



Technical Memorandum

To: Nancy Sawka, Oregon DEQ Date: January 30, 2026

From: Courtney Savoie, RG Project No.: M1421.01.001

Re: Proposed treatment and infiltration facility location

Maul Foster & Alongi (MFA) has prepared this memorandum on behalf of Hollingworth & Vose Fiber Company (H&V) summarizing our evaluation of a proposed treatment and infiltration facility (the facility) and its potential to effect the ongoing groundwater remedial action at the H&V facility located at 1115 SE Crystal Lake Drive in Corvallis, Oregon (the Site).

Executive Summary

H&V is proposing to install a vegetated, surface treatment and infiltration facility at the Site to infiltrate stormwater with total copper and zinc concentrations that exceed the National Pollutant Discharge Elimination System Industrial Stormwater Discharge Permit No. 1200-Z (1200-Z Permit) benchmarks but are below the copper and zinc groundwater quality standards. MFA has evaluated the potential for infiltration to affect the ongoing groundwater remedial action addressing historical releases of trichloroethylene (TCE) to groundwater at the Site. The treatment and infiltration facility will be located in a portion of the Site that is distant from the TCE source area, where there is no known TCE present. MFA considered the potential for soil leaching to groundwater, groundwater flow directions, the proximity of the facility to the estimated boundary of the TCE plume, the capture zone of the groundwater extraction system, and the footprint of the soil vapor extraction system. This evaluation also specifically considers the potential for the facility to spread or otherwise exacerbate the TCE plume in a residential area adjacent to the Site. Based on qualitative evaluation of these items, **MFA concludes that the balance of scientific evidence shows that the proposed treatment and infiltration facility is unlikely to result in exacerbation of the existing TCE plume on the Site or in the adjacent residential area, nor is it likely to compromise the effectiveness of the ongoing remedial action.**

Background

H&V is proposing to install a treatment and infiltration facility at the Site in response to recent exceedances of the copper and zinc benchmarks established in the 1200-Z Permit. Although the concentrations of zinc and copper are already lower than groundwater quality standards, H&V is proposing to design and install a treatment and infiltration facility, which will provide treatment via biofiltration using bioretention soil and plants, consistent with standard engineering practice and local and regional stormwater manuals. The planned location of the treatment and infiltration facility is shown in the attached Figure.

H&V is also working with the DEQ cleanup program to address historical releases of TCE at the Site. Remediation has been ongoing since the early 1990's and H&V is currently in the process of

implementing the final Site remedy identified by DEQ in the 2015 Record of Decision (ROD). There is an active groundwater extraction and treatment system operating at the Site, which contains and treats soil vapor and groundwater with concentrations of TCE exceeding relevant screening levels.¹ Details of the extraction system are provided in the *Remedial Design/Remedial Action Work Plan* (PNG 2020). The most current analytical data for the Site reviewed as part of this evaluation is presented in the *H&V Fiber Remedial Performance Data Package* (PNG 2024); figures showing TCE concentrations in groundwater are excerpted from that document and presented in the attachment to this memo. The extent of the current groundwater TCE plume (defined by detections of TCE) is shown in the attached Figure.

Evaluation of Potential Impacts on Active TCE Remediation

MFA has conducted a qualitative evaluation of the potential for stormwater to negatively impact the ongoing remediation of TCE contamination in groundwater at the Site. MFA considered the following lines of evidence:

- **Soil leaching to groundwater.** The treatment and infiltration facility is located well outside of the TCE source area, and there is no documented TCE soil contamination in the vicinity of the proposed infiltration facility. Infiltration of stormwater is not expected to cause leaching of TCE from soil to groundwater, because no TCE is present in the soil in the vicinity of the treatment and infiltration facility.
- **Proximity to the TCE groundwater plume.** The treatment and infiltration facility is located outside the footprint of the existing TCE plume, which is defined based on detections of TCE (i.e., the plume boundary is defined by non-detect groundwater samples). The facility is approximately 800 feet away from the closest portion of the TCE plume. A small portion of the TCE plume extends into the residential area located between Crystal Lake Drive and SE Vera Avenue (see Figure). Within this residential area, the boundary of the TCE plume is located over 1,100 feet from the proposed treatment and infiltration facility. Based on typical groundwater mounding geometries, the lateral extent of groundwater mounding associated with stormwater infiltration is unlikely to extend beyond 200 feet. Groundwater mounding associated with the facility is not expected to intersect the TCE plume either on the Site or in the residential area.
- **Groundwater flow directions.** The treatment and infiltration facility is located cross-gradient from the TCE plume and the TCE source area and is in an area of the Site that has not been impacted by historical TCE releases. Groundwater in the vicinity of the treatment and infiltration facility is expected to flow north to north-northwest, towards the Willamette River. There is no known groundwater flow path that would transport the infiltrated stormwater or groundwater from the infiltration facility to the area of the TCE plume. Some groundwater mounding is expected to occur as a result of infiltration of treated stormwater, which could temporarily result in limited changes to groundwater flow in the immediate vicinity of the facility, however this is not likely to affect the overall direction of groundwater flow and is unlikely to intersect the footprint of the TCE plume.

MFA also considered the potential for changes in groundwater flow to result in changes to the TCE plume in the residential area, including the potential for the existing plume footprint to expand or move into areas where no TCE is currently present. In order for the facility to affect groundwater flow in the residential area, stormwater infiltration would have to result in groundwater flowing over 1,100 feet perpendicular to the current direction of groundwater flow. MFA considers this scenario implausible. In this unlikely scenario, if this were to occur, the most likely result would be dilution of the TCE concentrations in groundwater, or groundwater flow

¹ Applicable cleanup standards on the Site include DEQ risk based concentrations for groundwater vapor intrusion into occupational buildings (13 ug/L) and DEQ Ecological Tier 2 SCV value (47 ug/L) (from PNG 2024).

away from the residences and back toward the TCE source area, resulting in lower TCE concentrations in the residential area.

- **Proximity to groundwater extraction system.** The treatment and infiltration facility is located outside of the capture zone of the existing groundwater extraction system. The capture zone boundary is not specifically defined but occupies a subset of the area identified as the TCE plume in the attached Figure. The minimum distance between the treatment and infiltration facility and the estimated boundary of the extraction system capture zone is approximately 1,500 feet. The treatment and infiltration facility is not expected to influence the current extraction system capture zone from this distance, since neither groundwater elevations nor flow directions are expected to change in the vicinity of the current capture zone.
- **Proximity to soil vapor extraction system.** The treatment and infiltration facility is located a considerable distance (>1,500 feet) from the soil vapor extraction (SVE) system, which is located within the footprint of the groundwater capture zone. The treatment and infiltration facility is unlikely to influence the operation of the SVE system from this distance, since groundwater elevations are highly unlikely to change within the footprint of the SVE system.

Conclusions

Overall, these lines of evidence indicate that infiltration of stormwater is unlikely to affect the current TCE plume. Stormwater infiltration is expected to result in some groundwater mounding in the vicinity of the treatment and infiltration facility, but this groundwater mounding is unlikely to intersect the footprint of the TCE plume, the capture zone of the groundwater extraction system, or the footprint of the SVE system. The treatment and infiltration facility will be located in a portion of the Site where there is no known TCE contamination, and based on measured and expected groundwater flow directions, there is no groundwater flow pathway from the infiltration facility to the area of the Site impacted by the historical TCE release. The treatment and infiltration facility is also unlikely to impact the TCE plume in the residential area adjacent to the Site.

This evaluation was based on a TCE plume boundary defined by non-detections of TCE, which is the most conservative approach possible. The portion of the TCE plume closest to the proposed treatment and infiltration facility contains TCE concentrations below applicable cleanup standards and currently discharges to the Willamette River, so in the unlikely event that infiltration of stormwater influences groundwater flow over 800 feet away, it would not result in a negative or detrimental effect on the remedial action, nor would it result in discharge of groundwater exceeding regulatory thresholds to the Willamette River.

Based on this qualitative evaluation, MFA concludes that the balance of scientific evidence shows that the proposed treatment and infiltration facility is unlikely to result in exacerbation of the existing TCE plume, including in the residential area, nor is it likely to compromise the effectiveness of the ongoing remedial action.

Attachments

References

Limitations

Figure

PNG Figures

References

- PNG. 2020. *Remedial Design/Remedial Action Work Plan*. PNG Environmental. May 5.
- PNG. 2024. *H&V Fiber Remedial Performance Data Package, 2021-2023*. PNG Environmental. September 10.
- USGS. 2010. *Simulation of Groundwater Mounding Beneath Hypothetical Stormwater Infiltration Basins*. Scientific Investigations Report 2010-5102. United States Geological Survey. November.

Limitations

The services undertaken in completing this technical memorandum 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. This technical memorandum is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this technical memorandum 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 accuracy of information supplied by others, or the use of segregated portions of this technical memorandum.

Figure



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Print Date: 11/26/2025
Reviewed By: apoliski
Produced By: jroberts
Project: M421.01.002

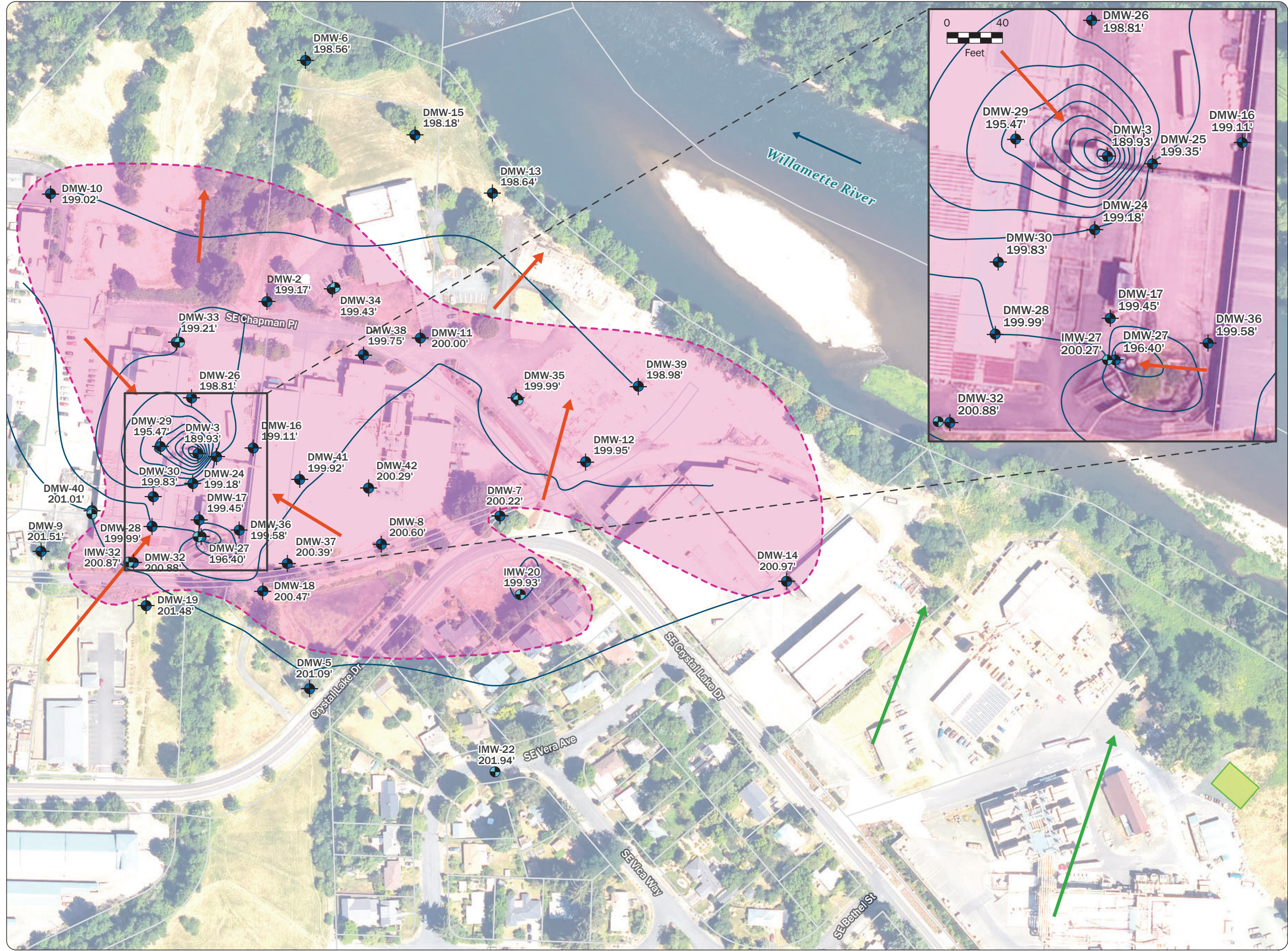


Figure
Potential Infiltration Basin
H&V Fiber Company
Corvallis, OR

- Legend**
- Intermediate Depth Monitoring Well
 - Deep Monitoring Well
 - Approximate Groundwater Flow Direction
 - Expected Groundwater Flow Direction
 - 1-foot Groundwater Elevation Contour
 - Approximate Boundary of TCE Detection in Groundwater
 - Potential Infiltration Basin
 - Tax Lot

Notes
Groundwater elevations measured on November 3, 2025.
Groundwater elevation vertical datum is "mean sea level" per PNG Environmental, Inc.



Data Sources
Monitoring wells and groundwater elevations (November 2025) obtained from PNG Environmental, Inc.; aerial photograph (2024) obtained from the Oregon Statewide Imagery Program; tax lot data (2025) obtained from Benton County.

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PNG Figures



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