CON 12-15
Doc #24025

Site Name: Canadian Pacific Spencer Rail Yard, Spencer

Brownfield Initial Site Screening (ISS)

Project Manager: John Woodland

Date: 2/28/2011

☒ **3931 - Phase II Assessment Review - standard**
Phase II submitted as part of standard real estate development, pre-purchase agreement, or other due diligence, not a part of a community grant project, or

☐ **3837 - Phase II Assessment – grant funded**
Phase II submitted as part of an EPA grant funded community-wide or targeted assessment project – see Mel Pins if questions on this determination

Location:

Latitude: 43.1448628 Longitude: -95.148586 County: Clay
(Decimal Degree format)

USGS Quadrant: _____

Site Size: 24 (Estimate)

Site Dimension: ☒ Acres ☐ Square Feet ☐ Feet ☐ Square Miles ☐ Miles

Site Alias Name(s): N/A

Congressional District: 4

Grant Recipient Name, Address & Contact: N/A

Current Owner & Address: Canadian Pacific
501 Marquette Avenue South, Suite 1525
Minneapolis, MN 55402

Responsible Party Name(s) & Address, if different from current owner:
Unknown at this time

Site Street Address or Tier, Range, Section & Subsections (if street address is unknown)
8 West Milwaukee Street, Iowa 51301

Directions to site:

Travel north on I-35 N to US-20 West
Take exit 142B to merge onto US-20 W toward Fort Dodge
Take the US-169 ramp to Fort Dodge
Turn right at US-169 N
Turn left at E State St in Algona
Turn right at N Jones St
Turn left at US-18 W/220th St
Continue to follow US-18 W into Spencer
Turn right at S Grand Ave

Summarize the site history (past usages, past ownerships, wastes, known or suspected contamination pathways such as tanks, septic tank/tile field, lagoon, land applications, S.W. burial, etc)

AECOM, Inc. (AECOM) was retained by Canadian Pacific to conduct Phase I and Phase II Environmental Site Assessments (ESAs) on a portion of the Dakota, Minnesota & Eastern Railroad (DM&E) Spencer Yard located in Spencer, Iowa (Site).

Railroad operations began at the site in the late 1870s. Historic operations on the site consisted of general train movement, section maintenance storage, coal storage, freight loading at the depot, fueling, and gasoline storage in underground storage tanks (USTs). A roundhouse formerly existed west of 4th Street on the south side of the site. An engine house was located adjacent to the east of the current yard storage building. A gasoline UST formerly existed to the east of 4th Avenue E and south of the tracks.

The following RECs were identified by AECOM, Inc. (AECOM) in the Phase II ESA:

- REC 1 Engine House #2 (on-Site): An engine house building is located on the site to the north of the main track between 1st Avenue W and 4th Avenue W during the site reconnaissance. The engine house building was not accessible during the site reconnaissance. The building was previously used for engine maintenance, and is now used for storing vehicles. The former engine house pit was filled in with gravel. The former engine maintenance operations are considered a REC due to the duration of such operation, since 1955 or earlier, and the likelihood of releases of petroleum products from engine maintenance activities.
- REC 2 Corn Drier Gas (on-Site): The 1917 Station Map depicts a small structure on the site east of 4th Avenue West connected with a dotted line labeled 4" gas line to a corn drier that is partially on the subject property. It is believed that the structure was an aboveground storage tank (AST). Based on its unknown operational history and contents during an era prior to environmental regulations, the structure is considered a REC.
- REC 3 Sinclair Refining Co. (off-Site): The 1917 Station Map depicts Sinclair Refining Company, with 5 tanks noted, adjoining the site to the south between1st Avenue West and 4th Avenue West. Based on the known history of operations, from at least 1917 to sometime after 1978, storing petroleum and/or hazardous chemicals in an era prior to environmental and waste disposal regulations, and the proximity to the site, this property is considered a REC relative to the Site.
- REC 4 Standard Oil Filling Station (off-Site): The 1917 Station Map depicts a Standard Oil

Filling Station located at the northwest corner of Grand Avenue and West 7th Street, south of the site. Based on the known history of operations, from at least 1917 to sometime after 1978, storing petroleum products in an era prior to environmental and waste disposal regulations, this property is considered a REC relative to the Site.

- REC 5 Champlin Oil Co. (off-Site): The 1917 Station Map depicts Champlin Oil Co. structures adjoining the site to the south, east of 2nd Avenue East. Based on the known history of operations, from at least 1917 to sometime after 1978, storing petroleum and/or hazardous chemicals in an era prior to environmental and waste disposal regulations, this property is considered a REC relative to the site.
- REC 6 Standard Oil Company (off-Site): The 1924 Sanborn Map depicts two gas tanks, an oil tank, and an oil warehouse labeled as Standard Oil Company adjoining the site to the north, west of 4th Avenue West. Based on the known history of operations, from at least 1924 to sometime after 1978, storing petroleum and/or hazardous chemicals in an era prior to environmental and waste disposal regulations, this property is considered a REC relative to the site.
- REC 7 Garage (off-Site): The 1924 Sanborn Map depicts garages and farm equipment warehouses east of Grand Avenue south of the site. Two gasoline tanks and oil tanks are associated with these structures. Based on the known history of operations, from at least 1924 to sometime after 1941, storing petroleum and/or hazardous chemicals in an era prior to environmental and waste disposal regulations, this property is considered a REC relative to the site.
- REC 8 Gasoline Tank (off-Site): The 1941 Sanborn Map depicts structures labeled as railroad sheds and a gas tank north of the site and west of 4th Ave. East. Based on the historical operations of storing petroleum and/or hazardous chemicals in an era prior to environmental and waste disposal regulations, this property is considered a REC relative to the site.
- REC 9 Unloading Rack (off-Site): The 1917 Station Map depicts a structure north of a lumber company and oil company, and is depicted as partially on the subject property west of 2nd Avenue East. This structure is labeled as "unloading rack". It is unclear if this unloading rack is associated with the lumber company or nearby oil company. Based on the unknown operational history of the unloading rack and the potential for petroleum unloading, this property is considered a REC relative to the site.

Briefly describe the site assessment that was conducted (number of borings, monitoring wells, number of samples, depth of soil samples and monitoring wells, analysis, etc.)

The Phase II field investigation activities were conducted in October 2010. A total of nine soil borings (SB-1 through SB-5 and SB-7 through SB-10) and three permanent monitoring wells (MW-1 through MW-3) were completed.

Most of the borings were completed to a depth of 12-feet below ground surface (bgs). Boring SB-4 and SB-5 were completed at 16-feet bgs. Boring MW-1 was completed at 17-feet bgs, MW-2 was completed at 16-feet bgs and MW-3 was completed at 18-feet bgs. Groundwater was encountered between 7.5 and 11-feet bgs. Soil samples were field screened based on odor, sheen, discoloration, and organic vapor concentrations. Organic vapor concentrations were measured using a photoionization detector (PID).

Fifteen soil samples, including two duplicate samples, were submitted for laboratory analysis. Four groundwater samples, including one duplicate sample, were submitted for laboratory analysis. Groundwater samples collected for analysis of RCRA metals were field-filtered.

Soil and groundwater samples collected were analyzed for the following contaminants:

- Volatile organic compounds (VOCs)
- Polycyclic aromatic hydrocarbons (PAHs)
- Total Extractable Hydrocarbons (TEH)
- RCRA metals

Summarize the findings and conclusions regarding the contaminants found and their extent and concentrations. Relate those values to known criteria such as statewide standards, MCLs, water quality standards, background levels or other benchmarks used to determine site priority.

The following is a summary of soil analytical results:

- VOC: Five of the soil samples, including one duplicate were analyzed for VOCs. VOC contaminants were not detected in any of the samples submitted for this analysis.
- PAH: PAHs were not detected in soil samples collected from borings MW-3, SB-3, SB-9, and SB-10. Samples collected from borings MW-1, MW-2, SB-1, SB-2, SB-4, SB-5, and SB-8 exhibited low level detections of certain PAH parameters, however, no detections in these samples exceeded the IDNR Statewide Standards for Soil. The soil sample collected from boring SB-7 exhibited exceedances of IDNR Statewide Standards for Soil for benzo[a]anthracene (4.46 mg/kg), benzo[a]pyrene (4.36 mg/kg), benzo[b]fluoranthene (4.26 mg/kg), and dibenz[a,h]anthracene (0.679 mg/kg). Boring SB-7 was located in close proximity to the former adjacent Sinclair Refining Company.
- TEH: TEH as diesel was detected in five soil samples. Diesel was detected at concentrations ranging from 12.1 mg/kg to 419 mg/kg in the samples collected from borings MW-1, MW-2, SB-1, SB-2, and SB-7. TEH as gasoline was detected in three soil samples. TEH as gasoline was detected at concentrations ranging from 12.1 mg/kg to 31.9 mg/kg. TEH as motor oil was detected in seven soil samples. TEH as motor oil was detected at concentrations ranging from 25.3 mg/kg to 2,310 mg/kg. No BTEX compounds were detected in any of the soil samples analyzed.
- RCRA Metals: Certain metals were detected in each of the soil samples submitted for analysis. Arsenic was detected in four of the soil borings at levels above the IDNR Statewide Standards for Soil: SB-1 (42.6 mg/kg), SB-2 (26.5 mg/kg), SB-3 (31.7 mg/kg) and SB-9 (18.0 mg/kg). Lead was detected at levels above the IDNR Statewide Standards for Soil in SB-1 (1,680 mg/kg). No other soil borings exhibited metals detections that exceeded the statewide standards. Borings SB-1 and SB-2 were located in close proximity to the former Engine House #2. Boring SB-3 was located in close proximity to the former Corn Drier Gas and boring SB-9 was located in close proximity to the former adjacent Standard Oil Company.

Analytical results of contaminants above IDNR Statewide Standards for Soil are shown in Table 1.

Table 1—Soil Sample Analytical Results (mg/kg)

	IDNR Statewide Standard for Soil	SB-1 (2-3' bgs) mg/kg	SB-2 (0.5-1.5' bgs) mg/kg	SB-3 (6.5-7.5' bgs) mg/kg	SB-7 (2-3' bgs) mg/kg	SB-9 (6-7' bgs) mg/kg
Benzo(a)anthracene	3.1				4.46	
Benzo(a)pyrene	0.31				4.36	
Benzo(b)fluoranthene	3.1				4.26	
Dibenz(a,h)anthracene	0.31				0.679	
Arsenic, Inorganic	17	42.6	26.5	31.7		18
Lead and Compounds	400	1680				

The following is a summary of groundwater analytical results:

- VOC: No VOCs were detected in the samples collected from monitoring wells MW-1 and MW-3. One VOC, 1,2-dichloroethane, was detected in the sample collected from well MW-2 and its duplicate; this detection was below the most conservative IDNR Statewide Standards for a Protected Groundwater Source.
- PAH: Certain PAH contaminants were detected in samples from each of the monitoring wells. There were no detections exceeding the IDNR Statewide Standards for A Protected Groundwater Source.
- TEH: TEHs were not detected in any of the groundwater samples.
- RCRA Metals: Certain dissolved metals were detected in each of the groundwater samples. There were no metals detections exceeding the IDNR Statewide Standards for a Protected Groundwater Source.

Identify on-site or off-site potential and actual targets (e.g., municipal wells, private wells, drinking water intakes). What is known of the neighboring area, i.e., are there residences, businesses, public use areas, etc.? Are there utility lines that could be impacted by site contaminants? Identify any other use/location issues that deserve consideration.

There are no wells on the site. Within a ¼ mile radius there are forty plugged wells, two private wells 15-feet deep, and one commercial well 32-feet deep. Within a ½ mile radius (excluding the wells described in the ¼ mile radius), there is one plugged well, nine private wells between 18-feet and 360-feet deep, and four municipal wells 32-feet deep.

There have been sixteen leaking underground storage tank (LUSTs) reported within ½ mile of the site.

Rate the site on a scale of 1 to 4, in decreasing order of severity or priority.
3

Summarize the reasoning, knowledge or any other information used in determining your recommendation regarding the priority assigned to this site.

Arsenic in soil was detected at concentrations exceeding the statewide standard at borings SB-1, SB-2, SB-3 and SB-9. These samples came from REC 1, REC 2, and REC 6, which are located in close proximity to each other at the west end of the rail yard. The concentrations ranged from 26.5 mg/kg to 42.6 mg/kg. These samples were taken from soil ranging from .5-feet to 7.5-feet deep.

Lead in soil was detected at concentrations exceeding the statewide standard at one boring, SB-1, at a concentration of 1680 mg/kg. This sample was collected at a depth of 2 to 3-feet bgs.

PAHs in soil were detected at concentrations exceeding the statewide standards at boring SB-7 (REC 3). The PAHs exceeding statewide standards were Benzo(a)anthracene (4.46 mg/kg), Benzo(a)pyrene (4.36 mg/kg), Benzo(b)fluoranthene (4.26 mg/kg), and Dibenz(a,h)anthracene (0.679 mg/kg).

TEH as diesel was detected in shallow soil samples collected from borings MW-1, SB-1, SB-2 and SB-7. The concentrations ranged from 12.1 mg/kg to 419 mg/kg.

No exceedances of the statewide standards were detected in groundwater samples.

The calculated cumulative cancer and non-cancer risk to a site worker from all contaminants combined is 0.4 and 1.76 respectively. The calculated cumulative cancer and non-cancer risk to a construction worker from all contaminants combined is 0.04 and 1.09 respectively. The geographical area that the site is located on is not residential.

Due to the depths of soil samples collected (>0.5-feet deep), the IDNR cannot determine if there are exposure concerns based on the current use of the site.

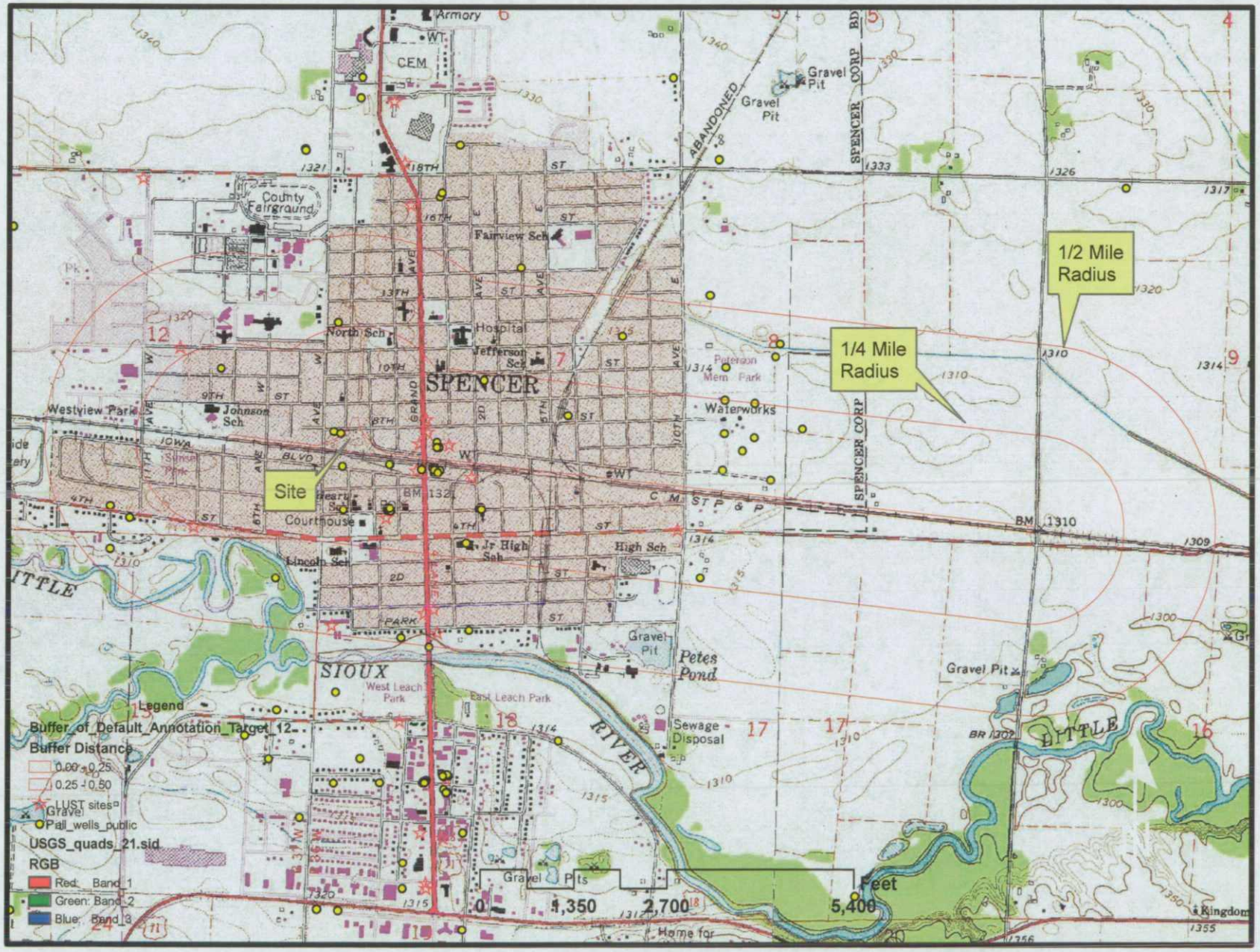
Site recommended for:

- ☒ No further action
- ☐ Additional investigation under state program (activity code 2824)
- ☐ Additional investigation under CERCLA (Extended Site Screening)
- ☐ Additional investigation by responsible party
- ☐ Transfer to LUST/UST

Form Reviewed: _____ **Date Reviewed:** 3/10/11

Revised 7/2007

Canadian Pacific Spencer Rail Yard



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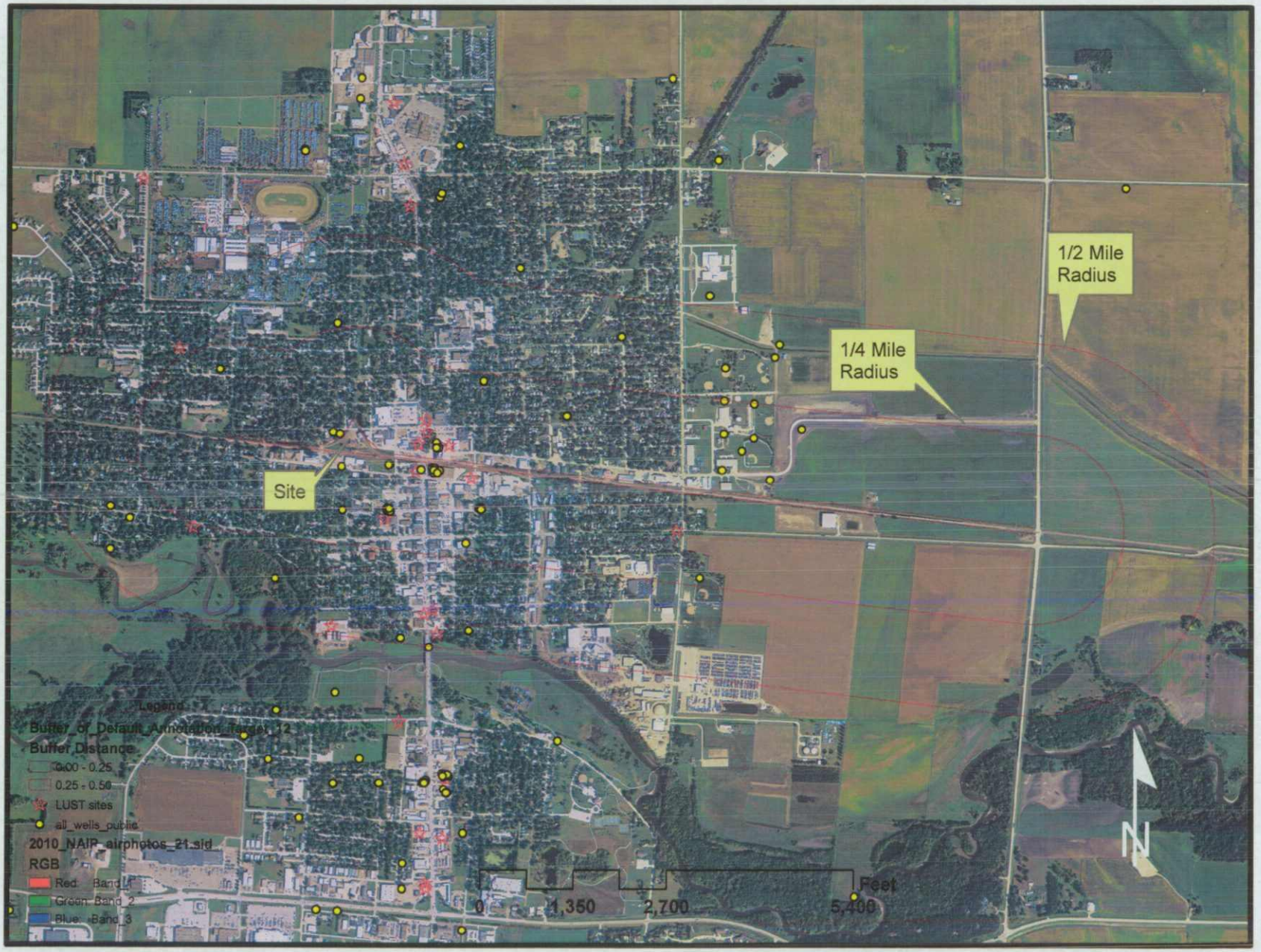

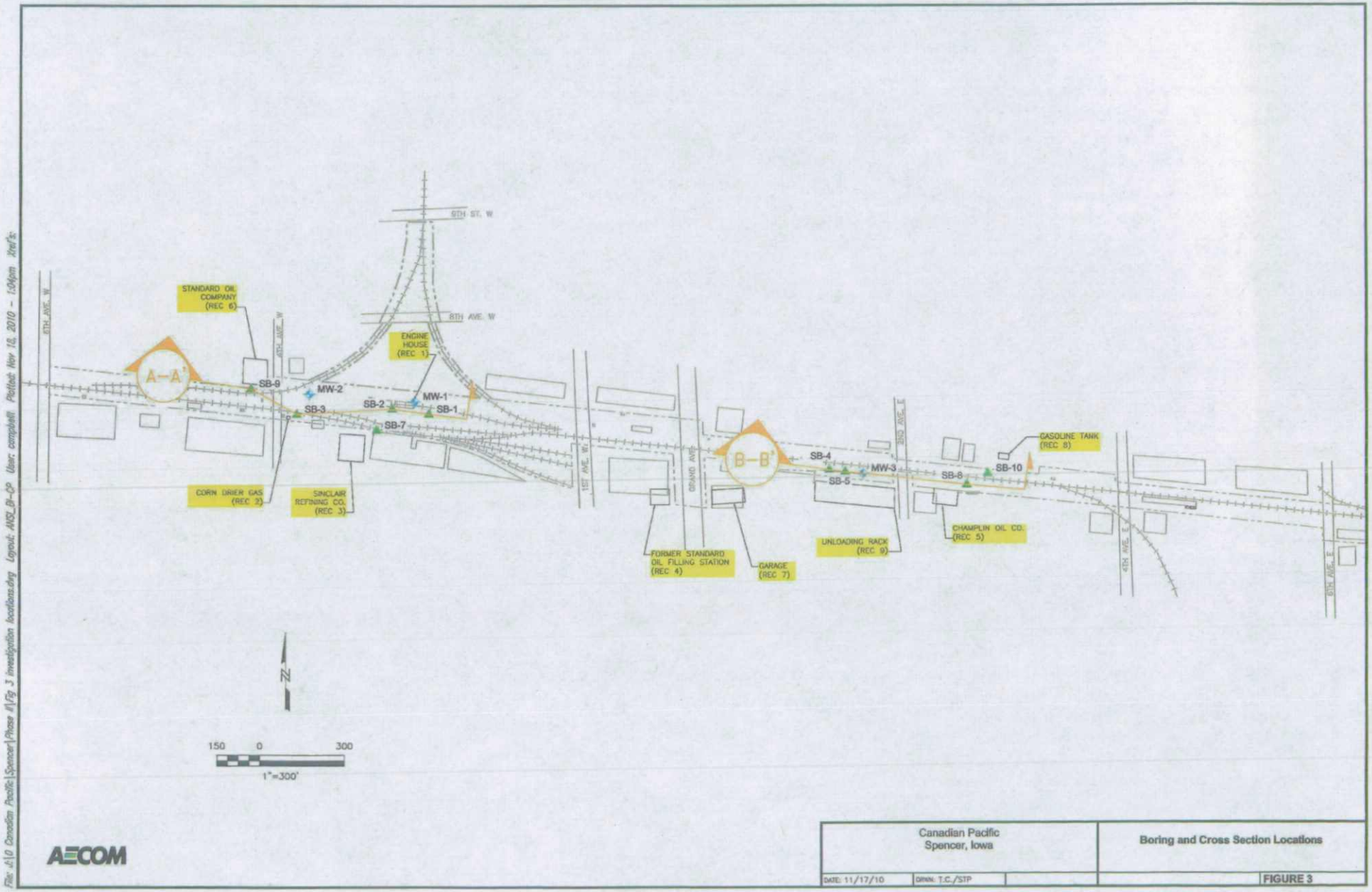

AECOM

Canadian Pacific Spencer, Iowa			Boring and Cross Section Locations
DATE: 11/17/10	DRWN: T.C./STP		FIGURE 3

File: d:\0 Canadian Pacific\Spencer\Phase II\Fig 3 investigation locations.dwg Layout: ANSI_B-CP User: campbellt Plotted: Nov 16, 2010 - 1:04pm Xref's: