MEMORANDUM

To: Mike Warfel, Washington State Department of Ecology Date: November 21, 2018

From: Jim Maul, LHG Project: 0747.01.09

RE: Revised Conceptual Site Model
North Cascade Ford site, 116 West Ferry Street, Sedro-Woolley, Washington
FSID: 58313566, CSID: 12075, VCP No.: NW3031

On behalf of VSF Properties, LLC (VSF), Maul Foster & Alongi, Inc. (MFA) has prepared this memorandum to update the conceptual site model (CSM) presented in the preliminary remedial investigation and feasibility study (RI/FS) for the North Cascade Ford property at 116 West Ferry Street in Sedro-Woolley, Washington (the Property) (see Figure 1) (MFA, 2015). This memorandum synthesizes relevant updates to the CSM for the Property by incorporating information gained during data gap investigations performed since completion of the preliminary RI/FS.

BACKGROUND

The Property and an adjacent property to the north that is owned by the Burlington Northern Santa Fe Railway Company (BNSF) are included in the North Cascade Ford site (the Site). The Site is currently enrolled in the Washington State Department of Ecology's Voluntary Cleanup Program. Given the restricted access to the BNSF property, VSF is now pursuing a property-specific No Further Action (NFA) opinion. This memorandum has been prepared to fulfill the reporting requirements for a property-specific NFA-likely opinion for the Property issuance of such an opinion.

In 2015, MFA prepared a preliminary RI/FS for the Property and developed a preliminary CSM using the information obtained during previous investigations at the Site (MFA, 2015). Two data gap investigations conducted at the Site (MFA, 2017a,b) since completion of the preliminary RI/FS provided additional information that has enabled refinement of the CSM for the Property.

CONCEPTUAL SITE MODEL

Components of the CSM that have been updated based on information gained since completion of the preliminary RI/FS are discussed below. The CSM for the Property is provided as Figure 2.

Source Characterization

Chemical detections indicate that multiple hazardous-substance releases have occurred at the Property. Chemicals of interest were detected in association with three areas of concern (i.e., AOCs 1 through 3), as discussed in the most recent data gap investigation report (MFA, 2017b).

Fate and Transport of Contaminants

Since completion of the preliminary RI/FS, additional information on the fate and transport of chemicals on the Property has been gained through the installation and sampling of additional groundwater monitoring wells. Additional wells were installed at the Property to better understand groundwater flow direction and the interaction between shallow and deep groundwater at the Property. The monitoring well network has been expanded from three to eight monitoring wells since completion of the preliminary RI/FS (see Figure 1).

Previous monitoring events indicated a consistent southeast groundwater flow (MFA, 2015). However, water levels measured from the expanded monitoring well network suggested a groundwater was present in the central portion of the Property, beneath the auto sales and service building (see Figures 5-1 and 5-2 of MFA, 2017b). Therefore, to better assess the underlying lithology and potential influences on localized groundwater flow at the Property, two cross sections were prepared to illustrate subsurface conditions along two perpendicular profiles at the Property (see Figures 3 and 4). The cross-sectional transects are aligned from west to east (transect A-A') and north to south (transect B-B') (see Figure 1). Features shown on the cross sections include geologic units, well screens, water levels observed during well installation, and the inferred water table measured from the well network on May 31, 2017 (see Figures 3 and 4). Based on the information provided in the cross sections, silt lenses appear at varying depths and are interbedded in a thick unit of silty sand to poorly graded sand. These silt lenses appear to affect the top of the groundwater table at the Property. The intermittent presence of the silt units interacting with the relatively higher permeability silty sand to poorly graded sand and the top of the water table, as illustrated on the cross sections, suggests that localized variations in groundwater flow are the result of differing, localized infiltration rates and groundwater ponding. The lithology presented in the cross sections confirms that a dominant groundwater flow pattern at the Property remains uncertain and, instead, supports the presence of localized flow variations resulting from varying transmissivity of lithology beneath the Property. Therefore, localized groundwater flow variations present at the Property may result in dissolved-phase contamination movement throughout the subsurface in varying localized directions.

The cross sections also indicate that there is no contiguous confining unit that creates distinct shallow and deep water-bearing zones but, rather, a single, shallow water-bearing zone comprising intermittent, low-transmissivity silt units (see Figures 3 and 4).

The other fate and transport mechanisms discussed in the preliminary RI/FS have not changed and are retained for the Property (MFA, 2015).

Terrestrial Ecological Evaluation

A simplified terrestrial ecological evaluation (TEE) presented for the Property in the preliminary RI/FS determined that the Site does not pose a substantial threat to potential ecological receptors (MFA, 2015). Taking into consideration information gained through completion of the data gap investigations, the TEE exclusion remains applicable for the Property. Therefore, soil analytical results have not been compared to ecological screening values.

Potential Receptors and Exposure Pathways

A beneficial water use determination was conducted during the preliminary RI/FS (MFA, 2015). As discussed above, based on regional topography and on hydrogeological conditions observed on the Property, the following surface water and shallow groundwater conditions were revised for the Property (the region of study):

> Localized groundwater flow variations influence shallow groundwater; there is no dominant groundwater flow direction.

The remaining components of the beneficial water use determination presented in the preliminary RI/FS are unchanged.

There has been no change to the receptors and the potentially complete exposure pathways at the Property that were presented in the preliminary RI/FS (MFA, 2015).

Cleanup Level Development

Potentially complete exposure pathways have not changed, nor have the MTCA cleanup levels (CULs) relied on for the Property, since the completion of the preliminary RI/FS (MFA, 2015). Therefore, the CUL development presented in the preliminary RI/FS is retained for the Property.

REFERENCES

MFA. 2015. Preliminary remedial investigation and feasibility study, North Cascade Ford property, Sedro-Woolley, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. December 9.

MFA. 2017a. Letter (re: 2016 data gap investigation results, North Cascade Ford property, Sedro-Woolley, Washington) to L. Setchell, Helsell Fetterman LLP, from H. Good and J. Clary, Maul Foster & Alongi, Inc., Bellingham, Washington. January 24.

MFA. 2017b. Supplemental data gap investigation report, North Cascade Ford site, Sedro-Woolley, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. August 18.

ATTACHMENTS:

Figure 1—Cross-Section Transects
Figure 2—Conceptual Site Model
Figure 3—Geologic Cross-Section A-A'
Figure 4—Geologic Cross-Section B-B'

cc: Larry Setchell, Helsell Fetterman, LLP
Frank Chmelik and Holly Stafford; Chmelik, Sitkin & Davis, PS

ATTACHMENTS

Figure 1
Cross Section Transects

North Cascade Ford Property
116 West Ferry Street
Sedro-Woolley, Washington

Legend

- UST Removal Excavation Area
- Hoist Removal Excavation Area
- Property Parcel
- BNSF-owned Parcel
- Sub-slab Soil Vapor Probe
- Monitoring Well Location
- Monitoring Well Location (decommissioned)
- Phase II ESA Boring Location
- Phase II ESA Boring Location (soil removed)
- MFA Boring, Groundwater
- MFA Boring, Soil
- MFA Boring, Soil and Groundwater
- Cross Section Transect

NOTES:
AOC boundaries represent the extent of investigation locations included in the assessment of environmental impacts associated with potential releases within each AOC and are not necessarily representative of the extent of contamination associated with each AOC.
The surveyed Property parcel boundaries do not coincide with the adjacent parcel boundaries obtained from Skagit County; therefore, there is an overlap between the Property and BNSF parcels.
AOC = area of concern.
AST = aboveground storage tank.
BNSF = Burlington Northern Santa Fe Railway.
ESA = environmental site assessment.
MFA = Maul Foster & Alongi, Inc.
Property = North Cascade Ford Property
UST = underground storage tank.

0 31.5 63
Feet

Source: Aerial photograph obtained from ArcGIS Online. Property parcel boundaries surveyed by Wilson Engineering, LLC. Adjacent parcel boundaries obtained from Skagit County.

AOC 1: Auto Repair Shop
AOC 2: Former USTs
AOC 3: Former Coal Storage Sheds/Possible Fill Area

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p. 971 544 2139 | www.maulfoster.com

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Approved By: H. Good
Produced By: alixby
Project: 0747.01.07

Figure 2
Conceptual Site Model
North Cascade Ford Property
116 West Ferry Street, Sedro-Woolley, Washington

Primary Sources	Primary Release Mechanism	Secondary Sources	Secondary Release Mechanism	Tertiary Source	Point of Potential Contact	Exposure Route	Current and Potential Future Receptors: Construction Workers	Occupational Workers	Off-Property Residents	Recreational Fishers	Aquatic Ecological Receptors
Releases to Surface or Subsurface Soil					Soil	Incidental Ingestion Dermal Contact Inhalation (dust and vapors)	✓ ✓ ✓	✓ ✓ ✓	∅ ∅ ✓	∅ ∅ ∅	∅ ∅ ∅
	Volatilization				Indoor air	Inhalation	∅	I	I	∅	∅
			Volatilization		Outdoor air	Inhalation	I	I	I	∅	∅
	Leaching	Groundwater			Groundwater	Incidental Ingestion Dermal Contact Inhalation (vapors)	✓ ✓ ✓	I I I	I I I	∅ ∅ ∅	∅ ∅ ∅
Releases to Groundwater			Discharge	Brickyard Creek	Surface Water and Sediment	Incidental Ingestion Dermal Contact	∅ ∅	∅ ∅	∅ ∅	I I	I I
					Fish Tissue (via bio-accumulation)	Ingestion	∅	∅	∅	I	I

Notes:

Primary pathway →
Potential pathway - - →
Potentially Complete exposure route ✓
Incomplete exposure route ∅
Insignificant exposure route I

Figure 3
Geologic Cross-Section A-A'
North Cascade Ford Property
116 West Ferry Street, Sedro-Woolley, Washington

A (West)

A' (East)

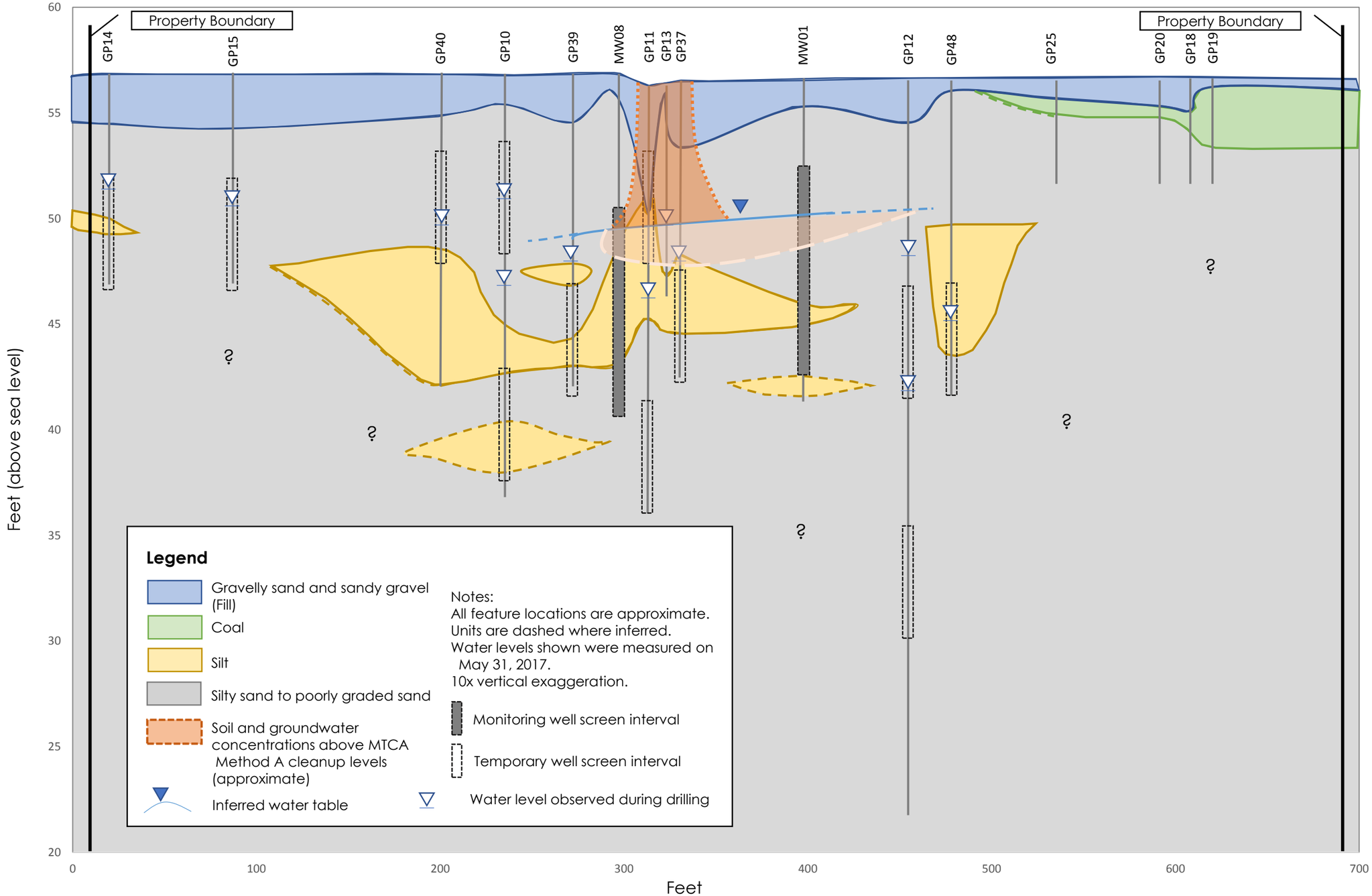

Figure 4
Geologic Cross-Section B-B'
North Cascade Ford Property
116 West Ferry Street, Sedro-Woolley, Washington