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ARCADIS Design & Consultancy for natural and built assets

Mr. Tim Hornosky
State Remediation Section
SC Department of Health & Environmental Control
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ENVIRONMENT

Subject
Work Plan for Area #2-Rev. 1
Brenntag Southeast, Charleston, South Carolina

Date
28 September 2020

Contact
Edward Hirshenson

Phone
706.828.4421

Email
Edward.hirshenson@arcadis.com

Our ref
30016339

Dear Mr. Hornosky:

Brenntag Southeast, Inc. has authorized ARCADIS U.S., Inc. to develop a workplan to conduct a geoprobe investigation of soils and groundwater at Area #2. The South Carolina Department of Health and Environmental Control (SCDHEC) attended a meeting at the Bird property on July 17, 2019 and a conference call on September 2, 2020 to discuss groundwater contamination at Area #2. The focus of the meeting was to discuss soil and groundwater contamination caused by former above-ground storage tanks located in Area #2 in the vicinity of monitor well MW-14 that created a groundwater contaminant plume under the footprint of the tank farm. The groundwater plume is split by the property line.

The high concentrations of volatile organic compounds (VOCs) in monitor well MW-14 have remained stable for a number of years but in last four sampling events, encompassing two years, concentrations have been decreasing. The decreasing trend may be due to the five short Aggressive Fluid Vapor Recovery (AFVR) events conducted from 6/6/2018 to 11/19/2019. The main contaminants in groundwater in the vicinity of monitor well MW-14 is ethylbenzene, toluene, and xylenes which represent approximately 96 percent of the contaminant mass and the other 4 percent is benzene, cis-1,2 dichloroethylene (cis-1,2-DCE), and trichloroethene (TCE). These constituents may be indicative of free-phase hydrocarbons still existing within the vicinity of monitor well MW-14.

Burris Environmental conducted a soil and groundwater investigation in the vicinity of MW-14 approximately 20 years ago. Their investigation concluded the mass of contaminant was below the former storage tanks and spread to monitor

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well MW-12 and south to monitor well MW-17. To determine the lateral extent and validity of contaminants migrating to MW-17, soil and groundwater samples will be collected near the source (MW-14), upgradient, and south towards MW-17.

Following are tasks to be conducted for Area #2:

Task 1: Prior to any intrusive work, underground utilities will be marked by ground penetrating radar (GPR) and drawings from the facility. Soils will be collected utilizing a geoprobe rig to a depth of approximately 20 feet below land surface (ft bls) which is the approximate depth of the Cooper Marl, a tight silty clayey unit. Soil samples will be collected using a macro-core with plastic liner and depth discrete soil samples will be directly transferred to laboratory provided containers and placed on ice. Depth discrete soil samples will be collected from a depth of 3 ft bls and just above the water table approximately 5 ft bls. Alquiot soil samples will be placed in glass jars and allowed to equilibrate for organic vapor readings using a photo ionization meter (PID). Soil samples will be analyzed for VOCs using EPA Method SW-846 8260B. Lithologic descriptions will also be described in the field.

Approximately 25 borings will be installed adjacent, upgradient, and downgradient of monitor well MW-14 as shown in Figure 1. Additional borings may be installed if visual staining is noted or strong odors from soil cores. All boreholes will be filled with neat cement grout to land surface.

Task 2: Upon completion of soil borings, groundwater samples will be collected next to each soil boring. Groundwater samples (approximately 50 samples) will be collected using a macro-core water sampler with a three-foot stainless-steel screen attached with a disposable tip. Upon reaching discrete depths (approximately 7-10 ft bls and 17-20 ft bls), the outer casing will be raised to expose the stainless-steel screen to the formation and quality groundwater samples will be collected using new tubing and a peristaltic pump. Groundwater samples will be collected for VOCs using EPA Method SW-846 8260B. All boreholes will be filled with neat cement grout to land surface.

Task 3: Upon completion of field work and receipt of laboratory results, data will be included in the next semiannual groundwater report. Report will include discussion of field methodology, discussion of results, figure of boring locations, figures of certain VOC constituents, table of analytical data, and recommendations.

Please call me at (706) 828-4421 if you have any questions.

Sincerely,

Arcadis U.S., Inc.

Edward Hirshenson

Senior Scientist

Copies:

Mr. Shawn Wiram/North America/Brenntag
Mr. Mike Muthig IPGX
Mr. Steve Burris BES
Mr. Wilson Jones BES
Mr. Ben Hagood Bird Furniture

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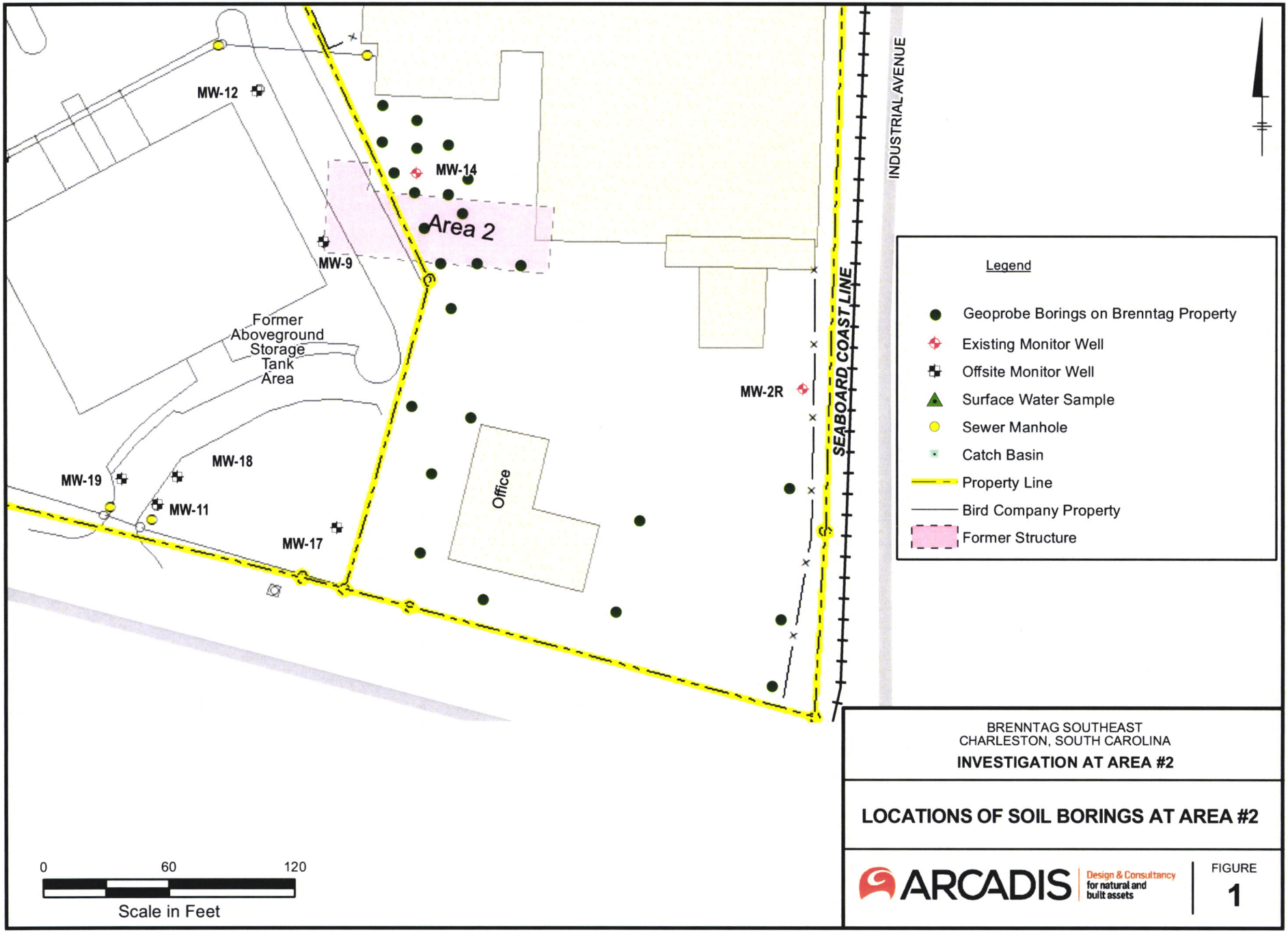

BRENNTAG SOUTHEAST
CHARLESTON, SOUTH CAROLINA

INVESTIGATION AT AREA #2

LOCATIONS OF SOIL BORINGS AT AREA #2

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FIGURE
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