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SCS ENGINEERS

TECHNICAL MEMORANDUM

DATE: April 4, 2014

TO: Mike Davis, Clark County

CC: Jim Maul and Seth Otto, Maul, Maul Foster & Alongi, Inc.

FROM: Louis Caruso, L.G., SCS Engineers

SUBJECT: **Environmental and Engineering Summary for the Closed Leichner Landfill, Vancouver, Washington, Consent Decree 96-2-03081-7, Facility ID No. 1017**

SCS Engineers (SCS) prepared this memorandum at the request of Maul Foster & Alongi, Inc. (MFA) and with approval from Clark County (County), describing the regulatory framework and current site conditions at the closed Leichner Landfill (the Site) in Vancouver, Washington. SCS understands that MFA is conducting a reuse evaluation of the Site property on behalf of the County. This memorandum is intended to provide supplemental information for the reuse analysis report.

This memorandum provides a description of the regulatory framework specifically related to the historical and current Consent Decrees and remedial actions that govern the restrictive covenant for the Leichner Landfill property. The document also describes the following current site conditions: (1) landfill post-closure systems including the landfill cover system, stormwater management system, and landfill gas (LFG) collection and control system (GCCS) and (2) compliance monitoring programs for groundwater, stormwater, and LFG. Attachments to this memorandum include figures showing the groundwater monitoring network, stormwater control features, and LFG monitoring network (see Figures 1, 2, and 3, respectively), and a copy of restrictive covenant for the Site.

REGULATORY FRAMEWORK

Consent Decrees

Remedial investigation (RI) of the Site began in 1987 pursuant to Consent Order No. DE 86-S131. The RI results were summarized in a 1988 Remedial Investigation Report and Feasibility Study Report (FS), both prepared by Sweet-Edwards/EMCON, Inc. (1988a and 1988b). Subsequent additional investigations and remedial actions were performed pursuant to Consent Order No. DE 89-S119 (April 1989, with amendments in 1989 and 1990) and Agreed Order No. 93TC-S141 (May 1993). In July 1996, The Washington State Department of Ecology (Ecology) and the Leichner Brothers Land Reclamation Corporation (LBLRC) entered into Consent Decree No. 92-2-03081-7 (Decree). This was the final Decree for the Site, which implemented the final remedial actions described in a Cleanup Action Plan (CAP) associated with the Decree.

Remedial Actions

The CAP specified a series of remedial actions to address groundwater impacts at the Site that had already been implemented as part of the landfill's post-closure requirements under the Washington State Minimum Functional Standards (MFS) for Solid Waste Handling, Washington Administrative Code (WAC) Chapter 173-304. The post-closure activities included the following:

- Constructing an engineered landfill composite cap.
- Installing a GCCS.
- Constructing a surface water and erosion control system.
- Making improvements to the dumpster and truck wash areas.

As indicated in Section 8 of the CAP, these postclosure activities were also considered to be the site-specific remedial actions with respect to Model Toxics Control Act (MTCA) regulations under the Decree. The CAP indicated that "the cleanup action consists of final landfill closure and post-closure requirements outlined in Chapter 173-304 WAC (i.e., MFS), and required ongoing compliance groundwater monitoring as approved by Ecology." The above-listed remedial actions were completed before the Decree was formalized in 1996. The Decree also specifies that the point of compliance for groundwater cleanup is the Site property boundary.

Groundwater, stormwater, and LFG compliance monitoring are currently implemented to fulfill the requirements of the Decree and the MFS requirements for post-closure monitoring under WAC 173-304 and in accordance with current agency approved plans, including the 2013 Compliance Monitoring Plan (CMP; SCS, 2013c). Stormwater monitoring is also performed in accordance with the Site's National Pollutant Discharge Elimination System (NPDES) Industrial Stormwater General Permit (Permit), reissued on May 16, 2012 (expires January 1, 2015).

Restrictive ~~Convenant~~ Covenant

An environmental Restrictive Covenant (RC) was recorded for the Site property in April 1998. A copy of the RC is provided in Attachment 1. It was determined that contamination at the Site posed a limited threat to human health and the environment that could be mitigated, in part, by the use of institutional controls in the form of an RC. The RC encompasses both surface and subsurface components of the property and includes the following restrictions:

- Section 1. No groundwater may be taken for domestic purposes from any well on the property.
- Section 2. Any activity on the property that may interfere with the Cleanup Action is prohibited. Any activity on the property that may result in the release of a hazardous substance that was contained as a part of the Cleanup Action is prohibited, unless allowed under the terms of an NPDES or state waste discharge permit.

- Section 3. The owner of the property must given written notice to Ecology, or to a successor agency, of the owner's intent to convey any interest in the property. No conveyance of title, easement, lease, or other interest in the property may be consummated by the owner without adequate and complete provision for the continued operation, maintenance, and monitoring of the cleanup action.

- Section 4. The owner of the property must notify and obtain approval from Ecology, or from a successor agency, prior to any use of the property that is inconsistent with the terms of the RC. Ecology or its successor agency may approve such a use only after public notice and opportunity for comment, and only if the proposed use will not threaten human health or the environment.

- Section 5. The owner of the property shall allow authorized representatives of Ecology, or of a successor agency, the right to enter the property in accordance with the terms set forth in Section IX of the Decree for the purposes of evaluating compliance with the terms of the Decree and associated CAP, to take samples, to inspect Cleanup Action taken at the property, and to inspect records that are related to the Cleanup Action.

- Section 6. The owner of the property and the owner's assigns and successors in interst reserve the right under WAC 173-340-440 to record an instrument providing that the RC shall no longer limit use of the property or be of any further force or effect. However, such an instrument may be recorded only with the consent of Ecology, or of a successor agency. Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment, and only if all of Leichner Brothers Land Reclamation Corporation's obligations under the Decree have been satisfactorily completed.

LANDFILL POST-CLOSURE SYSTEMS

This section describes the engineered, landfill post-closure systems including the final cover system, stormwater management system, and the GCCS. As-built drawings of these systems are provided in the Site's Master Operations Plan (MOP; EMCON/OWT, 2005). SCS is currently updating the MOP to describe modifications to the post-closure landfill systems, include as-built drawings. These modifications are incorporated into the descriptions of the post-closure systems provided in the sections below.

Landfill Cover System

The landfill cover system prevents or minimizes precipitation and surface water runoff from infiltrating into the landfill and generating leachate. This section describes the design and construction of the final cover system.

Construction of Final Cover System

The Leichner Landfill refuse area (approximately 65 acres) was closed in three stages:

- Phase I Closure. In 1988 and 1989, a final cover system was constructed over the northern 22 acres of the landfill.
- Phase IIA Closure. In 1991, a final cover system was constructed over 22 of the remaining 43 acres of the landfill. Construction was performed in the southeast portion of the Phase II closure area.
- Phase IIB Closure. In 1992, the remaining 21 acres were closed and capped with a final cover system.

All three closures were constructed to meet the applicable requirements specified in the MFS, Chapter 173-304 WAC.

Final Cover System Description

The final cover system is a multi-layered composite system covering the entire 65 acres of refuse placed in the landfill. The final cover consists of (from bottom to top) general earthfill, select earthfill, a flexible membrane liner (FML), a drainage layer, geotextile, vegetative soil, topsoil, and native grasses. During Phase IIA and IIB final cover construction (i.e., the southern 43 acres of the landfill), an underdrain system was constructed within the drainage layer. The underdrain system outlets to the perimeter ditches around the landfill. The final cover components and their purposes are described below.

General Earthfill

General earthfill was placed over landfill areas as needed to provide a firm foundation for the other components of the final cover system and to construct positive drainage across the landfill by filling depressions and smoothing out the existing grade.

General earthfill was compacted in lifts no more than one-foot thick, then finish graded to match design subgrade elevations. During Phase IIB construction, soil and burned refuse were used together as general earthfill. The soil and burned refuse mixture (consisting mostly of soil, rock, ash, and glass, with minor amounts of metal) was obtained from an abandoned refuse-burning area located south of the closed landfill.

Select Earthfill

Select earthfill was placed over the general earthfill to provide a protective soil layer underneath the flexible membrane liner.

The select earthfill consists of screened soil with a maximum particle size of one-inch. Gravel-size materials in the select earthfill were rounded. In the Phase I closure area, select earthfill was placed in a 6-inch-thick layer over the general earthfill and finish-graded with a steel drum roller. In the Phase IIA and IIB closure areas, the select earthfill thickness was reduced to 4 inches.

Flexible Membrane Liner

The FML, frequently referred to as the geomembrane, is a low permeability barrier, which contains landfill gas and separates surface water from leachate.

A 60-mil thick, high-density polyethylene (HDPE) FML panel or sheet was placed directly over the select earthfill. Both textured and smooth FML panels were installed. The installation process consisted of unrolling the sheeting, cutting panels to the required dimensions, and welding the seams immediately thereafter. The FML seams were welded primarily by using the hot wedge welding process; however, the extrusion welding process was used when the hot wedge welder could not be used. Examples of extrusion welding include patching, connecting intersecting seams, making small repairs, and in areas with limited accessibility.

Following installation and seam welding, each weld was visually inspected and subjected to both nondestructive and destructive testing. Nondestructive testing consisted of air-pressure testing hot wedge welds and vacuum-box testing extrusion welds. Destructive testing consisted of performing shear and peel tests on samples of the welded seams.

Drainage Layer

A 12-inch-thick, drainage layer, consisting of free-draining sand, was placed directly over the 60-mil HDPE liner. Rainfall, which infiltrates through the cover soil, drains vertically through the drainage layer, then laterally along the surface of the FML. The water is collected by a system of underdrain pipes which outlet to surface ditches or catchment systems.

Geotextile

The geotextile provides a filtering medium between the drainage layer and the overlying vegetative soil. This medium protects the drainage layer from clogging by keeping fine vegetative soil particles out of it.

Nonwoven geotextile was placed over the top of the drainage layer. The geotextile was deployed in much the same orientation as the FML, as shown on the FML as-built panel layout drawings. The geotextile was overlapped at least 6 inches, and the seams were either continuously sewn, using polymeric thread, or heat-bonded.

Vegetative Soil

Vegetative soil was placed in an 8-inch-thick layer directly over the nonwoven geotextile. The vegetative soil provides a rooting medium underneath the topsoil and a protective soil layer over the top of the drainage layer and geotextile.

Topsoil

Topsoil provides a soil layer for grassy vegetation. During Phases I and IIA, imported topsoil was placed directly over the vegetative layer in two, 4-inch-thick lifts. The first lift was mixed into the upper 4 inches of the underlying vegetative soil before placement of the second 4-inch -thick lift of topsoil.

During Phase IIB construction, an on-site soil source was used. The soil source met the requirements of both vegetative soil and topsoil. Because the materials met the specified

requirements of both materials, it was unnecessary to place the soil materials in separate lifts or to mix the lifts together. The vegetative soil and topsoil mixture was placed in a single, 16-inch-thick lift on top of the geotextile.

Hydroseed

Hydroseeding provides a grassy ground cover over the entire closed landfill surface and any other soil surfaces disturbed by construction. The hydroseeding reduces erosion of the soil surfaces and provides an aesthetically pleasing finished appearance.

The performance of the hydroseed mix used in Phases I and IIA construction was adequate, but it was thought that some improvement could be made. Therefore, a new design mix was used in Phase IIB construction.

Stormwater Management System

The stormwater management system is designed to prevent surface water ponding on, and direct stormwater runoff away from, the former refuse area. Stormwater is collected using underdrains, cutoff ditches, perimeter ditches, and catch basins as described below and shown in Figure 2.

Landfill Stormwater Collection

Underdrain System. The underdrain system consists of perforated, 4-inch-diameter polyethylene pipe installed in the drainage layer (above the geomembrane) of the landfill cover. Surface water infiltrating the cover soil is collected in the underdrain pipes.

Sideslope Ditches. Sideslope ditches collect and convey surface runoff (i.e., sheet flow) to the perimeter ditches. Sideslope ditches minimize the formation of gullies created by sheet flow runoff eroding the landfill's sideslopes.

Perimeter Ditches. Perimeter ditches convey stormwater runoff from the sideslope ditches and the underdrain system either to the South Detention Pond or to the Sedimentation Basin. Perimeter ditches located around the toe of the former refuse area also collect sheet flow from the landfill's sideslopes, similar to the sideslope ditch collection system.

Culverts. Five culverts were installed to convey runoff underneath roadways. Two 18-inch-diameter, HDPE culverts convey stormwater runoff under the site access road. These culverts each discharge into a ditch located near the South Detention Pond. The remaining three culverts were constructed with 12-inch-diameter HDPE. Two convey runoff under the maintenance road located at the north end of the 1992 closure area. The third conveys runoff under the perimeter road near the former northern location of the former LFG flare. The runoff flows north through a ditch into the drop inlet located west of the North Detention Pond and flows to the Sedimentation Basin through the stormwater conveyance piping system.

South Detention Pond

The 1-acre South Detention Pond collects runoff from the south and west portions of the landfill (an area approximately 35 acres in size). The basin is lined with Gundseal, textured geomembrane, a geotextile cushion, and a 1-foot-thick layer of erosion protection rock. Stormwater is pumped from the South Detention Pond to the Sedimentation Basin using three

pumps and two buried, 8-inch-diameter force mains. The pump station consists of a precast concrete vault containing three submersible pumps. The pumps discharge stormwater to buried force mains that, in turn, directs the water into two surface drainage features. One is located located on the north-central part of the Phase I closure area and conveys stormwater to the Sedimentation Basin. The second is located south of the former north LFG flare station and connects to an 18-inch-diameter stormwater conveyance pipe which drains to the Sedimentation Basin.

Sedimentation Basin

The 1-acre Sedimentation Basin is located directly east of the North Detention Pond. This feature is designed to allow suspended particles to settle out from stormwater before it enters the North Detention Pond. All collected stormwater runoff from the landfill area is routed through the Sedimentation Basin. The Sedimentation Basin is lined with textured, 60-mil, HDPE geomembrane. The geomembrane liner is covered with a geotextile cushion and a 1-foot-thick layer of general earthfill. The Sedimentation Basin outlet is a 16-inch-diameter, fabricated tee structure set in concrete that allows the basin to fill with stormwater to a one-foot depth before it discharges into the North Detention Pond.

North Detention Pond and Pumping Station

The 3.4-acre North Detention Pond is a geomembrane-lined impoundment located at the north end of the site. The basin controls the release of stormwater runoff from the site by retaining rainfall from a 25-year, 24-hour storm event and allowing a maximum release rate of 8.5 cubic feet per second. The North Detention Pond allows additional sedimentation to occur as stormwater flows from east to west across the pond. The North Detention Pond release structure is a concrete enclosure and pumping station containing three turbine pumps located near the bottom of the concrete enclosure. Stormwater is pumped (at a maximum pumping rate of approximately 2,400 gallons per minute) from the North Detention Pond through a 20-inch diameter force main to a 24-inch diameter gravity storm drainpipe conveyed to a grass-lined ditch that drains to Curtin Creek.

Modifications to Stormwater Control and Collection System

Improvements to the stormwater collection and control system were completed along the western side of former Module 2 in September and October 2013. The construction activities consisted of the following two elements: (1) the installation of approximately 0.25 acres (approximately 10,000 square feet) of geomembrane for stormwater control and (2) construction of a runoff collection system that included installing approximately 270 feet of runoff collection trench and piping and making repairs to portions of the existing landfill cover system for the Module 2 area.

The stormwater improvement construction activities were accomplished in substantial conformance with the design intent, permit conditions, and construction drawings dated September 2, 2013, and with technical specifications dated July 29, 2013, that were prepared by SCS and submitted to and approved by the County. A report documenting the stormwater improvement construction activities, including record drawings of the construction and existing site conditions was submitted to the County under separate cover. Additionally, the Site's Stormwater Pollution and Prevention Plan (SCS, 2013b) will be updated to reflect the modifications to the Module 2 stormwater collection system.

During excavation of the trench for the subsurface vault for the stormwater improvement project on October 10, 2013, landfill waste was encountered outside the existing final cover system along the western perimeter of former Module 2. The waste appeared localized to the eastern portion of the vault excavation and did not extend west to the property line. SCS estimates that the western extent of waste in the trench was approximately 8 feet from the property line. Within the vault excavation, the vertical extent of the waste was greater than approximately 8 feet bgs (depth of base of excavation). Based on field observations in the vault excavation and in test pits excavated to delineate the extent of waste, it was estimated that waste material is present approximately 50 feet south of the vault and 100 feet north of it. The County notified Clark County Public Health (CCPH) and Ecology of these finding in a memorandum dated October 30, 2013 (SCS, 2013d), and intends to extend the existing liner in 2014 over the area where waste was encountered outside the landfill footprint.

Landfill Gas Collection and Control System

The GCCS contains and prevents LFG that is generated within the landfill from migrating into the atmosphere and surrounding native soils. The GCCS consists of 50 LFG migration probes, 107 LFG extraction wells, a condensate collection system, and a LFG flare station (south flare station) (see Figure 3). Emissions from the LFG flare stack are permitted by Southwest Clean Air Agency (SWCAA) Air Discharge Permit (ADP) 07-2714.

The LFG extraction well system is divided into four areas of collection: southeast, southwest, northeast, and northwest. LFG is conveyed from the extraction wells to the south flare station through an aboveground, polyvinyl chloride (PVC) piping system (see Figure 3). The extraction well heads are connected to 3-inch-diameter laterals that are, in turn, connected into a 6-, 8-, and 10-inch header piping system.

Condensate sumps are located at all the low points along the header piping, or approximately every 400 feet. The condensate system is constructed with below ground conduits for a pneumatic pumping system to pump liquid from the sumps and pipe it to the south flare station where the liquid is temporarily stored in an double-lined aboveground storage tank. The condensate is periodically removed from the storage tank for regulated, offsite disposal.

The south flare station is located at the southern end of the landfill (see Figure 3) and contains the mechanical and electrical equipment required to actively withdraw LFG and dispose of it in an environmentally acceptable manner. The primary components at the station include a small wooden shed that houses miscellaneous equipment and the air compressor for the condensate pneumatic pumps, condensate sump, aboveground condensate storage tank, a moisture knock-out drum, electrical display and control panel, two parallel centrifugal blowers, and an enclosed LFG flare stack.

COMPLIANCE MONITORING

Compliance monitoring of groundwater, stormwater, and LFG is performed to evaluate the effectiveness of the remedial actions at achieving groundwater cleanup levels or other applicable regulatory compliance levels. The compliance monitoring programs for groundwater, stormwater, and LFG, and methods and procedures for implementation of the programs, are described in the 2013 CMP (SCS, 2013c).

Groundwater Monitoring

The compliance groundwater monitoring well network consists of 20 monitoring wells[1] that are discretely screened in the alluvium water-bearing zone (WBZ) and the Troutdale Formation aquifer (see Figure 1). The wells are monitored annually or semiannually and include the following: LB-1S, LB-1D, LB-3S, LB-3D, LB-4SR, LB-4D, LB-5S, LB-5D, LB-6S, LB-10SR, LB-10DR, LB-13I, LB-13D, LB-17I, LB-17D, LB-20S, LB-26I, LB-26D, LB-27I, and LB-27D.

The Decree established site-specific compliance cleanup levels in groundwater for select volatile organic compounds (VOCs) and inorganic leachate indicator parameters using the MTCA Method B cleanup levels based on the highest beneficial use (drinking water) of the affected groundwater. The most recent results of groundwater monitoring performed in 2013 were summarized in an annual environmental monitoring report for the Leichner Landfill (SCS, 2014). The results of groundwater monitoring in 2013 indicated that groundwater quality is not being affected by the landfill as evidenced by the following:

- VOCs continue to be undetected or their concentrations are below compliance cleanup levels.
- The concentrations of most inorganic indicator parameters in groundwater samples collected from monitoring wells located downgradient of the former waste cells have either remained generally stable or show decreasing trends.

Pronounced decreases in the concentrations of chloride, total dissolved solids, iron and manganese in groundwater collected from wells located downgradient and in close proximity to the landfill starting in 1996 indicate that institutional controls, including capping the landfill surface and stormwater control and collection, implemented in the mid-1990s have been effective at mitigating leachate generation and improving groundwater quality.

In 2011, laboratory testing for vinyl chloride (VC) and 1,1-dichloroethene (1,1-DCE) using a low-level U.S. Environmental Protection Agency (EPA) Method 8260B was implemented. The purpose was to achieve reporting limits below the compliance level of 0.1 micrograms per liter (µg/L) for these two VOCs, consistent with Ecology's letter to the Clark County dated April 27,

[1] Wells used to monitor groundwater elevation and/or quality in the upper portion of the alluvium WBZ are denoted with an "S" in the well number (e.g., well LB-1S). Wells used to monitor groundwater elevation and/or quality in the middle (or intermediate) portion of the alluvium WBZ are denoted with an "I" in the well number (e.g., LB-27I). Wells used to monitor groundwater elevation and/or quality in the deeper Troutdale Formation aquifer are denoted with a "D" in the well number (e.g., well LB-1D).

2011 (Ecology, 2011). After two years of testing (i.e., three additional monitoring events), the results showed that VC and 1,1-DCE were not detected above the compliance level of 0.1 µg/L. In response to these results, Ecology approved discontinuing laboratory analysis of VC and 1,1-DCE (Ecology, 2013).

Stormwater Monitoring

The stormwater monitoring program is described in the CMP and also in an updated Stormwater Pollution and Prevention Plan (SWPPP) dated July 2013 (SCS, 2013b). The SWPPP is required to be prepared pursuant to the Site's NPDES Permit. For the purposes of the SWPPP, the Site is divided into three stormwater drainage areas (see Figure 2) as described below. Additional description of the stormwater management system was previously presented in this memorandum.

Area 1. Area 1 comprises approximately 10 acres located to the north of the stormwater detention pond. Area 1 was used as a borrow source for clean fill while the landfill was in operation, as reflected in the area's topography. Most of Area 1 is vegetated with grasses and shrubs. Area 1 contains no buildings or structures.

Area 2 (Existing Landfill Area). Area 2 comprises approximately 77 acres and is the location of the approximate 70-acre closed landfill. An approximate 3.4-acre stormwater detention pond and an approximate 1-acre sedimentation pond are located at the north end of the Area 2. An approximate 1-acre detention pond is located on the west side of Area 2. Area 2 contains two small structures (1) the old flare shed that now houses a backup compressor for the condensate collection system and (2) the North Detention Pond pump shed.

Area 3. Area 3 comprises approximately 26 acres located at the south end of the property that was used as a borrow source for clean fill while the landfill was in operation. Material excavated from Area 3 was used to cover refuse and to fill sections of the landfill in preparation for closure. The excavation is evident in the area's topography. Area 3 includes three small (less than 1-acre) sedimentation basins that are not in use, and is mostly vegetated with grasses and shrubs.

It is important to note that "industrial" activities performed at the Site that could potentially affect stormwater quality are limited to intermittent maintenance of the landfill post-closure systems.

Stormwater monitoring consists of monthly visual inspections and collecting quarterly stormwater grab samples at Outfall 1 (see Figure 2) during qualifying storm events that generate stormwater discharge at the Site. The results of stormwater monitoring in 2013 were reported to Ecology in quarterly discharge monitoring reports (DMRs). The 2013 stormwater monitoring results indicated that stormwater quality benchmarks applicable to the Site were not exceeded during any event.

Landfill Gas

The compliance LFG monitoring network consists of 50 LFG monitoring probes installed along the perimeter of the Site property boundary to monitor subsurface LFG migration, and in areas within the property for monitoring the performance of the GCCS (see Figure 3). Compliance

LFG monitoring probes constructed as dual-completion probes (i.e., a shallow and deep probe constructed within the same borehole) are designated with an "A" for the shallow probe and "B" for the deep probe. Compliance LFG monitoring probes with the same probe number but constructed in different boreholes are designated with an "S" for the shallow probe and "D" for the deep probe.

The recent results of LFG monitoring performed in 2012 and 2013 (SCS, 2013a and 2014) indicated methane concentrations were below the MFS (WAC 173-304) regulatory limit of 5 percent methane by volume in all probes located along the Site property boundary (i.e., point of compliance), except for occasional exceedances of the regulatory limit in select probes along the west side of Module 2 (notably GP-7 and GP-9). In response to the occasional regulatory exceedances, when identified in these probes, adjustments to the LFG extractions wells were immediately performed. In all cases, monitoring of the probes indicated that methane concentrations were effectively reduced to concentrations below the MFS compliance level within one day to approximately one week.

Attachments: Figure 1 – Groundwater Monitoring Locations
Figure 2 – Site Map and Stormwater System
Figure 3 – Landfill Gas Probe and Extraction Well Locations
Attachment 1 – Restrictive Covenant

REFERENCES

EMCON/OWT, 2005, Master Operations Plan, Leichner Landfill, Clark County, Washington, prepared for Leichner Brothers Land Reclamation Corporation, Vancouver, Washington, by EMCON/OWT, Portland, Oregon, April.

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SCS Engineers, 2013d, Third Quarter 2013 Progress Report for the Closed Leichner Brothers Landfill, Vancouver, Washington, Consent Decree 96-2-03081-7, Facility ID No. 1017, prepared for Clark County Environmental Services, Vancouver, Washington, by SCS Engineers, Portland, Oregon, December 10.

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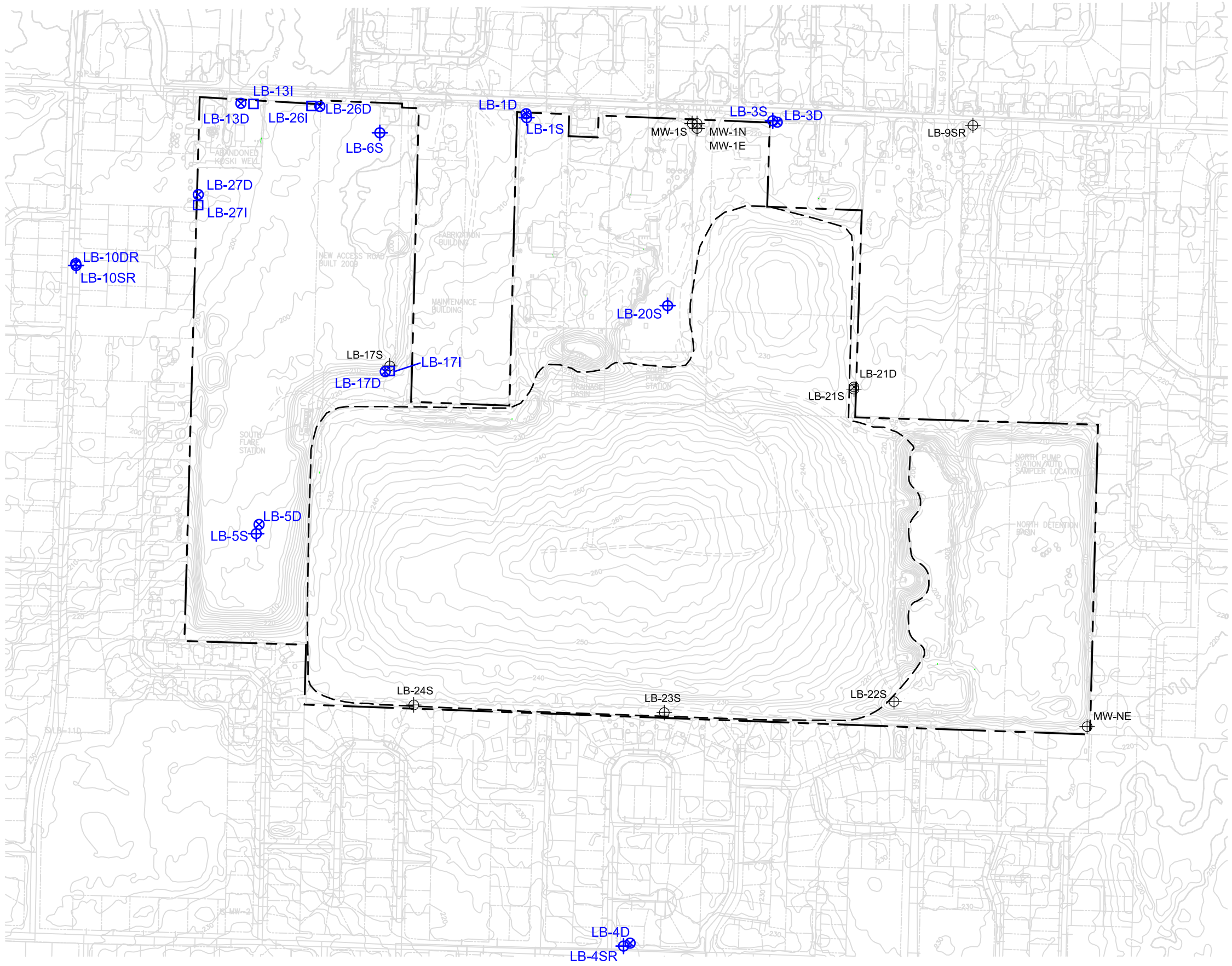
Washington State Department of Ecology, 2013, Email (re: Letter to WDOE requesting to Discontinue GW Sampling for VC and DCE) to M. Davis, Clark County Environmental Services, and L. Caruso, SCS Engineers, from M. Kourehdar, Ecology, Toxics Cleanup Program, February 12.

FIGURES



LEGEND:

LB-5S ⊕	Monitoring Well Location, Alluvial Water–Bearing Zone
LB-5D ⊗	Monitoring Well Location, Troutdale Aquifer
LB-17I □	Monitoring Well Location, Middle of Alluvial Water–Bearing Zone
—— — — ——	Property Boundary
— — — — —	Limit of Landfill Cover and Approximate Edge of Waste

NOTES:

1. Monitoring wells designated by blue color are compliance monitoring wells.
2. Topography taken from Clark County GIS, December 2008.

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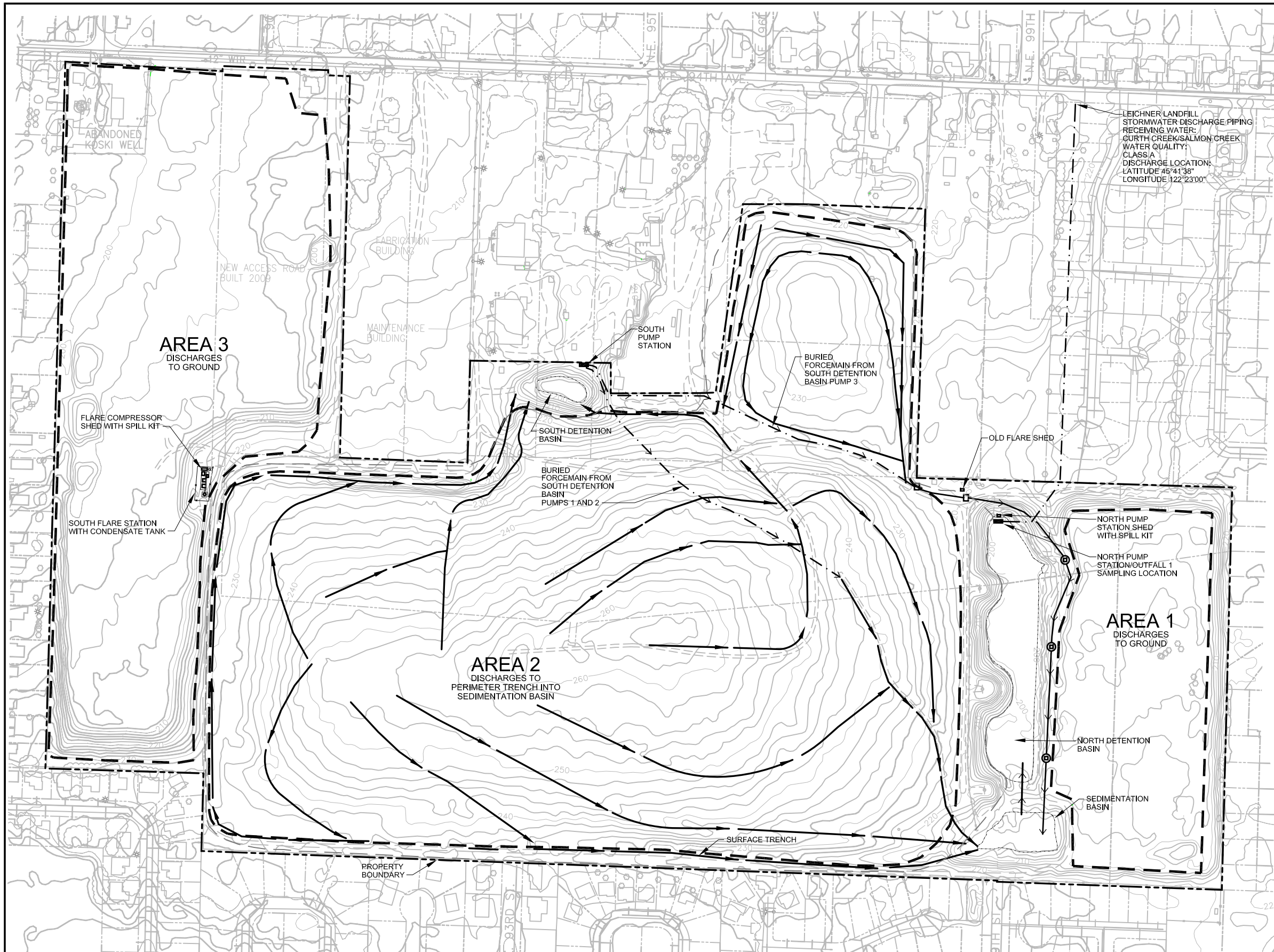
SCALE
0 400 800 FEET

PROJECT NO. 04214030.10	DES BY T.A.	GROUNDWATER MONITORING LOCATIONS	DATE APRIL 2014
SCALE AS SHOWN	CHK BY D.L.	LEICHNER LANDFILL VANCOUVER, WASHINGTON	FIGURE 1
CAD FILE FIGURE 1	APP BY L.C.		



LEGEND:

- Property Boundary
- Drainage Path
- Underground Stormwater Collection Piping
- Stormwater Forcemain
- Drainage Area Boundary
- Stormwater Forcemain Access Vault
- Stormwater Manhole
- Pump Station

NOTE:
Topography Taken From Clark County GIS, December 2008

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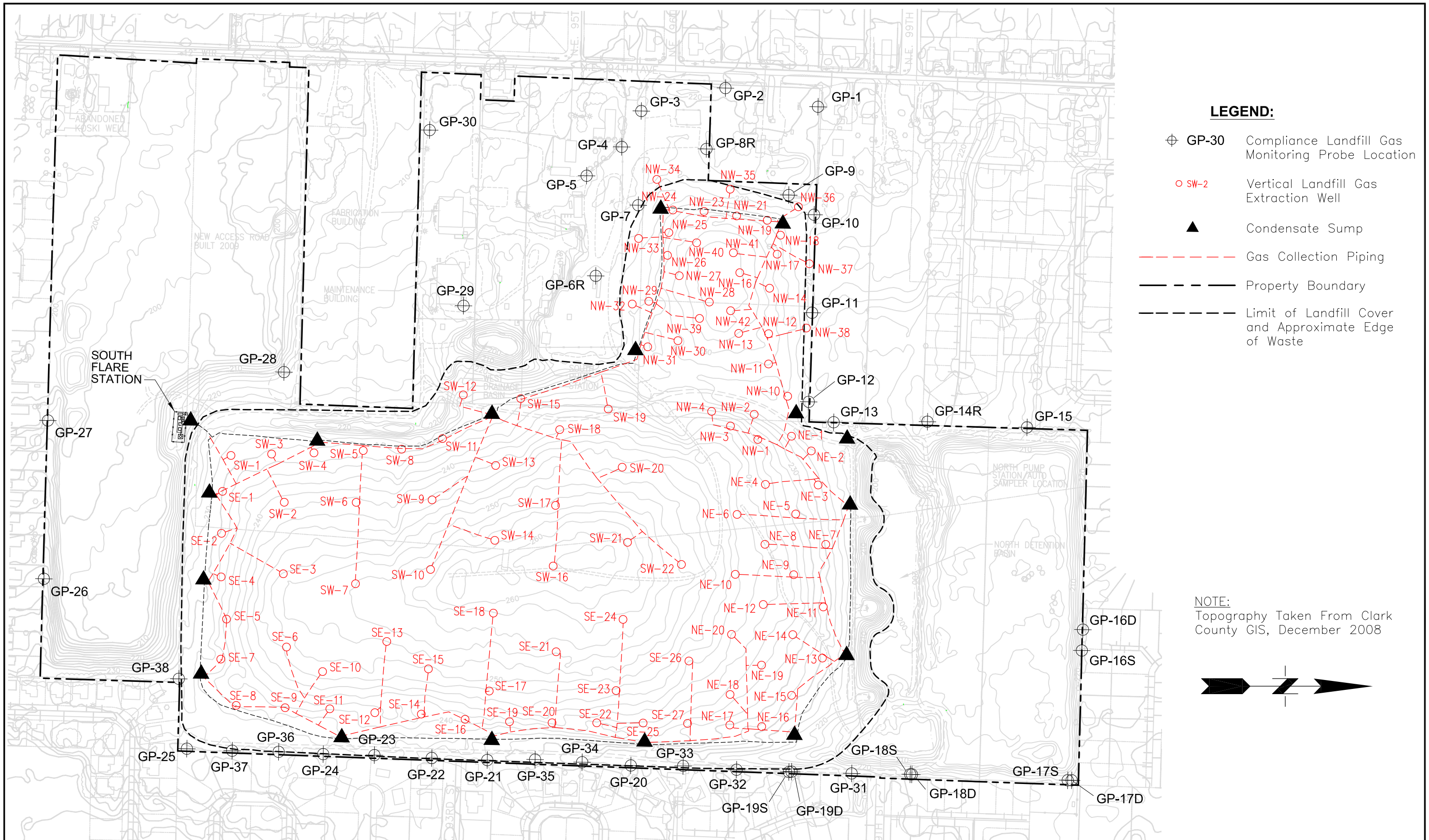
SCALE
0 300 600 FEET

PROJECT NO. 04214030.10	DES BY T.B.	STORMWATER SYSTEM FEATURE LOCATIONS	DATE APRIL 2014
SCALE AS SHOWN	CHK BY D.L.	LEICHNER BROTHERS LANDFILL VANCOUVER, WASHINGTON	FIGURE 2
CAD FILE FIGURE 2	APP BY L.C.		



SCS ENGINEERS
Environmental Consultants and Contractors
14945 SW Sequoia Parkway, Suite 180
Portland, Oregon 97224
(503) 639-9201 FAX: (503) 684-6948

SCALE
0 300 600 FEET

PROJECT NO. 04214030.10	DES BY T.A.	LANDFILL GAS PROBE AND EXTRACTION WELL LOCATIONS	DATE APRIL 2014
SCALE AS SHOWN	CHK BY D.L.	LEICHNER LANDFILL VANCOUVER, WASHINGTON	FIGURE 3
CAD FILE FIGURE 3	APP BY L.C.		

ATTACHMENT 1
RESTRICTIVE COVENANT

9804090180

RECORDING REQUESTED BY
AND WHEN RECORDED RETURN TO:

Stephen W. Horenstein, Attorney
Horenstein & Duggan, P.S.
P.O. Box 694
Vancouver, WA 98666

FILED FOR RECORD
CLARK CO. WASH
Horenstein & Duggan
98 APR -9 PM 3:11
AUDITOR
ELIZABETH A. LUCE

RESTRICTIVE COVENANT

Grantors:	Leichner Brothers Land Reclamation Corporation
Grantees:	The Public
Abbreviated Legal:	Section 4, T2N, R2E and Section 23, T3N, R2E W.M.
Assessor's Tax Parcel #	199843; 199845; 199846; 199847; 199848; 199856; 199857; 199858; 199859; 199860; 199863; 199865; 199866; 199869; 199871; 105740
Other Reference Nos:	N/A

The property that is the subject of this Restrictive Covenant is the subject of remedial action under Chapter 70.105D RCW. The work done to clean up the property (hereafter the "Cleanup Action") is described in the Consent Decree entered in State of Washington v. Leichner Brothers Land Reclamation Corporation, Clark County Superior Court No. 96-2-03081-7 and in exhibits to the Consent Decree. This Restrictive Covenant is required by the State of Washington Department of Ecology pursuant to WAC 173-340-440 because contaminants will be left in place on the property. This Restrictive Covenant is necessary to assure the continued protection of human health and the environment and the integrity of the Cleanup Action.

The undersigned, Leichner Brothers Land Reclamation Corporation, is the fee owner of real property in the County of Clark, State of Washington (legal description attached hereto as Exhibit "A"), hereafter referred to as the "Property." The Property encompasses both surface and subsurface estates. Leichner Brothers Land Reclamation Corporation makes the following declarations as to limitations, restrictions, and uses to which the Property may be put, and specifies that such declarations shall constitute covenants to run with the land, as provided by law, and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property.

HORENSTEIN & DUGGAN, P.S.,
ATTORNEYS AT LAW
900 Washington Street, Suite 900
P.O. Box 694
Vancouver, Washington 98666
(360) 699-4771 • (503) 289-2643

Section 1. No groundwater may be taken for domestic purposes from any well on the Property.

Section 2. Any activity on the Property that may interfere with the Cleanup Action is prohibited. Any activity on the Property that may result in the release of a hazardous substance that was contained as a part of the Cleanup Action is prohibited, unless allowed under the terms of an NPDES or state waste discharge permit.

Section 3. The owner of the Property must give written notice to the Department of Ecology, or to a successor agency, of the owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property may be consummated by the owner without adequate and complete provision for the continued operation, maintenance, and monitoring of the Cleanup Action.

Section 4. The owner of the Property must notify and obtain approval from the Department of Ecology, or from a successor agency, prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. The Department of Ecology or its successor agency may approve such a use only after public notice and opportunity for comment, and only if the proposed use will not threaten human health or the environment.

Section 5. The owner of the Property shall allow authorized representatives of the Department of Ecology, or of a successor agency, the right to enter the Property in accordance with the terms set forth in Section IX of the Consent Decree for the purposes of evaluating compliance with the terms of the Consent Decree and the Cleanup Action Plan, to take samples, to inspect Cleanup Action taken at the Property, and to inspect records that are related to the Cleanup Action.

Section 6. The owner of the Property and the owner's assigns and successors in interest reserve the right under WAC 173-340-440 to record an instrument providing that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only with the consent of the Department of Ecology, or of a successor agency. The Department of Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment, and only if all of Leichner Brothers Land Reclamation Corporation's obligations under the Consent Decree have been satisfactorily completed.

LEICHNER BROTHERS LAND RECLAMATION CORPORATION

By: Craig Leichner

Craig Leichner, President

Date: April 9, 1998

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(360) 699-4771 • (503) 289-2643

STATE OF WASHINGTON)
: ss.
County of Clark)

I certify that Craig Leichner appeared personally before me and that I know or have satisfactory evidence that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the President of Leichner Brothers Land Reclamation Corporation to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

DATED this 9th day of April, 1998.

SUSAN M. SCHRANTZ
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
FEBRUARY 1, 1999

Susan Schrantz
NOTARY PUBLIC FOR WASHINGTON
My Commission Expires: Feb 1, 1999

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LEGAL DESCRIPTION FOR LEICHNER
Perimeter Description

July 27, 1993

A parcel of property in the James McAllister and in the William Goldbeck Donation Land Claim and in a portion of the Newton Addition as recorded in Book A of Plats at page 60 of Clark County records, in Section 4, Township 2 North, Range 2 East and in the South half of Section 33, Township 3 North, Range 2 East of the Willamette Meridian described as follows:

BEGINNING at the Southeast corner of the McAllister Donation Land Claim;

THENCE North 88° 29′ 04″ West along the South line of said McAllister Donation Land Claim 227.44 feet to the Northeast corner of the Northwest quarter of Lot 1 of the Newton Addition;

THENCE South 01° 43′ 50″ West along the East line of said Northwest quarter 473.72 feet to that line established by boundary agreement as recorded under Auditor's File # 9108090260 of Clark County records;

THENCE North 88° 16′ 04″ West along said boundary agreement line 981.21 feet;

THENCE South 01° 43′ 50″ West along said boundary agreement line 0.41 feet to the South line of the North half of Lot 3 of said Newton Addition;

THENCE North 88° 16′ 06″ West along said South line and the South lines of the North half of Lot 4 and the North half of Lot 5 of said Newton Addition 1119.46 feet to the centerline of NE 94th Ave;

THENCE North 02° 10′ 22″ East along said centerline 466.22 feet to the Southwest corner of said McAllister Donation Land Claim;

THENCE North 02° 09′ 58″ East along the West line of said McAllister Donation Land Claim 236.55 feet to the Southwest corner of that tract conveyed to Arvid E Koski by deed recorded under Auditor's File # G 18438 of Clark County records;

THENCE South 88° 29′ 04″ East along the South line of said Koski tract 90.00 feet to the Southeast corner thereof;

THENCE North 02° 09′ 58″ East along the East line of said Koski tract 80.01 feet to the Northeast corner thereof;

THENCE North 88° 29′ 04″ West along the North line of said Koski tract 90.00 feet to the West line of said McAllister Donation Land Claim;

EXHIBIT A

THENCE North 02° 09′ 58″ East along said West line 60.00 feet to the South line of that tract conveyed to Felix F. Fleischer by deed recorded under Auditor's File # 8403160018 of Clark County records;

THENCE South 88° 29′ 04″ East along said South line 1157.05 feet to a fence line and the Boundary Line Agreement as recorded under Auditor's File # 9302170319 of Clark County records;

THENCE North 01° 43′ 14″ East along said fence and Boundary Line Agreement 376.53 feet to the North line of said Fleisher tract;

THENCE North 88° 29′ 04″ West along said North line 1154.13 feet to said West line of the McAllister Donation Land Claim;

THENCE North 02° 09′ 58″ East along said West line 205.37 feet to the North line of that tract conveyed to Lorry Leichner by deed recorded under Auditor's File # G 336779 of Clark County records;

THENCE South 88° 29′ 04″ East along said North line 122.00 feet to the most Southerly Southwest corner of that tract conveyed to Lorry Leichner by deed recorded under Auditor's File # G 730682 of Clark County records;

THENCE North 02° 09′ 58″ East along the West line of said Leichner tract 102.00 feet;

THENCE North 88° 29′ 04″ West along the South line of said Leichner tract 122.00 feet to said West line of said McAllister Donation Land Claim;

THENCE North 02° 09′ 58″ East along said West line 1023.14 feet to the Westerly extension of the South line of the Kuhnhausen parcel as described in Exhibit D of the Boundary Line Agreement as recorded under Auditor's File # 9108090261 of Clark County records;

THENCE South 87° 10′ 13″ East along said South line 390.06 feet;

THENCE South 87° 51′ 35″ East along said South line 756.61 feet to the East line of said Kuhnhausen parcel;

THENCE North 02° 21′ 36″ East along said East line 380.79 feet to the Northeast corner of said Kuhnhausen parcel;

THENCE North 87° 48′ 39″ West along the North line of said Kuhnhausen parcel 1147.93 feet to the West line of said McAllister Donation Land Claim;

THENCE North 02° 09′ 58″ East along said West line 169.75 feet, more or less, to the South line of that tract conveyed to B. Charles Dorsey by deed recorded under Auditor's File # 8704210088 of Clark County records;

THENCE South 88° 28′ 27″ East along said South line 464.03 feet to the East line of said Dorsey tract;

THENCE North 02° 09′ 58″ East along said East line 25.11 feet;

THENCE North 02° 02′ 17″ East along said East line 162.90 feet to the South line of that tract conveyed to J.E. O'Flaherty by deed recorded in Book 72 at page 382 of Clark County records;

THENCE South 88° 28′ 27″ East along said South line 716.94 feet, more or less, to the East line of said O'Flaherty tract;

THENCE North 02° 04′ 21″ East along said East line 188.10 feet, more or less, to the North line of the South half of said McAllister Donation Land Claim;

THENCE South 88° 28′ 27″ East along said North line 1140.56 feet, more or less, to the East line of said McAllister Donation Land Claim;

THENCE South 02° 04′ 21″ West along said East line 673.42 feet;

THENCE South 02° 07′ 55″ West along said East line 1839.88 feet to the Northwest corner of the Napoleon McGilvery Donation land Claim;

THENCE South 01° 59′ 43″ West along said East line 492.82 feet to the POINT OF BEGINNING.

KURT F. STONEX
STATE OF WASHINGTON
26352
REGISTERED
PROFESSIONAL LAND SURVEYOR
EXPIRES MAY 5, 1994

7/27/93