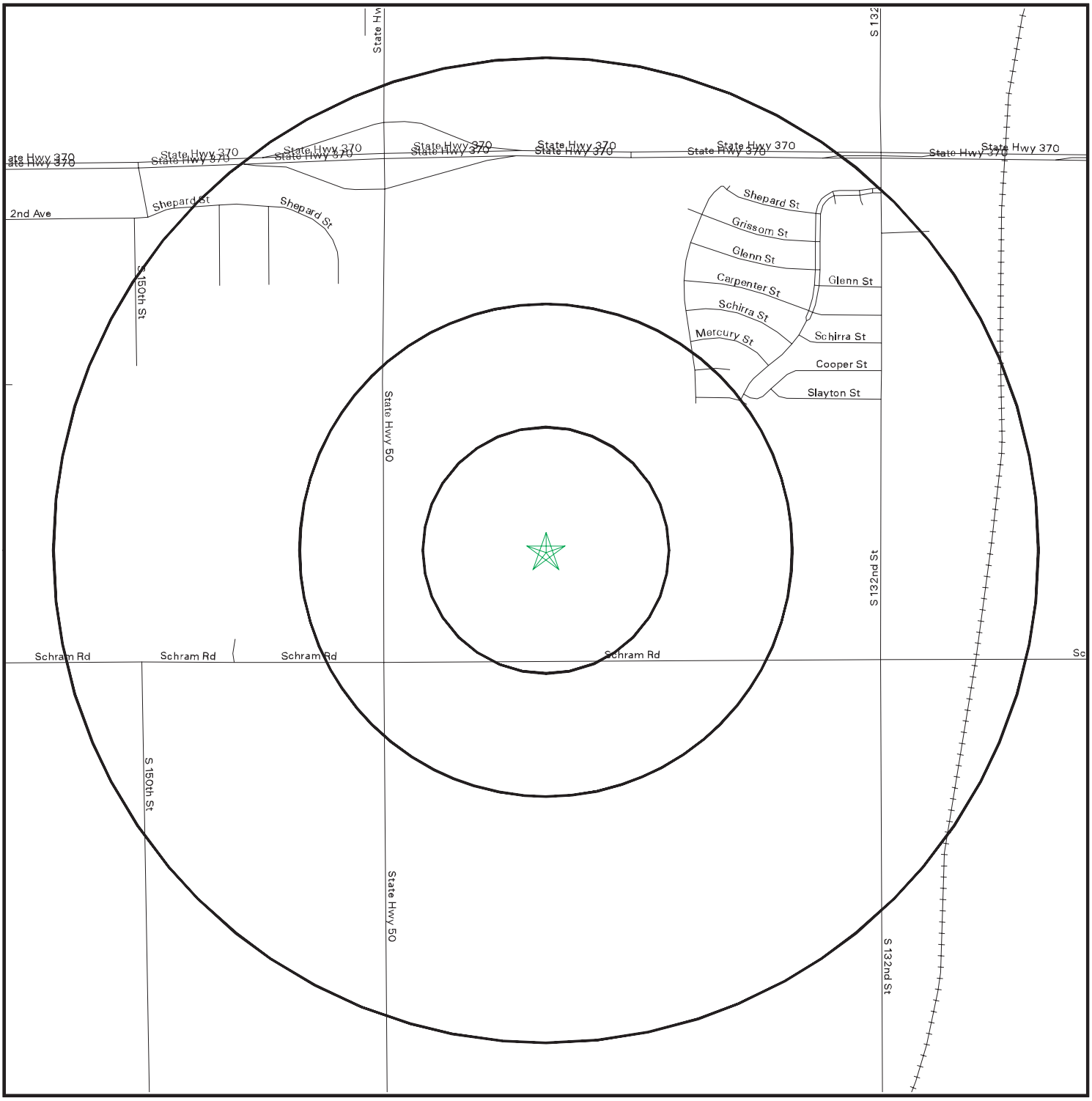
Source: EPA Endangered Species Protection Program Database

BIRD:	EAGLE, BALD
BIRD:	PLOVER, PIPING
BIRD:	TERN, INTERIOR (POPULATION) LEAST
FISH:	STURGEON, PALLID

Map ID Direction Distance Distance (ft.)	EDR ID Database

No mapped sites were found in EDR's search of available government records within the search radius around the target property.

Historic Sites Map



- Target Property
- Streets
- County Boundary
- Waterways
- Water
- Historic Sites
- Federal Historic Areas
- State Historic Areas
- US Indian Reservations
- Scenic Trail

SITE NAME:	Proposed National Cemetery	CLIENT:	TTL Associates, Inc
ADDRESS:	NEC S. 144th Street and Scram Road Omaha NE 68138	CONTACT:	Paul Jackson
		INQUIRY #:	3260238.1s
LAT/LONG:	41.1358 / 96.1326	DATE:	February 16, 2012

HISTORIC SITES MAP FINDINGS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

No mapped sites were found in EDR's search of available government records within the search radius around the target property.

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Unmappable
93000558
National Register of Hist. Places

Refnum:	93000558
Resname:	10th Street Viaduct
Address:	10th St. over UPRR and BNRR tracks
Resource Type:	Structure
Number buildings:	000000
Number sites:	000000
Number structs:	000001
Number objects:	000000
Non-contrib bldg:	000000
Non-contrib sites:	000000
Non-contrib structs:	000000
Non-contrib objects:	000000
Primary Certification:	Date received/pending owner objection
Certification date:	19930525
Acreage:	19
Alternate name:	Highway Bridges in Nebraska MPS
County:	Douglas
City:	Omaha
Applicable Criteria:	Architecture/Engineering
Areas of significance:	Engineering
Current Function:	Transportation
Building Material:	Concrete
Building Material:	Inapplicable
Building Material:	Inapplicable
Building Material:	Steel
Alternate name:	NEHBS No. DO09: 121-87

Unmappable
93000560
National Register of Hist. Places

Refnum:	93000560
Resname:	36th Street Viaduct
Address:	36th St. over the UPRR and C&NWRR tracks
Resource Type:	Structure
Number buildings:	000000
Number sites:	000000
Number structs:	000001
Number objects:	000000
Non-contrib bldg:	000000
Non-contrib sites:	000000
Non-contrib structs:	000000
Non-contrib objects:	000000
Primary Certification:	Determined eligible/owner objection
Certification date:	19930617
Acreage:	9
Alternate name:	Highway Bridges in Nebraska MPS
County:	Douglas
City:	Omaha

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Applicable Criteria: Architecture/Engineering
Areas of significance: Engineering
Current Function: Transportation
Building Material: Stone
Building Material: Inapplicable
Building Material: Inapplicable
Building Material: Steel
Building Material: Log
Alternate name: NEHBS No. DO09: 192-20

Unmappable
NE2007000000325
NE Historic Sites

Fnehbs: DO09:0121-030
Fname: Anhuster-Busch Beer Depot
Faddress: 1207-1215 Jones
Fcity: Omaha
Fcnty: Douglas
Flisted: 19790201
Fcriteria: AC
Edr id: NE2007000000325

Unmappable
NE2007000000324
NE Historic Sites

Fnehbs: DO09:0121-029
Fname: Bernis Omaha Bag Company Bldg
Faddress: 614-624 S 11th & 1102-1118 Jones
Fcity: Omaha
Fcnty: Douglas
Flisted: 19850111
Fcriteria: AC
Edr id: NE2007000000324

Unmappable
NE2007000000394
NE Historic Sites

Fnehbs: DO09:0317-002
Fname: Brandeis-Millard House
Faddress: 500 S 38th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19801128
Fcriteria: BC
Edr id: NE2007000000394

Unmappable
NE2007000000385
NE Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fnehbs: DO09:0223-002
Fname: Broomfield Rowhouse
Faddress: 2502-2504 Lake
Fcity: Omaha
Fcnty: Douglas
Flisted: 20070321
Fcriteria: C
Edr id: NE2007000000385

Unmappable
NE2007000000289
NE Historic Sites

Fnehbs: 25DO8
Fname: Cabanne Archelogical Site
Faddress: Restricted
Fcity: Omaha vicinity
Fcnty: Douglas
Flisted: 19720505
Fcriteria: A
Edr id: NE2007000000289

Unmappable
72000749
National Register of Hist. Places

Refnum: 72000749
Resname: Cabanne Archeological Site
Address: Address Restricted
Resource Type: Site
Number buildings: 000000
Number sites: 000001
Number structs: 000000
Number objects: 000000
Non-contrib bldg: 000000
Non-contrib sites: 000000
Non-contrib structs: 000000
Non-contrib objects: 000000
Primary Certification: Listed in the national register
Certification date: 19720505
Acreage: 400
Alternate name: Not Reported
County: Douglas
City: Omaha
Applicable Criteria: Event
Areas of significance: Commerce
Areas of significance: Agriculture
Current Function: Agriculture/subsistence
Building Material: Inapplicable
Building Material: Inapplicable
Building Material: Inapplicable

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Building Material: Inapplicable
Alternate name: Cabannes Post;25DO8

Unmappable
NE2007000000288
NE Historic Sites

Fnehbs: 25DO1
Fname: Champe-Fremont 1 Archeological Site
Faddress: Restricted
Fcity: Omaha vicinity
Fcnty: Douglas
Flisted: 19751021
Fcriteria: D
Edr id: NE2007000000288

Unmappable
75001091
National Register of Hist. Places

Refnum: 75001091
Resname: Champe-Fremont 1 Archeological Site
Address: Address Restricted
Resource Type: Site
Number buildings: 000000
Number sites: 000001
Number structs: 000000
Number objects: 000000
Non-contrib bldg: 000000
Non-contrib sites: 000000
Non-contrib structs: 000000
Non-contrib objects: 000000
Primary Certification: Listed in the national register
Certification date: 19751021
Acreage: 1250
Alternate name: Not Reported
County: Douglas
City: Omaha
County: Sarpy
City: Gretna
Applicable Criteria: Information Potential
Areas of significance: Prehistoric
Current Function: Agriculture/subsistence
Building Material: Inapplicable
Building Material: Inapplicable
Building Material: Inapplicable
Building Material: Inapplicable

Unmappable
NE2007000000395
NE Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fnehbs: DO09:0317-004
Fname: Charles D. McLaughlin House (McLaughlin-Bruce-Best House)
Faddress: 507 S 38th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19821108
Fcriteria: AC
Edr id: NE2007000000395

Unmappable
NE2007000000343
NE Historic Sites

Fnehbs: DO09:0123-023
Fname: City National Bank Bldg
Faddress: SEC 16th & Harney
Fcity: Omaha
Fcnty: Douglas
Flisted: 19730326
Fcriteria: C
Edr id: NE2007000000343

Unmappable
NE2007000000294
NE Historic Sites

Fnehbs: DO09
Fname: Country Club Historic District
Faddress: 50th to 56th Sts, Corby to Seward Sts
Fcity: Omaha
Fcnty: Douglas
Flisted: 20041230
Fcriteria: AC
Edr id: NE2007000000294

Unmappable
04001410
National Register of Hist. Places

Refnum: 04001410
Resname: Country Club Historic District
Address: Roughly 50th to 56th Sts., Corby to Seward Sts.
Resource Type: District
Number buildings: 000429
Number sites: 000001
Number structs: 000002
Number objects: Not Reported
Non-contrib bldg: 000001
Non-contrib sites: Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Non-contrib structs:	Not Reported
Non-contrib objects:	Not Reported
Primary Certification:	Listed in the national register
Certification date:	20041230
Acreage:	1030
Alternate name:	Not Reported
County:	Douglas
City:	Omaha
Applicable Criteria:	Event
Applicable Criteria:	Architecture/Engineering
Areas of significance:	Architecture
Areas of significance:	Community planning and development
Current Function:	Domestic
Current Function:	Religion
Building Material:	Concrete
Building Material:	Brick
Building Material:	Asphalt
Building Material:	Stucco
Building Material:	Asbestos
Building Material:	Wood
Building Material:	Ceramic tile

Unmappable
NE2007000000389
NE Historic Sites

Fnehbs:	DO09:0238-001
Fname:	Crook (General George) House
Faddress:	Quarters No. 1
Fcity:	Ft. Omaha
Fcnty:	Douglas
Flisted:	19690416
Fcriteria:	B
Edr id:	NE2007000000389

Unmappable
NE2007000000333
NE Historic Sites

Fnehbs:	DO09:0122-008
Fname:	Drake Court Apartments & Dartmore Apartments HD
Faddress:	2005-2046 & 2201-2211 Jones
Fcity:	Omaha
Fcnty:	Douglas
Flisted:	19801110
Fcriteria:	C
Edr id:	NE2007000000333

Unmappable
05000726
National Register of Hist. Places

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped: **Status**
EDR ID
Database

Refnum: 05000726
Resname: Dundee--Happy Hollow Historic District
Address: Roughly Hamilton on N. JE George and Happy Hollow on W. Leavemworth on S, 48th on E
Resource Type: District
Number buildings: 002100
Number sites: Not Reported
Number structs: Not Reported
Number objects: Not Reported
Non-contrib bldg: 000202
Non-contrib sites: Not Reported
Non-contrib structs: Not Reported
Non-contrib objects: Not Reported
Primary Certification: Listed in the national register
Certification date: 20050722
Acreage: 6180
Alternate name: Not Reported
County: Douglas
City: Omaha
Applicable Criteria: Event
Applicable Criteria: Architecture/Engineering
Areas of significance: Architecture
Areas of significance: Community planning and development
Current Function: Domestic
Current Function: Commerce/trade
Current Function: Religion
Current Function: Education
Building Material: Brick
Building Material: Wood
Building Material: Ceramic tile
Building Material: Stone
Building Material: Brick
Building Material: Asphalt
Building Material: Concrete

Unmappable
NE2007000000355
NE Historic Sites

Fnehbs: DO09:0124-042
Fname: Farnam Bldg
Faddress: 1607-1817 Farnam
Fcity: Omaha
Fcnty: Douglas
Flisted: 20000309
Fcriteria: AC
Edr id: NE2007000000355

Unmappable
NE2007000000351
NE Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fnehbs: DO09:0124-016
Fname: First National Bank Bldg
Faddress: 300-312 S 16th & 1601-1605 Farnam
Fcity: Omaha
Fcnty: Douglas
Flisted: 19820625
Fcriteria: AC
Edr id: NE2007000000351

Unmappable
NE2007000000379
NE Historic Sites

Fnehbs: DO09:0209-006
Fname: Ford Hospital (Fifth Avenue Hotel)
Faddress: 121-129 S 25th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19860320
Fcriteria: AB
Edr id: NE2007000000379

Unmappable
NE2007000000388
NE Historic Sites

Fnehbs: DO09:0238
Fname: Fort Omaha Historic District (Sherman Barracks)
Faddress: 30th bet Fort & Laurel Ave
Fcity: Omaha
Fcnty: Douglas
Flisted: 19740327
Fcriteria: AD
Edr id: NE2007000000388

Unmappable
NE2007000000310
NE Historic Sites

Fnehbs: DO09:0113-046
Fname: Gallaher Bldg
Faddress: 1902-06 S 13th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19940701
Fcriteria: C
Edr id: NE2007000000310

Unmappable
NE2007000000376
NE Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fnehbs: DO09:0205-002
Fname: Georgia Row House
Faddress: 1040-1044 S 29th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19821112
Fcriteria: C
Edr id: NE2007000000376

Unmappable
NE2007000000300
NE Historic Sites

Fnehbs: DO09
Fname: Gold Coast Historic District
Faddress: bounded by Jones, Burt, 36th & 40th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19970314
Fcriteria: ACa
Edr id: NE2007000000300

Unmappable
NE2007000000345
NE Historic Sites

Fnehbs: DO09:0123-073
Fname: Hospe-Anton Music Warehouse; MP
Faddress: 109-111 S 10th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19980723
Fcriteria: A
Edr id: NE2007000000345

Unmappable
NE2007000000299
NE Historic Sites

Fnehbs: DO09
Fname: Howard Street Apartment District
Faddress: bounded by 22nd-24th, Harney-London Ct
Fcity: Omaha
Fcnty: Douglas
Flisted: 19961122
Fcriteria: C
Edr id: NE2007000000299

Unmappable
NE2007000000367
NE Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fnehbs: DO09:0136-005
Fname: Jewell Bldg (Dreamland Ballroom)
Faddress: 2221-2225 N 24th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19830721
Fcriteria: AC
Edr id: NE2007000000367

Unmappable
NE2007000000377
NE Historic Sites

Fnehbs: DO09:0205-004
Fname: Leona Florentine & Carpathia Apartment Bldgs
Faddress: 832 & 834 S 24th, 907-911 S 25th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19850516
Fcriteria: AC
Edr id: NE2007000000377

Unmappable
05000721
National Register of Hist. Places

Refnum: 05000721
Resname: Logan, The
Address: 1804 Dodge
Resource Type: Building
Number buildings: 000001
Number sites: Not Reported
Number structs: Not Reported
Number objects: Not Reported
Non-contrib bldg: Not Reported
Non-contrib sites: Not Reported
Non-contrib structs: Not Reported
Non-contrib objects: Not Reported
Primary Certification: Listed in the national register
Certification date: 20050722
Acreage: 9
Alternate name: Not Reported
County: Douglas
City: Omaha
Applicable Criteria: Event
Areas of significance: Community planning and development
Areas of significance: Social history
Current Function: Vacant/not in use
Current Function: Work in progress
Building Material: Concrete
Building Material: Brick

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Building Material: Concrete
Alternate name: Home Builders Inc.; El Beudor; Logan Apartments
Alternate name: Sherwyn Hotel; DO09:0126-020

Unmappable
NE2007000000409
NE Historic Sites

Fnehbs: DO09:0684-001
Fname: Military Road Segment
Faddress: 82nd & Fort
Fcity: Omaha
Fcnty: Douglas
Flisted: 19931210
Fcriteria: A
Edr id: NE2007000000409

Unmappable
NE2007000000318
NE Historic Sites

Fnehbs: DO09:0117-006
Fname: Moses Block
Faddress: 1234-1244 S 13th
Fcity: Omaha
Fcnty: Douglas
Flisted: 20000309
Fcriteria: AC
Edr id: NE2007000000318

Unmappable
NE2007000000340
NE Historic Sites

Fnehbs: DO09:0123-009
Fname: Nash Block (McKesson-Robbins Bldg)
Faddress: 902-012 Farnam
Fcity: Omaha
Fcnty: Douglas
Flisted: 19850516
Fcriteria: AC
Edr id: NE2007000000340

Unmappable
93000559
National Register of Hist. Places

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Refnum: 93000559
Resname: O Street Viaduct
Address: O St. over the UPRR tracks
Resource Type: Structure
Number buildings: 000000
Number sites: 000000
Number structs: 000001
Number objects: 000000
Non-contrib bldg: 000000
Non-contrib sites: 000000
Non-contrib structs: 000000
Non-contrib objects: 000000
Primary Certification: Determined eligible/owner objection
Certification date: 19930617
Acreage: 9
Alternate name: Highway Bridges in Nebraska MPS
County: Douglas
City: Omaha
Applicable Criteria: Architecture/Engineering
Areas of significance: Engineering
Current Function: Transportation
Building Material: Concrete
Building Material: Inapplicable
Building Material: Inapplicable
Building Material: Steel
Building Material: Log
Alternate name: NEHBS No. DO09: 181-3

Unmappable
NE2007000000296
NE Historic Sites

Fnehbs: DO09
Fname: Old Market Historic District
Faddress: bounded by 13th , Farnam, 10th & Jackson
Fcity: Omaha
Fcnty: Douglas
Flisted: 19790323
Fcriteria: AC
Edr id: NE2007000000296

Unmappable
NE2007000000361
NE Historic Sites

Fnehbs: DO09:0129-003
Fname: Omaha Ford Motor Company Assembly Plant
Faddress: 1514-24 Cuming
Fcity: Omaha
Fcnty: Douglas
Flisted: 20041229

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fcriteria: AC
Edr id: NE2007000000361

Unmappable
04001412
National Register of Hist. Places

Refnum: 04001412
Resname: Omaha Ford Motor Company Assembly Plant
Address: 1514-1524 Cuming St.
Resource Type: Building
Number buildings: 000001
Number sites: Not Reported
Number structs: Not Reported
Number objects: Not Reported
Non-contrib bldg: Not Reported
Non-contrib sites: Not Reported
Non-contrib structs: Not Reported
Non-contrib objects: Not Reported
Primary Certification: Listed in the national register
Certification date: 20041229
Acreage: 20
Alternate name: Not Reported
County: Douglas
City: Omaha
Applicable Criteria: Event
Applicable Criteria: Architecture/Engineering
Areas of significance: Industry
Areas of significance: Architecture
Current Function: Vacant/not in use
Current Function: Work in progress
Building Material: Concrete
Building Material: Wood
Building Material: Brick
Building Material: Concrete
Building Material: Asphalt
Building Material: Concrete
Alternate name: Tip Top products Co., Inc.
Alternate name: DO09:0129-003

Unmappable
NE2007000000348
NE Historic Sites

Fnehbs: DO09:0124-010
Fname: Omaha National Bank Bldg (NY Life Insurance Bldg)
Faddress: 17th & Farnam
Fcity: Omaha
Fcnty: Douglas
Flisted: 19721018
Fcriteria: C

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Edr id: NE2007000000348

Unmappable
NE2007000000313
NE Historic Sites

Fnehbs: DO09:0116-001
Fname: Omaha Quartermaster Depot Historic District
Faddress: bounded by Hickory, 22nd, Woolworth Ave & UPRR
Fcity: Omaha
Fcnty: Douglas
Flisted: 19790726
Fcriteria: AC
Edr id: NE2007000000313

Unmappable
NE2007000000298
NE Historic Sites

Fnehbs: DO09
Fname: Omaha Rail & Commerce Historic District
Faddress: bounded by Jackson, 15th, 18th & UP Mainline
Fcity: Omaha
Fcnty: Douglas
Flisted: 19960719
Fcriteria: A
Edr id: NE2007000000298

Unmappable
86003402
National Register of Hist. Places

Refnum: 86003402
Resname: Richardson Building
Address: 902 Jackson
Resource Type: Building
Number buildings: 000001
Number sites: 000000
Number structs: 000000
Number objects: 000000
Non-contrib bldg: 000000
Non-contrib sites: 000000
Non-contrib structs: 000000
Non-contrib objects: 000000
Primary Certification: Date received/pending nomination
Certification date: 19861105
Acreage: 9
Alternate name: Not Reported
County: Douglas

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

City: Omaha
Applicable Criteria: Architecture/Engineering
Areas of significance: Architecture
Current Function: Domestic
Current Function: Commerce/trade
Building Material: None listed
Building Material: None listed
Building Material: None listed
Building Material: Limestone
Building Material: Brick
Alternate name: Lindsay Brothers;New Idea Building

Unmappable
NE2007000000308
NE Historic Sites

Fnehbs: DO09:0105-001
Fname: Rosewater School
Faddress: 3764 S 13th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19850516
Fcriteria: BCl
Edr id: NE2007000000308

Unmappable
NE2007000000402
NE Historic Sites

Fnehbs: DO09:0322-014
Fname: Saddle Creek Underpass; MP
Faddress: Dodge over Saddle Creek Rd
Fcity: Omaha
Fcnty: Douglas
Flisted: 19920629
Fcriteria: C
Edr id: NE2007000000402

Unmappable
NE2007000000393
NE Historic Sites

Fnehbs: DO09:0315-001
Fname: Selby Apartments
Faddress: 830 S 37th, 3710 Marcy, 825 S 37th Ave
Fcity: Omaha
Fcnty: Douglas
Flisted: 20041230
Fcriteria: AC

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Edr id: NE2007000000393

Unmappable
04001411
National Register of Hist. Places

Refnum:	04001411
Resname:	Selby Apartments
Address:	830 S. 37th St., 3710 Marcy St., 825 S. 37th Ave.
Resource Type:	Building
Number buildings:	000003
Number sites:	Not Reported
Number structs:	Not Reported
Number objects:	Not Reported
Non-contrib bldg:	Not Reported
Non-contrib sites:	Not Reported
Non-contrib structs:	Not Reported
Non-contrib objects:	Not Reported
Primary Certification:	Listed in the national register
Certification date:	20041230
Acreage:	9
Alternate name:	Not Reported
County:	Douglas
City:	Omaha
Applicable Criteria:	Event
Applicable Criteria:	Architecture/Engineering
Areas of significance:	Social history
Areas of significance:	Architecture
Current Function:	Domestic
Building Material:	Concrete
Building Material:	Concrete
Building Material:	Asphalt
Alternate name:	DO09:0315-001; DO09:0315-002; DO09:0315-003

Unmappable
NE2007000000306
NE Historic Sites

Fnehbs:	DO09:0097-001
Fname:	South Omaha Bridge; MP
Faddress:	US Hwy 275 over MO Riv.
Fcity:	Omaha
Fcnty:	Douglas
Flisted:	19920629
Fcriteria:	C
Edr id:	NE2007000000306

Unmappable
NE2007000000297
NE Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fnehbs: DO09
Fname: South Omaha Main Street Historic District
Faddress: 24th bet O & M
Fcity: Omaha
Fcnty: Douglas
Flisted: 19890214
Fcriteria: AC
Edr id: NE2007000000297

Unmappable
NE2007000000336
NE Historic Sites

Fnehbs: DO09:0122-053
Fname: Steiner Row House #1
Faddress: 638-42 S 19th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19910703
Fcriteria: C
Edr id: NE2007000000336

Unmappable
NE2007000000334
NE Historic Sites

Fnehbs: DO09:0122-050
Fname: Steiner Row House #2
Faddress: 1906-10 Jones
Fcity: Omaha
Fcnty: Douglas
Flisted: 19910703
Fcriteria: C
Edr id: NE2007000000334

Unmappable
NE2007000000363
NE Historic Sites

Fnehbs: DO09:0135-004
Fname: Strehlow Terrace (Terrace Garden Apartment Complex)
Faddress: 2024 & 2107 N 16th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19861223
Fcriteria: BC
Edr id: NE2007000000363

Unmappable
NE2007000000321
NE Historic Sites

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Fnehbs: DO09:0119-003
Fname: Union Passenger Terminal
Faddress: 10th & Marcy Sts
Fcity: Omaha
Fcnty: Douglas
Flisted: 19711112
Fcriteria: ACg
Edr id: NE2007000000321

Unmappable
NE2007000000301
NE Historic Sites

Fnehbs: DO09
Fname: Vinton Street Commercial Historic District
Faddress: Vinton St. bet Elm & S 17th
Fcity: Omaha
Fcnty: Douglas
Flisted: 20080711
Fcriteria: A
Edr id: NE2007000000301

Unmappable
NE2007000000391
NE Historic Sites

Fnehbs: DO09:0256-001
Fname: Weber Mill
Faddress: 9102 S 30th
Fcity: Omaha
Fcnty: Douglas
Flisted: 19981231
Fcriteria: A
Edr id: NE2007000000391

Unmappable
04001409
National Register of Hist. Places

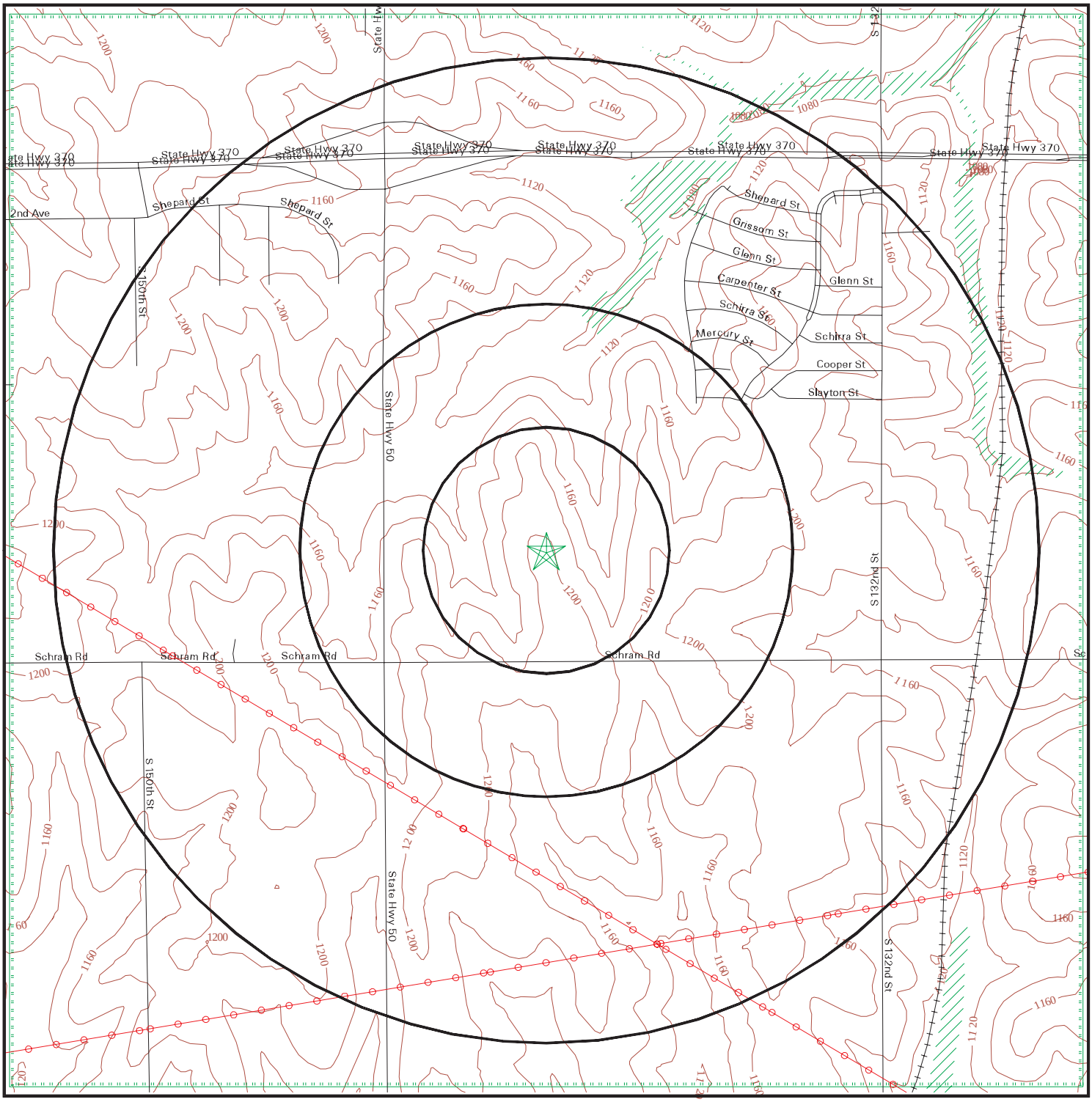
Refnum: 04001409
Resname: West Lawn Mausoleum
Address: 5701 Center St.
Resource Type: Building
Number buildings: 000001
Number sites: Not Reported
Number structs: Not Reported
Number objects: Not Reported
Non-contrib bldg: Not Reported
Non-contrib sites: Not Reported

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped: **Status**
EDR ID
Database

Non-contrib structs:	Not Reported
Non-contrib objects:	Not Reported
Primary Certification:	Listed in the national register
Certification date:	20041230
Acreage:	9
Alternate name:	Not Reported
County:	Douglas
City:	Omaha
Applicable Criteria:	Architecture/Engineering
Areas of significance:	Architecture
Current Function:	Funerary
Building Material:	Concrete
Building Material:	Marble
Building Material:	Ceramic tile
Alternate name:	DO09:0420-001

Flood Plain Map



- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- 100-year flood zone
- 500-year flood zone
- Electronic FEMA data available
- Electronic FEMA data not available

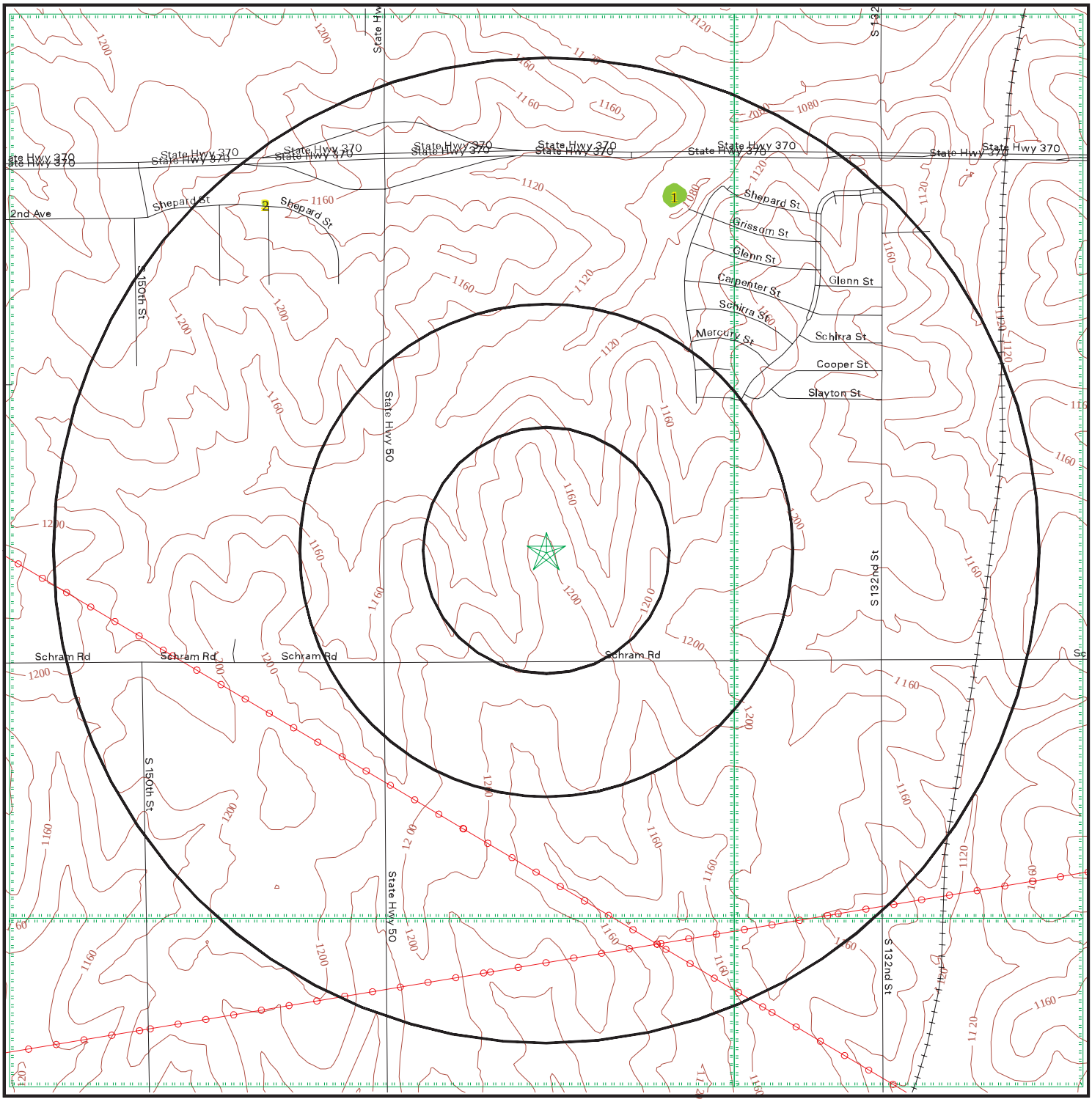
SITE NAME:	Proposed National Cemetery	CLIENT:	TTL Associates, Inc
ADDRESS:	NEC S. 144th Street and Scram Road Omaha NE 68138	CONTACT:	Paul Jackson
LAT/LONG:	41.1358 / 96.1326	INQUIRY #:	3260238.1s
		DATE:	February 16, 2012

FLOOD PLAIN MAP FINDINGS

Source: FEMA DFIRM Flood Data, FEMA Q3 Flood Data

County	FEMA flood data electronic coverage
SARPY, NE	YES
Flood Plain panel at target property:	31153C (FEMA DFIRM Flood data)
Additional Flood Plain panel(s) in search area:	None Reported

National Wetlands Inventory Map



- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- National Wetland Inventory
- State Wetlands
- Electronic NWI data available
- Electronic NWI data not available

SITE NAME:	Proposed National Cemetery	CLIENT:	TTL Associates, Inc
ADDRESS:	NEC S. 144th Street and Scram Road Omaha NE 68138	CONTACT:	Paul Jackson
LAT/LONG:	41.1358 / 96.1326	INQUIRY #:	3260238.1s
		DATE:	February 16, 2012

WETLANDS MAP FINDINGS

Source: Fish and Wildlife Service NWI data

NWI hardcopy map at target property: Gretna
Additional NWI hardcopy map(s) in search area:
Ralston
Cedar Creek
Springfield

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
1 NNE 1/2-1 mi 3910	PABFx [P] Palustrine, [AB] Aquatic Bed, [F] Semipermanently Flooded, [x] Excavated Lat/Lon: 41.145897 / -96.127808	NWI
2 NW 1/2-1 mi 4745	PEMC [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded Lat/Lon: 41.145950 / -96.143387	NWI

*See Wetland Classification System for additional information.

WETLANDS CLASSIFICATION SYSTEM

National Wetland Inventory Maps are produced by the U.S. Fish and Wildlife Service, a sub-department of the U.S. Department of the Interior. In 1974, the U.S. Fish and Wildlife Service developed a criteria for wetland classification with four long range objectives:

- to describe ecological units that have certain homogeneous natural attributes,
- to arrange these units in a system that will aid decisions about resource management,
- to furnish units for inventory and mapping, and
- to provide uniformity in concepts and terminology throughout the U.S.

High altitude infrared photographs, soil maps, topographic maps and site visits are the methods used to gather data for the productions of these maps. In the infrared photos, wetlands appear as different colors and these wetlands are then classified by type. Using a hierarchical classification, the maps identify wetland and deepwater habitats according to:

- system
- subsystem
- class
- subclass
- modifiers

(as defined by Cowardin, et al. U.S. Fish and Wildlife Service FWS/OBS 79/31. 1979.)

The classification system consists of five systems:

1. marine
2. estuarine
3. riverine
4. lacustrine
5. palustrine

The marine system consists of deep water tidal habitats and adjacent tidal wetlands. The riverine system consists of all wetlands contained within a channel. The lacustrine systems includes all nontidal wetlands related to swamps, bogs & marshes. The estuarine system consists of deepwater tidal habitats and where ocean water is diluted by fresh water. The palustrine system includes nontidal wetlands dominated by trees and shrubs and where salinity is below .5% in tidal areas. All of these systems are divided in subsystems and then further divided into class.

National Wetland Inventory Maps are produced by transferring gathered data on a standard 7.5 minute U.S.G.S. topographic map. Approximately 52 square miles are covered on a National Wetland Inventory map at a scale of 1:24,000. Electronic data is compiled by digitizing these National Wetland Inventory Maps.

SYSTEM **MARINE**

SUBSYSTEM **1 - SUBTIDAL** **2 - INTERTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom	AB-AQUATIC BED	RF-REEF	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 3 Worm		1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

SYSTEM **E - ESTUARINE**

SUBSYSTEM **1 - SUBTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	

SUBSYSTEM **2 - INTERTIDAL**

CLASS	AB-AQUATIC BED	RF-REEF	SB - STREAMBED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	SS-SCRUB SHRUB	FO-FORESTED
Subclass	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

SYSTEM — **R - RIVERINE**

SUBSYSTEM	**1 - TIDAL**	**2 - LOWER PERENNIAL**	**3 - UPPER PERENNIAL**	**4 - INTERMITTENT**	**5 - UNKNOWN PERENNIAL**
CLASS	RB-ROCK BOTTOM UB-UNCONSOLIDATED BOTTOM *SB-STREAMBED AB-AQUATIC BED RS-ROCKY SHORE US-UNCONSOLIDATED SHORE **EM-EMERGENT OW-OPEN WATER/ Unknown Bottom				
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent

* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

SYSTEM — **L - LACUSTRINE**

SUBSYSTEM — **1 - LIMNETIC**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	

SUBSYSTEM — **2 - LITTORAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

SUBSYSTEM — **P - PALUSTRINE**

CLASS	RB--ROCK BOTTOM	UB--UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	US--UNCONSOLIDATED SHORE	ML--MOSS-LICHEN	EM--EMERGENT	SS--SCRUB-SHRUB	FO--FORESTED	OW-OPEN WATER/ Unknown
Bottom									
Subclass	1 Bedrock 2 Rubble 3 Mud 4 Organic	1 Cobble-Gravel 2 Sand	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6Deciduous 7 Evergreen	

MODIFIERS

In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME

Non-Tidal

A Temporarily Flooded
B Saturated
C Seasonally Flooded
D Seasonally Flooded/ Well Drained
E Seasonally Flooded/ Saturated
F Semipermanently Flooded
G Intermittently Exposed

Tidal

H Permanently Flooded
J Intermittently Flooded
K Artificially Flooded
W Intermittently Flooded/Temporary
Y Saturated/Semipermanent/ Seasonal
Z Intermittently Exposed/Permanent
U Unknown

CoastalHalinityInlandSalinitypHModifiersfor all Fresh Water

K Artificially Flooded
L Subtidal
M Irregularly Exposed
N Regularly Flooded
P Irregularly Flooded

*S Temporary-Tidal
*R Seasonal-Tidal
*T Semipermanent -Tidal
V Permanent -Tidal
U Unknown

*These water regimes are only used in tidally influenced, freshwater systems.

WATER CHEMISTRY

1 Hyperhaline
2 Euhaline
3 Mixohaline (Brackish)
4 Polyhaline
5 Mesohaline
6 Oligohaline
0 Fresh

7 Hypersaline
8 Eusaline
9 Mixosaline
0 Fresh

a Acid
t Circumneutral
i Alkaline

SOIL

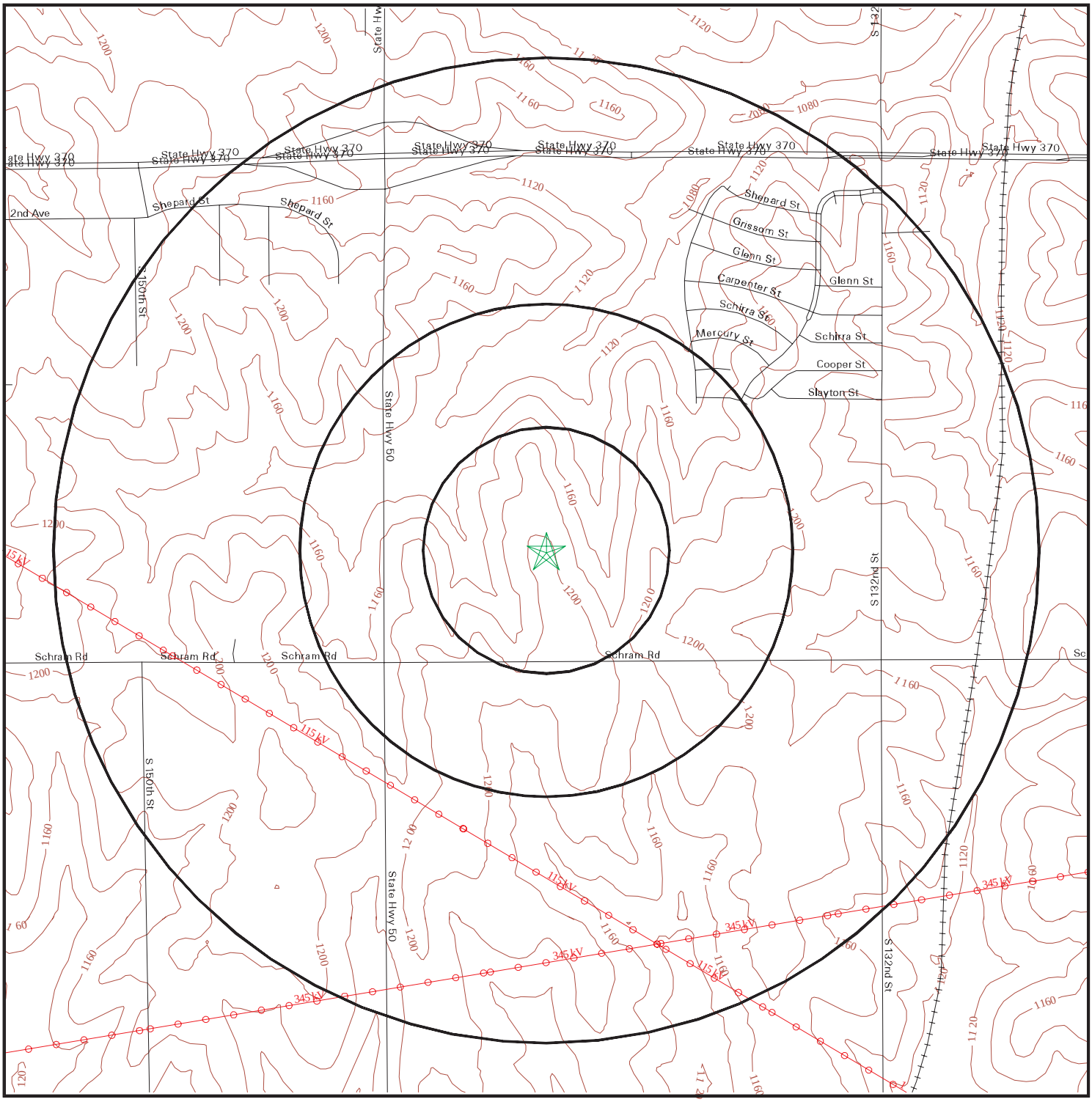
g Organic
n Mineral

SPECIAL MODIFIERS

b Beaver
d Partially Drained/Ditched
f Farmed
h Diked/Impounded
r Artificial Substrate
s Spoil
x Excavated

Source: U.S. Department of the Interior
Fish and Wildlife Service
National Wetlands Inventory

FCC & FAA Sites Map



- Streets
- Contour Lines
- County Boundary
- Waterways
- Power Lines
- Water
- Sites

SITE NAME:	Proposed National Cemetery	CLIENT:	TTL Associates, Inc
ADDRESS:	NEC S. 144th Street and Scram Road Omaha NE 68138	CONTACT:	Paul Jackson
		INQUIRY #:	3260238.1s
LAT/LONG:	41.1358 / 96.1326	DATE:	February 16, 2012

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database

No Sites Reported.

FCC & FAA SITES MAP FINDINGS
AIRPORTS

EDR ID
Database

No Sites Reported.

FCC & FAA SITES MAP FINDINGS
POWERLINES

EDR ID
Database

POW10000015386
POWERLINES

Name:	NE021
Id:	1022
Kv:	345
Label:	345 kV
Company:	Omaha Public Power District
Companyabb:	OPPD
Edr id:	POW10000015386

POW10000003598
POWERLINES

Name:	NE347
Id:	5348
Kv:	115
Label:	115 kV
Company:	Omaha Public Power District
Companyabb:	OPPD
Edr id:	POW10000003598

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Various Federal laws and executive orders address specific environmental concerns. NEPA requires the responsible offices to integrate to the greatest practical extent the applicable procedures required by these laws and executive orders. EDR provides key contacts at agencies charged with implementing these laws and executive orders to supplement the information contained in this report.

NATURAL AREAS
Officially designated wilderness areas
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.
Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

National Park Service, Midwest Region
1709 Jackson Street
Omaha, NE 68102
402-221-3471

USDA Forest Service, Rocky Mountain
740 Simms Street P.O. Box 25127
Lakewood, CO 80225
303-275-5160

BLM - Wyoming State Office
5353 Yellowstone Road
Cheyenne, WY 82003
307-775-6256

Fish & Wildlife Service, Region 6
P.O. Box 25486 Denver Federal Center
Denver, CO 80225
303-236-7917

Officially designated wildlife preserves, sanctuaries and refuges
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.
Date of Government Version: 12/31/2005

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 6
P.O. Box 25486 Denver Federal Center
Denver, CO 80225
303-236-7917

State Contacts for Additional Information

Game & Parks Commission 402-471-5411

Wild and scenic rivers

Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 6
P.O. Box 25486 Denver Federal Center
Denver, CO 80225
303-236-7917

Endangered Species

Government Records Searched in This Report

Endangered Species Protection Program Database
A listing of endangered species by county.
Source: Environmental Protection Agency
Telephone: 703-305-5239

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 6
P.O. Box 25486 Denver Federal Center
Denver, CO 80225
303-236-7917

State Contacts for Additional Information

Natural Heritage Program, Game & Parks Commission 402-471-5500

LANDMARKS, HISTORICAL, AND ARCHEOLOGICAL SITES

Historic Places

Government Records Searched in This Report

National Register of Historic Places:
The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. These contribute to an understanding of the historical and cultural foundations of the nation.

The National Register includes:
- All prehistoric and historic units of the National Park System;
- National Historic Landmarks, which are properties recognized by the Secretary of the Interior as possessing national significance; and
- Properties significant in American, state, or local prehistory and history that have been nominated by State Historic Preservation Officers, federal agencies, and others, and have been approved for listing by the National Park Service.

Date of Government Version: 03/23/2006

NE Historic Sites: National Register of Historic Places
Listing of historic sites included on the National Register for Nebraska.
Source: Nebraska State Historical Society.
Telephone: 402-471-4746

Federal Contacts for Additional Information

Park Service; Advisory Council on Historic Preservation
1849 C Street NW
Washington, DC 20240
Phone: (202) 208-6843

State Contacts for Additional Information

Nebraska State Historical Society 402-471-4745

Indian Religious Sites

Government Records Searched in This Report

Indian Reservations:
This map layer portrays Indian administrated lands of the United States that have any area equal to or greater than 640 acres.
Source: USGS
Phone: 888-275-8747
Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

Department of the Interior- Bureau of Indian Affairs
Office of Public Affairs
1849 C Street, NW
Washington, DC 20240-0001
Office: 202-208-3711
Fax: 202-501-1516

National Association of Tribal Historic Preservation Officers
1411 K Street NW, Suite 700
Washington, DC 20005
Phone: 202-628-8476
Fax: 202-628-2241

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

State Contacts for Additional Information
A listing of local Tribal Leaders and Bureau of Indian Affairs Representatives can be found at:
http://www.doi.gov/bia/areas/agency.html

Aberdeen Area Office, Bureau of Indian Affairs
115 4th Avenue, S.E.
Aberdeen, SD 37401
605-226-7343

FLOOD PLAIN, WETLANDS AND COASTAL ZONE

Flood Plain Management
Government Records Searched in This Report
Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Federal Contacts for Additional Information
Federal Emergency Management Agency 877-3362-627

State Contacts for Additional Information
Military Department 402-471-3241

Wetlands Protection
Government Records Searched in This Report
NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2004 from the U.S. Fish and Wildlife Service.

State Wetlands Data: National Wetlands Inventory
Source: Department of Natural Resources
Telephone: 402-471-2363

Federal Contacts for Additional Information
Fish & Wildlife Service 813-570-5412

State Contacts for Additional Information
Game & Parks Commission 402-471-5411

Coastal Zone Management
Government Records Searched in This Report
CAMA Management Areas
Dept. of Env., Health & Natural Resources
919-733-2293

Federal Contacts for Additional Information
Office of Ocean and Coastal Resource Management
N/ORM, SSMC4
1305 East-West Highway
Silver Spring, Maryland 20910
301-713-3102

State Contacts for Additional Information

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

FCC & FAA SITES MAP
For NEPA actions that come under the authority of the FCC, the FCC requires evaluation of Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

Government Records Searched in This Report

Cellular
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

4G Cellular
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

Antenna Structure Registration
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

Towers
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

AM Antenna
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

FM Antenna
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
888-225-5322

FAA Digital Obstacle File
Federal Aviation Administration (FAA)
1305 East-West Highway, Station 5631
Silver Sprinng, MD 20910-3281
Telephone: 301-713-2817
Describes known obstacles of interest to aviation users in the US. Used by the Federal Aviation Administration (FAA) and the National Oceanic and Atmospheric Administration to manage the National Airspace System.

Airport Landing Facilities
Federal Aviation Administration
Telephone (800) 457-6656
Private and public use landing facilities.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

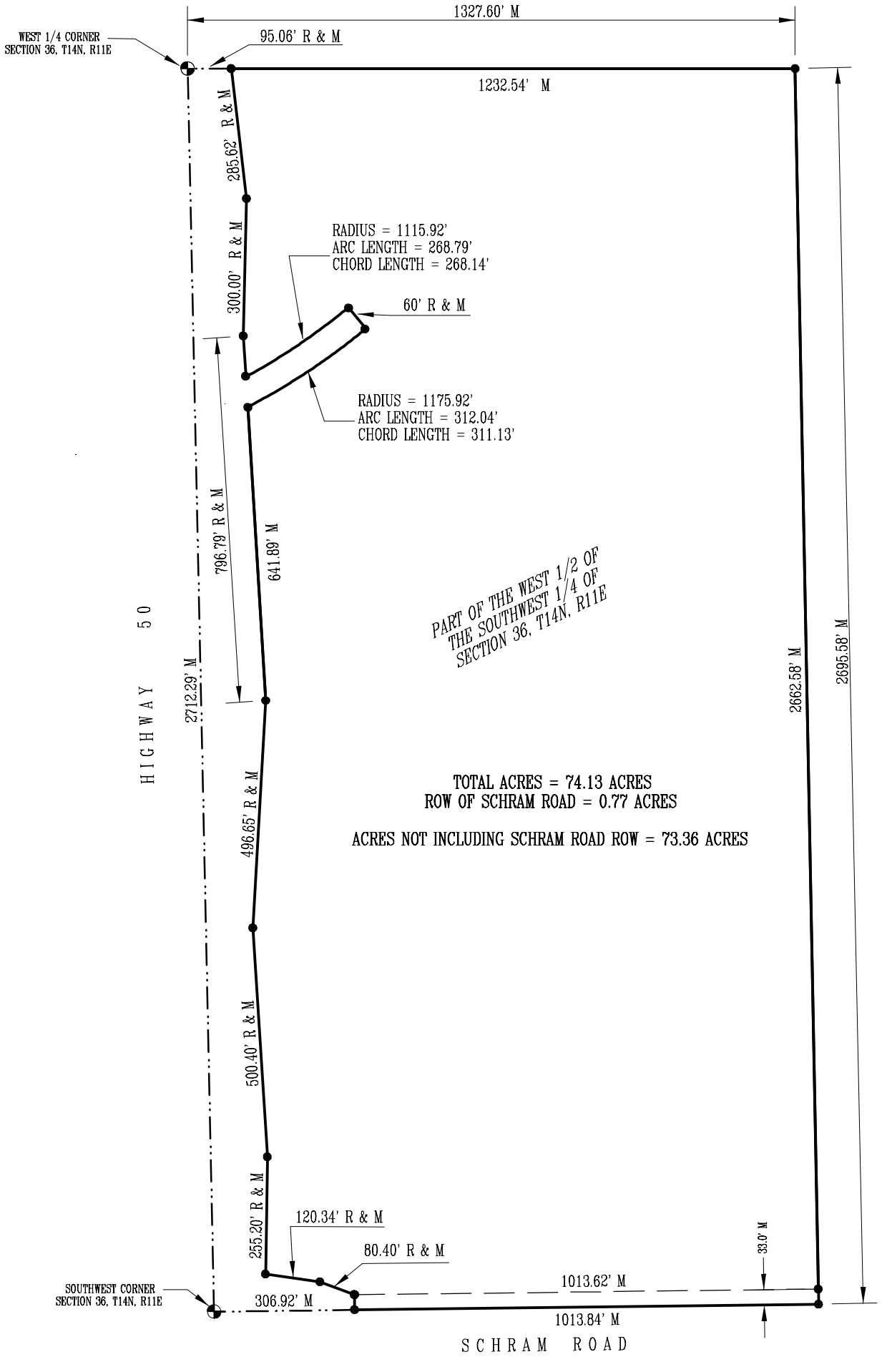
Electric Power Transmission Line Data
Rextag Strategies Corp.
14405 Walters Road, Suite 510
Houston, TX 77014
281-769-2247
U.S. Electric Transmission and Power Plants systems Digital GIS Data.

Excessive Radio Frequency Emission
For NEPA actions that come under the authority of the FCC, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the determination of whether the particular facility, operation or transmitter would cause human exposure to levels of radio frequency in excess of certain limits.

Federal Contacts for Additional Information
Office of Engineering and Technology
Federal Communications Commission
445 12th Street SW
Washington, DC 20554
Phone: 202-418-2470

OTHER CONTACT SOURCES

STREET AND ADDRESS INFORMATION



TO THE OFFICE OF
COUNTY SURVEYOR AND ENGINEER
SARPY COUNTY

LAND SURVEYOR'S CERTIFICATE

LEGAL DESCRIPTION

The West Half of the Southwest Quarter of Section 36, Township 14 North, Range 11, East of the 6th P.M. in Sarpy County, Nebraska;

EXCEPT that part thereof taken by the State of Nebraska for channel change purposes, being a strip of land 60.0 feet in width, the centerline of which is described as follows:

Referring to the West Quarter Corner of said Section 36; thence Southerly, on the West line of the West Half of the Southwest Quarter of said Section 36, a distance of 761.5 feet; thence Northeasterly 114°37' left, a distance of 71.3 feet to the Point of Beginning of said centerline; thence continuing Northeasterly, on a 1,145.92 foot radius curve to the left (initial tangent of which coincides with the last described course produced), a distance of 345.2 feet, to the Point of Termination of said centerline;

AND, EXCEPT that part thereof conveyed to the State of Nebraska described as follows:

Beginning at the Southwest corner of the West Half of the Southwest Quarter of said Section 36; thence Northerly, along the West line of said West Half of the Southwest Quarter Section, a distance of 2,712.29 feet, to the Northwest corner of said West Half of the Southwest Quarter Section; thence Easterly, deflecting 91°13'20" right, along the North line of said West Half of the Southwest Quarter Section, a distance of 69.60 feet, to the existing Easterly right-of-way line of Highway 50; thence continuing Easterly; deflecting 00°00'00", along the North line of said West Half of the Southwest Quarter Section, a distance of 25.46 feet;
thence Southerly deflecting 83°16'20" right, a distance of 285.62 feet;
thence Southerly deflecting 08°03'02" right, a distance of 300.00 feet;
thence Southerly deflecting 04°51'05" left, a distance of 796.79 feet;
thence Southerly deflecting 06°48'21" right, a distance of 496.65 feet;
thence Southerly deflecting 06°54'36" left, a distance of 500.40 feet;
thence Southerly deflecting 04°32'11" right, a distance of 255.20 feet;
thence Easterly deflecting 82°30'35" left, a distance of 120.34 feet;
thence Easterly deflecting 11°59'55" right, a distance of 80.40 feet, to the existing Northerly County Road right-of-way line; thence Southerly, deflecting 68°53'09" right, a distance of 33.00 feet to the South line of said West Half of the Southwest Quarter Section; thence Westerly, deflecting 90°00'13" right, along the South line of said West Half of the Southwest Quarter Section, a distance of 306.91 feet, to the Point of Beginning; all subject to public roads and/or highways.

CERTIFICATION

I hereby certify that this play, map, survey or report was made by me or under my direct personal supervision and that I am a duly Registered Land Surveyor under the laws of the State of Nebraska.

CLARENCE ROGER CARRELL – LS 306

DATE: _____

SCALE: 1" = 300'

LEGEND

● FOUND PIN – 5/8" REBAR W/ CAP 308
R – RECORDED DISTANCE
M – MEASURED DISTANCE

TIES TO THE WEST 1/4 CORNER
SECTION 36, T14N, R11E
1" SURVEY MARK SPIKE

EAST 99.98' TO 5/8" REBAR

WEST 4.17' TO EAST EDGE OF PAVEMENT OF NORTHBOUND LANES

EAST 81.13' TO 'X' NAILS IN POWER POLE #127

NORTHEAST 37.57' TO PUNCH MARK TOP C.M.P.

TIES TO THE SOUTHWEST CORNER
SECTION 36, T14N, R11E
SARPY COUNTY BRASS CAP

EAST 4.30' TO END OF CONCRETE PAVEMENT

SOUTHEAST 71.32' TO 'X' NAILS IN POWER POLE

NORTHEAST 74.63' TO 'X' NAILS IN POWER POLE #136

WEST 60.17' TO EAST EDGE OF CONCRETE OF NORTHBOUND LANES

drawn by
jwc

work completed by
jlc, jwc

file name

CARRELL
& ASSOCIATES, INC.
LAND SURVEYORS & CONSULTANTS
5020 SOUTH 118TH STREET, OMAHA, NE 68137
PHONE - 402-331-2333 FAX - 402-331-6077
www.carrellsurveying.com

SARPY COUNTY, NEBRASKA

PARCEL SURVEY

job number:

date:
DECEMBER 8, 2011

sheet
1 OF 1

TO THE OFFICE OF
COUNTY SURVEYOR AND ENGINEER
SARPY COUNTY

LAND SURVEYOR'S CERTIFICATE

LEGAL DESCRIPTION

A tract of land lying in the East 1/2 of the Southwest Quarter and the West 1/2 of the Southeast Quarter of Section 36, Township 14 North, Range 11 East of the 6th P.M., located in Sarpy County, Nebraska;

Described as follows:

Commencing at the Southwest Corner of Section 36, Township 14 North, Range 11 East of the 6th P.M, Sarpy County, Nebraska; thence N 87°11'09" E, along the south line of said Section 36, a distance of 1320.76 feet to the Point of Beginning; thence continuing N 87°11'09" E, along said south line, a distance of 1319.89 feet to the South 1/4 corner of said Section 36; thence N 87°11'45" E, along said south line, a distance of 1320.53 feet; thence N 02°47'50" W a distance of 2660.76 feet; thence S 87°54'54" W a distance of 1331.47 feet to the center of said Section 36; thence S 87°87'56" W a distance of 1326.50 feet; thence S 03°09'56" E a distance of 2695.58 feet, to the Point of Beginning.

Said tract of land contains 7,093,538.41 square feet or 162.85 acres more or less

CERTIFICATION

I hereby certify that this play, map, survey or report was made by me or under my direct personal supervision and that I am a duly Registered Land Surveyor under the laws of the State of Nebraska.

CLARENCE ROGER CARRELL – LS 306

DATE: _____

SCALE: 1" = 300'

LEGEND

- ● FOUND PIN – 5/8" REBAR W/ CAP 308
- ▲ SET PIN – 5/8" REBAR W/ CAP 306
- R – RECORDED DISTANCE
- M – MEASURED DISTANCE

TIES TO THE NORTH 1/4 CORNER
SECTION 36, T14N, R11E
BRASS CAP

WEST 14.50' TO EDGE OF CONCRETE

NORTH 64.00' TO C/L OF EASTBOUND LANES

SOUTH 63.50' TO 'X' NAILS IN WEST FACE OF POWER POLE

SOUTH 6.80' TO SOUTH END OF CONCRETE RETURN AT 138TH STREET

TIES TO THE WEST 1/4 CORNER
SECTION 36, T14N, R11E
1" SURVEY MARK SPIKE

EAST 99.98' TO 5/8" REBAR

WEST 4.17' TO EAST EDGE OF PAVEMENT OF NORTHBOUND LANES

EAST 81.13' TO 'X' NAILS IN POWER POLE #127

NORTHEAST 37.57' TO PUNCH MARK TOP C.M.P.

TIES TO THE EAST 1/4 CORNER
SECTION 36, T14N, R11E
1" SURVEY MARK SPIKE

SOUTHEAST 68.63' TO EAST TOP END OF 36" CMP

SOUTHWEST 60.86' TO WEST TOP END OF 36" CMP

NORTHWEST 82.25' TO NEAR TOP CORNER OF WALL OF GARAGE ON HOUSE

S 87°54'13"W 1327.60' M

S 87°57'56"W 1326.50'

S 87°54'54"W 1331.47'

N 87°54'54"E 1331.47' M

N 03°01'45" W 2652.89' M

HIGHWAY 50

N 03°18'03" W 2712.26' M

S 03°09'56"E 2695.58' M
2662.58' M

THE EAST 1/2 OF
THE SOUTHWEST 1/4 OF
SECTION 36, T14N, R11E

S 03°01'45"E 2677.49' M
2644.49' M

THE WEST 1/2 OF
THE SOUTHEAST 1/4 OF
SECTION 36, T14N, R11E

2627.76' M
N 02°47'50"W 2660.76' M

N 00°33'44"W 2644.08' M

132ND STREET

TOTAL ACRES = 162.85 ACRES
ROW OF SCHRAM ROAD = 2.00 ACRES

ACRES NOT INCLUDING SCHRAM ROAD ROW = 160.85 ACRES

TIES TO THE SOUTHWEST CORNER
SECTION 36, T14N, R11E
SARPY COUNTY BRASS CAP

EAST 4.30' TO END OF CONCRETE PAVEMENT

SOUTHEAST 71.32' TO 'X' NAILS IN POWER POLE

NORTHEAST 74.63' TO 'X' NAILS IN POWER POLE #136

WEST 60.17' TO EAST EDGE OF CONCRETE OF NORTHBOUND LANES

33.0' M

1319.97'

1320.66'

33.0' M

N 87°11'09"E 1320.76' M

N 87°11'09"E 1319.89' M

N 87°11'45"E 1320.53' M

N 87°11'45"E 1320.53' M

POINT OF COMMENCEMENT

POINT OF BEGINNING

SCHRAM ROAD

TIES TO THE SOUTHEAST CORNER
SECTION 36, T14N, R11E
1" SURVEY MARK SPIKE

NORTHEAST 50.05' TO NEAR CORNER OF TELE BOX

SOUTHEAST 51.40' TO 'X' NAILS IN POWER POLE

SOUTHWEST 57.68' TO 'X' NAILS IN FENCE POST

drawn by
jwc

work completed by
jlc, jwc

file name

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job number:

date:
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sheet

1 OF 1

Thiele Geotech Inc

Geotechnical Exploration Report

Development Site

Highway 50
Sarpy County, Nebraska

Draft

Prepared for:
Studley, Inc.
555 13th Street
Suite 420 E
Washington DC, 20004

March 29, 2012
TG Project No. 12042.00

THIELE GEOTECH, INC.
13478 Chandler Road
Omaha, Nebraska 68138-3716
402.556.2171 Fax 402.556.7831
www.thielegeotech.com

Geotechnical Exploration Report

Development Site

Table of Contents

INTRODUCTION

Thiele Geotech, Inc. has completed a geotechnical exploration study for the proposed Development Site to be located near Highway 50 in Sarpy County, Nebraska. The purpose of this study was to identify the general soil and ground water conditions underlying the site; to evaluate engineering properties of the existing soils; to provide earthwork and site preparation recommendations; and to recommend design criteria and parameters for foundations, pavements, and other earth supported improvements.

This study included soil borings, laboratory testing, and engineering analysis. A series of twenty four test borings were spaced across the project site at strategic locations. The field and laboratory data are presented in the Appendix, along with a description of investigative methods.

The drilling and testing performed for this study were conducted solely for geotechnical analysis. A phase I environmental assessment was conducted by Thiele Geotech and was submitted under a separate cover. Any statements or observations in this report regarding odors, discoloration, or suspicious conditions are strictly for the information of our client. This study did not include biological assessment (e.g. mold, fungi, bacteria) or evaluation of measures for their control.

It should also be noted that this report was prepared for design purposes only, and may not be sufficient for a contractor in bid preparation. Prospective contractors should evaluate potential construction problems on the basis of their own knowledge and experience in the local area and on similar projects, taking into account their own intended construction methods and procedures.

This report is an instrument of service prepared for use by our client on this specific project. The report may be duplicated as necessary and distributed to those directly associated with this project, including members of the design team and prospective contractors. However, the technical approach and report format shall be considered proprietary and confidential, and this report may not be distributed in whole or in part to any third party not directly associated with this project. By using and relying on this report, all other parties agree to the same terms, conditions, and limitations to which the client has agreed.

PROJECT DESCRIPTION

We understand the project to consist of a proposed cemetery for United States Veterans. The proposed site is 240 acres of farmland that should require little grading in order to be suitable for the proposed use of the land.

We understand that some pavements will be constructed as part of this project and lightly loaded ancillary maintenance buildings may be planned. Any heavier structures will require a site specific geotechnical exploration for design of foundations.

SURFACE AND SUBSURFACE CONDITIONS

SITE CONDITIONS

The project scope is located in the southwestern section of the quadrangle bounded on the north by Highway 370, on the east by 132nd Street, on the south by Schram Road, and on the west by 144th Street. The current site features 240 acres of unplanted farmland that drains generally from south to north towards Westmont Creek. There is a fully developed neighborhood in the northeastern section of the quadrangle, all other areas are undeveloped.

LOCAL GEOLOGY

The surface geology of eastern Nebraska is Pleistocene in age and consists of eolian (wind-blown) deposits of Peoria and Loveland loess. The loess formed in dune-shaped hills west of the Missouri River. The Peoria loess typically consists of silty lean clays that are stiff when dry but become softer with increasing moisture content. The Peoria often exhibits low unit weight and is collapse susceptible. The Loveland loess is an older deposit, and typically consists of lean clays. The Loveland generally exhibits higher unit weights and shear strengths than the Peoria.

The loess overlies Pleistocene glacial deposits of Kansan and Nebraskan till. The till consists of lean to fat clays mixed with sand, gravel, and occasional cobbles. The glacial deposits are generally fairly deep, but are sometimes near the surface at lower elevations on steep slopes. Cretaceous sandstone or Pennsylvanian limestone and shale form the bedrock unit below the glacial deposits. The depth to bedrock is normally great, and rock is rarely encountered in construction.

Along drainageways, alluvial and colluvial deposits are typically present. These soils were formed by erosion of the adjoining loess-mantled hills. Alluvial deposits are generally present along creeks and in major drainageways. The upper several feet of alluvium are usually stiffer due to the effects of desiccation. Colluvial soils are usually located at the base of steep slopes and in upland draws, and are formed by local creep and sloughing.

SOIL CONDITIONS

The soils encountered in the test borings generally consisted of fill, altered Peoria loess, Peoria loess, Loveland loess, and Kansan till.

Fill was encountered only in boring B-24. This area of the proposed land is where the farmhouse property is located. The fill was generally described as a light to dark gray, moist to very moist, firm, lean clay.

Altered Peoria loess was encountered in the first two to three feet of borings B-1, B-2, B-9, B-11, B-12, B-13, B-14, B-15, B-16, B-19, B-22, and B-23. This is a weathered layer of Peoria loess that has been altered physically and chemically due to the effects of freeze-thaw and exposure throughout its use as topsoil for farmland. It has become organic rich from years of vegetative growth. The altered Peoria loess was generally described as a dark brown to dark gray, very moist, soft to firm, fat clay.

Peoria loess was encountered in every boring at this site. The Peoria loess was generally described as various shades of brown to light gray, slightly moist to very moist, soft to hard, lean clay.

Loveland loess was encountered in borings B-2 and B-7. The Loveland loess was generally described as a reddish brown, moist, hard, fat clay.

Kansan Till was encountered only in boring B-7. The Kansan till was generally described as a light brown, moist, hard, fat clay.

Ranges of engineering properties from laboratory tests on selected samples are presented in Table 1.

Table 1 - Laboratory Results

Soil Layer	Moisture Content (%)	Dry Unit Weight (pcf)	Unconfined Compressive Strength (tsf)	Classification *(LL/PI)*
Fill	19.6 to 25.5	93.7 to 93.8	1.42 to 1.49	CL (visual)
Altered Peoria Loess	25.4 to 30.4	82.8 to 93.3	0.4 to 1.0	CH (53/30)
Peoria Loess	14.6 to 30.1	84.5 to 104.0	0.4 to 2.2	CL (visual)
Loveland Loess	17.5 to 22.0	96.4 to 98.4	2.39	CH (51/33)
Kansan Till	16.9	112.5	-	CH (visual)

GROUND WATER OBSERVATIONS

Ground water was not encountered in any of the twenty four test borings during or at the end of the drilling operation. However, it must be noted that ground water levels may fluctuate due to seasonal variations and other factors.

ANALYSIS AND RECOMMENDATIONS

GENERAL

The soil conditions encountered at this site appear suitable for the planned development. We did not identify any restrictive conditions that would prohibit excavations on site throughout the widely spaced borings. These conditions are consistent with what we would expect in the area. Also, no ground water was observed in any of the borings, during or after drilling. We did note relatively high moisture contents in many of the samples indicating that ground water levels may fluctuate throughout the year. Very moist soils should be expected within excavations, depending on the time of year.

We have also provided recommendations for a very lightly loaded building (maintenance) and pavements. A more thorough, site specific geotechnical exploration should be conducted for any more substantial structures.

EARTHWORK AND EXCAVATIONS

Rubble and waste materials from site clearing and demolition should be removed from the site and lawfully disposed or recycled. Waste materials should not be buried on-site. Demolition of structures should include excavation and removal of foundations and floor slabs. Where trees are cleared, the stumps should be excavated and removed.

Topsoil and vegetation should be stripped to a depth of 4 to 6 inches in areas to be disturbed during grading, including borrow and fill areas. Surfaces to receive fill should be broken up and recompacted to allow new fill to bond to the existing soil. Slopes steeper than 5H:1V should be benched before placing fill.

The excavated site soils will generally be suitable for reuse as structural fill, although some moisture conditioning may be required. Any off-site borrow should be a clean, inorganic silt or lean clay with a liquid limit less than 45 and a plasticity index less than 20. Borrow material should not contain an appreciable amount of roots, rock, or debris, and should not contain any foreign material with a dimension greater than 3 inches.

All fills that will support pavements or lightly loaded buildings should be placed and compacted as structural fill. Fill should be placed in thin lifts not to exceed 8 inches loose thickness. Structural fill should be compacted with a sheepsfoot type roller to a minimum of 95 percent of the maximum dry density (ASTM D698, Standard Proctor). Moisture content should be controlled to between -3 and +4 percent of optimum.

Backfill soils in utility trenches should be compacted to a minimum of 95 percent of the maximum dry density at a moisture content between -3 and +4 percent of optimum. Lift thicknesses should be

appropriately matched to the type of compaction equipment used. Backfill soils around foundations, basement walls, and retaining walls should be compacted to a minimum of 95 percent of the maximum dry density at a moisture content between -3 and +4 percent of optimum. Granular backfill should not be used in exterior trenches or around foundation elements.

SHALLOW FOUNDATIONS

The site conditions identified are favorable for the use of conventional spread foundations to support light structural loads. Based on our bearing capacity and settlement analysis, a net allowable bearing pressure of 1000 pounds per square foot was determined for very lightly loaded maintenance type structures. This allowable bearing pressure may be used to size wall footings and column pads. The bearing pressure was calculated based on a safety factor of 3 against bearing failure. Foundation settlements are estimated at less than 1 inch total and ½ inch differential over a span of 20 feet. If maximum design loads significantly exceed 20 kips for columns or 2 kips per foot for walls, these bearing pressures may not be applicable and should be reevaluated.

It is recommended that column footings be at least 3 feet square and that load bearing wall footings be at least 16 inches wide. Exterior footings and footings in unheated areas should be founded a minimum of 3.5 feet below adjacent grade to provide reasonable frost protection. It is recommended that all footings be steel reinforced.

The condition of the bearing soils can vary and should be observed by the geotechnical engineer at the time of excavation. If unsuitable bearing soils are identified, they should be improved by compaction or replaced by structural fill. As an alternative, the footing bottom could be extended through unsuitable materials if suitable material is present below.

The properties listed in Table 2 can be used for any below grade structures.

Table 2 - Lateral Earth Pressure Values

Property	Coefficient	Drained Conditions	Undrained Conditions
Active Lateral Pressure	0.40	40 pcf (Equivalent Fluid)	85 pcf (Equivalent Fluid)
At-Rest Lateral Pressure	0.50	50 pcf (Equivalent Fluid)	90 pcf (Equivalent Fluid)
Passive Resistance	2.50	300 pcf (Equivalent Fluid)	150 pcf (Equivalent Fluid)
Soil Unit Weight (compacted backfill)		120 pcf	60 pcf
Base Adhesion *		500 psf	500 psf

** Multiply by contact area to determine lateral resistance, limited to ½ of the vertical load*
Note: Coefficients and equivalent fluid values are for level backfill. Sloping backfill adds significantly greater load to the wall. These values should be re-evaluated if sloping backfill conditions are present.

If the top of the wall is able to deflect inward approximately 0.4% of the wall height, then active earth pressures can develop. However, if the wall is braced or otherwise restricted from deflecting, such as a basement wall braced by floor framing at the top, then at-rest earth pressures should be used. Safety factors of 2.0 for sliding and for overturning are recommended. Drainage measures should be incorporated in the wall to ensure drained conditions. Proper backfill compaction is also an important factor in long-term stability.

SEISMIC SITE CLASS

Seismic structural design requirements are dictated by a site classification based on average soil properties within the top 100 feet. Based on our local experience, the soil profile was estimated below the maximum boring depth. The average undrained shear strength was then estimated based on the actual laboratory testing and on assumed soil properties for the deeper soil profile.

The site classifies as Site Class D (stiff soil profile) according to Table 1613.5.2 of the 2009 International Building Code.

FLOOR SLABS

To avoid localized slab failures, it is important that interior backfill around foundation elements and in plumbing trenches be properly compacted. Interior backfill should be compacted to a minimum of 95 percent of the maximum dry density at a moisture content between -3 and +4 percent of optimum (ASTM D698, Standard Proctor).

To provide uniform support for floor slabs, the upper 6 inches of the subgrade should be compacted to a minimum of 95 percent of the maximum dry density at a moisture content between -3 and +4 percent of optimum (ASTM D698, Standard Proctor). Care should be taken to maintain the condition of the

subgrade. Areas that become saturated, frozen, or disturbed should be reworked prior to slab placement. Any unstable areas should be excavated and replaced with structural fill. A granular cushion beneath the floor slab is considered a construction convenience and may be used, but is not considered critical to proper slab performance.

A 10 mil thick vapor retarder is recommended beneath the concrete to inhibit upward migration of moisture through the slab. Care should be taken when finishing concrete placed directly on a vapor retarder to minimize potential problems with curling and blistering.

Interior partition walls weighing up to 1,000 pounds per lineal foot may be supported directly on the floor slab. It is recommended that control joints be provided between partition walls that bear on the floor slab and walls supported on footings. Entrance slabs should be designed as structural stoops with a cavity beneath the slab to accommodate frost heave.

Contraction joints are important to control the location of cracks in the floor slab that result from stresses caused by normal drying shrinkage. Joints should be cut as soon as practical after the concrete has set sufficiently to support foot traffic, and must be cut before any shrinkage cracks form. Contraction joints should be cut to a minimum of ¼ of the slab thickness (1/5 of the thickness for early entry saw method). Joints should be spaced no more than 30 times the thickness of the slab or 15 feet maximum. Panels should be kept as square as possible, with the length to width ratio limited to 125 percent. Dowel bars should be used for load transfer across construction joints where slabs are subjected to heavy loads. Joints should be carefully planned and laid out to match column lines and to meet reentrant corners. Joints should be perpendicular to edges and should not form angles less than 45 degrees or over 225 degrees. To accommodate the relative movement that commonly occurs between floors and foundations, isolation joints should be provided against walls, and diamond or circular isolation joints should be constructed around columns.

PAVEMENTS

Pavement performance is directly affected by the degree of compaction, uniformity, and stability of the subgrade. This is particularly important where traffic from heavy trucks is anticipated. The final subgrade should be reworked and compacted immediately prior to pavement construction. The subgrade should then be proof rolled, and any unstable areas should be excavated and replaced to create a uniform and stable subgrade.

For concrete pavements, it is recommended that the upper 12 inches of the subgrade be compacted to a minimum of 90 percent of the maximum dry density at a moisture content between -3 and +4 percent of optimum (ASTM D1557, Modified Proctor). Subgrade preparation should extend a minimum of 2 feet laterally beyond the edge of the pavement.

For asphalt pavements, greater stability is required due to the extreme loading conditions placed on the subgrade during laydown. Subgrades for asphalt pavements should be prepared by compacting the upper 12 inches to a minimum of 92 percent of the maximum dry density at a moisture content between -3 and +4 percent of optimum (ASTM D1557, Modified Proctor). Subgrade preparation should extend a minimum of 2 feet laterally beyond the edge of the pavement, including the concrete curb and gutter section.

Under sidewalks, the upper 6 inches of the subgrade should be compacted to a minimum of 95 percent of the maximum dry density at a moisture content between -3 and +4 percent of optimum (ASTM D698, Standard Proctor). Subgrade preparation should extend laterally 6 inches beyond the edge of the sidewalk

Based on the forgoing subgrade preparation procedures, recommended minimum pavement thicknesses are provided in Table 3. These minimum thicknesses are prescriptive values based on traffic classification, and not on a detailed analysis using traffic counts. It should be noted that life cycle costs for concrete pavements are generally lower, despite their higher initial cost. Local experience has shown that well constructed concrete pavements typically perform better, have lower maintenance costs, and have longer service lives than comparable asphalt pavements. Note that we do not recommend using an aggregate base as part of the pavement section due to concerns over drainage and freeze/thaw deterioration of the base material.

Table 3 - Minimum Pavement Thicknesses

Pavement Category	Pavement Type/Thickness (inches)	
	Concrete	**Full Depth Asphalt**
Sidewalks	4	- -
Parking Areas	5	6
Drive Lanes *(concentrated traffic - occasional trucks)*	5	7
Medium Duty *(up to 3 trucks/day)*	6	8
Subgrade Support Values: CBR = 3, k=120 pci *Materials: (reference City of Omaha Standard Specifications for Public Works Construction, 2003 Edition)* *concrete - mix type L6 (f'_c = 3,500 psi) (Section 500)* *asphalt surface - mix type CMR w/ PG64-22 binder (Section 400)* *asphalt base - mix type Base w/ PG64-22 binder (Section 400)*		

Contraction joints are important to control the location of cracks in concrete pavement that result from stresses caused by normal drying shrinkage and thermal effects. A proper jointing system will enhance structural capacity and prolong the life span of a concrete pavement as well as improve ride

quality. Contraction joints should be cut to a minimum of ¼ of the slab thickness (1/5 of the thickness for early entry saw method). Joints should be cut as soon as practical after the concrete has set sufficiently to support foot traffic, and must be cut before any shrinkage cracks form. Joints should be spaced no more than 24 times the thickness of the slab or 12½ feet maximum. Panels should be kept as square as possible, with the length to width ratio limited to 125 percent. Dowel bars should be used for load transfer across construction joints, and should be considered for contraction joints subjected to heavy truck traffic. Joints should be carefully planned and laid out to meet inlets, drainage structures, reentrant corners, and radiuses. Joints should be perpendicular to edges and radiuses, and should not form angles less than 45 degrees or over 225 degrees. Isolation joints should be provided around any structures. We recommend that joints be sealed to reduce moisture infiltration and to reduce the accumulation of non-compressible materials.

Backfill behind curbs and within islands should consist of relatively impervious cohesive soils. Backfill should be compacted to a minimum of 95 percent of the maximum dry density (ASTM D698) to minimize subsidence and to reduce moisture infiltration around the edges of the pavement. Granular soils should not be used for fill in islands as this can increase infiltration into the subgrade. Porous fills, including granular material and loosely placed clay soils, also act as a reservoir that can allow moisture to seep through cracks and joints onto the pavement surface, sometimes long after the water is trapped. This condition is especially pronounced when loose backfill consolidates and allows surface water to pond.

SURFACE DRAINAGE AND LANDSCAPING

The long-term performance of any project is contingent upon keeping the subgrade soils at more or less constant moisture content, and by not allowing surface drainage a path to the subsurface. Positive surface drainage away from pavements and structures must be maintained at all times. Landscaped areas should be designed and built such that irrigation and other surface water will be collected and carried away from structures.

Construction staging and grading should provide for removal of surface water from the site. If prolonged ponding of surface water occurs, removal and replacement of wet or disturbed soils may be necessary. Temporary grades should be established to prevent runoff from entering excavations or footing trenches. Backfill should be placed as soon as structural strength requirements are met, and should be graded to drain away from the pavements and buildings.

The final grade of the foundation backfill and any overlying pavements should have a positive slope away from foundation walls on all sides. For grass or landscape covered areas, a minimum slope of 1 inch per foot for 5 to 10 feet away from the building is recommended. A minimum slope of 2 percent is recommended for grassed or landscaped areas of the site away from the building. For paved areas, minimum slopes of 1 percent for concrete pavements and 1½ percent for asphalt pavements are

recommended. Pavements and exterior slabs that abut the structure should be carefully sealed against moisture intrusion at the joint.

OTHER RECOMMENDATIONS

During detailed design, additional issues may arise and possible conflicts may occur with our recommendations. Such issues and conflicts should be resolved through dialogue between the geotechnical engineer and designers. It is recommended that the geotechnical engineer review the final design, including the plans and specifications, to verify that our recommendations are properly interpreted and incorporated into the design.

If any changes are made in the design of the project, including the nature or location of proposed facilities on the site or significant elevation changes, the analysis and recommendations of this report shall not be considered valid unless the changes are reviewed. The analysis and recommendations of this report should not be applied to different projects on the same site or to similar projects on different sites.

The analysis and recommendations in this report are based upon borings at specific locations. The nature and extent of variation between boring locations is impossible to predict. Because of this, geotechnical recommendations are preliminary until they have been confirmed through observation of site excavation and earthwork preparation. If variations appear during subsequent exploration or during construction, we may reevaluate our recommendations and modify them, if appropriate. The geotechnical engineer should be retained during construction to observe compliance with the recommendations of this report and to provide quality control testing of earthwork construction. If these services are provided by others, including the contractor, the entity that provides construction phase observation and testing shares responsibility as the geotechnical engineer of record for implementing or modifying these recommendations.

Respectfully submitted,
Thiele Geotech, Inc.

Prepared by,

Andrew J. Miller, E.I.

Prepared under the supervision of,

Robert Lapke, P.E.
Nebraska License E-10089

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APPENDIX

Subsurface Exploration Methods

Legend of Terms

Boring Location Plan

Boring Logs

Soil Test Summary

SUBSURFACE EXPLORATION METHODS

The fieldwork for this study was conducted on March 6, 2012. The exploratory program consisted of twenty four test borings drilled at the approximate locations shown on the Boring Location Plan. Boring locations were selected to provide the desired site coverage and were adjusted to accommodate access conditions. The boring locations and elevations should only be considered accurate to the degree implied by the methods used to define them.

Test borings were advanced using flight augers powered by a truck-mounted drill rig. Soil samples were obtained at selected depths as indicated on the boring logs. A 3-inch nominal diameter thin-walled sampler was hydraulically pushed to obtain undisturbed samples.

The boring logs were prepared based on visual classification of the samples and drill cuttings, and by observation of the drilling characteristics of the subsurface formations. The logs have been supplemented and modified based on the laboratory test results and further examination of the recovered samples. The stratification lines on the boring logs represent the approximate boundary between soil types, but the insitu transition may be gradual.

Water level observations were made at the times stated on the boring logs. The borings were backfilled with drill cuttings at the completion of the fieldwork.

The field boring logs were reviewed to outline the depths, thicknesses, and extent of the soil strata. A laboratory testing program was then developed to further classify the basic soils and to evaluate the engineering properties for use in our analysis.

Laboratory tests to further classify the soils included visual classification, moisture content, dry unit weight, and Atterberg limits. The shear strengths of cohesive samples were evaluated using the unconfined compression test.

The boring logs and related information in this report are indicators of subsurface conditions only at the specific locations and times noted. Subsurface conditions, including ground water levels, at other locations of the site may differ significantly from conditions that exist at the sampling locations. Also note that the passage of time may affect conditions at the sampling locations.

LEGEND OF TERMS

Soil Description Terms

Consistency - Fine Grained	Consistency - Coarse Grained	Moisture Conditions
Very Soft, Soft, Firm, Hard, Very Hard	Very Loose, Loose, Medium Dense, Dense, Very Dense	Dry, Slightly Moist, Moist Very Moist, Wet (Saturated)

Sample Identification

Sample Type	Sample Data	Laboratory Data
U -- Undisturbed (Shelby Tube)	No. -- Number	MC -- Moisture content
S -- Split barrel (disturbed)	SPT -- Standard penetration test	γ_d -- Dry unit weight
C -- Continuous sample	bpf -- blows per foot	q_u -- Unconfined compression
A -- Auger cuttings (disturbed)	Rec -- Recovery	LL/PI -- Liquid limit & plasticity index

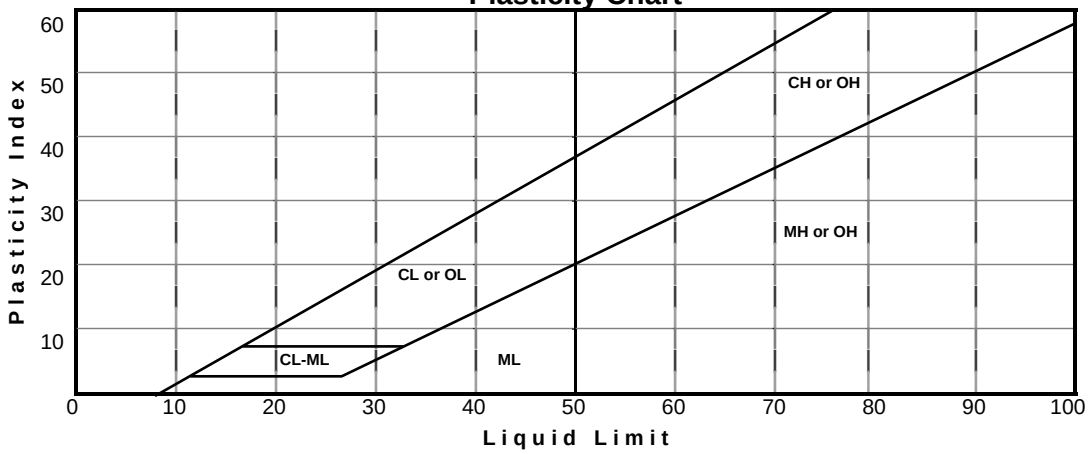
Unified Soil Classification System

Peat	Pt	Highly organic soils	50% or more smaller than No. 200 sieve
Fat Clay	CH	Clay - Liquid Limit > 50 *	
Elastic Silt	MH	Silt - Liquid Limit > 50 *	
Lean Clay	CL	Clay - Liquid Limit < 50 *	
Silt	ML	Silt - Liquid Limit < 50 *	
Silty Clay	CL-ML	Silty Clay *	
Clayey Sand	SC	Sands with 12 to 50 percent smaller than No. 200 sieve *	More than 50% larger than No. 200 sieve and % sand > % Gravel
Silty Sand	SM		
Poorly-Graded Sand with Clay	SP-SC	Sands with 5 to 12 percent smaller than No. 200 Sieve *	
Poorly-Graded Sand with Silt	SP-SM		
Well-Graded Sand with Clay **	SW-SC		
Well-Graded Sand with Silt **	SW-SM		
Poorly-Graded Sand	SP	Sands with less than 5 percent smaller than No. 200 sieve *	
Well-Graded Sand **	SW		
Clayey Gravel	GC	Gravels with 12 to 50 percent smaller than No. 200 Sieve *	More than 50% larger than No. 200 sieve and % gravel > % sand
Silty Gravel	GM		
Poorly-Graded Gravel with Clay	GP-GC	Gravels with 5 to 12 percent smaller than No. 200 sieve *	
Poorly-Graded Gravel with Silt	GP-GM		
Well-Graded Gravel with Clay **	GW-GC		
Well-Graded Gravel with Silt **	GW-GM		
Poorly-Graded Gravel	GP	Gravels with less than 5 percent smaller than No. 200 sieve *	
Well-Graded Gravel **	GW		

* *See Plasticity Chart for definition of silts and clays*

** *See Criteria for Sands and Gravels for definition of well-graded*

Plasticity Chart



Criteria for Sands and Gravels

Boulders	Cobbles	Coarse Gravel	Fine Gravel	Coarse Sand	Medium Sand	Fine Sand	FINES (silt or clay)
Sieve size	10"	3"	¾"	#4	#10	#40	#200

Well-graded sands (SW) $C_u=D_{60}/D_{10}\geq 6$ and $C_c=(D_{30})^2/(D_{10} \times D_{60}) \leq 3$ and ≥ 1

Well-graded gravels (GW) $C_u=D_{60}/D_{10}\geq 4$ and $C_c=(D_{30})^2/(D_{10} \times D_{60}) \leq 3$ and ≥ 1

N

LEGEND

BORING LOCATION

Thiele Geotech Inc

PROJECT

DEVELOPMENT SITE
HWY 50 & SCHRAM RD.
SARPY COUNTY, NEBRASKA

JOB # 12042.00 | DATE: 03-13-12

BORING LOCATION PLAN

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-1
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1131’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	dark gray	very moist	soft	fat clay	altered Peoria loess									
	brown						U-1		11	30.4	82.8	0.52	LL=54 PI=28 CH	
	light brown	very moist	soft	lean clay	Peoria loess	iron & carbon deposits								
5							U-2		12	27.7	90.3	0.47		5
	light gray													
							U-3		12	27.1	94.9			
						bottom of hole @ 8’								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-2
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1147'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	dark brown	very moist	firm	fat clay	altered Peoria loess									
							U-1		11	25.4	93.3	0.76		
	grayish brown	moist	soft	lean clay	Peoria loess									
5							U-2		12	20.7	95.2	0.38		5
	reddish brown	moist	hard	fat clay	Loveland loess									
							U-3		6	22.0	98.4			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-3
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1169'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	light brown	very moist	firm	lean clay	Peoria loess	iron & carbon deposits								
							U-1		10	25.9	96.5	0.76		
5							U-2		11	24.8	96.1	0.90		5
							U-3		12	25.1	87.6			
10						bottom of hole @ 8'								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-4
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1145'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	light brown	very moist	soft	lean clay	Peoria loess									
							U-1		12	25.5	88.9	0.44		
	light gray													
5							U-2		12	26.3	93.5	0.55		5
	light brown													
							U-3		12	29.5	90.6			
10						bottom of hole @ 8'								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-5
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1164’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	light brown	very moist	firm	lean clay	Peoria loess									
							U-1		11	25.6	95.5	0.81		
			soft											
5							U-2		11	25.0	90.8	0.39		5
							U-3		12	26.9	84.9			
						bottom of hole @ 8’								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-6
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1169'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	light brown	very moist	soft	lean clay	Peoria loess	iron & carbon deposits								
							U-1		12	30.1	88.6	0.62		
5							U-2		12	28.9	91.4	0.68		5
	light gray						U-3		12	27.4	89.2			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	LOCATION	DRILLING METHOD		DRILL RIG	BORING NO.
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-7
		LOCATION OF BORING	TYPE OF SURFACE		ELEVATION	DEPTH
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1157’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	brown	moist	firm	lean clay	Peoria loess									
							U-1		6	21.7	104.0	1.23		
	reddish brown	moist	hard	fat clay	Loveland loess									
5							U-2		12	17.5	96.4	2.39	LL=51 PI=33 CH	5
	light brown	moist	hard	fat clay	Kansan till	minor sand								
							U-3		12	16.9	112.5			
						bottom of hole @ 8’								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-8
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1168’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	brown	moist	soft	lean clay	Peoria loess	roots								
							U-1		12	23.1	93.6	0.53		
			firm											
5							U-2		12	24.0	98.1	0.86		5
							U-3		12	23.9	100.6			
						bottom of hole @ 8’								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-9
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1191’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	brown	very moist	soft	fat clay	altered Peoria loess	carbon stains	U-1		11	28.1	88.8	0.55	LL=50 PI=30 CH	
	light brown	moist	firm	lean clay	Peoria loess									
5							U-2		11	18.8	100.0	1.06		5
							U-3		10	22.0	99.5			
10						bottom of hole @ 8’								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-10
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1149'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	light brown	very moist	firm	lean clay	Peoria loess									
							U-1		11	25.3	96.4	1.34		
		moist												
						silty	U-2		12	20.3	88.2	1.52		
5														5
		very moist												
							U-3		12	24.5	91.3			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-11
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1173’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	brown	very moist	soft	fat clay	altered Peoria loess									
	light brown	very moist	soft	lean clay	Peoria loess		U-1		12	25.4	84.5	0.42		
						iron & carbon deposits								
5							U-2		12	25.4	91.8	0.67		5
							U-3		12	29.2	91.2			
10						bottom of hole @ 8’								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-12
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1203’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	dark brown	very moist	firm	fat clay	altered Peoria loess									
							U-1		8	27.1	93.3			
	brown	very moist	firm	lean clay	Peoria loess									
	light brown													
5							U-2		12	24.1	87.2	0.82		5
						iron & carbon deposits								
		moist					U-3		12	22.9	92.8			
						bottom of hole @ 8’								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-13
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1190’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	dark brown	very moist	soft	fat clay	altered Peoria loess									
	brown	very moist	soft	lean clay	Peoria loess		U-1		12	27.4	86.8	0.52		
5							U-2		10	25.8	93.8	0.74		5
		moist				silty								
							U-3		12	21.4	85.1			
						bottom of hole @ 8’								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-14
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1157’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	dark gray	very moist	soft	fat clay	altered Peoria loess		U-1		12	28.0	86.1	0.71		
	brown	very moist	firm	lean clay	Peoria loess									
5	light brown						U-2		6	26.4	93.1	1.43		5
							U-3		12	25.0	93.4			
10						bottom of hole @ 8’								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-15
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1204'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	dark brown	very moist	firm	fat clay	altered Peoria loess									
							U-1		10	26.7	91.2	0.81		
	light brown	moist	firm	lean clay	Peoria loess									
			hard											
5							U-2		10	18.3	104.0	1.68		5
							U-3		12	22.1	90.9			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-16
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1160'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	dark brown	very moist	firm	fat clay	altered Peoria loess									
	brown	very moist	firm	lean clay	Peoria loess		U-1		12	26.4	92.3	0.93		
	light brown						U-2		10	24.1	97.3	1.05		
5														5
	light gray						U-3		12	24.5	98.6			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-17
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1202’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	brown	very moist	firm	lean clay	Peoria loess									
							U-1		12	25.8	91.9	0.90		
		moist				iron & carbon deposits								
5						silty	U-2		12	16.0	87.7	1.44		5
							U-3		12	23.2	84.7			
10						bottom of hole @ 8’								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-18
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1207'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	light brown	moist	firm	lean clay	Peoria loess									
						iron & carbon deposits	U-1		11	24.0	95.7	1.01		
	light gray	slightly moist	hard			silty								
5							U-2		12	14.6	87.6	1.57		5
		moist	firm											
							U-3		12	21.5	88.2			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-19
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1196’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	dark brown	very moist	firm	fat clay	altered Peoria loess									
	brown	very moist	firm	lean clay	Peoria loess		U-1		6	26.9	91.7	1.00		
						carbon stains								
5						silty	U-2		12	24.9	94.2	0.83		5
		moist					U-3		12	20.7	91.8			
10						bottom of hole @ 8’								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-20
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	corn stubble		1199'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	grayish brown	very moist	firm	lean clay	Peoria loess									
						iron & carbon deposits	U-1		12	25.7	94.8	0.84		
	light gray													
5							U-2		11	25.4	95.2	1.07		5
	light brown	moist					U-3		12	23.1	91.6			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-21
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1204'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	light brown	very moist	soft	lean clay	Peoria loess									
							U-1		11	25.9	92.7	0.58		
						iron & carbon deposits								
		moist	hard											
						silty	U-2		10	20.9	100.5	2.05		
5														5
	light gray		firm											
							U-3		11	20.2	98.4			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-22
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1202’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION						SAMPLE DATA			LABORATORY DATA				DEP (ft.)
	COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	NO. & TYPE	SPT (bpf)	REC (in.)	MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	
	dark brown	very moist	soft	fat clay	altered Peoria loess									
	light brown	very moist	firm	lean clay	Peoria loess		U-1		12	26.7	87.1	0.51		
5						iron & carbon deposits	U-2		10	29.9	91.0	1.11		5
	light gray	moist					U-3		12	23.7	90.3			
10						bottom of hole @ 8’								10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6” flight augers		CME 45B	B-23
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	bean stubble		1182’	8’

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	brown	very moist	firm	fat clay	altered Peoria loess									
							U-1		11	27.4	90.5	0.95	LL=55 PI=32 CH	
	brown	moist	firm	lean clay	Peoria loess									
			hard			iron & carbon deposits	U-2		12	21.4	94.6	2.20		
5														5
	light gray	very moist	firm											
							U-3		12	28.9	87.4			
						bottom of hole @ 8’								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

BORING LOG

WATER LEVEL OBSERVATIONS		PROJECT	DRILLER	LOGGER	JOB NO.	DATE
During Drilling	N/E	Development Site	Gappa	Kalbach	12042.00	3/6/12
End of Drilling	N/E	**LOCATION**	**DRILLING METHOD**		**DRILL RIG**	**BORING NO.**
(none encountered)		Hwy 50 & Schram Rd, Sarpy Co., NE	6" flight augers		CME 45B	B-24
		LOCATION OF BORING	**TYPE OF SURFACE**		**ELEVATION**	**DEPTH**
boring backfilled with cuttings		see Boring Location Plan	grass		1192'	8'

DEP (ft.)	VISUAL/MANUAL DESCRIPTION: COLOR	MOIST.	CONSIST.	SOIL TYPE	GEOLOGIC ORIGIN	REMARKS	SAMPLE DATA: NO. & TYPE	SPT (bpf)	REC (in.)	LABORATORY DATA: MC (%)	γ_d (pcf)	q_u (tsf)	LL/PI CLASS	DEP (ft.)
	dark gray	very moist	firm	lean clay	fill									
							U-1		8	25.5	93.7	1.42		
	light gray	moist												
							U-2		12	19.6	93.8	1.49		
5														5
	light gray	moist	firm	lean clay	Peoria loess	iron & carbon deposits								
							U-3		9	19.3	94.9			
						bottom of hole @ 8'								
10														10
15														15
20														20
25														25

Thiele Geotech Inc

SOIL TEST SUMMARY

Project: Development Site

Job No.: 12042.00

Location: Hwy 50 & Schram Rd., Sarpy Co., NE

Date: 3/19/2012

BORING NO.	SAMPLE NO.	SAMPLE DEPTH (ft.)	SAMPLE DIA. (in.)	MOISTURE CONTENT (%)	UNIT WEIGHT WET (pcf)	UNIT WEIGHT DRY (pcf)	VOID RATIO (e)	SAT. (%)	UNCONFINED COMPRESSION q_u (tsf)	UNCONFINED COMPRESSION STRAIN (%)	SOIL CLASSIFICATION ATTERBERG LIMITS LL	ATTERBERG LIMITS PL	ATTERBERG LIMITS PI	PASS #200 (%)		REMARKS
B-1	U-1	1.5-2	2.85	30.4	108.0	82.8	1.034	79	0.52	3.6	54	26	28		CH	
	U-2	3.5-5	2.85	27.7	115.3	90.3	0.867	86	0.47	1.9						
	U-3	6.5-8		27.1	120.7	94.9	0.775	94								
B-2	U-1	1.5-2	2.85	25.4	117.1	93.3	0.806	85	0.76	4.9						
	U-2	3.5-5	2.85	20.7	114.8	95.2	0.771	73	0.38	3.0						
	U-3	6.5-8		22.0	120.1	98.4	0.711	84								
B-3	U-1	1.5-2	2.85	25.9	121.5	96.5	0.746	94	0.76	5.5						
	U-2	3.5-5	2.85	24.8	119.9	96.1	0.753	89	0.90	9.3						
	U-3	6.5-8		25.1	109.6	87.6	0.924	73								
B-4	U-1	1.5-2	2.85	25.5	111.6	88.9	0.895	77	0.44	3.0						
	U-2	3.5-5	2.85	26.3	118.1	93.5	0.802	88	0.55	4.7						
	U-3	6.5-8		29.5	117.4	90.6	0.859	93								
B-5	U-1	1.5-2	2.85	25.6	120.0	95.5	0.764	91	0.81	6.6						
	U-2	3.5-5	2.85	25.0	113.5	90.8	0.855	79	0.39	5.2						
	U-3	6.5-8		26.9	107.8	84.9	0.984	74								
B-6	U-1	1.5-2	2.85	30.1	115.2	88.6	0.902	90	0.62	2.5						
	U-2	3.5-5	2.85	28.9	117.8	91.4	0.844	93	0.68	4.5						
	U-3	6.5-8		27.4	113.6	89.2	0.889	83								
B-7	U-1	1.5-2	2.85	21.7	126.5	104.0	0.620	94	1.23	11.6						
	U-2	3.5-5	2.85	17.5	113.2	96.4	0.748	63	2.39	1.9	51	18	33		CH	
	U-3	6.5-8		16.9	131.5	112.5	0.498	92								
B-8	U-1	1.5-2	2.85	23.1	115.2	93.6	0.800	78	0.53	1.9						
	U-2	3.5-5	2.85	24.0	121.7	98.1	0.717	90	0.86	6.0						
	U-3	6.5-8		23.9	124.6	100.6	0.675	96								
B-9	U-1	1.5-2	2.85	28.1	113.7	88.8	0.898	84	0.55	4.1	50	20	30		CH	
	U-2	3.5-5	2.85	18.8	118.8	100.0	0.684	74	1.06	2.6						
	U-3	6.5-8		22.0	121.4	99.5	0.693	86								
B-10	U-1	1.5-2	2.85	25.3	120.8	96.4	0.747	91	1.34	9.0						
	U-2	3.5-5	2.85	20.3	106.1	88.2	0.910	60	1.52	2.3						
	U-3	6.5-8		24.5	113.6	91.3	0.845	78								
B-11	U-1	1.5-2	2.85	25.4	106.0	84.5	0.993	69	0.42	2.3						
	U-2	3.5-5	2.85	25.4	115.0	91.8	0.836	82	0.67	2.8						
	U-3	6.5-8		29.2	117.9	91.2	0.847	93								
B-12	U-1	1.5-2		27.1	118.6	93.3	0.805	91								
	U-2	3.5-5	2.85	24.1	108.1	87.2	0.933	70	0.82	1.7						
	U-3	6.5-8		22.9	114.0	92.8	0.816	76								

Thiele Geotech Inc

SOIL TEST SUMMARY

Project: Development Site

Job No.: 12042.00

Location: Hwy 50 & Schram Rd., Sarpy Co., NE

Date: 3/19/2012

BORING NO.	SAMPLE NO.	SAMPLE DEPTH (ft.)	SAMPLE DIA. (in.)	MOISTURE CONTENT (%)	UNIT WEIGHT WET (pcf)	UNIT WEIGHT DRY (pcf)	VOID RATIO (e)	SAT. (%)	UNCONFINED COMPRESSION q_u (tsf)	UNCONFINED COMPRESSION STRAIN (%)	SOIL CLASSIFICATION ATTERBERG LIMITS LL	ATTERBERG LIMITS PL	ATTERBERG LIMITS PI	PASS #200 (%)		REMARKS
B-13	U-1	1.5-2	2.85	27.4	110.7	86.8	0.940	79	0.52	2.0						
	U-2	3.5-5	2.85	25.8	118.0	93.8	0.797	88	0.74	13.2						
	U-3	6.5-8		21.4	103.3	85.1	0.981	59								
B-14	U-1	1.5-2	2.85	28.0	110.2	86.1	0.957	79	0.71	2.4						
	U-2	3.5-5	2.85	26.4	117.6	93.1	0.810	88	1.43	8.2						
	U-3	6.5-8		25.0	116.8	93.4	0.804	84								
B-15	U-1	1.5-2	2.85	26.7	115.5	91.2	0.848	85	0.81	4.5						
	U-2	3.5-5	2.85	18.3	123.0	104.0	0.620	79	1.68	7.3						
	U-3	6.5-8		22.1	110.9	90.9	0.854	70								
B-16	U-1	1.5-2	2.85	26.4	116.6	92.3	0.826	86	0.93	4.5						
	U-2	3.5-5	2.85	24.1	120.8	97.3	0.731	89	1.05	5.8						
	U-3	6.5-8		24.5	122.7	98.6	0.709	93								
B-17	U-1	1.5-2	2.85	25.8	115.7	91.9	0.833	84	0.90	3.5						
	U-2	3.5-5	2.85	16.0	101.8	87.7	0.921	47	1.44	1.6						
	U-3	6.5-8		23.2	104.3	84.7	0.990	63								
B-18	U-1	1.5-2	2.85	24.0	118.7	95.7	0.761	85	1.01	5.8						
	U-2	3.5-5	2.85	14.6	100.4	87.6	0.923	43	1.57	1.4						
	U-3	6.5-8		21.5	107.2	88.2	0.910	64								
B-19	U-1	1.5-2	2.85	26.9	116.4	91.7	0.837	87	1.00	8.5						
	U-2	3.5-5	2.85	24.9	117.6	94.2	0.788	85	0.83	3.8						
	U-3	6.5-8		20.7	110.8	91.8	0.836	67								
B-20	U-1	1.5-2	2.85	25.7	119.1	94.8	0.777	89	0.84	6.3						
	U-2	3.5-5	2.85	25.4	119.4	95.2	0.770	89	1.07	10.3						
	U-3	6.5-8		23.1	112.7	91.6	0.840	74								
B-21	U-1	1.5-2	2.85	25.9	116.6	92.7	0.818	85	0.58	2.5						
	U-2	3.5-5	2.85	20.9	121.5	100.5	0.677	84	2.05	5.2						
	U-3	6.5-8		20.2	118.3	98.4	0.711	77								
B-22	U-1	1.5-2	2.85	26.7	110.4	87.1	0.934	77	0.51	2.7						
	U-2	3.5-5	2.85	29.9	118.1	91.0	0.852	95	1.11	8.3						
	U-3	6.5-8		23.7	111.8	90.3	0.865	74								
B-23	U-1	1.5-2	2.85	27.4	115.3	90.5	0.861	86	0.95	8.2	55	23	32		CH	
	U-2	3.5-5	2.85	21.4	114.8	94.6	0.781	74	2.20	2.2						
	U-3	6.5-8		28.9	112.6	87.4	0.929	84								
B-24	U-1	1.5-2	2.85	25.5	117.7	93.7	0.797	86	1.42	7.2						
	U-2	3.5-5	2.85	19.6	112.2	93.8	0.795	67	1.49	1.8						
	U-3	6.5-8		19.3	113.2	94.9	0.776	67								


PROFESSIONAL CIVIL ENGINEER
ROBERT K.
LAPKE
E-10089
STATE OF NEBRASKA

Thiele Geotech Inc

Phase I Environmental Site Assessment Report

Development Site

Highway 50 and Schram Road
Omaha, Nebraska 68138

Prepared for:
United States of America, by and through
The Secretary of Veterans Affairs

and

Studley, Inc.
555 13th Street, SW, Suite 420 E
Washington, DC 20004

March 26, 2012
TG Project No. 12042.01

THIELE GEOTECH, INC.
13478 Chandler Road
Omaha, Nebraska 68138-3716
402.556.2171 Fax 402.556.7831
www.thielegeotech.com

Phase I Environmental Site Assessment Report

Development Site

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1.0 SUMMARY

SITE DESCRIPTION – The assessment site is a development site located northeast of the intersection of Highway 50 and Schram Road in Omaha, Nebraska. The assessment site consists of approximately 235 acres of farmland with an inactive farmstead area.

HISTORICAL REVIEW – Historical aerial photographs, topographic maps, a chain of title search, and interviews were reviewed and indicated that the assessment site has historically been used for a farmstead and agricultural cropland and these activities do not appear to represent a significant environmental risk to the assessment site.

REGULATORY REVIEW –A review of the EDR Report reveals there were no plottable sites identified within the ASTM minimum search distances. The unplottable sites were also reviewed and none of these appeared to be within ASTM minimum search distances. Therefore, a low risk for adverse environmental impact to the assessment site was determined based on review of regulatory records.

SITE RECONNAISSANCE – The condition and current use of the property observed during the site reconnaissance conducted March 5, 2012 suggest that environmental concerns do not exist at the assessment site, except for evidence of dumping along the creek in the northwest corner of the site. There were numerous areas where concrete debris had been place along the creek to impede erosion of the bank. However, there was also metal scrap, building debris, metal containers, cans, and plastic containers observed in a few of these areas. Petroleum hydrocarbons and chemicals from abandoned vehicles, drums, containers, farm machinery, and appliances have potential to adversely impact the underlying soils and ground water.

INTERVIEWS – Interviews were conducted with the user, present equitable owner, and one of the owners of record. These interviews revealed that based on the knowledge and experience of the present owner and the users, there have been no hazardous materials, petroleum hydrocarbons, or other environmental issues associated with the assessment site.

Additional information about the site was obtained from the Sarpy County Assessor's website and included parcel information, ownership, deeds, topography, aerial photography, and zoning.

A search for registered wells was conducted by searching the Nebraska Department of Natural Resources database. According to their records there a no registered wells on site. According to Tom and Jolene Tomanek, there have been three hand-dug wells on site. Two of these are still present in

the farmstead area. Another was abandoned by filling with sand. This well was not observed during the site reconnaissance.

ENVIRONMENTAL LIEN SEARCH – A Commitment for Title Insurance was completed for the assessment site and upon review it appears that there are no environmental liens or activity use limitations associated with the assessment site based upon publicly available real estate records. The user has no knowledge of environmental liens associated with the assessment site. In addition, no evidence of liens was identified in the regulatory records database search where records of obligations imposed by regulatory agencies would most likely be reported.

VAPOR INTRUSION CONDITION - A Tier 1 assessment for vapor intrusion condition (VIC) was included in this investigation (ASTM E 2600-08) and based on the information collected and reviewed for the Phase I ESA it appears that vapor intrusion is not a likely concern for the property unless the subsurface has been significantly impacted by fuel releases in the northwest corner of the assessment site were dumping activities were observed.

CONCLUSIONS – We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-05 for property located northeast of the intersection of Highway 50 and Schram Road in Omaha, Nebraska; the property. Any exceptions to, or deletions from this practice are described in Section 11.0 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property except for evidence of dumping along the creek in the northwest corner of the site.

ADDITIONAL APPROPRIATE INVESTIGATION – If desired, subsurface investigation can be conducted along the creek bank at those locations where there is evidence of dumping to better determine if the subsurface has been adversely impacted. Potential contaminants of concern include petroleum hydrocarbons, PCBs, fertilizer, and metals.

RECOMMENDATIONS – TG recommends that the client meet with legal counsel to discuss the liability that may be assumed with the transfer of this property and also determine if the benefits of further investigation are warranted.

TG recommends that the inactive ground water wells be abandoned properly per Nebraska Department of Health and Human Services guidelines.

Also, it is assumed a septic sewer system is present in the farmstead area. If encountered during development, TG recommends that it be abandoned properly per Nebraska Department of Health and Human Services guidelines.

2.0 INTRODUCTION

2.1 PURPOSE

Thiele Geotech, Inc. (TG) has been retained by Studley, Inc. to perform a Phase I Environmental Site Assessment (ESA) on property located northeast of the intersection of Highway 50 and Schram Road in Omaha, Nebraska.

This ESA has been prepared to characterize existing environmental conditions on the subject property, and to assess potential environmental concerns caused by current and historical activities/practices on the property and from adjoining and/or nearby properties.

This ESA was conducted in general accordance with American Society of Testing Materials (ASTM) Standard E 1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. According to the Standard, ". . . the goal of the processes established by this practice is to identify recognized environmental conditions. The term recognized environmental conditions means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property . . . even under conditions in compliance with laws."[1] More simply stated, "The purpose . . . is to identify, to the extent feasible pursuant to the processes prescribed herein, recognized environmental conditions in connection with the property."[2]

This Standard fulfills the requirements as outlined in 40 CFR 312, Standards and Practices for All Appropriate Inquiries; Final Rule. Adherence to this Standard is intended to allow the user to satisfy one of the requirements to claim protection from CERCLA liability as an innocent landowner, contiguous property owner, or bona fide prospective purchaser.[3]

Recently, a new ASTM standard was established for evaluating vapor intrusion conditions because the new Phase I ESA does not specifically include considerations for vapor intrusion from contaminated sites. TG is supplementing their Phase I ESAs with the Tier 1 assessment from the ASTM E 2600-08 Standard for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions. These services include a determination as to whether a potential vapor intrusion

[1]ASTM Standard E 1527-05, 1.1.1, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, November 2005, p. 1.

[2]ASTM Standard E 1527-05, November 2005, p. 12.

[3]40 CFR 312

condition may be present on site, based on the information that is collected and reviewed as part of the ASTM E 1527-05 Phase I ESA. This practice is being used as a voluntary supplement to Practice E 1527 and does not alter or define the practice of the Phase I ESA, or constitute, expand, or define "all appropriate inquiry " as defined or approved by US EPA[4]. This practice is not an assessment for measuring indoor air quality, rather it is a practice to identify whether or not a vapor intrusion condition exists due to migration of chemicals of concern into existing or planned structures on a property due to contaminated soil and ground water on the property or in close proximity to the property.

2.2 DETAILED SCOPE OF SERVICES

Our Phase I ESA was performed by an environmental professional (EP) or under the supervision or responsible charge of an EP. The EP was involved in planning the site reconnaissance and interviews, and reviewed and interpreted the information upon which the report is based.

The Phase I ESA consisted of a records review of the property and surrounding area, site reconnaissance, interviews, and a written report. The scope of services is intended to conform to ASTM E 1527-05.

The records review attempted to obtain and review records that would help identify recognized environmental conditions in connection with the property. This review was conducted by examining available topographic, soil survey, or geologic maps and reports; aerial photographs; public records that are properly filed regarding permits, land use restrictions, activity use limitations, environmental liens, spills, underground storage tanks, landfills, and hazardous substance/waste sites; and other government records.

The site reconnaissance consisted of a visual investigation of the area. It included a walkover of the entire site, accessible areas in the interiors of the buildings, and adjacent public thoroughfares. Observations were made of existing conditions including structures, evidence of below grade tanks, distressed vegetation, signs or evidence of hazardous substances/wastes or petroleum products, presence of waste or rubble, and evidence of illegal or questionable disposal practices. An attempt was made to define the current and past uses of the property, the adjoining properties, and the surrounding area.

Interviews with the user and current owner of the property were conducted in an attempt to obtain information about the use and condition of the property. Past owners/occupants were identified and

[4] ASTM E 2600 – 08, 1.1 Standard Practice for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions, March 31, 2008.

may also have been interviewed if deemed useful. Also, appropriate governments officials may have been interviewed in an attempt to identify recognized environmental conditions in connection with the property.

Our report includes documentation to support the findings, opinions, and conclusions. The report attempts to characterize recognized environmental conditions on the property and to assess potential environmental concerns caused by adjoining and/or nearby properties. The report is based only upon information obtained and observations made during the course of the records review, site reconnaissance, and interviews described above.

2.3 SIGNIFICANT ASSUMPTIONS

Findings and recommendations of this ESA are based upon information obtained during the performance of this ESA and the conditions existing at the site on the date of the site reconnaissance. Past conditions, uses, etc., were approximated based on available records and observations.

2.4 LIMITATIONS AND EXCEPTIONS

No sampling or testing of soil, water, air or other materials was conducted as part of this ESA. It is possible that contamination may exist, but was undetected by this ESA. The conclusions provided in an ESA do not guarantee that environmental conditions will not arise in the future.

The results of this Report are based on information obtained by TG and on observations made during the site reconnaissance. TG does not warrant or guarantee the environmental condition of the subject property, or certify the property as clean.

This Report is based on the current regulatory environment and current regulations and guidance. Regulatory agency interpretations, future regulatory changes, and/or policy, guidance or regulatory attitude changes may affect the environmental status of the site.

The ASTM E 1527-05 does not include an analysis or determination as to whether the Client or site is in compliance with federal, state, or local laws, statutes, ordinances, or regulations. This Standard also does not include identification or evaluation of controlled substances, asbestos, asbestos-containing materials (ACM), lead-based paint (LBP), radon, mold, methane gas, endangered species, historical or archeological resources, floodplain/floodways or wetlands. This ESA specifically excluded sampling or testing for the presence of hazardous substances, hazardous materials, hazardous wastes, petroleum, or polychlorinated biphenyls (PCBs). This practice does not include any testing or sampling of materials such as soil, water, air, or building materials.

It is important to note that this ESA does not constitute a guarantee or warranty of the environmental condition of the subject property. "Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property, and this practice recognizes reasonable limits of time and cost." [5]

2.5 SPECIAL TERMS AND CONDITIONS

According to ASTM E 1527-05, a Phase I ESA must be updated if they are over 180 days old including conducting a new environmental lien search. Reports cannot be updated if they are over a year old. However, information from a previous report can be used in a new Phase I ESA as long as the data is checked for accuracy and updated appropriately.

2.6 USER RELIANCE

This ESA is an instrument of service for the exclusive use of the United States of America, by and through the Secretary of Veterans Affairs, and Studley, Inc. (Client) and their lender(s) only. No third party may use this report, or any information contained herein. With the permission of the Client, Thiele Geotech, Inc. (TG) may authorize a third party to use this Report, and to rely on the information contained in this report, but only to the same extent of the Client's reliance, and subject to the same contractual, technological, and other limitations to which the Client has agreed. In addition, any new user of the report is subject to the user obligations outlined in the ASTM E 1527-05 standard.

[5] ASTM E 1527-05, 4.5.1

3.0 SITE DESCRIPTION

3.1 LOCATION AND LEGAL DESCRIPTION

The assessment site is a development site located northeast of the intersection of Highway 50 and Schram Road in Omaha, Nebraska. The assessment site consists of approximately 235 acres of farmland with an inactive farmstead area.

The legal description for the site is included in the parcel information obtained from the Douglas County Assessors website and in the Commitment for Title Insurance, both enclosed in the Appendix. The site is generally located within the West Three-Quarters of the South Half of Section 36, Township 14 North, Range 11 East of the 6th P.M., Sarpy County, Nebraska.

The Site Vicinity Map, Topographic Map, Parcel Map, and Farmstead Map attached in the Appendix, further illustrate the disposition of the assessment site and the neighboring properties.

3.2 SITE AND VICINITY CHARACTERISTICS

The general area of the project site is primarily composed of agricultural and residential development.

The Sarpy County Zoning Map was reviewed and indicated that the assessment site is currently zoned Agricultural District (AG). The area surrounding the assessment site is generally zoned Agricultural District (AG) to the east, west, and south, and Two-Family Residential District – Planned Development District (RD-50PD) to the north. A copy of the Sarpy County Zoning Map has been included in the Appendix.

3.3 CURRENT USE OF THE PROPERTY

Currently, the assessment site is covered in crop stubble, except for the inactive farmstead area located in the southeast part of the assessment site on Schram road, and a creek that crosses through the northwest corner of the site. The photographs taken during the site reconnaissance conducted on March 5, 2012 illustrate the condition of the site on that day, and are included in the Appendix.

3.4 IMPROVEMENTS AND EASEMENTS

It is assumed that there are easements present on-site for various public and private utilities (natural gas, electric, water, sanitary and storm sewers, cable television) that provide essential services within the City of Omaha. All easement information is disclosed by title policy for the owner and is noted in the Commitments for Title Insurance enclosed in the Appendix.

Improvements on site consist of fencing around the perimeter of the site, a barn, corn crib, three sheds, two ground water wells, a lean-to, and a grain silo. Overhead electrical power lines are along Schram Road to the south and South 144th Street to the west.

Utilities generally accessible within the Omaha metropolitan area include:

- Electrical – Omaha Public Power District
- Water – Metropolitan Utilities District
- Gas – Metropolitan Utilities District/Black Hills Energy
- Storm/Sanitary Sewer – Omaha Public Works Department
- Communications – Century Communications

3.5 CURRENT USES OF ADJOINING PROPERTIES

The site is bordered by cropland and Westmont residential subdivision to the north, by cropland and a farm with cattle feeding to the east, by Schram Road right-of-way (ROW) to the south, and by Highway 50 (South 144th Street) ROW to the west. Beyond the vacant land and Westmont residential subdivision to the north is Highway 370 ROW. Beyond the cropland and farm to the east is South 132nd Street ROW followed by cropland. Beyond the Schram Road ROW to the south are cropland and a farmstead. Beyond Highway 50 ROW to the west are farmsteads and cropland.

4.0 USER PROVIDED INFORMATION

Users of the Phase I ESA include USA Secretary of Veteran Affairs and Studley, Inc. Information provided by Studley, Inc. stated that based upon the VA's current knowledge of this site, it is anticipated that the vacant farmstead area presents a potential for environmental concern.

4.1 TITLE RECORDS

Title documents were provided for review during this assessment.

4.2 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

Commitments for Title Insurance were completed for the assessment site and upon review it appears that there are no environmental liens or environmental-related activity use limitations associated with the assessment site based upon publicly available real estate records.

4.3 SPECIALIZED KNOWLEDGE

The user was not aware of any specialized knowledge about the assessment site.

4.4 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

The user was not aware of any commonly known or reasonably ascertainable information about the assessment site except that it had been used for agricultural purposes.

4.5 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

The user was questioned regarding their perception of the value of the assessment site in comparison to other similar properties. The user responded, on the user questionnaire attached in the Appendix that the value of the assessment site will be purchased for fair market value.

4.6 OWNER, PROPERTY MANAGER, AND OCCUPANT INFORMATION

According to the Sarpy County Assessor's website, the owners of record are Gottsch Enterprises LLC (western 1/3) and Jolene Ann Tomanek Trustee (eastern 2/3s). The equitable owner is Horse Creek Farms and Denny Esch is the managing partner and designated site contact.

4.7 REASON FOR PERFORMING PHASE I

This assessment is being conducted as part of the screening criteria for a real estate transaction and development of the site.

5.0 RECORDS REVIEW

5.1 STANDARD ENVIRONMENTAL RECORD SOURCES

As part of this ESA, various sources of information were queried in an attempt to determine and evaluate past and present activities on and in the vicinity of the subject property that might cause environmental impacts on the subject site. Multiple aerial photographs and the current USGS Topographic Map were obtained, and regulatory database research by Environmental Data Resources, Inc. (EDR) was performed. EDR is a database search firm, specializing in Records Searches for ESAs. These efforts were performed in general accordance with ASTM Standard E 1527-05.

The ASTM Standard recommends approximate minimum search distances (AMSDs) for each type of database search, which are stated below, and were utilized in our review. The AMSDs recommended by ASTM are included on the Site Information Map included in the Appendix.

The following databases/lists and the respective ASTM AMSDs were requested and reviewed by TG:

Federal ASTM Standard

US Environmental Protection Agency (EPA) Office of Solid Waste and Emergency Response, National Priorities List (NPL), commonly referred to as "Superfund List"—1.0 mile;

EPA, Proposed National Priority List Sites (Proposed NPL)—1.0 mile;

EPA, Federal Superfund liens (NPL LIENS)—target property;

EPA, National Priority List Deletions (Delisted NPL)—1.0 mile;

EPA, Office of Solid Waste and Emergency Response, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)—0.5 miles;

EPA, Office of Solid Waste and Emergency Response, Comprehensive Environmental Response, Compensation, and Liability Information System – No Further Remediation Planned (CERC-NFRAP)—0.5 miles;

EPA, Resource Conservation and Recovery Act (RCRA), facilities undergoing "corrective action" (CORRACTS)—1.0 mile;

EPA, RCRA non-CORRACTS Treatment Storage and Disposal Facilities (RCRA-TSDF)—0.5 miles;

EPA, RCRA Large Quantity Generators (RCRA-LQG)—property and adjoining properties;

EPA, RCRA Small Quantity Generators (RCRA-SQG)—property and adjoining properties;

EPA, RCRA Conditionally Exempt Small Quantity Generators (RCRA-CESQG)—property and adjoining properties;

EPA, Federal engineering controls registries (US ENG CONTROLS)—0.5 miles;

EPA, Federal institutional controls registries (US INST CONTROLS)—0.5 miles;

National Response Center, U.S. Coast Guard, Federal Emergency Response Notification System (ERNS)—target property.

State ASTM Standard

Nebraska Department of Environmental Quality (NDEQ), State and tribal equivalent NPL, State Hazardous Waste Sites (SHWS)—1.0 mile;

NDEQ, State- and tribal-equivalent CERCLIS—Nebraska does not generate a separate State list;

NDEQ, State and tribal landfill and/or solid waste disposal sites (SWF/LF)—0.5 miles;

NDEQ, State Leaking Underground Storage Tank list (LUST)—0.5 miles;

NDEQ, State Leaking Aboveground Storage Tank list (LAST)—0.5 miles;

EPA Region 7, Leaking Underground Storage Tanks on Indian Land (INDIAN LUST R7)—0.5 miles;

Nebraska State Fire Marshal, registered Underground Storage Tank list (UST)—property and adjoining property;

Nebraska State Fire Marshal, registered Aboveground Storage Tank list (AST)—property and adjoining property;

EPA Region 7, registered Underground Storage Tanks on Indian Land (INDIAN UST R7)—property and adjoining property;

NDEQ, Nebraska Institutional Control Registry (INST CONTROL)—0.5 miles;

EPA Region 7, Voluntary Cleanup Priority Listing on Indian Land (INDIAN VCP R7)—0.5 miles;

NDEQ, Voluntary Cleanup Program, Remedial Action Plan Monitoring Act Sites (VCP)—0.5 miles;

NDEQ, Potential Brownfields Inventory Listing (BROWNFIELDS)—0.5 miles.

The following additional sources are provided by EDR, beyond the minimum requirements of ASTM.

Additional Environmental Record Sources

EPA, Brownfields Sites list (US BROWNFIELDS)—0.5 miles;

EPA, Open Dump Inventory (ODI)—0.5 miles;

NDEQ, Recycling Resource Directory (SWRCY)—0.5 miles;

EPA, Open Dump Inventory on Indian Land (INDIAN ODI)—0.5 miles;

Drug Enforcement Administration, Clandestine Drug Labs list (US CDL)—target property;

State Fire Marshal, Underground Storage Tank database listing (HIST UST)—0.25 miles;

State Fire Marshal, Aboveground Storage Tank database listing (HIST AST)—target property;

EPA, CERCLA Lien Information (LIENS 2)—target property;

Department of the Navy, Land Use Control Information System (LUCIS)—0.5 miles;

US Department of Transportation (DOT), Hazardous Materials Information Reporting System (HMIRS)—target property;

NDEQ, Surface Spill list (SPILLS)—target property;

EPA, RCRA Non Generators (RCRA-NonGen)—0.25 miles;

DOT, Office of Pipeline Safety Incident and Accident Data (DOT OPS)—target property;

USGS, Department of Defense Sites (DOD)—1.0 mile;

US Army Corps of Engineers, Formerly Used Defense Sites (FUDS)—1.0 mile;

Department of Justice, Consent Decree Library Superfund (CERCLA) Consent Decrees (CONSENT)—1.0 mile;

EPA, Records of Decision (ROD)—1.0 mile;

Department of Energy, Uranium Mill Tailings Sites (UMTRA)—0.5 miles;

Department of Labor, Mine Safety and Health Administration, Mines Master Index Files (MINES)—0.25 miles;

EPA, Toxic Chemical Release Inventory System (TRIS)—target property;

EPA, Toxic Substances Control Act (TSCA)—target property;

EPA, Office of Prevention, Pesticides, and Toxic Substances, Federal Insecticide, Fungicide, and Rodenticide Act/Toxic Substances Control Act Tracking System (FIFRA/TSCA) activities (FTTS)—target property;

EPA, FIFRA/TSCA Tracking System Administrative Case Listing (HIST FTTS)—target property

EPA, Section 7 of the FIFRA Tracking System (SSTS)—target property;

EPA, Integrated Compliance Information System (ICIS)—target property;

EPA, Polychlorinated Biphenyls Activity Database System (PADS)—target property;

Nuclear Regulatory Commission, Material Licensing Tracking System (MLTS)—target property;

EPA, Radiation Information Database (RADINFO)—target property;

EPA, Facility Index System/Facility Registry System (FINDS)—target property;

EPA, RCRA Administrative Action Tracking System (RAATS)—target property;

NDEQ, Drycleaner Facility Listing (DRYCLEANERS)—0.25 miles;

NDEQ, Wastewater Database Listing (NPDES)—target property;

NDEQ, Air State Program List (AIRS)—target property;

NDEQ, Tier 2 Facility Listing (TIER 2)—target property;

USGS, Indian Reservations (INDIAN RESERV)—1.0 mile;

EPA, State Coalition for Remediation of Drycleaners Listing (SCRD DRYCLEANERS)—0.5 miles;

EDR, Proprietary Manufactured Gas Sites (Manufactured Gas Plants)—1.0 mile.

The location of the sites identified within 0.25, 0.50, and 1 mile AMSDs (radii) are shown on the Site Information Map, attached in the Appendix.

The databases utilized for the Tier 1 Vapor Intrusion Condition (VIC) are included in the database search for the Phase I ESA standard records review, except their search distances have been adjusted based on the type of contaminant(s) associated with a site and whether or not the contaminated site is up-gradient of the assessment site. The distances applied to the Phase I ESA database search are more conservative than the Tier 1 Vapor Intrusion requirements and can be used to identify contaminated sites in close proximity to the assessment site. Therefore, if a contaminated site is identified, the appropriate vapor intrusion distances (from ASTM E 2600-08) will be applied to determine whether a potential VIC exists.

A review of the EDR Report reveals there were no plottable sites identified within the ASTM minimum search distances. The unplottable sites were also reviewed and none of these appeared to be within ASTM minimum search distances. Therefore, a low risk for adverse environmental impact to the assessment site was determined based on review of regulatory records.

5.2 PHYSICAL SETTING SOURCES

As shown on the 1984 USGS 7.5 Minute Topographic Map, Gretna, Nebraska Quadrangle, a portion of which is included in the Appendix, the site elevation is approximately 1,130 to 1,210 feet above mean sea level (MSL). The map has a contour interval of 10 feet. The assessment site slopes down unevenly from the south and southeast to the north and northwest with approximately 80 feet of relief.

Based on the topography and surface water flow directions observed during the site reconnaissance, we anticipate that the majority of the site-specific ground water flow direction is to the north. The overall regional ground water flow direction in the vicinity of the property is reported to be to the north toward a tributary of South Papillion Creek. Depth to ground water is anticipated to range from 20 to approximately 80 feet below ground level.

Based on the topography and anticipated site-specific ground water flow direction, we anticipate that the area within one-half mile southwest would be in the up-gradient direction. Therefore, this anticipated up-gradient source area has been the focus of our historical and environmental records research.

The assessment site surface soils were mapped by the United States Department of Agriculture (USDA) and described in the *Soil Survey of Douglas and Sarpy Counties, Nebraska*. Due to the size and topography of the assessment site, there are numerous surface soils mapped at the subject property, reflecting differing and varied positions with the drainage regime. These soils are Marshall,

Ponca, Judson, and Kennebec series soils, which consist of deep, well drained, nearly level to moderately steep soils on uplands. Specific soils identified at the assessment site are summarized in the table below.

SOIL NAME	OCCURANCE	PERMEA-BILITY	AVAILABLE WATER CAPACITY	RUNOFF
Marshall silty clay loam, 3-7% slopes (MaC)	Broad ridgetops of loess-covered uplands	Moderate	High	Medium
Marshall-Ponca silty clay loam, eroded, 7-11% slopes (MeD2)	Above the moderately steep areas that border entrenched drainageways in loess-covered uplands	Moderate	High	Rapid
Judson silt loam, 3-7% slopes (JuB)	Colluvial foot slopes in upland drainageways, at the base of slopes, and above the bottom lands	Moderate	High	Medium
Kennebec silt loam, occasionally flooded, 0-1% slopes (Ke)	Bottom lands in narrow stream valleys	Moderate	High	Slow

A copy of the Soil Survey Map for the assessment site and adjoining area has been included in the Appendix. Additional information about on-site soil conditions is reported in the TG geotechnical exploration conducted concurrently with this investigation.

5.3 HISTORICAL USE INFORMATION ON THE ASSESSMENT SITE

Historical sources reviewed for this assessment included the following:

Aerial Photographs: 1955, 1970 (photobase for the Soil Survey Map), 1971, 1973, 1982, 1994, 1999, 2001, 2004, 2007, 2010;

Historical Topographic Maps: 1956 Base, 1975 Photorevised;

Deed Search: 1905 to present;

Sanborn Fire Insurance Maps: no coverage;

Sarpy County Assessor's website;

Interviews.

Based on these sources, the assessment site appears to have historically been used for agricultural cropland and for a farmstead. The farmstead is present on the historical sources in the southeast part of the site, along Schram Road. Historical aerial photographs reveal a house and several outbuildings

located in the farmstead area. The house is no longer present in the 1994 aerial photograph. Two buildings that were historically present in the southwest part of the farmstead are no longer present in 2001.

The Chain of Title documents provided by the client reveal that the assessment site has been owned by private individuals and families since the early 1900's until approximately 2005 when an investment group acquired the western 1/3 of the assessment site.

No other use or development was revealed through review of aerial photographs, the historical topographic maps, title documents, or interviews, and it is assumed that the site did not incur any development between the dates of the records that were examined.

Portions of the aerial photographs, the Chain of Title report, and the topographic maps have been reproduced and are included in the Appendix.

5.4 HISTORICAL USE INFORMATION ON ADJOINING PROPERTIES

Historical uses of the surrounding property were identified to the extent that this information was revealed in the course of researching the assessment site. Based upon these sources, it appears that surrounding properties have historically been used for agricultural purposes as cropland and farmsteads. Highway 50 and Schram Road have been adjacent west and south, respectively, since at least 1955. In the 1971 aerial photograph, the farmstead to the east of the assessment added cattle feeding to their operations. In the 1969 aerial photograph, streets and houses are being constructed to the northeast of the assessment site in Westmont. Highway Crossing commercial development is present to the northwest of the assessment site on Highway 370 in the 2004 aerial photograph. There were no other significant changes noted at the surrounding properties in recent years.

6.0 SITE RECONNAISSANCE

6.1 METHODOLOGY AND LIMITING CONDITIONS

The site reconnaissance was performed on March 5, 2012. A walkover of the site, accessible areas in the interiors of the buildings, and adjacent public thoroughfares was made and current use and condition of the property and adjoining nearby properties was noted, as well as information on land use in the vicinity. Observations were made to review existing structures, evidence of below grade tanks, distressed vegetation, signs or evidence of hazardous substances/wastes or petroleum products, presence of waste or rubble, and evidence of illegal or questionable disposal practices.

Copies of photographs taken during the site reconnaissance conducted on March 5, 2012 have been included in the Appendix and represent the condition of the site on that day.

6.2 GENERAL SITE SETTING

The site is composed primarily of cropland and slopes unevenly toward the north with approximately 80 feet of relief. An inactive and unoccupied farmstead is located in the southeast part of the site. Remaining structures in the farmstead area include a barn, corn crib, grain silo, 3 sheds, a lean-to, two ground water wells, and remnant foundation from the former house. There is a tributary of South Papillion Creek that crosses diagonally through the northwest corner of the site. Surface drainage of the site is north toward the tributary of South Papillion Creek.

Adjoining property uses are listed below:

North – vacant land undergoing clearing activities and Westmont residential subdivision.

East – cropland and a farm with cattle feeding.

South – Schram Road ROW.

West – Highway 50 ROW.

Visual observations from the perimeter of the site and public thoroughfares were made of the surrounding vicinity. Land uses observed in the vicinity include the following:

North - Beyond the vacant land and Westmont residential subdivision to the north is Highway 370 ROW.

East - Beyond the cropland and farm to the east is South 132nd Street ROW followed by cropland.

South - Beyond the Schram Road ROW to the south are cropland and a farmstead.

West - Beyond Highway 50 ROW to the west are farmsteads and cropland.

6.3 EXTERIOR OBSERVATIONS

The majority of the site is covered in corn crop stubble with dormant grass in the drainageways in the field. There is a tributary of South Papillion Creek that crosses through the northwest corner of the assessment site. There was a moderate quantity of concrete pieces and scrap metal observed along the creek bank. It appears to have been placed along the creek to inhibit erosion. However, there was also metal scrap, building debris, metal containers, cans, and plastic containers observed in a few of these areas. Chemicals and petroleum hydrocarbons from abandoned vehicles, drums, containers, farm machinery, and appliances have potential to adversely impact the underlying soils and ground water. There was very little other road little or debris observed in the fields.

There were two ground water wells observed in the farmstead area. Remnants of the foundation of the farmhouse are still present. There is a large debris and brush pile in the southeast corner of the farmstead area.

Overhead power lines are along the south and western margins of the site.

6.4 INTERIOR OBSERVATIONS

The inactive farmstead area is located at the south end of the site on Schram Road. Structures remaining in the farmstead area include a barn, a lean-to, a corn crib, a grain silo, a storage shed, and two small wooden sheds. The barn was primarily empty. There were some empty plastic containers and a compressed gas tank observed in the barn. The largest shed had multiple doors and contained lumber, wood fencing, wire fencing, and three bags of ammonium nitrate fertilizer. The smaller sheds were primarily empty except for a small quantity of lumber and fencing. The grain silo was empty. The lean-to was also empty. The corn crib was in a state of disrepair and contained a small quantity of debris.

7.0 INTERVIEWS

7.1 INTERVIEW WITH OWNER

The equitable owner, Mr. Denny Esch, was interviewed on the phone regarding current and historical observations about the assessment site. Mr. Esch referred the questions to the current owner of the portion of the assessment site with the farmstead. Tom and Jolene Tomanek responded to questions in an email regarding the farmstead area. They are aware of three hand dug wells in the farmstead area. One has been filled with sand and is no longer present. There is one located on the east side of the farmstead and it has dirt in it. The other one is on the west side of the farmstead, south of the barn. The house was cleared approximately 30 years ago. The sellers acquired the site in the 1990s and have limited historical knowledge of the site. They were not aware of any fuel tanks associated with the site. They were also not aware of a septic system or of any dumping activities on site except for the wood and brush pile in the southeast corner of the site. A copy of the email correspondence is in the Appendix.

7.2 INTERVIEW WITH SITE MANAGER/OCCUPANTS

The site is inactive and vacant and there are no occupants or site manager.

7.3 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

Additional information regarding registered ground water wells was obtained from the Nebraska Department of Natural Resources. This search revealed no registered wells at the assessment site. A well locate map is included in the Appendix.

Additional information about the site was obtained from the Sarpy County Assessor's website and included parcel information, ownership, deeds, topography, aerial photography, and zoning.

7.4 INTERVIEWS WITH OTHERS

No others were interviewed.

8.0 FINDINGS

The following are the findings and conclusions for the Phase I Environmental Site Assessment (ESA) conducted by Thiele Geotech, Inc. (TG) for United States of America, by and through the Secretary of Veterans Affairs, and Studley, Inc. (Client) on the subject site:

SITE DESCRIPTION – The assessment site is a development site located northeast of the intersection of Highway 50 and Schram Road in Omaha, Nebraska. The assessment site consists of approximately 235 acres of farmland with an inactive farmstead area.

HISTORICAL REVIEW – Historical aerial photographs, topographic maps, a chain of title search, and interviews were reviewed and indicated that the assessment site has historically been used for a farmstead and agricultural cropland and these activities do not appear to represent a significant environmental risk to the assessment site.

REGULATORY REVIEW –A review of the EDR Report reveals there were no plottable sites identified within the ASTM minimum search distances. The unplottable sites were also reviewed and none of these appeared to be within ASTM minimum search distances. Therefore, a low risk for adverse environmental impact to the assessment site was determined based on review of regulatory records.

SITE RECONNAISSANCE – The condition and current use of the property observed during the site reconnaissance conducted March 5, 2012 suggest that environmental concerns do not exist at the assessment site, except for evidence of dumping along the creek in the northwest corner of the site. There were numerous areas where concrete debris had been place along the creek to impede erosion of the bank. However, there was also metal scrap, building debris, metal containers, cans, and plastic containers observed in a few of these areas. Petroleum hydrocarbons and chemicals from abandoned vehicles, drums, containers, farm machinery, and appliances have potential to adversely impact the underlying soils and ground water.

INTERVIEWS – Interviews were conducted with the user, present equitable owner, and one of the owners of record. These interviews revealed that based on the knowledge and experience of the present owner and the users, there have been no hazardous materials, petroleum hydrocarbons, or other environmental issues associated with the assessment site.

Additional information about the site was obtained from the Sarpy County Assessor's website and included parcel information, ownership, deeds, topography, aerial photography, and zoning.

A search for registered wells was conducted by searching the Nebraska Department of Natural Resources database. According to their records there a no registered wells on site. According to Tom and Jolene Tomanek, there have been three hand-dug wells on site. Two of these are still present in the farmstead area. Another was abandoned by filling with sand. This well was not observed during the site reconnaissance.

ENVIRONMENTAL LIEN SEARCH – A Commitment for Title Insurance was completed for the assessment site and upon review it appears that there are no environmental liens or activity use limitations associated with the assessment site based upon publicly available real estate records. The user has no knowledge of environmental liens associated with the assessment site. In addition, no evidence of liens was identified in the regulatory records database search where records of obligations imposed by regulatory agencies would most likely be reported.

9.0 OPINION

Potential recognized environmental conditions were identified during this Phase I ESA assessment. Evidence of dumping was observed along the creek in the northwest corner of the site.

ADDITIONAL APPROPRIATE INVESTIGATION – If desired, subsurface investigation can be conducted along the creek bank at those locations where there is evidence of dumping to better determine if the subsurface has been adversely impacted. Potential contaminants of concern include petroleum hydrocarbons, PCBs, fertilizer, and metals.

RECOMMENDATIONS – TG recommends that the client meet with legal counsel to discuss the liability that may be assumed with the transfer of this property and also determine if the benefits of further investigation are warranted.

TG recommends that the inactive ground water wells be abandoned properly per Nebraska Department of Health and Human Services guidelines.

Also, it is assumed a septic sewer system is present in the farmstead area. If encountered during development, TG recommends that it be abandoned properly per Nebraska Department of Health and Human Services guidelines.

10.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-05 for property located northeast of the intersection of Highway 50 and Schram Road in Omaha, Nebraska; the property. Any exceptions to, or deletions from this practice are described in Section 11.0 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property except for the evidence of dumping along the creek in the northwest corner of the site.

11.0 DEVIATIONS

There were no significant deletions or deviations from this practice.

12.0 ADDITIONAL SERVICES

Recently, a new ASTM standard was established for evaluating vapor intrusion conditions because the new Phase I ESA does not specifically include considerations for vapor intrusion from contaminated sites. TG is supplementing their Phase I ESAs with the Tier 1 assessment from the ASTM E 2600-08 Standard for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions. These services include a determination as to whether a potential vapor intrusion condition may be present on site, based on the information that is collected and reviewed as part of the ASTM E 1527 Phase I ESA. Based on the information collected and reviewed for the Phase I ESA, it appears that vapor intrusion is not a likely concern for the property unless the subsurface has been significantly impacted by fuel releases in the northwest corner of the assessment site were dumping activities were observed.

13.0 REFERENCES

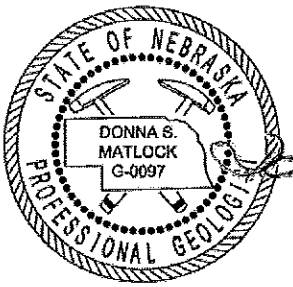
References used for the completion of this investigation included the ASTM E 1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, the ASTM E 1528-06, Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process, ASTM E 2600-08 Standard Practice for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions, Polk City Directories, and 40 CFR Part 312, Standards and Practices for All Appropriate Inquiries; Final Rule.

14.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

I certify that this document was prepared by me or under my direct personal supervision and that I am a Professional Geologist as licensed by the State of Nebraska Board of Geologists.

Respectfully submitted,
Thiele Geotech, Inc.

Prepared by,



Donna S. Matlock, P.G.
Nebraska License G-0097

15.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

I have a Bachelor of Science degree from the University of Nebraska at Omaha and am a licensed Professional Geologist for the States of Nebraska and Missouri. I am also a Certified Professional Geologist as certified by the American Institute of Professional Geologists. Additionally, I am a Master Level Certified Hazardous Materials Manager as accredited by the Council of Engineering and Scientific Specialty Boards (CESB). Since 1996, I have been principally engaged conducting and supervising the completion of Phase I ESA's.