CON 12-15
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March 28, 2006

Terracon
Consulting Engineers & Scientists

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Iowa Department of Natural Resources
502 E 9th Street
Dubuque, Iowa 50319-0034

Attention: Mr. Hylton Jackson

RE : Work Plan for Supplemental Site Assessment Services
East 5th & Bell Site
Dubuque, Iowa
Terracon Project No. 07037005

Dear Mr. Jackson:

Terracon is pleased to present the Iowa Department of Natural Resources with this Work Plan for Supplemental Site Assessment Services at the location referenced above. This document sets forth method and scope of work to proceed with project assessment in pursuit of an IDNR "Comfort Letter" without implementation of an environmental covenant.

1.0 PROJECT INTENT

On April 18, 2005, Terracon submitted a Phase I Environmental Site Assessment (ESA) report for the subject site (Terracon Project No. 07037005). The ESA identified the following recognized environmental conditions (RECs).

- Based on a review of historical topographic maps, historic aerial photographs, and previous Phase I and II ESA reports, the subject site was historically a slough from at least 1884 until at least 1909. The slough was filled with unknown material sometime after 1909. The presence of unknown fill material on the subject site constituted an REC.

- The city directories revealed the former Socony/Mobil Oil (1929-1980), Dubuque Hardwoods (1970-1990) and National Veneer & Lumber (1965-1980) sites were within approximately 1,000 feet and in a topographically up-gradient position of the subject site. Possible impact from petroleum products, adhesives or volatile chemicals associated with these former facilities constituted RECs for the subject site.

- A review of previous Phase I and II ESA reports conducted by Preston Engineering, Inc. (PEI) and Terracon, respectively, for adjacent properties revealed possible impact associated with the former Dubuque Hardwoods property located at 205 East Sixth Street and the former Adams Company property located at 100 East 4th Street. Possible environmental impact associated with these properties constituted an REC for the subject site.

Based on the findings of the ESA, Terracon recommended that additional investigation be conducted to evaluate if the site has been affected by potential releases from the unknown

fill material placed on the subject site and the possible impact from the adjacent former Dubuque Hardwoods, Inc., Socony/Mobil Oil, National Veneer & Lumber, and Adams Company properties. Subsequently, Terracon conducted a Phase II Environmental Site Assessment (Phase II) at the subject site to assess subsurface conditions associated with identified RECs. Terracon's Phase II was completed as part of a United States Environmental Protection Agency (USEPA) Brownfields Assessment Demonstration Pilot Grant (Pilot Grant).

Site assessment activities identified environmental impairment associated with soil impacted by arsenic, lead, and polynuclear aromatic hydrocarbons (PAHs) above Iowa Department of Natural Resources (IDNR) Statewide Standards and groundwater impacted by metals and pesticides above Statewide Standards. The results of the investigation were submitted to the IDNR on June 21, 2005 for review and issuance of an IDNR "Comfort Letter".

In correspondence dated September 28, 2005, the IDNR noted that lead was detected in soil at a concentration of 599.3 milligrams per kilogram (mg/kg) at soil boring SB-04 at a depth of four to six feet below ground surface (bgs). The reported concentration would exceed the Statewide Standard of 400 mg/kg if the material were brought to the surface (0-2 feet bgs) as a result of future construction/excavation activities. The correspondence further noted that arsenic, benzo(a)anthracene, benzo(b)flouranthene, bis(2-ehtylhexyl)phthalate, cadmium, dieldren, lead, and arochlor 1260 were detected in groundwater at concentrations which exceed the Statewide Standard for Protected Groundwater. The IDNR correspondence indicated that Dubuque could either conduct additional investigation to determine the extent of the contamination, or accept an environmental covenant prohibiting the installation of water wells, requiring confirmation sampling of shallow soils for residential land use, and requiring IDNR notification of any future construction activity.

Terracon has reviewed the results of the Phase II with Mr. Hylton Jackson, IDNR, and has discussed supplemental site investigation activities to further evaluate the extent of observed impact as an alternative to implementation of an environmental covenant. Based on the results of Phase II assessment activities throughout the Port of Dubuque area, it appears that the observed lead impact may be consistent with random isolated lead "hot spots" located throughout the uncontrolled fill material, as opposed to a source area. Mr. Jackson indicated that additional information would be required to characterize the observed lead impact at SB-04.

It is anticipated that supplemental sampling activities will demonstrate that the observed lead impact is limited to the immediate vicinity of SB-04. In the event that additional exceedences of the Statewide Standard are observed, the additional analytical data, in conjunction with the results of the previous assessment, will provide a larger data set for demonstration that not more than 75% of the samples exceed the Statewide Standard and that the maximum observed concentration does not exceed ten times the Statewide Standard.

Mr. Jackson noted that due to the lack of groundwater analytical data at SB-04 it could not be determined if the elevated lead impact was resulting in a corresponding impact in groundwater. To address the soil leaching to groundwater pathway, Terracon will convert one soil boring to a monitoring well and collect a groundwater sample for analysis of total lead. The intent of the groundwater sampling and analysis is to evaluate the soil leaching to groundwater pathway. Further, Terracon proposes the implementation of a City Ordinance prohibiting the installation of water wells within the Port of Dubuque area as a means of severing the groundwater ingestion pathway.

To address future construction/excavation activities, Terracon proposes the development of a Soil Management Plan (SMP) as a means of reducing potential future exposure. The purpose of the SMP would be to provide notification to future on-site construction workers, identify appropriate construction worker health and safety protocols, and provide soil handling procedures intended to reduce the likelihood of placing impacted soil within two feet of the ground surface.

2.0 SAMPLING PROGRAM

Terracon will complete the following sampling program.

- Terracon will advance two soil borings (SB-08 and MW-09) with the drill rig within approximately 25 feet of SB-04. Soil boring MW-09 will be advanced in the apparent downgradient direction and soil boring SB-08 will be advanced in the apparent upgradient direction from SB-04. Terracon will advance boring SB-08 to a depth of approximately 10 feet below ground surface (bgs). Terracon will advance boring MW-09 to a depth of approximately 20 feet bgs, five feet below the observed groundwater table, or until auger refusal, whichever occurs first. A Topographic Vicinity Map and Site Diagram are attached as Figures 1 and 2.

- One soil sample from each soil boring will be collected for laboratory analyses from the 0-2 foot interval. In each boring, Terracon will obtain a subsample from each subsequent 2-foot interval in each boring, to a depth of ten feet. Each subsample will be placed in a stainless steel mixing bowl. After the last subsample has been placed in the bowl, the material will be homogenized using a stainless steel mixing spoon. A composite soil sample from each boring will be prepared from the homogenized materials. A second composite sample will be similarly prepared from boring MW-09 for the sampled intervals below ten feet.

- Terracon will submit the soil samples to an accredited laboratory for analysis of lead.

- Terracon will install one monitoring well in soil boring MW-09. Following installation, Terracon will develop the monitoring well by removing approximately three well casing volumes.

- Terracon will collect a groundwater sample from monitoring well MW-09. Terracon will submit the groundwater sample to an accredited laboratory for analysis of lead.

3.0 METHODOLOGY

3.1 Drill Methods

Terracon's rig for the field exploration employs a hydraulic head for drilling and sampling. Terracon will use 4¼-inch inside-diameter (8¼-inch borehole) hollow stem augers to advance the boreholes. Terracon will collect soil samples from the borings using split-spoon samplers. Terracon will log the soil borings based on visual classification and apparent textural properties of the recovered samples. Terracon has based our proposal on soil boring locations that are accessible with truck-mounted drilling equipment.

3.2 Cleaning Procedures

Terracon will clean non-dedicated sampling equipment using an Alconox® detergent wash and potable water rinse before commencement of the project and before collection of each sample.

3.3 Health and Safety

Terracon will develop a safety plan for use by our personnel during field services. At this time, we anticipate that a USEPA Level D work uniform consisting of hard hats, safety glasses, protective gloves, and steel-toed boots will be required by all personnel in the work area. In the event that petroleum or chemical constituents are encountered that present an increased risk for personal exposure, it may become necessary to upgrade this level of protection while sampling activities are being conducted.

3.4 Field Screening

Terracon will field screen soil samples using a photoionization detector (PID). This device provides a direct reading in parts per million (ppm) isobutylene equivalents. The PID is a nonspecific total vapor detector and cannot identify unknown substances; it can only roughly quantify them. Upon removal of the sampler from the borehole, Terracon will cut a portion of sample from the total sample and seal it in a Ziploc® bag. After a stabilization period, Terracon will screen the headspace above the soil using the PID equipped with an

approximate 10 electron-volt (eV) ultraviolet lamp source. Terracon will calibrate the unit in accordance with manufacturer's recommendations

3.5 Well Installation

Terracon will install the monitoring wells using sections of flush-jointed, two-inch outside diameter, schedule 40 polyvinyl chloride (PVC) threaded pipe. The screened section of each monitoring well will consist of a 0.01-inch slotted section of PVC pipe. Terracon will place well filter pack into each well's annulus from the bottom to approximately one foot above the screened section. Terracon will place bentonite grout in the annulus above the filter pack. Terracon will fit each internal PVC casing with an expansion cap and lock.

3.6 Utility Locating

Terracon agrees to call the Iowa One Call Hotline and request location and markings for all utilities that Iowa One Call is responsible for before commencing drilling at the site. If there are public or private utilities not included in the Iowa One Call request, locating of those will be Client's responsibility. Client agrees to make arrangements with a private utility company or provide Terracon with detailed as-built information regarding the location of any other public and private utilities. Terracon will be responsible to the extent they drill in an area where a utility has been properly located and marked. Terracon is not responsible to the extent any loss, damage, or injury is caused by the failure to locate a utility properly, or inaccurate and/or incomplete information provided by others.

4.0 SAMPLING HANDLING AND ANALYSIS

Laboratory analysis of soil and groundwater samples will be completed by an accredited laboratory in accordance with United States Environmental Protection Agency Standard Methods, which identifies the analytical data quality objectives and analytical quality assurance requirements.

The following table identifies the analytical method, sampling containers, preservation methods, and holding times for the proposed samples.

Sample Handling

Matrix	Analytical Method	Type Container	Preservation Method	Holding Time - Days
Soil	6010B	4 oz glass jar with Teflon lid	4° C	180

Matrix	Analytical Method	Type Container	Preservation Method	Holding Time - Days
Water	6010B	250 ml HDPE	HNO_3, 4° C	180

HDPE = High Density Polyethylene

5.0 REPORT

Terracon will prepare a Supplemental Phase II ESA Report (Report) following completion of field activities and receipt of analytical results. The report will include the following elements.

- Topographic location map
- Soil boring location map
- Description of field methods
- Boring logs
- Discussion of soil and/or groundwater analytical results as compared to current state remediation objectives

Terracon will prepare a site-specific Soil Management Plan (Plan) in support of issuance of an IDNR "Comfort Letter". The plan will include a discussion of site conditions, an assessment of residual chemical impact, contaminant exposure precautions, site monitoring for changed conditions, and recommendations for disposal of excess soil materials.

6.0 GENERAL COMMENTS

This work plan was prepared for the exclusive use of our client for the specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices. No warranties, either express or implied are intended or made. In the event any changes in nature or location of suspected sources of chemical compounds or other subsurface conditions as outlined in this work plan are observed, the conclusions and recommendations contained in this work plan can not be considered valid unless the changes are reviewed and the conclusions and recommendations of this work plan are modified or verified in writing by the environmental engineer.

If you have any questions about the above Work Plan, please contact us.

Sincerely,
Terracon Consultants, Inc.

Emery Lawson
Environmental Engineer

John F. Brimeyer, PE
Senior Project Manager

EDL/JFB/el2
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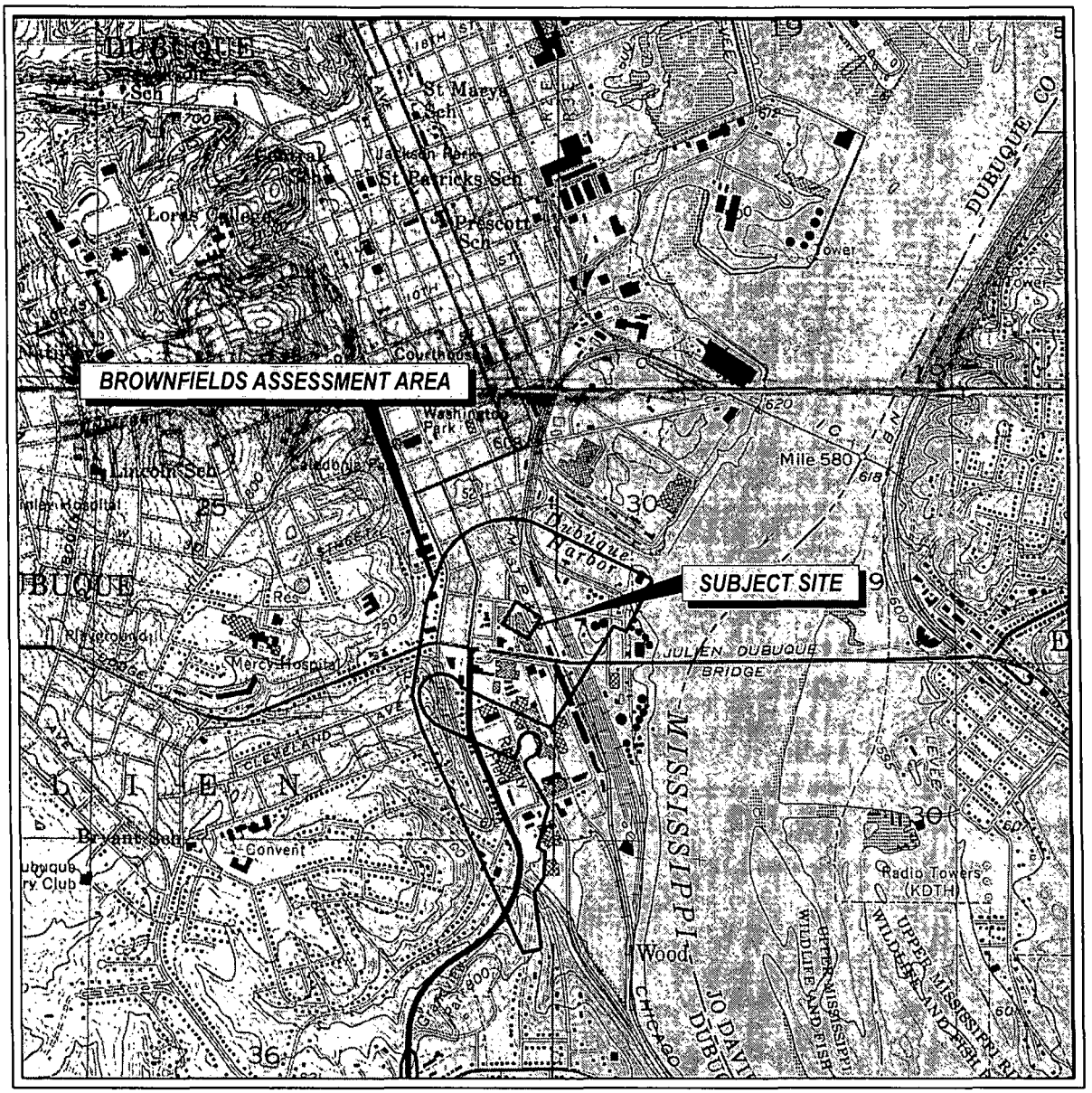
cc: City of Dubuque

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

1 .5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

FEET

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

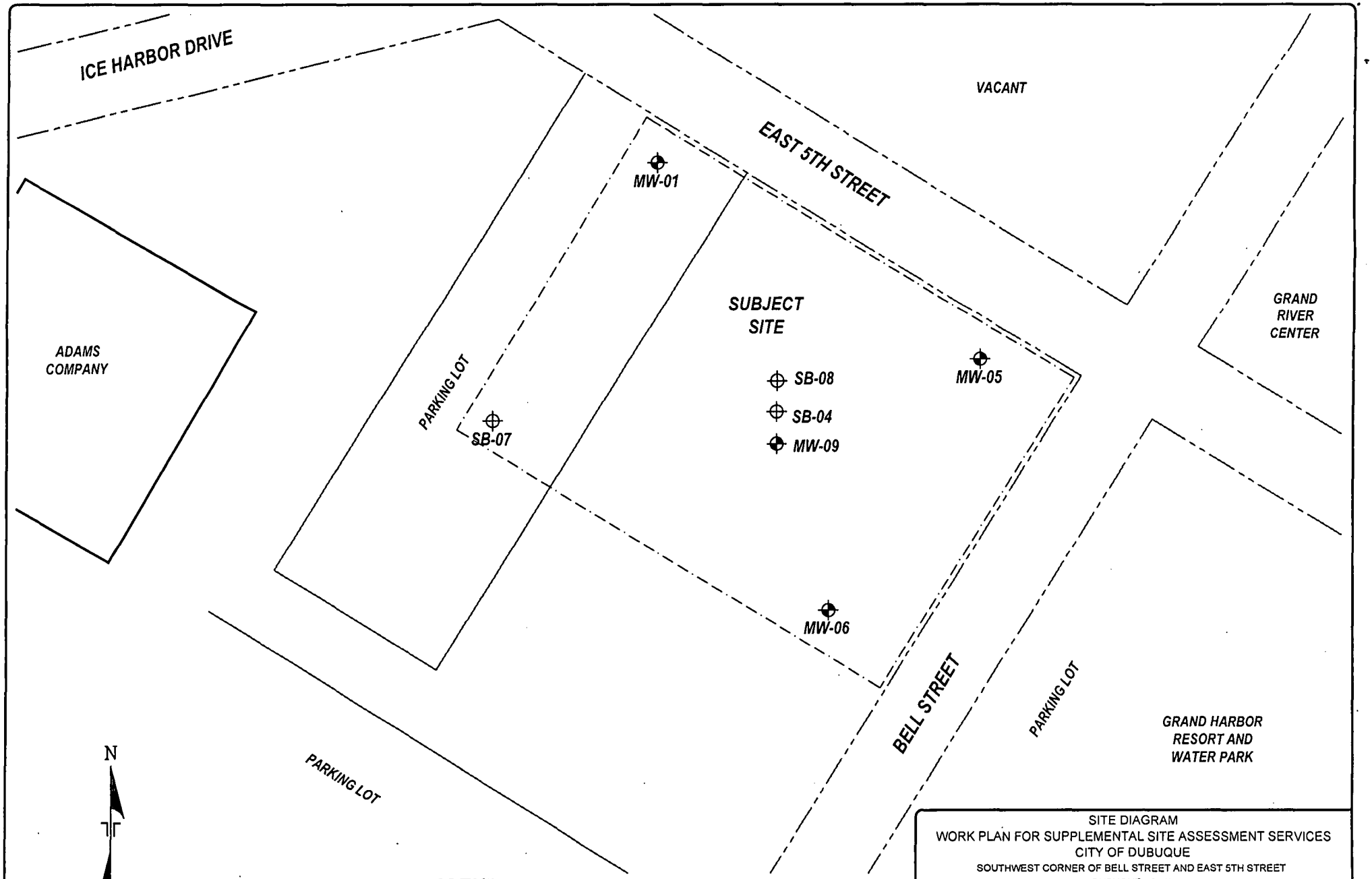
DOTTED LINES REPRESENT 5-FOOT CONTOURS

N

DUBUQUE NORTH, IA.–WI.–IL.
DUBUQUE SOUTH, IA.–IL.
QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TOPOGRAPHIC VICINITY MAP
WORK PLAN FOR SUPPLEMENTAL SITE ASSESSMENT SERVICES
CITY OF DUBUQUE
SOUTHWEST CORNER OF BELL STREET AND EAST 5TH STREET
DUBUQUE, IOWA

Project Mngr: BRP	Terracon	Project No.	07037005
Designed By: EDL		Scale:	AS SHOWN
Drawn By: MRF	870 40th Avenue Bettendorf, Iowa 52722	File No.	3B005IDNR1
Checked By: JFB		Date:	MARCH 2006
Approved By: JFB	Figure No.		1



THIS DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE DIAGRAM
WORK PLAN FOR SUPPLEMENTAL SITE ASSESSMENT SERVICES
CITY OF DUBUQUE
SOUTHWEST CORNER OF BELL STREET AND EAST 5TH STREET
DUBUQUE, IOWA

Project Mngr:	BRP	Terracon	Project No. 07037005
Designed By:	EDL		Scale: AS SHOWN
Drawn By:	MRF	870 40th Avenue Bettendorf, Iowa 52722	File No. 3B005IDNR2
Checked By:	JFB		Date: MARCH 2006
Approved By:	JFB	Figure No.	2