February 23, 2021

Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Attention: Robert Hood

Work Plan
Stormwater Conveyance System Sampling – Stormwater
Former Automatic Vending Company
5001 North Lagoon Avenue
Portland, Oregon
ECSI No. 1430
Project: BCSAmerica-1-02

INTRODUCTION

GeoDesign, Inc., DBA NV5 (GeoDesign) is pleased to submit this work plan to conduct stormwater sampling at the Former Automatic Vending Company site located at 5001 North Lagoon Avenue in Portland, Oregon (project site). The project site includes Tax Lot 700 of Multnomah County Tax Map 1N1E20A and is in the upland portion of the Portland Harbor Superfund study area on Swan Island. The scope of services is being performed at the request of the Oregon Department of Environmental Quality (DEQ) and is intended to supplement the draft Source Control Evaluation (SCE) report[1] that GeoDesign recently prepared for the project site.

BACKGROUND

The project site is occupied by a warehouse building, a shop building, and adjacent asphalt concrete-paved parking and loading areas. The warehouse building was constructed on the project site in 1963 with additions constructed in 1969 and 1978. The warehouse building consists of an approximately 51,100-square-foot, metal-framed structure with a slab-on-grade foundation that is occupied by warehouse and office spaces.

[1] GeoDesign, Inc., 2020. Draft *Source Control Evaluation; Former Automatic Vending Company; 5001 North Lagoon Avenue; Portland, Oregon; DEQ ECSI No. 1430,* dated September 8, 2020. GeoDesign Project: BCSAmerica-1-01-03

The shop building is located on the southwest portion of the project site and was constructed in 1973/74. The shop building consists of an approximately 1,200-square-foot, metal structure with a slab-on-grade foundation.

GeoDesign submitted a draft SCE report of the project site to DEQ dated September 8, 2020. The SCE report concluded that soil and groundwater at the project site do not appear to represent an unacceptable risk to receptors in the Portland Harbor.

Cleanouts were installed by Stratus Corporation in January 2021 on the two stormwater laterals that service the project site at the locations shown on Figure 1 to assist with stormwater conveyance system cleaning. The project site stormwater conveyance system was cleaned and scoped in January 2021. Based on the sewer inspections available on Portland Maps, permits available through the City of Portland (City), and scoping of the on-site stormwater lines, it was determined that stormwater collection and conveyance at the project site are accomplished via seven on-site catch basins (CB1 through CB7) and building roof drains. Catch basins CB1, CB2, CB3, and CB5 discharge to the on-site laterals that connect to the City stormwater conveyance system as shown on Figure 1. The City stormwater conveyance system discharges to Swan Island Basin via outfall S-2, located approximately 780 feet northwest of the project site. Catch basins CB4, CB6, and CB7 discharge to the City sanitary sewer as shown on Figure 1.

GeoDesign prepared a sediment sampling report[2] that summarized catch basin sediment sampling collected from the on-site catch basins on December 17, 2020. Based on the results of the sediment sampling, GeoDesign concluded that the stormwater chemicals of concern at the project site include polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chromium, mercury, and zinc. However, DEQ prepared a letter commenting on the sediment sampling report dated February 5, 2021 that indicated stormwater samples should be analyzed for the same analytes as the sediment samples, excluding pesticides, herbicides, antimony, beryllium, copper, lead, nickel, selenium, silver, and thallium.

PROPOSED STORMWATER SAMPLING ACTIVITIES

GeoDesign will collect stormwater samples in accordance with DEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, dated January 2009. GeoDesign proposes collecting stormwater samples from the cleanouts recently installed at the project site. Stormwater samples will be collected using new, disposal high-density polyethylene (HDPE) tubing and a peristaltic pump. Turbidity and pH measurements will be collected immediately prior to sampling using hand-held meters.

GeoDesign anticipates conducting a total of four stormwater sampling events at the project site. Each stormwater sampling event will be scheduled following a dry period of at least 24 hours (less than 0.1 inch of rain), during storm events with a minimum rainfall volume of 0.2 inch over a minimum of three hours. The proposed stormwater sampling schedule will be as follows:

[2] GeoDesign, Inc., 2021. *Catch Basin Sediment Sampling; Former Automatic Vending Company; 5001 North Lagoon Avenue; Portland, Oregon; DEQ ECSI No. 1430*, dated February 19, 2021. Project: BCSAmerica-1-02

- Stormwater sample 1 will be collected during first flush (within first 30 minutes of stormwater discharge) conditions.
- Stormwater sample 2 will be collected within the first three hours of stormwater discharge.
- Stormwater sample 3 will be collected during first flush conditions.
- Stormwater sample 4 will be collected within the first three hours of stormwater discharge.

DEQ has requested that stormwater samples be analyzed for the same analytical suite as the sediment samples, excluding pesticides, herbicides, antimony, beryllium, copper, lead, nickel, selenium, silver, and thallium. Therefore, stormwater samples will be analyzed for the following:

- Gasoline-range hydrocarbons by Method NWTPH-Gx
- Diesel- and oil-range hydrocarbons by Method NWTPH-Dx
- Dioxins and furans by U.S. Environmental Protection Agency (EPA) Method 1613
- Volatile organic compounds (VOCs) by EPA Method 8260B
- Tributyltin by Method Organotins SIM
- Phthalates by EPA Method 8270E
- PAHs by EPA Method 8270E-SIM
- Total arsenic, cadmium, chromium, mercury, and zinc by EPA Method 6020
- PCBs by EPA Method 8082

QUALITY OBJECTIVES AND CRITERIA

This section describes the field methodology for collecting and handling stormwater samples for chemical analyses and quality assurance/quality control (QA/QC) procedures. Data quality elements include sample handling and custody requirements, analytical methods, QA/QC, instrument/equipment testing and frequency, inspection and maintenance, instrument calibration, supply inspection/acceptance, non-direct measurements, and data management.

STORMWATER SAMPLING PROCEDURES

Stormwater samples will be collected by advancing new, HDPE tubing into the recently installed cleanouts. Stormwater samples will be collected into laboratory-provided containers using a peristaltic pump. Disposable nitrile gloves will be worn and changed between collection of each sample. GeoDesign will collect one duplicate stormwater sample for analysis of the same suite of parameters listed herein. GeoDesign will also analyze one trip blank per cooler for VOCs by EPA Method 8260B.

DECONTAMINATION PROCEDURES

Stormwater samples will be collected using new, disposable HDPE tubing and a peristaltic pump. Therefore, decontamination should not be necessary.

If reusable equipment is used, the decontamination procedure will include the following:

1. Rinse with tap water and scrub with a scrub brush until free of large particles (e.g., sediment or soil)
2. Wash with a phosphate-free detergent solution

3. Rinse with tap water
4. Rinse with distilled water

Equipment that cannot be cleaned in a satisfactory manner will not be used for further sampling activities.

SAMPLE HANDLING AND CUSTODY

This section describes how the stormwater samples will be processed, labeled, tracked, stored, and transported to the laboratory for analysis. In addition, this section describes sample custody procedures. Sample possession and handling must be traceable from the time of sample collection, through laboratory and data analyses, to delivery of the sample results to the recipient.

Containers

Samples for chemical analyses will be placed in laboratory-prepared, labeled containers appropriate for the sample media, and individual analyses will be requested on the chain-of-custody (COC) form(s). Each container will be placed in a cooler with ice.

A completed sample label will be affixed to each sample container at the time of sample collection. Sample labels will be waterproof and self-adhering and will contain the project number, project name, sample identification (I.D.), chemical preservation (if any), date and time of collection, and initials of the person(s) preparing the sample. At the laboratory, a unique sample identifier will be assigned to each sample (using either project I.D. or laboratory I.D.).

Storage

All samples will be stored on ice at approximately 4 (±2) degrees Celsius in sturdy, durable coolers in the field before delivery to the laboratory.

Custody Procedures

Samples are considered to be in custody if they are (1) in the custodian's possession or view, (2) retained in a secured place (under lock) with restricted access, or (3) placed in a container and secured with an official seal(s) such that the sample cannot be reached without breaking the seal(s). Custody procedures will be used for all samples throughout collection, transport, and analyses.

Custody procedures will be initiated during sample collection. A COC form will accompany the samples between the time of collection to the time of analyses. Each person who has custody of the samples will sign the COC form and ensure that the samples are not left unattended unless properly secured. Minimum documentation of sample handling and custody will include the following:

- Sample location, project name, and unique I.D. number
- Sample collection date and time
- Special notations on sample characteristics or anomalies
- Initials of the person who collected the sample
- Date sample was sent to the analytical laboratory

The sampler will be responsible for all tracking and custody procedures for samples in the field. The GeoDesign project manager will be responsible for final sample inventory and will maintain custody documentation. The field sampler will also complete COC forms before transferring samples to the field processing area or to the analytical laboratory. At the end of each day and before transfer, COC entries will be made for all samples. Information on the labels will be checked against sample log entries, and sample tracking forms and samples will be checked. COC forms will accompany all samples. The COC forms will be signed at each point of transfer. Copies of all COC forms will be retained and included as appendices to subsequent project reports. Samples will be hand delivered to the analytical laboratory. The field sampler or GeoDesign project manager will confirm that the laboratory has accepted delivery of the shipment at the specified time.

The laboratory will confirm that COC forms are properly signed upon receipt of the samples and will note questions or observations concerning sample integrity on the COC forms or other sample receiving paperwork. The laboratory will contact the field sampler and/or GeoDesign project manager immediately if discrepancies are discovered between the COC forms, sample labels, and/or the sample shipment upon receipt. The laboratory will track each sample through all stages of laboratory processing using a sample tracking record. The sample tracking record must contain, at a minimum, the name/initials of individuals responsible for performing the analyses, dates of sample extraction/preparation and analysis, and the types of analyses being performed.

INSTRUMENT TESTING, INSPECTION, AND MAINTENANCE

Measures will be taken to test, inspect, and maintain all field equipment before use. Field personnel will be responsible for overseeing the testing, inspection, calibration, and maintenance of all field equipment. The laboratory project manager will be responsible for ensuring that laboratory equipment testing, inspection, and maintenance requirements are met. The methods used in calibrating the analytical instrumentation are described in the following section.

INSTRUMENT CALIBRATION AND FREQUENCY

Multi-point initial calibration will be performed by the laboratory on each analytical instrument at the start of the project, after each major interruption to the instrument, and when any continuing calibration does not meet the specified criteria. The number of points used in the initial calibration is defined in each analytical method.

Calibration of analytical equipment used for chemical analyses includes instrument blanks or continuing calibration blanks, which provide information on the stability of the baseline established. Continuing calibration blanks will be analyzed immediately after the continuing calibration verification at a frequency of one blank for every 10 samples analyzed for inorganic analyses and one blank for every 12 hours or 10 to 20 samples for organic analyses. If the continuing calibration does not meet the specified criteria, the analysis must stop. Analysis may resume after corrective actions have been taken to meet the method specifications. All project samples analyzed by an instrument found to be out of compliance must be re-analyzed.

SUPPLIES AND CONSUMABLES

Field personnel will have a checklist of supplies required for each day in the field. Field personnel will gather and check these supplies daily for satisfactory conditions before each field event. Supplies and consumables for field sampling will be inspected upon delivery and accepted if the condition of the supplies is satisfactory. For example, sample containers will be inspected to help ensure that they are the correct size and quantity and were not damaged in shipment.

DOCUMENTATION AND RECORDS

The following sections describe documentation and records needed for field observations and laboratory analyses.

Field Objectives

Field activities will be recorded by GeoDesign personnel. Daily field reports will provide a description of all sampling activities, correspondence associated with field sampling activities, sampling personnel, and weather conditions, plus a record of all modifications to the procedures and plans identified in this work plan. Field reports are intended to provide sufficient data and observations to enable participants to reconstruct events that occurred during the sampling period. The following forms will also be used to record pertinent information after sample collection:

- Field report, including site plan and description of sediment observed within each catch basin
- COC form

Laboratory Reports

The laboratory will be responsible for performing internal QA audits on sample receiving procedures, sample tracking and handling, analyses, and analytical data review and reporting. The laboratory must implement corrective action procedures to remedy and prevent re-occurrences of any deficiencies identified during these internal QA reviews and/or audits performed by third parties. Corrective action reports relating specifically to this project should be submitted immediately to the GeoDesign project manager.

The laboratory will provide a data deliverable package that includes electronic forms and hard copies as requested. The data deliverable package must include the following elements:

- **Case narrative:** This summary, in the form of a cover letter, must present any problems encountered during any aspect of sample receipt or analysis. The summary will include, but not be limited to, a discussion of QC, sample shipment, sample storage, and analytical difficulties. Any problems encountered by the laboratory and their resolutions will be documented in the case narrative.
- **Sample receiving and handling records:** Legible copies of the completed COC forms and any other laboratory sample receiving records must be provided in the data package. This documentation will include the date and time of sample receipt, the condition of the samples as received by the laboratory with clear descriptions of any anomalies (e.g., broken or leaking sample containers), and the temperature of the cooler(s) upon receipt as measured by infrared devices or temperature blanks. Internal tracking of the samples throughout the

laboratory should also be documented and available if requested (i.e., internal custody records do not need to be part of the standard deliverable package). The temperatures of all refrigerators and freezers used for storing samples must be recorded daily and be within laboratory specifications. These records must be made available upon request, although they do not need to be included in the standard data deliverable package.

- **Sample results:** The data package will summarize the results for each sample analyzed. The summary will include the following information, when applicable:
  - Field sample I.D. name and the corresponding laboratory I.D. code
  - Sample matrix
  - Date of sample extraction or digestion
  - Date and time of analysis
  - Weight and/or volume of sample or extract used for analysis
  - Dilution or concentration factors for the sample analysis
  - Percent solids (for analyses with results expressed in dry weight)
  - Instrument I.D. used for analysis
  - Reporting limits adjusted for sample volumes, dilutions, and/or percent solids (associated method detection limits must be available in the electronic data deliverable, if requested)
  - All data qualifiers and their definitions
- **QA/QC summaries:** These summaries will contain the results of all QA/QC samples and calibrations. Each QA/QC sample analysis will be documented with the same information required for the sample results (see above, as applicable).

REPORTING ACTIVITIES

GeoDesign will summarize the results from the stormwater sampling events in a technical report that will include the following:

- A description of project site conditions and field and sample collection activities and methods.
- Precipitation records leading up to and during sample collection events.
- A site plan depicting all sample locations.
- Tabulated chemical analytical data.
- A discussion of the stormwater chemical analytical data in relation to the ongoing SCE. Stormwater sample data will be compared to Portland Harbor cleanup levels and Joint Source Control Strategy screening level values. Detections will be plotted on the appropriate DEQ stormwater curves.
- Supporting information, including laboratory analytical reports and COC documents.
- Recommendations based on the sampling results.

♦ ♦ ♦

We appreciate the opportunity to submit this revised work plan. Please do not hesitate to contact us if you have questions or require additional information.

Sincerely,

GeoDesign, Inc., DBA NV5

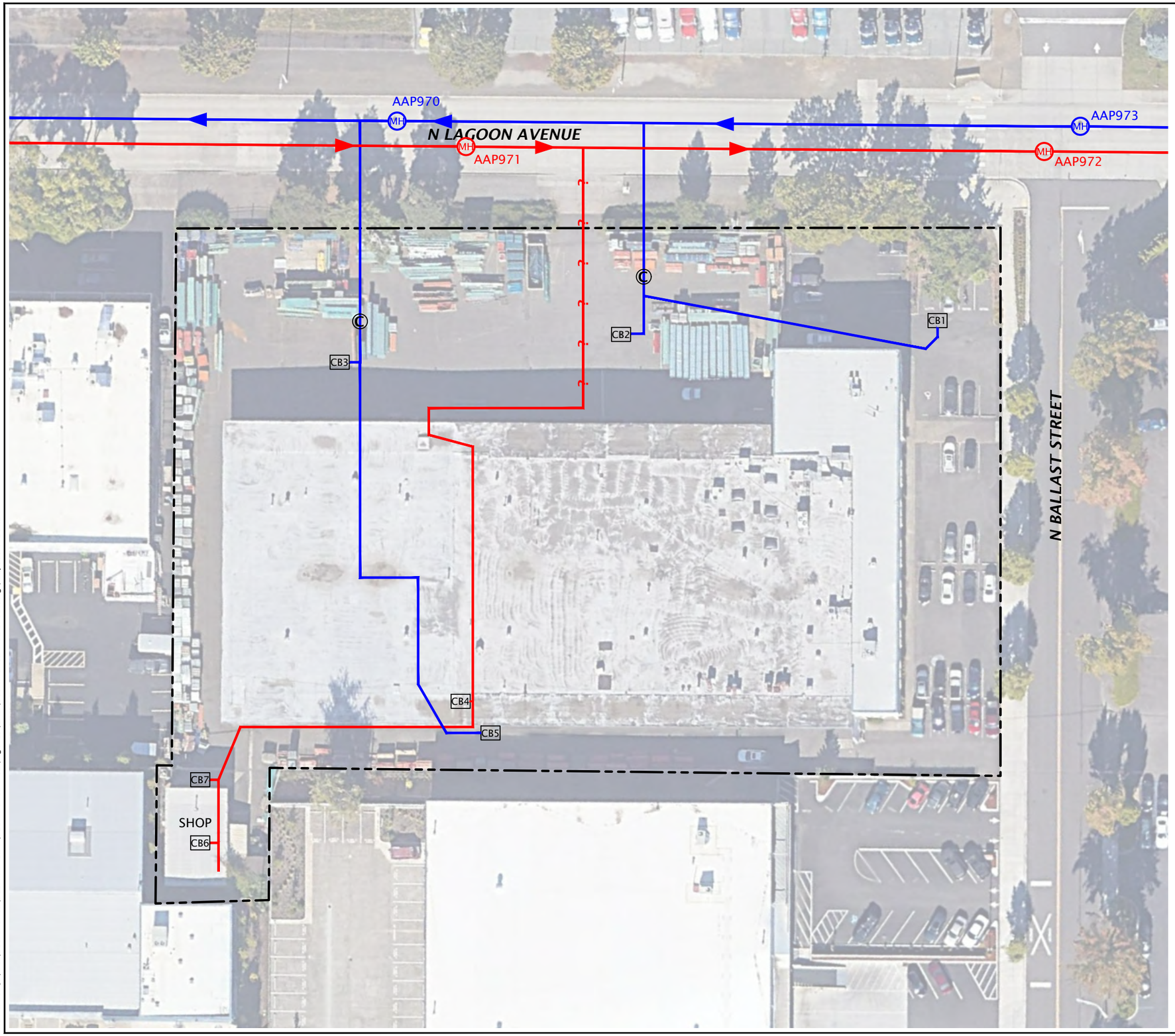
Kyle Haggart, G.I.T.
Project Manager

Lon R. Yandell, R.G.
Principal Geologist

cc: John Jansen, BCS America LLC (via email only)

TJH:KTH:LRY:kt
Attachment
One copy submitted (via email only)
Document ID: BCSAmerica-1-02-022321-envwp-SW-DRAFT-DEQ.docx

FIGURES



DRAFT

LEGEND:

- PROJECT SITE BOUNDARY
- STORM LINE (FLOW DIRECTION SHOWN)
- SANITARY LINE (FLOW DIRECTION SHOWN)
- CB1 — CATCH BASIN
- © — CLEANOUT (INSTALLED JANUARY 2021)
- AAP970 (MH) — MANHOLE

NOTE:

QUESTION MARKS DENOTE PORTIONS OF THE LINE THAT COULD NOT BE SCOPED.

N

0 50 100

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, FEBRUARY 28, 2020

SITE PLAN

FIGURE 1

FORMER AUTOMATIC VENDING COMPANY
PORTLAND, OR

BCSAMERICA-1-02

FEBRUARY 2021

GEODESIGN NW AN NV5 COMPANY

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File Name: J:\A-D\BCSAmerica\BCSAmerica-1\BCSAmerica-1-02\Figures\CAD\BCSAmerica-1-02-SP03.dwg | Layout: FIGURE 1