

January 14, 2015

City of Portland
Bureau of Environmental Services
Facilities Services Division
1120 SW 5th Avenue, Room 1000
Portland, OR 97204

Attention: Ms. Taryn Meyer

Report of Environmental Oversight Well Abandonment
Former Linnton Oil Fire Training Grounds
NW 125th Avenue and Marina Way
Portland, Oregon
GeoDesign Project: PortBES-24-04

INTRODUCTION

GeoDesign, Inc. is pleased to submit this report of environmental oversight for the abandonment of 12 groundwater monitoring wells at the former Linnton Oil Fire Training Grounds located at NW 125th Avenue and Marina Way in Portland, Oregon (project site).

Our services were performed in accordance with the scope of services provided in Task Order 86.0.14 dated August 19, 2014 and Task Order Amendment 86.1.14 dated November 6, 2014 for the City of Portland Bureau of Environmental Services (BES). Our work was completed as part of the BES Site Investigations and Related Services On-Call Service Contract with GeoDesign (Contract Number 30003168).

SCOPE OF SERVICES

The scope of services was based on our preliminary review of well logs and site maps provided by BES staff as well as a site visit conducted with BES staff. The scope of services included the following:

- Coordinated and managed the monitoring well abandonment activities, including project site access authorizations and scheduling of subcontractors and GeoDesign field staff.
- Completed a water well search on the Oregon Water Resources Department (OWRD) database for the well construction reports for the project site.
- Conducted a field verification site visit of the physical locations of the groundwater monitoring wells at the project site with the drilling subcontractor.

- Contacted the Oregon One-Call Utility Notification Center to mark the location of public utilities beneath the project site.
- Subcontracted Cascade Drilling, L.P. of Clackamas, Oregon, to complete the groundwater monitoring well abandonment by over-drilling methods and special standards methods when approved by OWRD. The abandonment activities were completed over three days of drilling at the project site utilizing a hollow-stem auger drill rig owned and operated by Cascade Drilling, L.P.
- Continuously observed the drilling activities, including observation of drill cuttings.
- Summarized the results of the groundwater monitoring well abandonment activities in this report.

FIELD ACTIVITIES

GeoDesign personnel mobilized to the project site on November 10, 11, and 12, 2014 to observe the abandonment of 12 groundwater monitoring wells (MW-1, MW-2, MW-4, MW-5, and MW-7 through MW-14). Cascade Drilling, L.P. of Clackamas, Oregon, was on site each day with a three-person work crew and a hollow-stem auger drill rig to complete the abandonment activities in accordance with approved OWRD well construction standards.

On November 10, 2014 monitoring wells MW-11, MW-7, and MW-10 were abandoned by over drilling and backfilling with bentonite grout and then restoring the surface with concrete. Monitoring wells MW-8 and MW-9 were abandoned by removing the well monuments and the first 5 feet of well casing, then backfilling with bentonite chips and restoring the surface with concrete.

On November 11, 2014 monitoring wells MW-1, MW-5, and MW-14 were abandoned by over drilling and backfilling with bentonite grout and then restoring the surface with concrete. Monitoring well MW-13 was abandoned by removing the well monuments and pulling the well casing, then backfilling with bentonite grout and restoring the surface with concrete.

On November 12, 2014 monitoring wells MW-2 and MW-4 were abandoned by over drilling and backfilling with bentonite grout and then restoring the surface with concrete. Monitoring well MW-12 was abandoned by removing the well monument and pulling the first 5 feet of casing, then backfilling with bentonite grout and restoring the surface with concrete.

The final well reports are presented in the Attachment of this report and include the locations of the wells on the site plans, start card numbers, and OWRD special standards final orders when applicable.

GeoDesign observed the soil cuttings generated during the over-drilling activities. Soil included sand from the monitoring well filter pack and native silt. Nine 55-gallon drums of soil cuttings and two 55-gallon drums of decontamination water were produced during the abandonment activities. In addition, six drums, including three with water and three empty drums, were located on the project site upon our arrival. All of the drums were moved to the gated entrance of the project site for subsequent disposal by BES.

We appreciate the opportunity to work with you on this project. Please do not hesitate to contact us if you have questions or require additional information.

Sincerely,

GeoDesign, Inc.



Stephen C. Nelson
Project Manager



Robert E. Belding, R.G.
Principal Geologist

SCN:REB:kt

Attachment

One copy submitted (via email only)

Document ID: PortBES-24-04-011415-envlr.docx

© 2015 GeoDesign, Inc. All rights reserved.

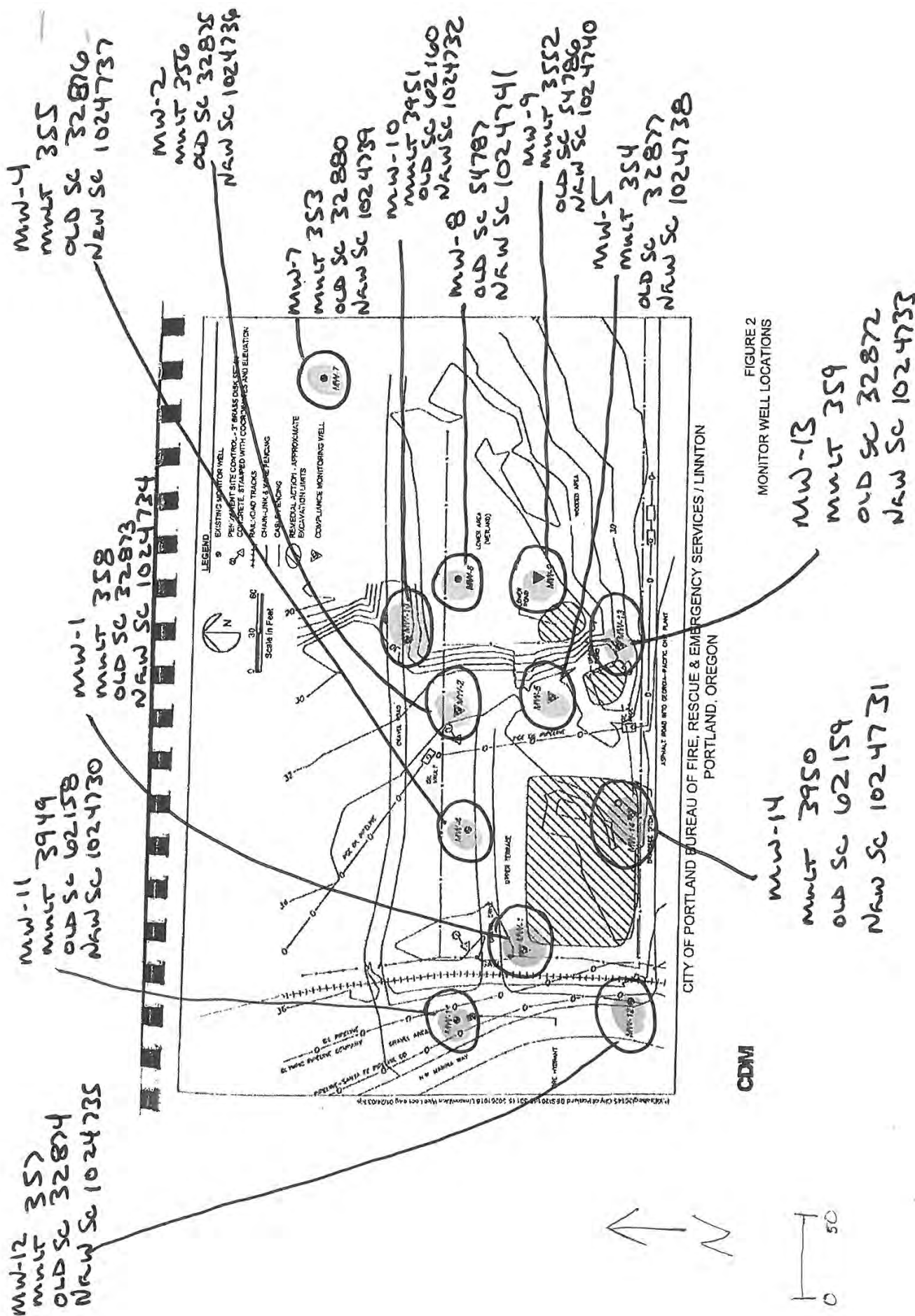
ATTACHMENT

START CARD # 1024734

Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32873
Original Well Tag-Unavailable

12/15/2014

Map of Hole



START CARD # 1024736

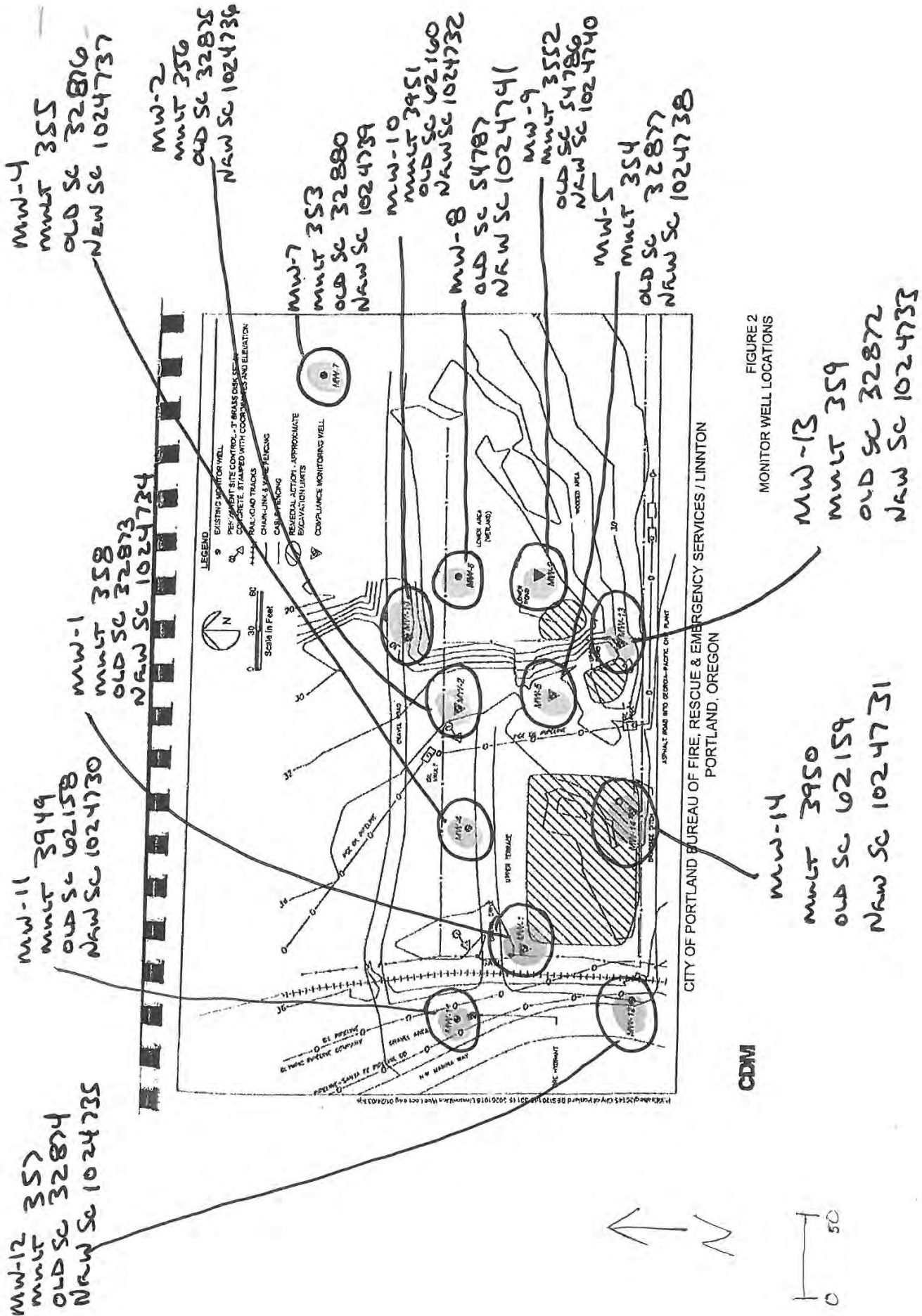
Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32875
Original Well Tag-Unavailable

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 117794

12/15/2014

Map of Hole

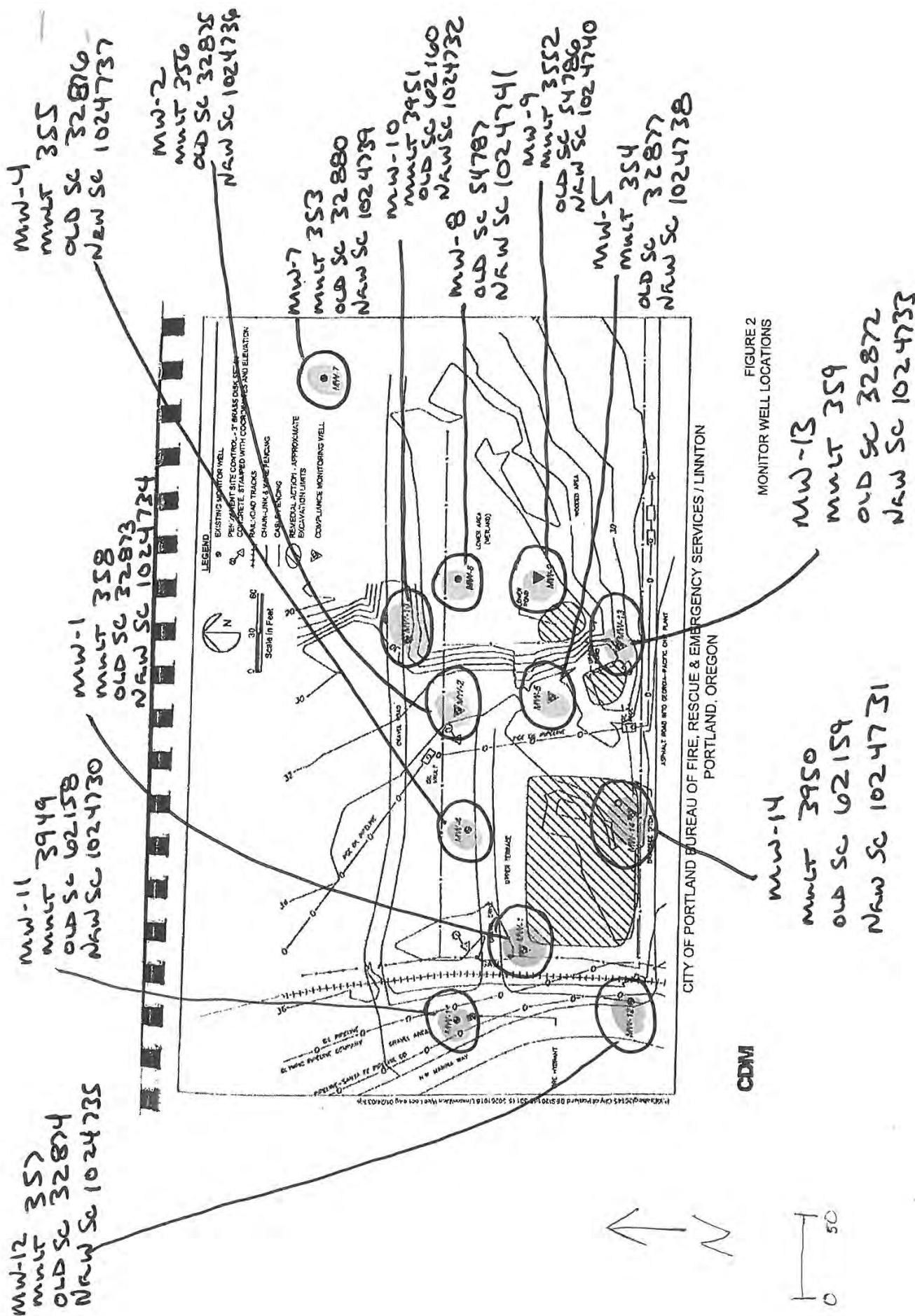


START CARD # 1024737

Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32876
Original Well Tag-Unavailable

12/15/2014

Map of Hole



START CARD # 1024738

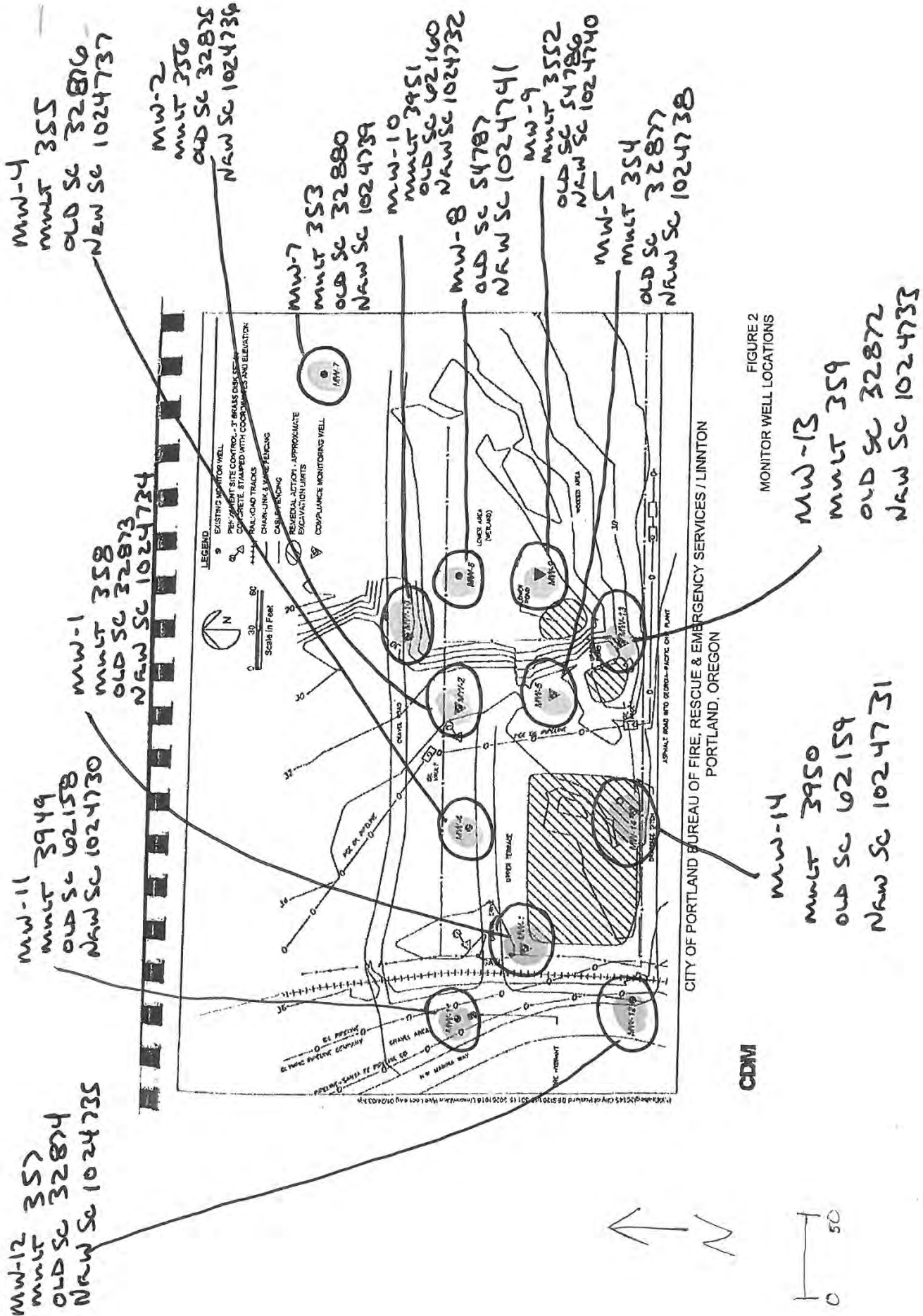
Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32877
Original Well Tag-Unavailable

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 117793

12/15/2014

Map of Hole



START CARD # 1024739

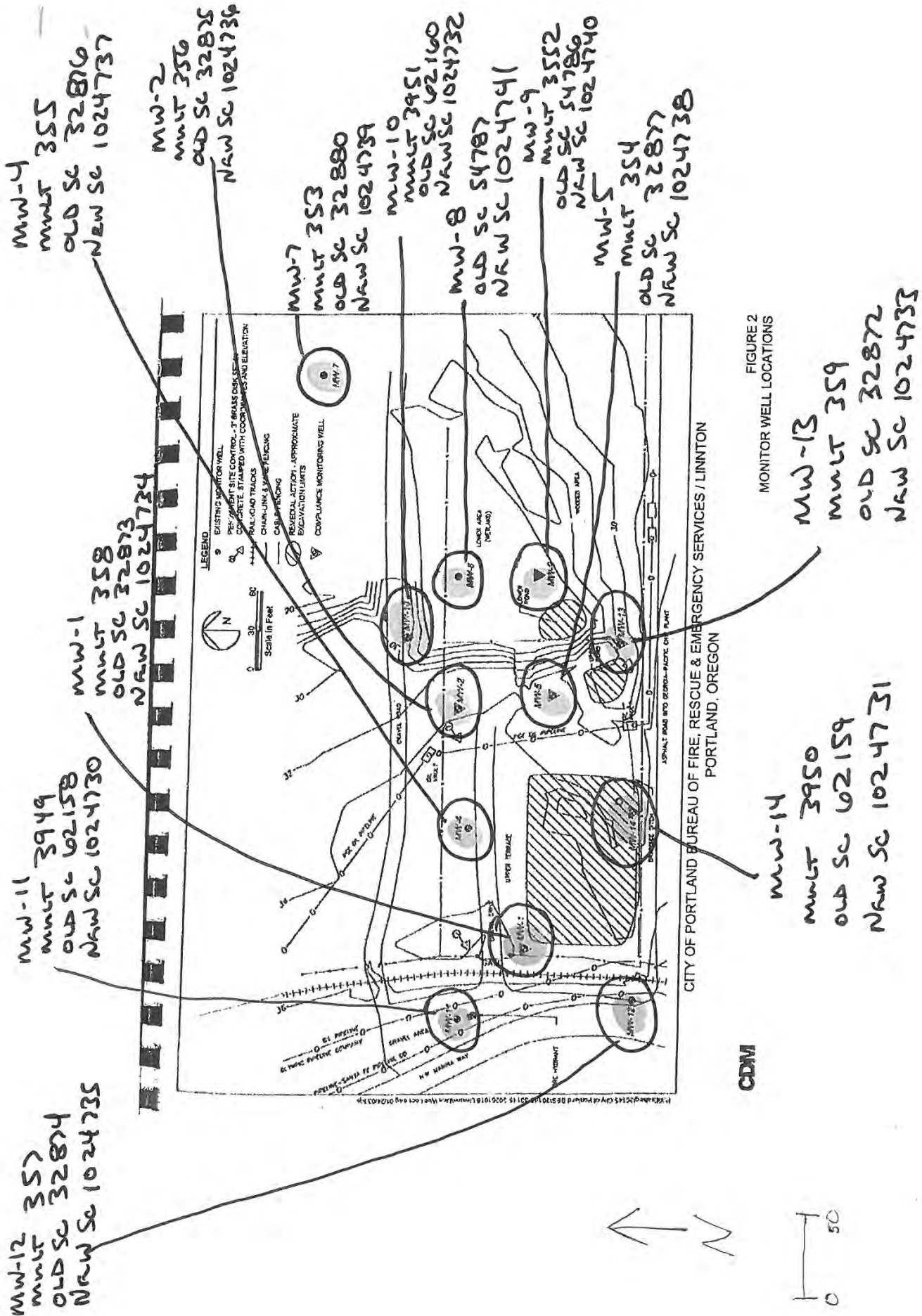
Remove Monument. Pull Well and overdrill 0-14'. Backfill with bentonite
Grout 3'-14'. Restore Surface with Concrete 0-3'.
Original Start#-32880
Original Well Tag-Unavailable

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

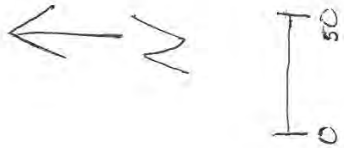
MULT 117790

12/15/2014

Map of Hole



Remove Monument. Chip in place well from 2'-17'. Restore Surface with
Concrete 0-2' As Per Final Order.
Original Start#-54787
Original Well Tag-Unavailable



MULT 117791

12/15/2014

Map of Hole



Oregon

John A. Kitzhaber, MD, Governor

Water Resources Department

North Mall Office Building

725 Summer St NE, Suite A

Salem, OR 97301

Phone (503) 986-0900

Fax (503) 986-0904

www.wrd.state.or.us

December 10, 2014

RYAN GALBRETH MWC #10443
 CASCADE DRILLING INC
 13600 SE AMBLER ROAD
 CLACKAMAS OREGON 97015

FINAL ORDER

Dear Mr. Galbreth:

The Special Standards Request Form you submitted for owner, City of Portland, Start Card Numbers: 1024733 (MW-13), 1024740 (MW-9) and 1024741 (MW-8) are hereby approved for the following: You may abandon these monitoring wells utilizing the method described in OAR 690-240-0510(2). *If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the monitoring wells that are below the static water level. Above the static water level another approved sealing material must be used.*

The Special Standards Request Form submitted for Start Card Numbers: 10244730 (MW-11), 1024731 (MW-14), 1024732 (MW-10), 1024734 (MW-1), 1024736 (MW-2), 1024737 (MW-4), 1024738 (MW-5) and 1024739 (MW-7), are unfortunately denied due to the documented presence of groundwater contamination. All casing, screen, annular sealing material, drill cuttings, debris and filter pack must be removed prior to sealing. This abandonment method will help prevent the vertical migration of contaminants. A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

Verbal approval for this Special Standards Request was provided on November 3, 2014.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well, constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0852, or by e-mail at Joel.W.Jeffery@wrdd.state.or.us.

Sincerely,

Joel Jeffery, Coordinator

Well Construction Program

Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector
 File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.



START CARD # 1024740

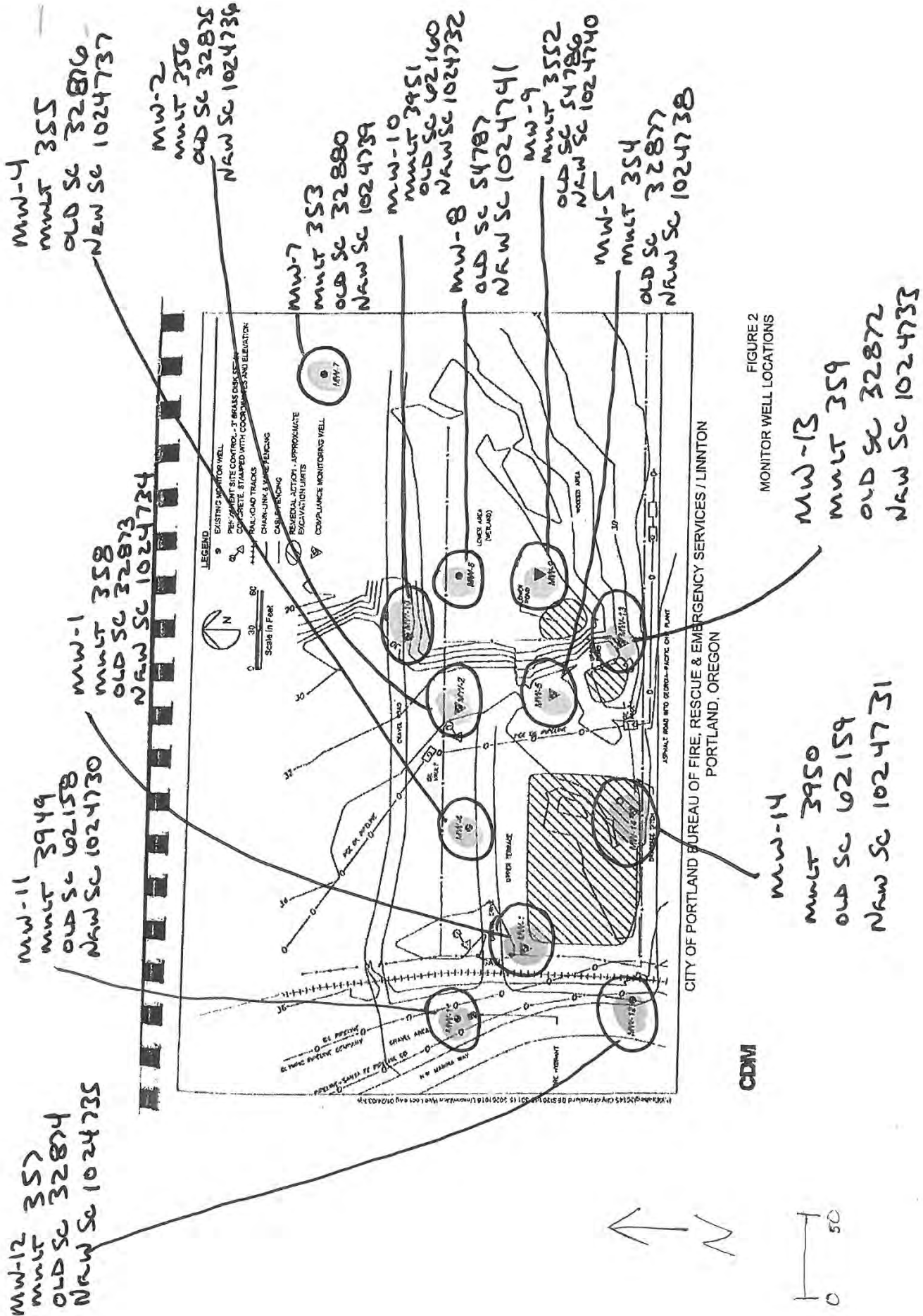
Remove Monument. Chip in place well from 2'-17'. Restore Surface with Concrete 0-2' As Per Final Order.
Original Start#-54786
Original Well Tag-Unavailable

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 117792

12/15/2014

Map of Hole



MULT 117792

12/15/2014

Map of Hole



Oregon

John A. Kitzhaber, MD, Governor

Water Resources Department

North Mall Office Building
725 Summer St NE, Suite A
Salem, OR 97301
Phone (503) 986-0900
Fax (503) 986-0904
www.wrd.state.or.us

December 10, 2014

RYAN GALBRETH MWC #10443
CASCADE DRILLING INC
13600 SE AMBLER ROAD
CLACKAMAS OREGON 97015

FINAL ORDER

Dear Mr. Galbreth:

The Special Standards Request Form you submitted for owner, City of Portland, Start Card Numbers: 1024733 (MW-13), 1024740 (MW-9) and 1024741 (MW-8) are hereby approved for the following: You may abandon these monitoring wells utilizing the method described in OAR 690-240-0510(2). *If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the monitoring wells that are below the static water level. Above the static water level another approved sealing material must be used.*

The Special Standards Request Form submitted for Start Card Numbers: 10244730 (MW-11), 1024731 (MW-14), 1024732 (MW-10), 1024734 (MW-1), 1024736 (MW-2), 1024737 (MW-4), 1024738 (MW-5) and 1024739 (MW-7), are unfortunately denied due to the documented presence of groundwater contamination. All casing, screen, annular sealing material, drill cuttings, debris and filter pack must be removed prior to sealing. This abandonment method will help prevent the vertical migration of contaminants. A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

Verbal approval for this Special Standards Request was provided on November 3, 2014.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well, constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0852, or by e-mail at Joel.W.Jeffery@wrdd.state.or.us.

Sincerely,

Joel Jeffery, Coordinator
Well Construction Program
Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector
File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.



START CARD # 1024732

Remove Monument. Pull Well and overdrill 0-25'. Backfill with bentonite
Grout 3'-25'. Restore Surface with Concrete 0-3'.
Original Start#-62160
Original Well Tag-Unavailable

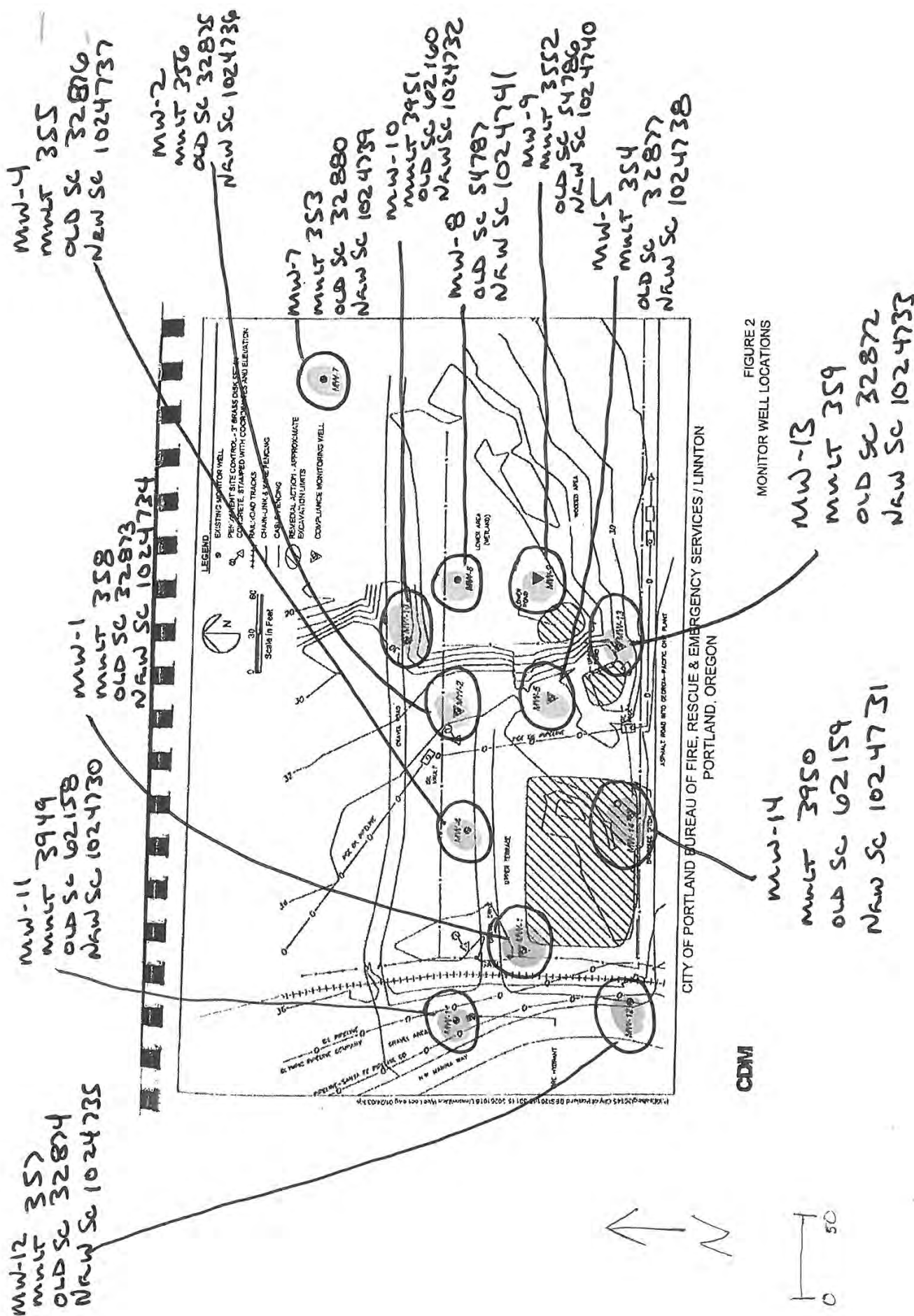
050

START CARD # 1024730

Remove Monument. Pull Well and overdrill 0-30'. Backfill with bentonite
Grout 3'-30'. Restore Surface with Concrete 0-3'.
Original Start#-62158
Original Well Tag-Unavailable

12/10/2014

Map of Hole



START CARD # 1024735

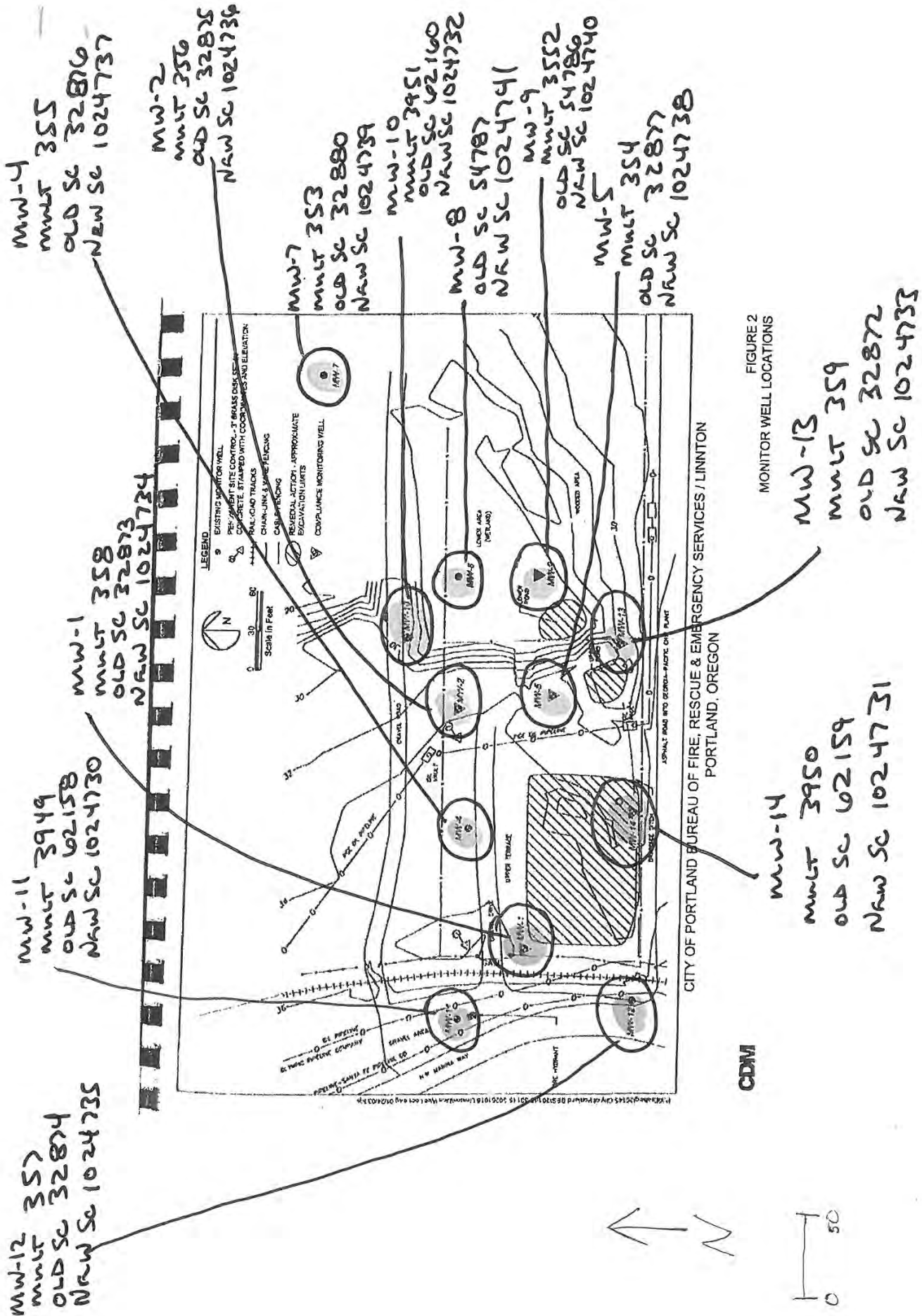
Comments/Remarks

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 117796

12/15/2014

Map of Hole



12/15/2014

Map of Hole



Oregon

John A. Kitzhaber, MD, Governor

Water Resources Department

North Mall Office Building
725 Summer St NE, Suite A
Salem, OR 97301
Phone (503) 986-0900
Fax (503) 986-0904
www.wrd.state.or.us

December 10, 2014

RYAN GALBRETH MWC #10443
CASCADE DRILLING INC
13600 SE AMBLER ROAD
CLACKAMAS OREGON 97015

FINAL ORDER

Dear Mr. Galbreth:

The Special Standards Request Form you submitted for owner: City of Portland, Start Card Number: 1024735 (MW-12) is hereby approved for the following: You may abandon this monitoring well utilizing the method described in OAR 690-240-0510(2). *If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the monitoring wells that are below the static water level. Above the static water level another approved sealing material must be used.* A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

Verbal Approval of this Special Standards Request was given on November 11th, 2014

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well, constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0852, or by e-mail at Joel.W.Jeffery@wr.d.state.or.us.

Sincerely,

Joel Jeffery, Coordinator
Well Construction Program
Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector
File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.



12/15/2014

Water Bearing Zones

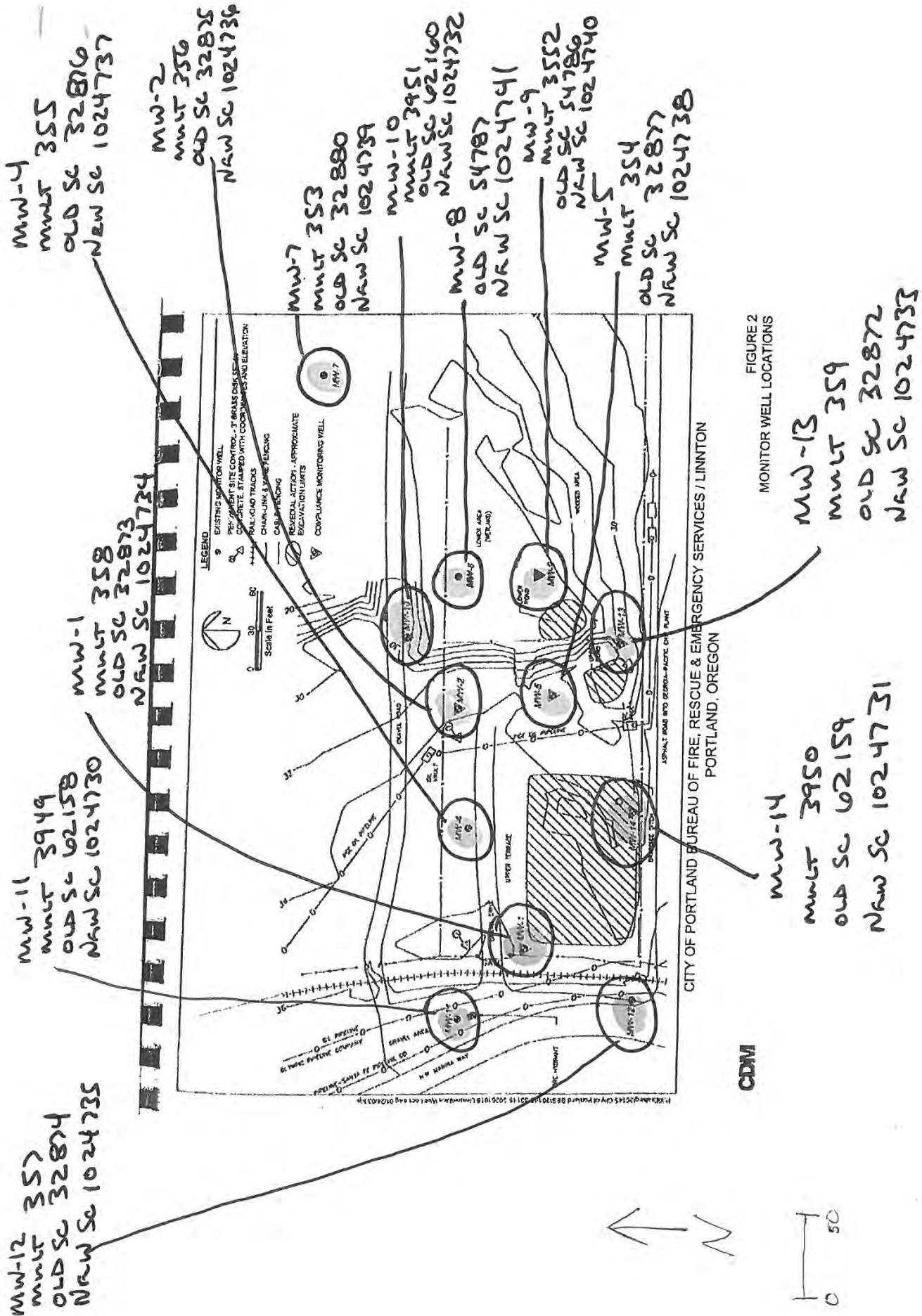
Remove Monument. Grout in place well from 2'-24'. Restore Surface with Concrete 0-2' As Per Final Order.
Original Start#-32872
Original Well Tag-Unavailable

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 117797

12/15/2014

Map of Hole



12/15/2014

Map of Hole



Oregon

John A. Kitzhaber, MD, Governor

Water Resources Department

North Mall Office Building
725 Summer St NE, Suite A
Salem, OR 97301
Phone (503) 986-0900
Fax (503) 986-0904
www.wrd.state.or.us

December 10, 2014

RYAN GALBRETH MWC #10443
CASCADE DRILLING INC
13600 SE AMBLER ROAD
CLACKAMAS OREGON 97015

FINAL ORDER

Dear Mr. Galbreth:

The Special Standards Request Form you submitted for owner, City of Portland, Start Card Numbers: 1024733 (MW-13), 1024740 (MW-9) and 1024741 (MW-8) are hereby approved for the following: You may abandon these monitoring wells utilizing the method described in OAR 690-240-0510(2). *If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the monitoring wells that are below the static water level. Above the static water level another approved sealing material must be used.*

The Special Standards Request Form submitted for Start Card Numbers: 10244730 (MW-11), 1024731 (MW-14), 1024732 (MW-10), 1024734 (MW-1), 1024736 (MW-2), 1024737 (MW-4), 1024738 (MW-5) and 1024739 (MW-7), are unfortunately denied due to the documented presence of groundwater contamination. All casing, screen, annular sealing material, drill cuttings, debris and filter pack must be removed prior to sealing. This abandonment method will help prevent the vertical migration of contaminants. A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

Verbal approval for this Special Standards Request was provided on November 3, 2014.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well, constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0852, or by e-mail at Joel.W.Jeffery@wrdd.state.or.us.

Sincerely,

Joel Jeffery, Coordinator
Well Construction Program
Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector
File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.



12/15/2014

Water Bearing Zones

Remove Monument. Pull Well and overdrill 0-25'. Backfill with bentonite
Grout 3'-25'. Restore Surface with Concrete 0-3'.
Original Start#-62159
Original Well Tag-Unavailable

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 117799

12/15/2014

Map of Hole

