MAUL FOSTER ALONGI
3140 NE Broadway | Portland, OR 97232 | 971 544-2139 | www.maulfoster.com

March 14, 2025
Project No. M8128.02.031

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

Bob Wyatt
NW Natural
Portland, OR

Re: Siltronic Corporation Comments in Response to NWN's GOU Feasibility Study

Dear Wes Thomas and Bob Wyatt:

On behalf of Siltronic Corporation (Siltronic), Maul Foster & Alongi, Inc. (MFA) has prepared this letter providing comments on NW Natural's (NWN's) Feasibility Study (FS) Report for the Gasco Operable Unit (the FS Report), dated December 16, 2024, prepared by Anchor QEA, Sevenson Environmental Services, Inc., and Ede Environmental, LLC, on behalf of NWN for the NWN Gasco Site, and submitted by NWN to the Oregon Department of Environmental Quality (DEQ) under DEQ voluntary agreement No. WMCVM-NWN-94-13.

Siltronic is appreciative of the milestone NWN has achieved by submitting this FS and looks forward to collaborating with NWN on a final, permanent remedy. Below are Siltronic's comments on the FS Report.

General Comments

Potentially Inaccessible Areas

In the FS Report, much of the Siltronic geographic subarea (GSA) of the Gasco Operable Unit (GOU) is characterized as "Potentially Inaccessible Areas" including the Fab 1 footprint. Siltronic has been working with DEQ and NWN to provide additional details regarding the use and inaccessibility of the Siltronic GSA. Refinement of these areas should enable NWN to attain a larger footprint of hotspot remedies than what is currently shown in Figure ES-2 and some of the conceptual cleanup figures (7-2 through 7-5 in the FS Report). Additional details regarding the accessibility of different portions of the Siltronic GSA are presented in the Figure attached to this letter. Areas identified on the Figure as Inner Compound are areas where Siltronic is actively operating, and any remedial actions in this area should be limited to minimally disruptive activities and closely coordinated with Siltronic.

Siltronic has notified both DEQ and NWN that Siltronic plans to demolish Fab 1 and construct a new warehouse building to replace the current uses of Fab 1. At this point, Siltronic does not have a specific timeline for these construction and demolition activities, but envisions that both activities will likely occur within the next 5-10 years. Although no specific timeline has been established, Siltronic's operations necessitate that the new warehouse be constructed before Fab 1 is demolished. The current proposed location for the new warehouse building is shown in the attached Figure. Siltronic recognizes that the sequencing of these construction and demolition activities with the proposed remedial actions described in the FS Report will be critical, and looks forward to coordinating with NWN and DEQ to ensure that this timeline is as efficient as possible.

Operational Considerations

Siltronic continues to have concerns about impacts to its ongoing facility operations during implementation of remedial actions described in the FS Report, including the interim remedial action measure (IRAM). Any selected remedy should not impede Siltronic's operations. In addition, issues of vibration, seismic and structural stability need to be considered during evaluation of implementability of any proposed remedy. In particular, Siltronic has identified the following operational considerations that should be addressed as part of any remedial design.

- Vibration concerns: Siltronic's operations require highly controlled conditions due to the precision requirements of the final silicon wafer products. As such, vibrations induced during remedy implementation could interfere with wafer production and must be avoided. Siltronic has invested in vibration monitoring to establish a robust baseline data set that can be used to inform evaluation of vibration concerns during remedial design and implementation.
- Geotechnical issues: Most of the Siltronic Property is unconsolidated river dredge spoils and other waste and fill materials placed by others that are much more susceptible to sloughing and geotechnical instability such as liquefaction, than a typical manufacturing site. Such consequences could have major repercussions for the property and Siltronic's continuing ability to operate there. Therefore, evaluations of the potential adverse impacts to the geotechnical stability of the property must be a primary implementability factor.
- Materials management: implementation of the remedial actions proposed in the FS Report will require management of substantial volumes of manufactured gas plant (MGP) waste-impacted soils and other materials that were deposited on the Siltronic Property. Siltronic understands that NWN desires to store such impacted materials on Siltronic's site for a period of time. In order to avoid the spread and deposition of such potentially hazardous materials and to prevent the disruption of Siltronic's daily operations, any potential management or storage of materials on the Siltronic Property will require strict adherence to a mutually agreeable materials management plan and should be arranged in close coordination with Siltronic to avoid negatively impacting Siltronic's ongoing operations.

Siltronic recognizes that many of these issues cannot be fully addressed at the FS stage but believes that they should be addressed proactively and as early as possible during remedial design. Siltronic anticipates that significant coordination will be required between all parties and looks forward to working with NWN and DEQ to facilitate implementation of a successful remedial action.

Engineered Impermeable Cap

The entire GOU (including about 40 acres of Siltronic property) is indicated as "Engineered Impermeable Cap," which is described in Section 14.1.8 of the FS Report as "a layer of impermeable geotextile fabric overlayed by a sand/gravel base and an asphalt cap." Siltronic has significant concerns regarding paving a property of this size, including the following:

- Diminished aesthetic value. Currently, approximately 20 acres of the 40-acres of proposed impermeable cap consists of soft-surface vegetated land and trees. These areas provide significant aesthetic value to the Siltronic property, and replacement of all of these areas with asphalt would substantially and negatively alter the character of the property.
- Loss of future Property use and value due to land use limitations enforced by a future restrictive covenant and other institutional controls that would need to be recorded with the Property to implement the capping remedy.

- Long-term maintenance and management costs. Asphalt surfaces will require maintenance and repairs in perpetuity.
- Increased, more complicated stormwater management requirements. Currently approximately 20 acres of Siltronic's 40-acres are managed under Siltronic's 1200-Z NPDES permit. The proposed capping approach would approximately double the impervious area on Siltronic's property and would require stormwater management with associated costs. It is not clear how NWN would manage and maintain stormwater discharges in the additional areas it proposes to pave for this remedy. The additional areas are not considered part of Siltronic's industrial area and would need to be managed under separated stormwater piping, discharges, and permits than the current permits held by Siltronic.
- Subslab accumulation of explosive gases. Methane is present in the subsurface in multiple areas of the Siltronic Property, including areas that are currently unpaved. Installing an impermeable cap over the entire Siltronic GSA would likely require additional characterization of subsurface methane concentrations, and installation of methane mitigation measures such as passive venting systems. Based on the information provided in the FS Report, it does not appear that NWN has evaluated subslab methane accumulation as an implementability consideration.

Given these concerns, Siltronic questions the necessity, appropriateness, and implementability of an impermeable asphalt cap covering the entire property and recommends that additional consideration be given to maintaining vegetated areas to the greatest extent possible. Section 14.1.8 of the FS Report also notes that in some areas appropriate soil cover caps may be placed rather than asphalt, and Siltronic suggests that a more detailed evaluation be conducted to identify areas where remedial action objectives could be achieved via the use of soil cover or simply leaving existing surfaces in place.

Continued EIB

NWN indicates continued enhanced in situ bioremediation (EIB) is the preferred alternative in the TCE Management remedial action area (RAU) and includes it as a component of each remedial action alternative (RAA) (except for RAA 1, the no action alternative). Siltronic notes that the EIB system has removed more than 99% of the trichloroethene (TCE) mass and 97% of the total chlorinated volatile organic compound (CVOC) mass from source area groundwater (MFA 2023). Siltronic agrees that the existing EIB TCE removal system implemented by Siltronic will continue reducing concentrations of CVOCs in groundwater and understands that the current EIB performance monitoring program will be re-evaluated in the context of the full remedial action proposed by NWN. Siltronic anticipates coordinating directly with DEQ to identify appropriate adjustments to the EIB program, and requests clarification from NWN that this is consistent with their proposal of continued EIB presented in the FS Report. Siltronic also notes that many of the other remedial actions proposed by NWN in the FS Report including many of the IRAM elements, would incidentally address chlorinated solvents present on the Siltronic Property,

Specific Comments

Text from the FS Report is shown in *italics*, followed by Siltronic's specific comments. Please accept the comments on the history of the activities of the Siltronic site as an effort to maintain an accurate record of these activities. They are not intended to advocate for Siltronic.

Section 2.3.3.1 Former Tar Pond Area Historical Use

"Two effluent tar settling ponds (referred to hereafter as tar ponds) were constructed adjacent to the Siltronic GSA in the southeastern part of the Former Tar Pond Area in approximately 1940 and were in use by 1941. As shown in a 1952 aerial photograph (Appendix B), the larger, approximately 2.5-acre pond was located adjacent to the lampblack storage area, and the smaller, approximately 0.5-acre elongated pond was between the larger pond and the Siltronic GSA."

Taking into account the definitions of the GSAs provided in Section 2.2 of the report, the language above implies that the footprints of both tar ponds were located entirely within the current Gasco Property. This is inconsistent with the historical record and previous reports submitted by NWN which state that "the smaller of the two Gasco effluent ponds (approximately 1 acre) straddled the property line" (Anchor 2019, HAI 2011). In a similar vein, the effluent pond straddling the property line is not included in the discussion of Portland Gas & Coke (PG&C) MGP residual management areas on the Siltronic GSA in Section 2.3.5.1.

Section 2.3.5.1 Siltronic GSA Historical Use

Siltronic understands that Section 2.3 presents a summary of the historical uses of the Gasco OU. However, the language used in this report appears to inject uncertainty into the MGP residuals management history and the present locations of these materials on the Siltronic GSA; both of which were described with greater certainty in the summarized site histories presented in NWN's previous reports. These histories are described in greater detail below for each of the MGP residuals management area subsections.

Former Lowland/PG&C Effluent Pond Overflow Subsection

While NWN notes that an overflow for the tar ponds to the Former Lowland/PG&C Effluent Pond Overflow Area was constructed, they omit that the lowland area was a constructed feature with berms and an excavated ditch to direct Doane Creek and Morgan Creek (relocated by the construction of the former lowland area) as well as effluent overflows from the former lowland area to the Willamette River (HAI 2011).

Former PG&C Spent Oxide/Purifier Storage Pile Subsection

"The final disposition of the dark-colored stockpile is unknown, although based on aerial photographs, one possibility is that it was spread across a portion of the Siltronic GSA during site development by subsequent owners between 1966 and 1971."

These materials are currently present in the subsurface on the Siltronic GSA and have been physically observed in during construction activities and in borings (Anchor 2019; also Figures 4-1b and 4-1c of the FS Report) and COIs associated with this material (i.e. cyanides) are present in soil and groundwater across the Siltronic Property (HAI 2011, MFA 2024). As such, Siltronic does not believe it is accurate to state that the final disposition of the stockpile is unknown.

Former PG&C Central Excavation Subsection

"Aerial photographs from 1955 indicate the presence of a former depression or excavation in the east/central portion of the Siltronic GSA (1955 aerial photograph available in Appendix B). When evaluated in 1960, this excavation/depression contained tar at its base (HAI 2011a). The purpose of this former feature is unknown, and it is not observed in photographs after 1964."

The language above does not fully describe the magnitude of tar present in the excavation. Previous reports note that the excavation was approximately 1.2-acres in area, and NWN's company records indicate the body of tar accumulated at the base of the excavation was 2 to 3 feet deep and

estimated to total to approximately 2,000 cu yds of tar (Anchor 2019, HAI 2011). The purpose of this excavation was previously described as an MGP residuals management area accessed directly from the former lowland area via a dirt road (HAI 2011). As such, Siltronic does not believe it is accurate to state the purpose of the former feature is unknown.

Site-Wide Filling Activities (non-PG&C) Subsection

"As observed on aerial photographs from 1966 to 1971, coincident with ongoing filling activities, dark-colored areas are shown extending across the northern and central portions of the Siltronic GSA. The source of the dark-colored material is not documented."

The language used in the report appears to imply that the dark colored materials in these aerial photographs were imported from off site and are not MGP residuals. In DEQ's comments to the Interim Feasibility Study (DEQ 2021) regarding the NWN's description of the surface fill at the Siltronic Property, DEQ stated:

> "DEQ understands that in general, the filling sequence involved: 1) importing and placing material from off-site sources, including the basalt quarry across Highway 30 from the Gasco OU; and spreading MGP residuals away from the former effluent pond overflow area and spent oxide/purifier pile; followed by 2) hydraulically dredging sediment from the Willamette River onto the uplands."

In response to this comment, Anchor replied "The text will be edited in the FS Report to include this information" (DEQ 2021). Siltronic does not believe the description of filling activities provided in the FS Report is consistent with the historical record or with DEQ's comment to the Interim Feasibility Study.

There is temporally dense coverage of historical aerial imagery which depicts these redistribution activities and their initiation:

- Intact spent oxide pile and beginning of tar redistribution from the central excavation and southwest end of the bermed lowland on February 22, 1966 (vertical aerial image, US Army Corps of Engineers)
- Spent oxide no longer piled; dump trucks visible transporting and piling gray quarry rock from across Highway 30, bulldozers visible actively spreading dark-colored MGP residuals across what is now the Siltronic Property (August 11, 1966, vertical aerial image [Figure A-13, MFA 2007])
- Continued spreading of MGP residuals, with visible bulldozers and tracks across dark colored redistributed MGP residuals, piles of light-colored quarry rock on top of the spread residuals (October 10, 1966, oblique aerial image [Appendix B of Gasco FS Report; Figure A-13, MFA 2007] and October 12, 1966, oblique aerial image [Figure A-14, MFA 2007])

This can also be seen in the presence of buried spent oxide, tar, and DNAPL within the Fill outside the extents of the former MGP residuals management areas (Figures 4-1a through 4-1f of the FS Report). The dense coverage of historical aerials at the time immediately before, during, and after the spreading of these MGP residuals alongside the observations of these materials in the subsurface does not lend itself to the conclusion that these dark colored materials are not MGP residuals or that they were imported from off site.

Section 2.4.2.1 Alluvium WBZ HC&C System

"[Recovered DNAPL] from areas impacted by the Siltronic TCE release [may carry] an F002 (spent chlorinated solvent) RCRA hazardous waste code."

Siltronic does not agree with NWN's default assignment of the F002 waste code to materials generated by NWN on portions of Siltronic property and has previously commented on this subject. Siltronic's concerns regarding this designation are summarized as follows:

- It is not known by Siltronic or any other party if TCE detected at Siltronic is "spent". Therefore, it is inappropriate to assume that it is "spent" and, therefore, to apply the F002 listed waste code (see EPA 1998, F&M 2016).
- Degradation (or daughter) products of TCE, primarily cis-1,2-dichloroethene and vinyl chloride, are not listed wastes.
- Siltronic implemented a substantial EIB system resulting in greater than 99 percent removal of TCE mass in source area groundwater. As such, a "no longer contains" determination is overdue.

While NWN may choose to make F002 waste characterization determinations that are more conservative than what is required by RCRA regulations, the costs resulting from NWN's presumption would be theirs to bear. The default assignment of an F002 waste code will artificially, unnecessarily, and inappropriately drive-up site investigation and remedial costs.

Section 3.2.2

"The surficial fill deposits consist of an unsaturated zone and an unconfined Fill WBZ. The thickness of the Fill WBZ has an overall wedge shape due to the former slope of the ground surface. It is approximately 2 feet thick near Highway 30 and extends to a maximum depth of 42 feet bgs along the bank of the Willamette River."

It appears this section is implying the saturated thickness of the Fill water bearing zone (WBZ) ranges from 2 to 42 feet. However, Section 3.1.3 states that the surficial fill deposit itself is 2 to 42 feet thick, which is consistent with Siltronic's understanding of the Site. Depths to groundwater on the Siltronic Property, where the Fill is generally thicker, are typically 10 to 30 feet below ground surface, so an estimated maximum saturated thickness for the Fill WBZ would be around 32 feet.

Section 3.2.4 Basalt Water-Bearing Zone

"There is no known site-related impact to the Basalt WBZ."

Siltronic is not aware of any Basalt WBZ characterization work completed on the Gasco Property that would demonstrate the presence or absence of site-related impacts.

Section 4.1.1 Remedial Investigation Activities on the Gasco Geographic Subareas

"Potential sources of contamination within the GSAs of the Gasco property, as investigated in the RI, were subdivided into the following two general categories: 1) process or operational areas; and 2) byproduct and residue placement areas."

The sources listed for the Gasco Property are limited to the processes and byproduct/residue placement activities of Gasco and Koppers, but do not include materials associated with filling of the Site between 1905 to 1981 which included Willamette River dredge spoils (Sections 2.3 and 3.1.3).

This assumption appears to be based on the 2007 HAI Gasco RI which states:
"No information suggests that chlorinated solvents, herbicides, or pesticides were used in process activities historically conducted at the Gasco site, and such chemicals were typically not detected during the RI. Therefore, these chemicals are not COIs."

Analytical data for dioxins/furans, pesticides, herbicides, PCBs, or any other contaminant of interest (COI) potentially associated with Willamette River dredge spoils were not presented for samples collected from the Gasco property uplands in the 2007 HAI Gasco RI nor has it been reported in any subsequent report or data transmittal (see FS Report Appendix D and FS Appendix J tables J1-4, J1-6, and J1-8). It is therefore unclear why the exclusion of these COC from the Gasco Property's Willamette River fill material is warranted when they are included for the Siltronic GSA as Willamette River fill material related COIs.

Section 4.1.2 Remedial Investigation Activities on the Siltronic Geographic Subarea

"These [Rhone-Poulenc property related] *off-site sourced deep groundwater impacts are not part of the Gasco OU. DEQ is overseeing the Rhone-Poulenc evaluations of these deep groundwater impacts under a separate order."*

To our knowledge, RPAC has not included groundwater under the Gasco OU in their Feasibility Study or similar documents.

Section 4.1.5 2023 Comprehensive Feasibility Study Data Gaps Investigation

"Data gap COIs in the Lower and Deep Lower Alluvium WBZs are associated with upgradient properties and are not Gasco OU COCs."

Siltronic is not aware of any evidence that the data gaps COIs (dioxins/furans, PCBs, and DDx) are solely associated with sources upgradient of the GOU. These COIs—and other COIs associated with Willamette River dredge spoils which were placed on the Gasco Property—have not been analyzed in soil or groundwater at the Gasco Property at any depth (see FS Appendix D). COIs present on the Gasco Property have migrated from shallow water-bearing zones to these deeper water bearing zones, therefore there is the potential for vertical migration of dredge spoil COIs, if present, to deeper water bearing zones.

Section 4.2.4 DNAPL Characteristics

"At these locations, DNAPL is interpreted as mobile and migrating toward the active HC&C system extraction wells due to the enhanced radially inward hydraulic gradient induced by each HC&C system extraction well."

The migration of dense non aqueous phase liquid (DNAPL) toward the hydraulic containment and control (HC&C) system extraction wells, particularly PW-2L, may be a result of dewatering of previously saturated soils within the HC&C extraction wells' cones of depression, rather than the hydraulic gradient. The removal of buoyancy forces acting on the DNAPL can mobilize large volumes of NAPL downward, then along the cone of depression's water table surface toward the pumping wells (AlterEcho 2019).

Section 5 Summary of Risk Assessments

*"**Ecological – Fill WBZ Groundwater:** This pathway represents groundwater discharges to aquatic receptors, including threatened salmonid species, in the adjacent Willamette River and Doane Creek (which does not contain threatened salmonid species). In addition, this pathway includes*

groundwater discharges to the Willamette River riverbank seeps and associated ingestion of seeps by birds and mammals."

Siltronic is unaware of information supporting the presence of seeps and their use by riparian receptors along the GOU riverbank, particularly along the heavily armored riverbank at the Siltronic property.

Section 6.1 Feasibility Study Dataset and Screening Approach

"As in the RI/HERA Addendum, the current conditions dataset is defined as the maximum concentration of the last four events at individual monitoring wells, as well as selected temporary well points."

As shown in Appendix D, Table D-2, the current conditions dataset for the Siltronic GSA includes CVOC data extending back to 2007 (prior to the implementation of EIB injections). Groundwater data from the ongoing performance monitoring included in this dataset is also limited to 2016. As CVOC concentrations have decreased substantially since 2016 as a result of the EIB injections, Siltronic disagrees with the characterization that CVOC results in this dataset and the figures based off of it are representative of current conditions.

Section 6.2.2.1.4 Limitations of Raster Analysis

The subsection titled *Incomplete Data Distributions* indicates that 1,2-dibromo-3-chloropropane is a COI associated with Siltronic's operations. Siltronic has neither used or generated 1,2-dibromo-3-chloropropane in its current or historical operations. Siltronic is not aware of any detections of 1,2-dibromo-3-chloropropane in environmental media at either the Gasco or Siltronic Properties (see FS appendix D tables; MFA 2024)

Section 13.1.2 Engineering and Institutional Controls

NWN proposes institutional controls, including:

> *"Deed restrictions to limit land or resource use; Requirements for future buildings such as inclusion of vapor barriers; Zoning restrictions to prevent some types of land uses, such as residential; Contaminated media management plans."*

Additional details are necessary to understand what land use restrictions will include, what timeline they are on, whether they will recorded on title, and what the operations and maintenance procedures will include. Siltronic expects to be an integral part of negotiating and agreeing to these institutional controls on its property and will need to establish a communication and management system with NWN that allows Siltronic to conduct maintenance and repairs on its infrastructure and maintain some flexibility in future uses for its property.

Section 14.2.4 DNAPL Mobility

Section 14.2.4 states "TCE has mixed with MGP DNAPL and appears to have increased the mobility of the DNAPL." Similar statements are made in Section 16.1. Siltronic believes these statements are erroneous. The sensitivity, or lack thereof, to increasing TCE concentrations on Gasco MGP DNAPL mobility has previously been evaluated. That evaluation found that the "addition of TCE to a sample of the MGP DNAPL at concentrations two orders of magnitude greater than what is present at the site did not significantly reduce the viscosity of the MGP DNAPL, which controls its migration in the

subsurface. The presence of TCE and its degradation products is not changing the transport characteristics of the MGP DNAPL" (Trillium 2005).

As shown in the FS Report Appendix H, the measured viscosities, interfacial surface tension measurements, calculated transmissivity values, and calculated effective hydraulic conductivities for DNAPL samples on the Siltronic GSA are within the range of measured and calculated values for the Gasco Property, even with the exclusion of the more mobile DNAPLs near the 50-ft trench.

Appendix B

Appendix B presents annotated historical aerial photography which are excerpted from the 2007 HAI RI report. It should be noted that Siltronic did not own the areas labelled as "Siltronic Property" prior to 1978. The annotations for the majority of these aerials incorrectly label this area as "Siltronic Property" during the ownership and operations of other parties including during the MGP residuals management activities on the Allen Track under NWN's ownership, areas currently and previously owned by BNSF, and the filling of the property by Anderson, Rosenfeld, and Schnitzer during the period of their ownership.

Appendix G

"Methanogenic fermentation was the most common interpreted redox condition; it was interpreted at 12 of the 22 sampled wells. Therefore, the median values of the methanogenic half-lives for benzene and naphthalene (70 days and 120 days, respectively) were used to estimate the mass of benzene and naphthalene removed annually by biodegradation and model dissolution of benzene and naphthalene from DNAPL and predict groundwater remediation time frames."

As stated above, methanogenic conditions were encountered in just over half of the wells included in the evaluation (inclusive of all water bearing zones). Of the half-life values provided for each redox category, the methanogenic half-lives are among the shortest. A degradation rate calculation that takes into account the less reducing conditions encountered in the ten other wells would likely be significantly slower compared to the degradation rate calculated in Appendix G which assumes methanogenic conditions across the entire site. One would also expect redox conditions, and subsequently degradation rates, to vary between water bearing zones.

Appendix H

Please explain how the acceleration in G during the centrifuge test for DNAPL mobility, correlates 1:1 to the hydraulic gradient. It is unclear how the spatial dimensions and physical parameters of the soil media cancel out in the correlation.

Appendix S, Section 5.2

"NW Natural has completed several vibration studies at the Gasco OU to better understand the potential vibration risks associated with construction activities. The studies generally conclude that construction-related vibrations dissipate within a relatively short distance from the source and are not easily discernable from ambient background conditions."

Siltronic notes that much of the existing vibration data NWN has collected was related to in-water work and may not be representative of remedial activities proposed in the FS Report. As discussed above, Siltronic has invested in the collection of baseline vibration data to support evaluation of potential vibration impacts.

Figure 2-6a Historical Operations

Redistribution of MGP residuals from the 400-foot lowland area, central excavation, and spend oxide pile has been understood in many previous deliverables (HAI 2005, 2007; Anchor 2018, 2019). The term "Area of Dark Fill Placement" implies import and deposition of material from offsite rather than the movement of the large amount of dark colored MGP residuals which were already present at the site. As discussed in the response to Section 2.3.5.1 above, historical aerial photography shows the redistribution of MGP residuals in action and import of light color quarry rock (the dredge spoils were also light in color) which were placed on top of the dark colored MGP residuals.

In addition, the figure depicts the overflow from the tar ponds to the Former Lowland/Effluent Pond Overflow, but it does not depict the overflow from the south end of the former lowland to the perimeter ditch.

Table 13-4f RAU-Specific Remedial Technology Screening: TCE Management RAU

The table notes the following two seemingly inconsistent statements

- Regarding paving of the property *"A surface barrier consisting of a lined, impermeable asphalt cap. The engineered cap would reduce leaching of contaminants caused by surface infiltration, act as a barrier to prevent direct exposure to underlying soil, and reduce soil vapor flux."*
- Regarding installing an engineered soil cover *"The engineered soil cover could be used to act as a barrier to prevent direct exposure to underlying soil and reduce soil vapor flux. However, an impermeable asphalt cap is a more appropriate technology for the TCE Management RAU."*

It appears the main difference between these two technologies is that one reduces surface infiltration more than the other. If groundwater is to be captured by the HCC system, then why is leaching to groundwater of concern? For this reason, Siltronic believes that additional consideration is needed of alternative options to asphalt paving in currently vegetated areas of the Siltronic Property.

Closing

We appreciate the opportunity to comment on this FS Report. Siltronic views this report as key to setting the stage for a remedy that both resolves the contamination issues on the GOU, as well as, preserves Siltronic's ability to continue to its manufacturing operations undisturbed. However, it is clear that much more evaluation is needed in order to achieve these objectives. Siltronic looks forward to collaborating with NWN and DEQ to achieve these objectives. Please contact us should you have any questions.

Sincerely,

Maul Foster & Alongi, Inc.

Courtney Savoie, RG
Senior Hydrogeologist

Michael R. Murray, RG, PE
Principal Hydrogeologist

Attachments

References

Limitations

Figure

cc: Elizabeth Bingold, Siltronic Corporation
Myron Burr, Restoration Strategies
David Rabbino, Jordan Ramis PC
Patty Dost, Pearl Legal Group PC
Ryan Barth, Anchor QEA
Jen Mott, Anchor QEA
Halah Voges, Anchor QEA
Matt Davis, Anchor QEA
Mike Crystal Sevenson Environmental Services, Inc.
Dan Hafley, Oregon Department of Environmental Quality
Amber Lutey, Oregon Department of Environmental Quality
Hunter Young, U.S. Environmental Protection Agency

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Limitations

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the use of segregated portions of this report.

Figure

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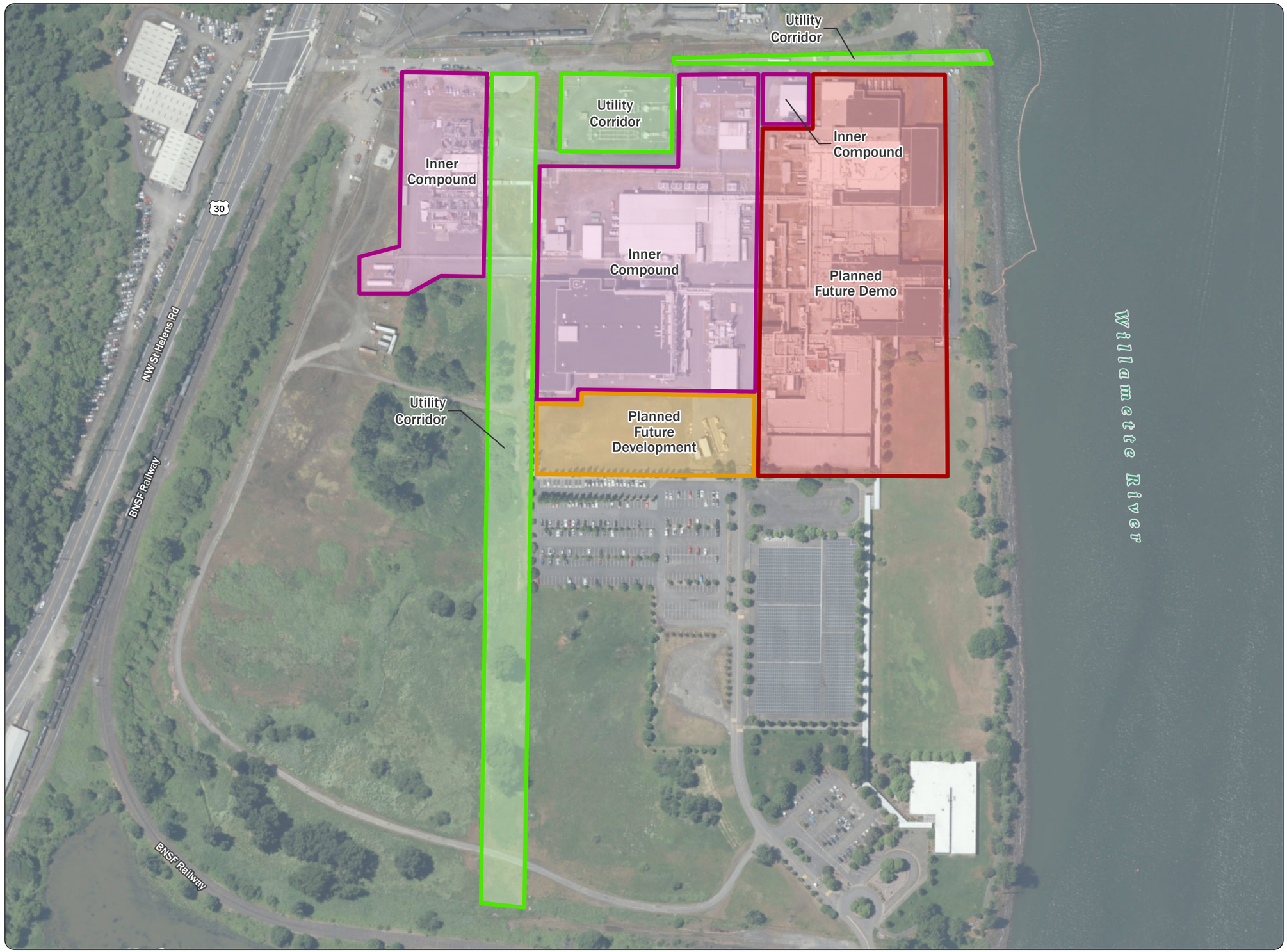
Figure
Siltronic Property Areas
Portland, OR



Legend

- Inner Compound
- Planned Future Demo
- Planned Future Development
- Utility Corridor

0 200
Feet

Data Sources
Aerial photograph obtained from City of Portland (2024).

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p. 971 544 2139 | www.maulfoster.com

Path: C:\Workspace\8128.02 Siltronic Corp\07_GIS\Pro\M8128_02_007_Site_Status.aprx\Fig Siltronic Property Areas
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