Groundwater Monitoring Report

Groat Brothers Inc.
608 West Scott Avenue, Woodland, Washington
HydroCon Project Number: 2016-005

Prepared for:
Mr. Ken Groat
608 West Scott Avenue
Woodland, Washington

February 29, 2016

Prepared by:

HydroCon, LLC
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HydroCon

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1.0 INTRODUCTION

1.1 Description of Property

The site is located at 608 West Scott Avenue in Woodland, Washington, Cowlitz County, Section 13, Township 5 North, Range 1 West of the Willamette Meridian (See Figure 1). The site is located within the city limits of Woodland.

The site occupies and operates on two parcels of property totaling approximately 6.91 acres. The site is located just west of the Interstate 5 freeway, approximately 2,000 feet west of the north fork of the Lewis River. The site topography is relatively flat, with a ground surface elevation of approximately 20 feet above average mean sea level. No surface water bodies are located on or adjacent to the site, although a drainage swale borders the western part of the site and is used for stormwater conveyance. The majority of the site is unpaved. The site is currently occupied by Groat Brothers Inc. (GBI).

1.2 Site History

HydroCon submitted a file review request with the Washington State Department of Ecology (Ecology) and received the following documents:

- Final Remedial Investigation Report – by Maul Foster Alongi (MFA), dated March 27, 2003
- Supplemental Investigation of Groundwater at Former Underground Injection Control Well – by MFA, dated April 6, 2005
- Groundwater and Soil Characterization at Groat Brothers, Inc. Former Service Station – by MFA, dated June 14, 2007.
- Feasibility Study Report – Former Service Station Property – by MFA, dated July 2, 2009.
- Groundwater Monitoring, January 2009, Groat Brothers Inc. – by MFA, dated January 21, 2010.
- Groundwater Monitoring, July 2010, Groat Brothers Inc. – by MFA, dated September 29, 2010.

A summary of the previous work completed at the site is included below. The above documents are all on file with Ecology.

The site was historically utilized as a retail gasoline station and vehicle repair shop by Humble Oil and Refining Company from approximately 1966 to 1990, when the former underground storage tanks (USTs) were removed. The site is zoned highway commercial and the surrounding properties are similarly zoned for light and heavy industrial and highway commercial purposes.

GBI retained the services of MFA to evaluate the impacts to shallow soil and groundwater based on the historical use of the site as a gasoline service station and ongoing utilization as a trucking company. Several areas of concern (AOCs) were identified and assessed between January 2001 and March 2003. A multi-staged investigation was completed and soil and groundwater samples were collected and analyzed for constituents of concern (COCs), including: Gasoline Range (GRPH), Diesel Range (DRPH), and Motor Oil Range (ORPH) Total Petroleum Hydrocarbons; polynuclear aromatic hydrocarbons (PAHs); volatile organic compounds (VOCs); and total metals. Based on the scope and range of the investigations, the site was thoroughly characterized. Based on the absence of detectable concentrations of COCs in samples collected during these investigations, above the Ecology's Model Toxics Control Act (MTCA) Method A Cleanup Levels, several of the AOCs were eliminated from the need for further action.

A remedial excavation was completed at the site and in the vicinity of the former underground storage tank (UST) and aboveground storage tank (AST) area and the soil was treated onsite. Confirmation samples collected from these soils indicated that the soil was treated to concentrations below MTCA Method A Cleanup Levels.

Six groundwater monitoring wells were installed at the site to establish monitor contaminant concentrations associated with the former UST and AST area. Quarterly groundwater monitoring was conducted at the site after the installation of these monitoring wells.

Based on a review of the Remedial Investigation report, completed by MFA, Ecology placed a restrictive covenant (RC) on groundwater use at the site. In addition, a partial No Further Action (NFA) letter was issued for the site in October 2010. The RC required that groundwater monitoring be completed at the site at least every 18 months to show that groundwater contamination was not migrating off site. Due to economic reasons, GBI was unable to continue the groundwater monitoring and the site remained inactive for approximately 5 years.

In early 2015, Mr. Panjini Balaraju, with Ecology, conducted a site visit as part of the five-year periodic review of the site (as required in the Partial NFA). In March 2015, GBI hired HydroCon Environmental LLC (HydroCon) to interface with Ecology and complete the required sampling. HydroCon personnel negotiated a scope of work with Ecology to bring the site into compliance. The scope of work included the following tasks:

- Redevelop the four (MW-4 through MW-7) of the seven onsite monitoring wells.
- Conduct rounds of groundwater monitoring on an 18-month cycle; however, if the results from the first round of groundwater monitoring are below MTCA Method A Cleanup levels (or non-detect), subsequent sampling events may be completed quarterly. If four consecutive quarters of groundwater monitoring events indicate that concentrations are all below MTCA Method A Cleanup levels, Ecology will remove the RC; provide a No Further Action determination for the site.

- During each monitoring event, measure water levels in all seven wells to complete a groundwater gradient contour map.
- Collect groundwater samples from monitoring wells MW-4 through MW-7 and analyze each sample for Diesel Range (DRPH) and Motor Oil Range (ORPH) Total Petroleum Hydrocarbons.

1.3 Scope of Work

As described above the scope of work for the GBI site is intended to bring the site into compliance with the Partial NFA letter requiring groundwater sampling at a minimum of every 18 months. However, the analytical results from the first groundwater sampling event in March 2015 indicated that the DRPH and ORPH concentrations in three of the four monitoring wells were below the MTCA Method A Cleanup levels. As a result, GBI decided to resample the wells on a quarterly basis. A total of five quarterly events were completed; the results of the first four sampling events were previously submitted by HydroCon in the form of technical memorandums to Ecology. This report is intended to provide the details and results of the 5th sampling event, to summarize the previous work completed at the site, and based on the sampling results, request the removal of the RC on the site and an unrestricted NFA determination.

2.0 HEALTH AND SAFETY

HydroCon prepared a site specific health and safety plan (HASP) to govern health and safety protocols used during this investigation. Work was performed using Occupational Safety and Health Administration (OSHA) Level D work attire consisting of hard hats, safety glasses, protective gloves, and protective boots.

3.0 GROUNDWATER MONITORING

After four rounds of groundwater sampling, all the monitoring wells except MW-5 had four consecutive quarters of results below the MTCA Method A Cleanup level; however, based on an exceedance during the first sampling event, monitoring well MW-5 only had three consecutive quarters. As a result, monitoring well MW-5 was sampled a fifth time. This section of the report details the sampling methodology, groundwater conditions, and laboratory analytical results of the fifth sampling event. On February 11, 2106 HydroCon personnel mobilized to the site to complete the required tasks.

3.1 Depth to Water Measurements

Prior to sampling, the well caps of all of the monitoring wells (MW-1 through MW-7) were removed and the water level was allowed to equilibrate prior to measuring the DTW. The DTW in each well was measured using a clean electronic water level indicator. Water levels were measured at the scribed reference mark (north end of the top of the PVC casing) at each well. Depths to water measurements

were documented on the Groundwater Sample Collection Forms included in Appendix A. In addition, Table 1 provides a summary of current and historical groundwater elevations measured at the site.

3.2 Groundwater Sampling

Monitoring well MW-5 was purged, prior to sampling, with a low flow peristaltic pump equipped with new length of LDPE tubing attached to a new length of silicon tubing. Groundwater quality parameters (pH, temperature, dissolved oxygen, oxygen reduction potential, and specific conductivity) were measured and recorded on a Groundwater Sample Collection field form along with the DTW measurements (Appendix A). Purging was completed when the field parameters had stabilized within the prescribed limits.

Upon stabilization of the groundwater quality parameters, the groundwater sample was collected and placed in laboratory-prepared sampling containers. The samples were placed in an iced cooled along with the chain-of-custody documentation and shipped to Friedman & Bruya Laboratory, a Washington accredited lab, in Seattle, Washington for analysis.

3.3 Laboratory Analysis

As required by the scope of work agreed to by Ecology, the groundwater sample was analyzed for DRPH and ORPH by Northwest Method NWTPH-Dx.

3.4 Groundwater Conditions and Groundwater Flow Direction

The water produced from MW-5 during groundwater sampling activities on February 11, 2016 was clear with no noticeable hydrocarbon odor or sheen.

Static water levels in the seven wells ranged from 2.01 to 5.80 feet below the top of the PVC well casing on February 11, 2016. The elevation of the groundwater in the wells was calculated using the elevation of the top of the casing (at the scribed reference mark) and subtracting the depth to water measurement (Table 1). HydroCon prepared a groundwater elevation contour from the data set to illustrate the direction of groundwater flow at the site (Figure 4).

The groundwater flow direction in the southern portion of the site was generally towards the southwest, with a gradient of approximately 0.0012 feet/foot from MW-1 to MW-7. A mound is present at MW-5. Groundwater flows to the north on the northern portion of the site.

3.5 Groundwater Analytical Results

The groundwater analytical results are reported as micrograms per liter (µg/L) and are summarized below and on Table 2 and shown on Figure 3. Copies of the laboratory report and chain-of-custody documentation are included in Appendix B. The analytical results are summarized below.

DRPH was detected at a concentration of 90 µg/L; however the detected concentration is below the MTCA Method A Cleanup level of 500 µg/L. ORPH was not detected above the laboratory's Method Reporting Limit (MRL).

4.0 DISCUSSION

Investigation at the site began in 2003 which led to several remedial actions discussed in detail above. Investigations were completed in several AOCs; a remedial soil excavation was completed in the vicinity of the former UST/AST area and seven groundwater monitoring wells have been installed at the site. In March 2004 a RC was placed on site limiting the use of groundwater as a result of the residual concentrations of DRPH and ORPH above the MTCA Method A Cleanup levels and in October 2010, the site was issued a partial NFA which requires that groundwater samples be collected at least every 18 months. For economic reasons, groundwater monitoring was discontinued in late 2010.

In early 2015, Mr. Panjini Balaraju, with Ecology, completed a five-year periodic review of the site. HydroCon was retained to coordinate with Ecology and a work plan was developed. In March 2015, monitoring wells MW-4 through MW-7 were redeveloped, groundwater depth measurements were collected and monitoring wells MW-4 through MW-7 were sampled. Based on the results of the sampling, concentrations of DRPH and/or OPRH in three monitoring wells (MW-4, MW-6, and MW-7) were below the MTCA Method A Cleanup levels, with the fourth monitoring well (MW-5), just above the cleanup level. As a result, the subsequent groundwater sampling events were completed quarterly, ending in February 2016. Analytical results from the second quarterly sampling event through the February sampling event did not detect concentrations of DRPH and/or ORPH above the MTCA Method A Cleanup levels.

Based on the results from the last five quarterly sampling events, it appears as though natural attenuation has reduced the residual concentrations of DRPH and ORPH below the MTCA Method A Cleanup levels at the site. Based on these results, it's HydroCon's opinion that no further action is warranted at the site.

5.0 REQUEST FOR NO FURTHER ACTION DETERMINATION

On behalf of Groat Brothers Inc., HydroCon requests that Ecology provide an unconditional No Further Action Determination for the site for the following reasons:

- Previous sampling at the site has determined that onsite soils are below the applicable MTCA Method A Cleanup levels.
- The concentrations of COCs in groundwater in the monitoring wells at the site with historical residual concentrations of DRPH and ORPH have remained below their respective MTCA Method A Cleanup levels for four consecutive quarters.

- Per the Groundwater Monitoring Scope of Work agreed upon by Ecology, Groat Brothers Inc. has met all of the requirements for receipt of an unconditional NFA determination.

In addition to the request for an unconditional NFA determination, HydroCon also requests that Ecology remove the Restrictive Covenant at the site per the agreed upon scope of work. Upon receipt of the NFA, HydroCon will supervise the abandonment of the site monitoring wells in accordance with the Ecology Water Well Construction Act (1971), Chapter 104 of Title 18 of the Revised Code of Washington (Chapter 173-160-460 of the Washington Administrative Code [WAC 173-160-460]).

6.0 QUALIFICATIONS

HydroCon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. HydroCon makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that HydroCon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report.

Findings and conclusions resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this monitoring. Subsurface conditions may vary from those encountered at specific sampling locations or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations and findings are based solely upon data obtained at the time and within the scope of these services.

This report is intended for the sole use of **Mr. Ken Groat**. This report may not be used or relied upon by any other party without the written consent of HydroCon. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

The conclusions presented in this report are, in part, based upon subsurface sampling performed at selected locations and depths. There may be conditions between borings or samples that differ significantly from those presented in this report and which cannot be predicted by this study.

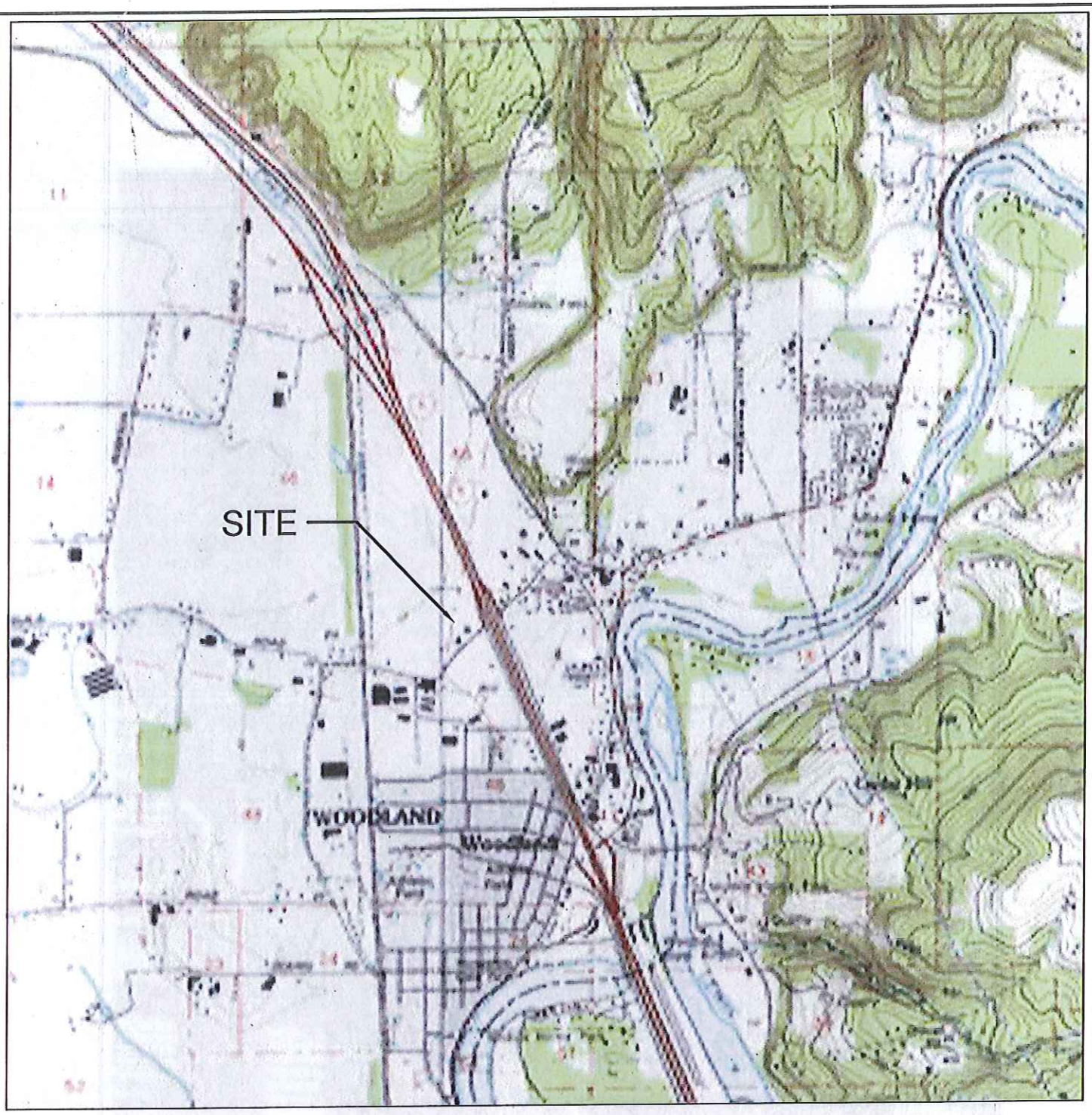
Signature:

Report Prepared By:

Jonathan Horowitz, PE
Project Engineer

Report Reviewed By:

David Borys
President



NOTE(S):

1. USGS, DEER ISLAND/WOODLAND QUADRANGLE
   WASHINGTON
   7.5 MINUTE SERIES (TOPOGRAPHIC)

N W E S

0 2000 4000

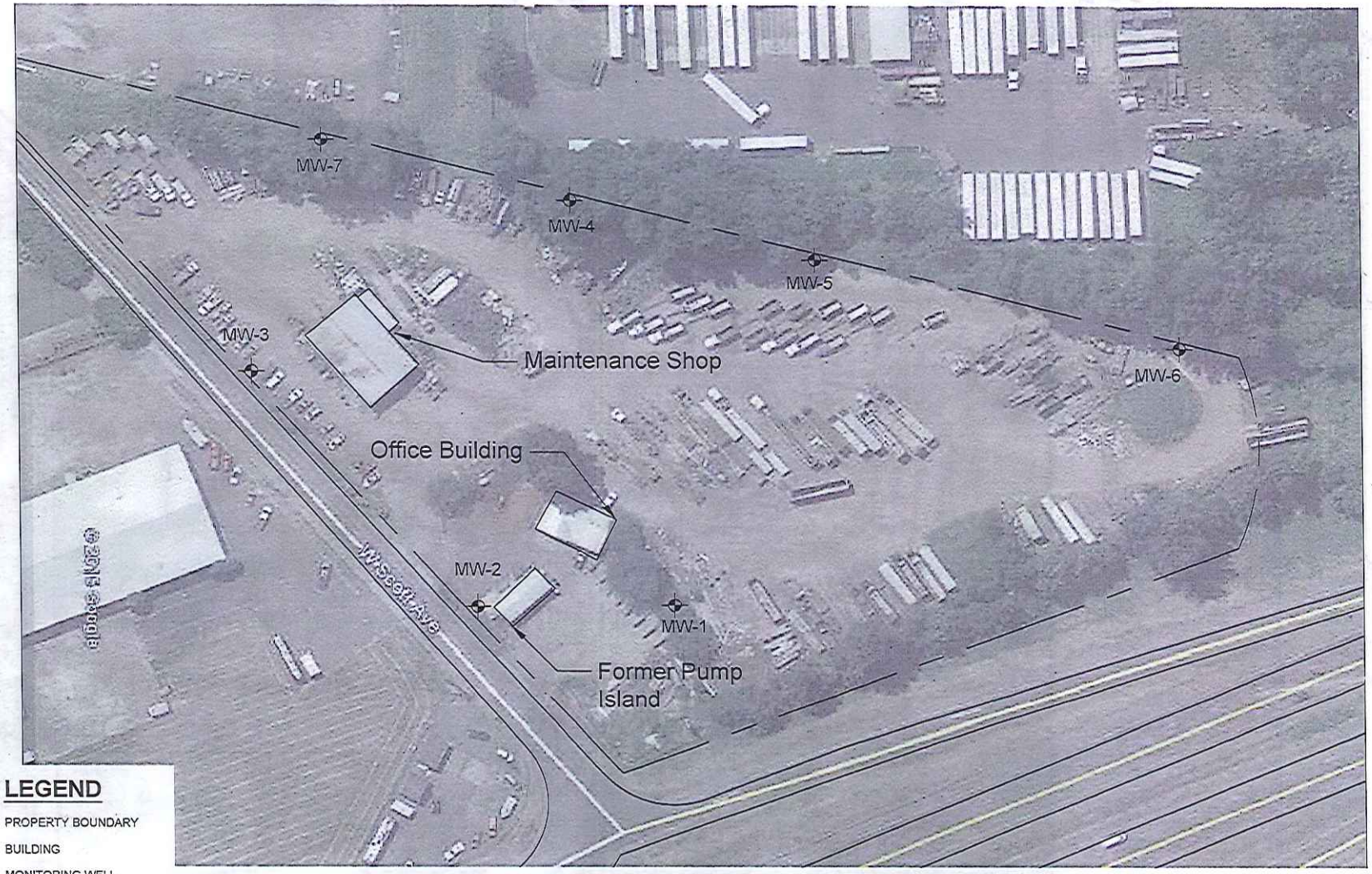
SCALE IN FEET
1" = 2000'

HydroCon
501 Allen St Suite B, Kelso WA Ph: (360) 706-6079

DATE: 02-22-16
DWN: JH
CHK: JH
APPROVED:
PRJ. MGR: DB
PROJECT NO: 2015-006

FIGURE 1

SITE LOCATION
GROAT BROTHERS, INC.
608 WEST SCOTT AVE.
WOODLAND, WA


MW-7
MW-4
MW-5
MW-3
Maintenance Shop
MW-6
Office Building
MW-2
MW-1
Former Pump Island
Wassell Ave
LEGEND
PROPERTY BOUNDARY
BUILDING
MONITORING WELL
0
80
160
SCALE IN FEET
1" = 80'
Hydro Con
501 Allen St Suite B, Kelso WA 98626
DATE: 02-22-16
DWN: JH
CHK: JH
APPROVED:
PRJ. MGR: DB
PROJECT NO: 2015-006
FIGURE 2
SITE FEATURES
GROAT BROTHERS, INC.
608 INDUSTRIAL WAY
WOODLAND, WA

Groundwater Monitoring Well Analytical Results (µg/L)		
Parameter	Cleanup Level	MW-5
DRO	500	90
ORO	500	<250

LEGEND

- PROPERTY BOUNDARY
- BUILDING
- MONITORING WELL

N W E S

0 80 160

SCALE IN FEET
1" = 80'

Hydro Con
501 Allen St Suite B, Kelso WA 98626

DATE: 02-22-16
DWN: JH
CHK: JH
APPROVED:
PRJ. MGR: DB
PROJECT NO: 2015-006

FIGURE 3
GROUNDWATER ANALYTICAL RESULTS - FEBRUARY 2016

GROAT BROTHERS, INC.
608 INDUSTRIAL WAY
WOODLAND, WA

LEGEND

- PROPERTY BOUNDARY
- BUILDING
- MW-01 (XX.XX) — MONITORING WELL (GROUNDWATER ELEV. NAVD88)
- (23.45) — GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION

W N S E

0 80 160

SCALE IN FEET
1" = 80'

HydroCon
501 Allen St Suite B, Kelso WA 98626

DATE: 02-22-16
DWN: JH
CHK: JH
APPROVED:
PRJ. MGR: DB
PROJECT NO: 2015-006

FIGURE 4
GROUNDWATER ELEVATIONS & COUNTOUR MAP
FOR FEBRUARY 2016
GROAT BROTHERS, INC.
608 INDUSTRIAL WAY
WOODLAND, WA

Table 1
Summary of Groundwater Elevations
Groat Brothers, Inc.
Woodland, Washington
HydroCon Project Number 2015-006

Monitoring Well ID	Date	MPE*	Depth to Water	Groundwater Elevation
MW-1	03/19/15	30.47	7.06	23.41
	05/20/15		7.87	22.60
	08/18/15		12.4	18.07
	12/14/15		8.29	22.18
			5.66	24.81
MW-2	03/19/15	28.07	4.82	23.25
	05/20/15		6.43	21.64
	08/18/15		9.92	18.15
	12/14/15		6.34	21.73
			3.31	24.76
MW-3	03/19/15	26.5	NM	NA
	05/20/15		4.98	21.52
	08/18/15		8.71	17.79
	12/14/15		4.83	21.67
			2.01	24.49
MW-4	03/19/15	28.96	4.81	24.15
	05/20/15		7.40	21.56
	08/18/15		11.25	17.71
	12/14/15		6.35	22.61
			4.27	24.69
MW-5	03/19/15	27.90	3.55	24.35
	05/20/15		6.13	21.77
	08/18/15		10.03	17.87
	12/14/15		4.45	23.45
			3.04	24.86
MW-6	03/19/15	27.97	3.66	24.31
	05/20/15		6.26	21.71
	08/18/15		10.19	17.78
	12/14/15		4.00	23.97
			3.25	24.72
MW-7	03/19/15	30.06	5.85	24.21
	05/20/15		8.99	21.07
	08/18/15		12.30	17.76
	12/14/15		7.26	22.80
			5.80	24.26

Notes:
MPE = Measuring Point Elevation
* = Elevation measured relative to MPE
NM = Well not measured dues to inability to locate it
NA = Not applicable

Table 2
Summary of Groundwater Analytical Results
Groat Brothers Inc.
Woodland, Washington
HydroCon Project Number 2015-006

Monitoring Well ID	Sample Date	Diesel	Motor Oil
MW-4	10/16/2014	130	<325
	3/26/2015	350	490
	8/18/2015	290	470
	12/14/2015	100	320
	2/11/2016	NS	NS
MW-5	4/16/2015	70	550
	3/26/2015	240	410
	8/18/2015	140	280
	12/14/2015	91	<250
	2/11/2016	90	<250
MW-6	1/14/2015	<50	<250
	3/26/2015	120	<250
	8/18/2015	150	260
	12/14/2015	78	<250
	2/11/2016	NS	NS
MW-7	10/16/2014	260	330
	3/26/2015	240	360
	8/18/2015	180	<250
	12/14/2015	78	<250
	2/11/2016	NS	NS
Ecology MTCA Method A Cleanup Level		500	500

Notes:

TPH as Diesel and Oil by NWTPH-Dx.

< = Compound not detected above the laboratory Method Reporting Limits (MRLs).

NS = Not sampled.

µg/L = micrograms per liter (parts per billion)

Color highlighted cells indicate reported concentration exceeds corresponding MTCA Level A Cleanup Value.

APPENDIX A
GROUNDWATER SAMPLE COLLECTION FIELD FORMS

GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW-5

Project Name (Number): Grout Bros
Hydrocon Project Number: 2015-006
Date: 2/11/16
Sample I.D.: MW-5 Time: 1233
Field Duplicate I.D.: - Time: -
Personnel: JPH

WELL INFORMATION

Monument condition: ☒ Good ☐ Needs repair: ☐ Water in Monument
Well cap condition: ☒ Good ☐ Replaced ☐ Needs Replacement ☐ Surface Water Well Infiltration
Headspace reading: ☒ Not measured PID Reading _____ ppm ☐ Odor: _____
Well diameter: ☒ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other: _____
Comments _____

PURGING INFORMATION

Total well depth: 14.98 ft Bottom: ☒ Hard ☐ Soft ☐ Not measured Screen Interval(s): ~5-15
Depth to product: - ft
Depth to water: 3.04 ft Intake Depth (BTOC): _____ Begin Purging Well: 1215
Casing volume: 11.94 ft (H_2O) X 0.16 gal/ft = 1.91 gal. X 3 = 5.73 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type ☒ Peristaltic ☐ Centrifugal ☐ Dedicated Bladder ☐ Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: ☒ Drummed ☐ Remediation System ☐ Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1215	3.04		9.68	0.080	20.5	9.00	41.3	
1218	3.08		9.62	0.082	19.8	8.54	39.4	
1221	3.09		9.59	0.083	19.0	7.83	32.6	
1224	3.09		9.50	0.084	18.5	7.31	29.9	
1227	3.09		9.45	0.085	18.3	7.06	26.7	
1230	3.09		9.42	0.086	18.0	6.96	25.4	
1233	3.09		9.41	0.086	18.0	6.89	24.8	

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
500mL amber	1	None	(No) 0.45 0.10	Dx
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

APPENDIX B
LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 16, 2016

Jonathan Horowitz, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Horowitz:

Included are the results from the testing of material submitted on February 12, 2016 from the Groat Bros 2015-006, F&BI 602205 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
HDC0216R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 12, 2016 by Friedman & Bruya, Inc. from the HydroCon Groat Bros 2015-006, F&BI 602205 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon
602205 -01	MW-5

All quality control requirements were acceptable.

Date of Report: 02/16/16
Date Received: 02/12/16
Project: Groat Bros 2015-006, F&BI 602205
Date Extracted: 02/12/16
Date Analyzed: 02/12/16

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-5 602205-01	90 x	<250	80
Method Blank 06-272 MB	<50	<250	71

Date of Report: 02/16/16
Date Received: 02/12/16
Project: Groat Bros 2015-006, F&BI 602205

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	84	86	63-142	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

603205

SAMPLE CHAIN OF CUSTODY

ME 02-12-16 | | C03

Page # ____ of ____

Send Report To Jonathan Horowitz

Company HydroCon

Address 510 Allen St.

City, State, ZIP Kelso, WA 98626

Phone # 360 703-6079 Fax # 360 703 6086

SAMPLERS (signature)

PROJECT NAME/NO. Great Bros./2015-006

PO#

REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
MW-5	01	2/11/15	2:23	Water	1	X												

Samples received at 5 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Jonathan Horowitz	HydroCon	2/11/16	6:10
Received by:	James Bruya	F&B	2/12/16	9:50
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

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