

Atlantic Richfield Company

Chuck Carmel
Remediation Management Project Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3804
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October 8, 2014

RECEIVED

By Alameda County Environmental Health at 3:51 pm, Oct 08, 2014

Re: Well Destruction Report
Atlantic Richfield Company Station No. 2169
889 W. Grand Avenue, Oakland, California
ACEH Case #RO0000072

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct.

Submitted by,



Chuck Carmel
Remediation Management Project Manager

Attachment:



WELL DESTRUCTION REPORT
Atlantic Richfield Company Station No. 2169
889 W. Grand Avenue
Oakland, Alameda County, California

Prepared for:

Mr. Chuck Carmel
Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583

Prepared by:

Broadbent & Associates, Inc.
4820 Business Center Drive, Suite 110
Fairfield, California 94534
(707) 455-7290

October 8, 2014

Project No. 06-88-621



4820 Business Center Drive, Suite 110
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broadbentinc.com

Creating Solutions. Building Trust.

October 8, 2014

Project No. 06-88-621

Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583
Submitted via ENFOS

Attn.: Mr. Chuck Carmel

Re: Well Destruction Report, Atlantic Richfield Company Station No. 2169
889 W. Grand Avenue, Oakland, Alameda County, California
ACEH Case No. RO0000072

Dear Mr. Carmel:

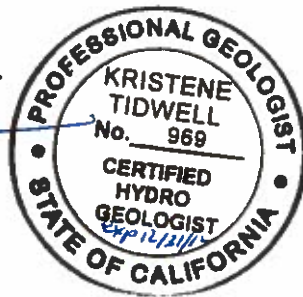
Broadbent & Associates, Inc. (Broadbent) is pleased to submit this *Well Destruction Report* (Report) for Atlantic Richfield Company Station No. 2169 located at 889 W. Grand Avenue, Oakland, California (Site). This Report documents the permanent decommissioning of seven groundwater monitoring wells. These activities were carried out in accordance with the Alameda County Environmental Health Agency's directive letter dated August 5, 2014.

Should you have questions or require additional information, please do not hesitate to contact us at (707) 455-7290.

Sincerely,

BROADBENT & ASSOCIATES, INC.

Kristene Tidwell, P.G., C.H.G.
Associate Hydrogeologist



Enclosures

cc: Mr. Jerry Wickham, Alameda County Environmental Health (Submitted via ACEH ftp Site)
Electronic copy uploaded to GeoTracker

TABLE OF CONTENTS

| <u>No.</u> | <u>Section</u> | <u>Page</u> |
|------------|------------------------------------|-------------|
| 1.0 | Introduction | 1 |
| 2.0 | Site Background | 1 |
| 3.0 | Field Activities Performed | 1 |
| 3.1 | Preliminary Field Activities | 1 |
| 3.2 | Well Destruction Activities | 2 |
| 3.3 | Excess Material Produced | 2 |
| 4.0 | Conclusions & Recommendations..... | 2 |
| 5.0 | Limitations..... | 2 |

DRAWINGS

| | |
|-----------|-------------------------------|
| Drawing 1 | Site Location Map |
| Drawing 2 | Well Destruction Location Map |

APPENDICES

| | |
|------------|---------------------------|
| Appendix A | Regulatory Correspondence |
| Appendix B | Detailed Site History |
| Appendix C | Permits |
| Appendix D | Utility Clearance Survey |

WELL DESTRUCTION REPORT

Atlantic Richfield Company Station No. 2169
889 W. Grand Avenue, Oakland, California
ACEH Case #RO0000072

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM (a BP affiliated company), Broadbent & Associates, Inc. (Broadbent) has prepared this *Well Destruction Report* (Report) documenting case closure activities at Atlantic Richfield Company Station No. 2169, located at 889 W. Grand Avenue, Oakland, California (Site). Case Closure was recommended by Alameda County Environmental Health (ACEH) in their August 5, 2014 *Well Decommissioning Letter* (Appendix A). This Report presents details of the field activities performed.

2.0 SITE BACKGROUND

The Site is located at 889 W. Grand Avenue, Oakland, California. It is an active ARCO-brand fueling station (Station No. 2169) with an AM/PM convenience store. Current structures on the Site include four underground storage tanks (USTs), eight fuel dispenser islands with a total of sixteen dispensers, an automated car wash, and a small commercial building. The majority of the Site is paved with asphalt and concrete. Limited planter islands are present along the perimeter of the Site. A Site location map is included as Drawing 1. A Site Plan depicting current building, UST, and, well locations is presented as Drawing 2.

The Site is bound by Market Street to the west, W. Grand Avenue to the north, 22nd Street to the south, and residential buildings to the east. Across Market Street to the west is a strip mall including the Burke Property, which is currently an open leaking UST case (ACEH Case #RO0002514 / GeoTracker Global ID No.T06019749466). Across W. Grand Avenue to the north is an Asian food restaurant. Across 22nd Street to the south is a commercial laundry facility.

The Site has operated as a gasoline fueling station since the environmental case was open in 1991. The Site is likely to remain a service station for the foreseeable future. A detailed Site history is included in Appendix B.

3.0 FIELD ACTIVITIES PERFORMED

On August 26, 2014, Broadbent oversaw Cascade Drilling, LP (Cascade), pressure grout five monitoring wells A-1 through A-5 and two vapor extraction/monitoring wells ADR-1 and ADR-2. Where safety concerns permitted, up to two feet of the top of each well casing was removed following completion of pressure grouting. During September 2 through 4, 2014, Cornerstone Environmental Contractors, Inc. (Cornerstone) removed well vaults and relict vapor extraction equipment, and Black Diamond Paving (Black Diamond) patched surface asphalt to match existing grade. A Site map depicting abandoned well locations is provided as Drawing 2.

3.1 Preliminary Field Activities

Necessary permits from Alameda County Public Works Agency (ACPWA) and an obstruction permit (for wells A-5 along 22nd Street and A-6 along Market Street – see Drawing 2) from the City of Oakland were secured prior to performing the field investigation. Copies of these permits are included in Appendix C. All borings were marked and areas were outlined with white spray paint, and an Underground Service

Alert (USA) ticket was secured to notify all member utility companies of the planned field activities. Additionally, all boring locations were cleared for underground utilities by NORCAL Geophysical Consultants, Inc. (NORCAL) on August 7, 2014. NORCAL's survey report is included in Appendix D.

3.2 Well Destruction Activities

On August 26, 2014, Broadbent oversaw Cascade pressure grout seven wells (five monitoring wells A-1 through A-5 and two vapor extraction wells ADR-1 and ADR-2) by filling each well casing with cement grout via tremmie pipe then applying 25 psi of air pressure for 5 minutes. Where safety concerns permitted, Christy boxes (or similar) and up to two feet of the top of each well casing were removed following completion of pressure grouting. During September 2 through 4, 2014, Cornerstone removed the large well vaults and relict vapor extraction equipment at wells A-1, A-2 and ADR-2. On September 5, 2014, Black Diamond patched surface asphalt to match existing grade at wells A-1, A-5, and A-6. Each well was destroyed in accordance with ACPWA requirements. California Department of Water Resources Well Completion Reports have been completed, but are not published in this Report due to confidentiality of the records. A Site map depicting abandoned well locations is provided as Drawing 2.

3.3 Excess Material Produced

Excess soil and water produced during investigation activities was temporarily stored onsite in Department of Transportation-approved 55-gallon drums until September 18, 2014, when they were removed and transported to appropriate California-regulated facilities by Belshire Environmental Services, Inc. of Foothill Ranch, CA. The waste manifest is provided in Appendix E.

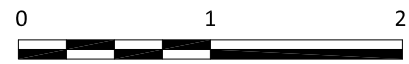
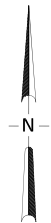
4.0 CONCLUSIONS & RECOMMENDATIONS

Monitoring wells were abandoned in general accordance ACPWA monitoring well destruction requirements. Well abandonment work activities complete the Site case closure process. No further actions are recommended. We anticipate that following submittal of this report, Atlantic Richfield Company will be issued a "Remedial Action Completion Certificate."

5.0 LIMITATIONS

This document has been prepared for the exclusive use of Atlantic Richfield Company. The findings presented in this report are based upon the observations of Broadbent field personnel. Services were performed in accordance with the generally accepted standard of practice at the time this report was written. No warranty, expressed or implied, is intended.

DRAWINGS



APPROXIMATE SCALE (mi)

IMAGE SOURCE: DELORME



BROADBENT
1370 Ridgewood Drive, Suite 5
Chico, California 95973

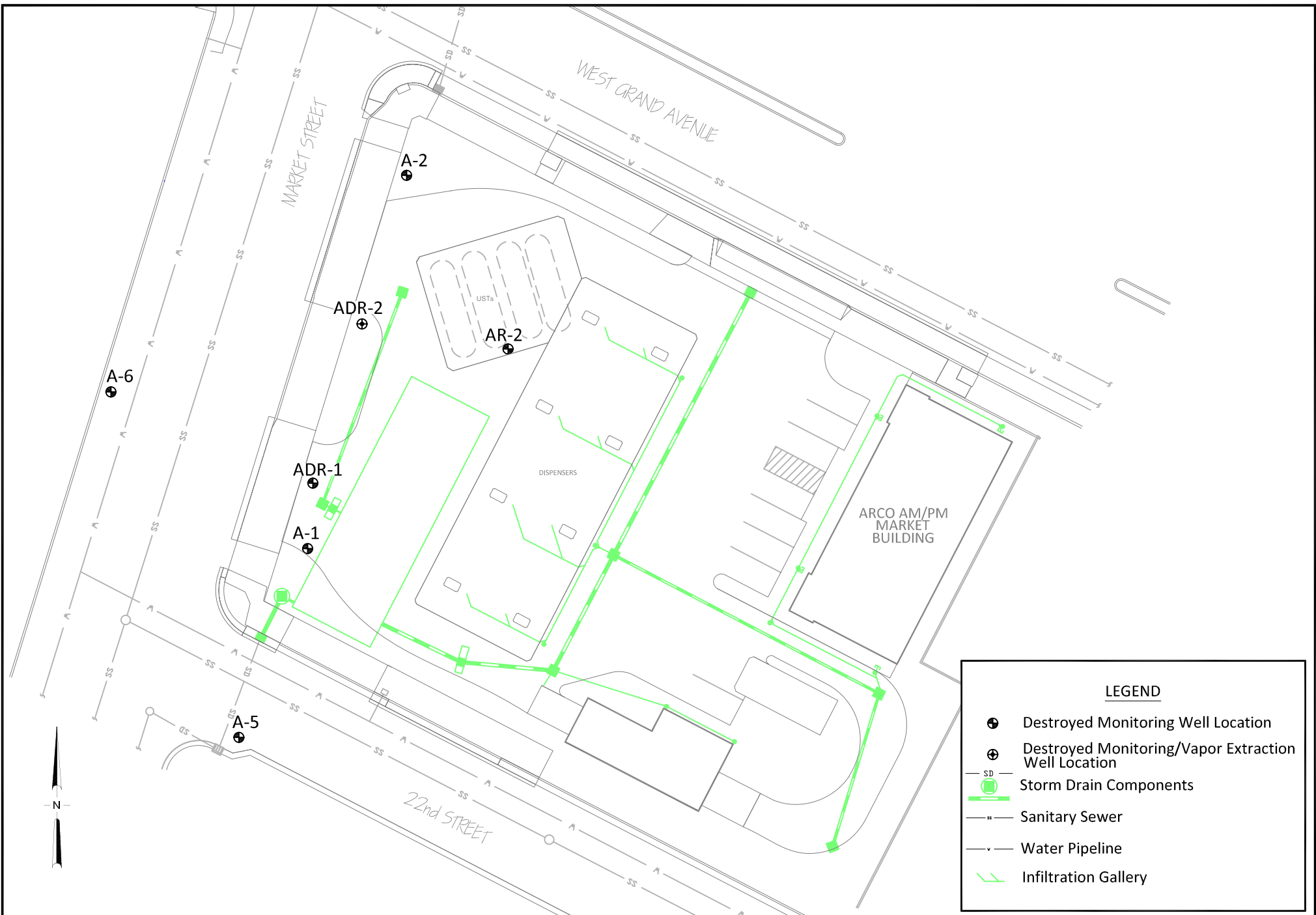
Project No.: 06-88-621 Date: 4/16/2014

ARCO Station #2169
889 West Grand Avenue
Oakland, California

Site Location Map

Drawing

1



| LEGEND | |
|--------|---|
| | Destroyed Monitoring Well Location |
| | Destroyed Monitoring/Vapor Extraction Well Location |
| | Storm Drain Components |
| | Sanitary Sewer |
| | Water Pipeline |
| | Infiltration Gallery |



BROADBENT
 4820 Business Center Drive, Suite 110
 Fairfield, CA 94534
 Project No.: 06-88-621 Date: 10/06/2014

ARCO Station #2169
 889 West Grand Avenue
 Oakland, California

Site Map with Destroyed Well Locations

Drawing
2

APPENDIX A

REGULATORY CORRESPONDENCE



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

August 5, 2014

Charles Carmel
Atlantic Richfield Company
P.O. Box 1257
San Ramon CA 94583
(Sent via E-mail to: charles.carmel@bp.com)

Charles W. and Su H. Kim
4312 Lautrec Drive
San Jose, CA 95135-1778

Subject: Well Decommissioning for Fuel Leak Case No. RO0000072 and GeoTracker Global ID T0600100112, ARCO #2169, 889 West Grand Avenue, Oakland, CA 94607

Dear Charles Carmel and Charles W. and Su H. Kim:

Alameda County Environmental Health (ACEH) staff have reviewed the fuel leak case file for the above-referenced site and concur that no further action related to the underground storage tank fuel release is required at this time. No comments were received on the proposed case closure during a public comment period that ended July 29, 2014. Please decommission the monitoring wells and provide documentation of the well decommissioning and waste disposal to this office no later than December 4, 2014. Remedial action completion certification will be issued following receipt of the documentation.

Well destruction permits may be obtained from the Alameda County Public Works Agency (<http://www.acgov.org/pwa/wells/index.shtml>). If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Jerry Wickham), and to the State Water Resources Control Board's GeoTracker website according to the following schedule and file-naming convention:

- **December 4, 2014** – Well Decommissioning Report
File to be named: WELL_DCM_R_yyyy-mm-dd RO72

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Responsible Parties
RO0000072
August 5, 2014
Page 2

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org. Case files can be reviewed online at the following website: <http://www.acgov.org/aceh/index.htm>. If your email address does not appear on the cover page of this notification ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case

Sincerely,

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 2032 (*Sent via E-mail to: lgriffin@oaklandnet.com*)

Kristene Tidwell, Broadbent, 875 Cotting Lane, Suite G, Vacaville, CA 95688 (*Sent via E-mail to: ktidwell@broadbentinc.com*)

Jerry Wickham, ACEH (*Sent via E-mail to: jerry.wickham@acgov.org*)

GeoTracker, eFile

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

| | |
|---|---|
| Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) | REVISION DATE: May 15, 2014 |
| | ISSUE DATE: July 5, 2005 |
| | PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010 |
| SECTION: Miscellaneous Administrative Topics & Procedures | SUBJECT: Electronic Report Upload (ftp) Instructions |

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection.**
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

- 1) Obtain User Name and Password
 - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to deh.loptoxic@acgov.org
 - b) In the subject line of your request, be sure to include "**ftp PASSWORD REQUEST**" and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
 - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
 - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
 - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
 - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX B

DETAILED SITE HISTORY

On May 14, 1991, Gettler-Ryan, Inc. conducted a preliminary soil investigation and well abandonment prior to UST replacement. Four soil borings (A-B through A-E) were advanced to an approximate depth of 15 feet below ground surface (bgs) adjacent to the existing UST complex at the time. One soil boring (A-A) was drilled to an approximate depth of 20 feet bgs within the area of the proposed UST complex at the time. Groundwater was encountered within each boring at approximately 13.5 feet bgs. Two soil samples were collected from each boring at approximate five foot intervals. Soil samples were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPHg), Total Petroleum Hydrocarbons as Diesel (TPHd), and Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX). An eight inch diameter monitoring well approximately 20 feet in depth located in the vicinity of the existing UST complex was also abandoned by Gettler-Ryan, Inc. on May 14, 1991. Based on the review of available historical documents, the purpose of this monitoring well is unknown.

In January 1992, Roux Associates (Roux) oversaw Golden West Builders perform the excavation and removal of four single-wall USTs on-site. According to Roux, the removed USTs appeared to be in good condition with no visible holes. The static groundwater level measured within the excavation was approximately 13 feet bgs. Following the UST removal, Roux collected nine soil samples (SW-1 through SW-9) from the sidewalls of the excavation at approximately 12 feet bgs. Soil samples were analyzed for TPHg, TPHd, and BTEX. Excavated soil was stockpiled on-site and aerated to reduce hydrocarbon concentrations. According to Roux, approximately 2,196 cubic yards of soil were transported to Redwood landfill for disposal and approximately 10,000 gallons of groundwater encountered during the excavation was transported by H & H for proper disposal at their facility in San Francisco, California. Four new, double-wall, 10,000 gallon fiberglass USTs were installed at the Site following the excavation and removal activities.

On February 19, 1992, following the removal of the product lines, Roux collected five soil samples (L1 through L5) from the product line trenches at depths ranging from approximately three to four feet bgs. Each soil sample was analyzed for TPHg and BTEX. Samples L4 and L5 were also analyzed for TPHd. Based on elevated concentrations of TPHd observed in sample L4 collected adjacent to the pump island, over-excavation was conducted within this product line trench in order to remove additional contaminated soil. Following over-excavation, a confirmation soil sample (LINE-4A) was collected at approximately seven feet bgs.

Components associated with a vapor and groundwater extraction system were installed concurrently with the installation of the new USTs and product piping to reduce future trenching. A 12-inch diameter slotted polyvinyl chloride (PVC) conductor casing was installed within the new UST complex to facilitate the future installation of a groundwater extraction well. Seven vault boxes were installed at locations chosen for the future installation of vapor extraction and groundwater monitoring wells, soil borings, or treatment systems. Assorted horizontal PVC piping was installed within subsurface trenches between the vault boxes in anticipation of connection to a remediation system.

In March 1992, GeoStrategies, Inc. (GSI) advanced five soil borings (A-1 through A-4 and AR-1) on-site to total depths ranging from approximately 26.5 to 30.0 feet bgs. Soil samples were collected at five-foot intervals and analyzed for TPHg, TPHd, and BTEX. A total of six soil

samples were selected for laboratory analysis. Borings A-1 through A-4 were converted into three-inch diameter monitoring wells A-1 through A-4 and installed to depths of 25.0, 25.0, 29.5, and 28.0 feet bgs, respectively. Boring AR-1 was converted into a six-inch diameter recovery well installed to a depth of 28.0 feet bgs.

On June 8, 1992, four on-site exploratory borings (AV-1 through AV-3 and AR-2) were installed by GSI. Soil samples were collected at five-foot intervals and transported to a laboratory for analysis of TPHg, TPHd, and BTEX. A total of six soil samples were submitted for laboratory analysis. Borings AV-1 through AV-3 were converted into two-inch diameter vapor extraction wells. Wells AV-1 through AV-3 were installed to a total approximate depth of 14.5 feet bgs. Boring AR-2 was advanced through the 12-inch diameter conductor casing previously discussed and converted into a four-inch diameter recovery well to a total depth of approximately 28.5 feet bgs.

On June 11, 1992, GSI conducted a vapor extraction test utilizing well AV-2. Wells AV-1 and AV-3 were used as observation wells during the testing activities. According to GSI, based on vacuum pressure readings obtained from the observation wells, an estimated 50-foot radius of influence from the extraction well was calculated. An influent and effluent vapor sample was collected during the vapor extraction test. These samples were shipped to a laboratory for analysis of TPHg and BTEX.

On June 15 and 16, 1992, GSI performed a four-hour step-drawdown aquifer test and a 24-hour constant-rate aquifer test utilizing recovery well AR-1. These tests were conducted to assess the feasibility of using recovery well AR-1 to achieve hydrodynamic control of groundwater for extraction of petroleum hydrocarbons from the first encountered water-bearing zone. Drawdown was observed within each of the observation wells during aquifer testing. According to GSI, the results of the aquifer test indicated that pump and treat technology would be a feasible method for remediation at the Site.

On February 4, 1993, GSI advanced two off-site exploratory soil borings (A-5 and A-6) to a total depth of approximately 30 feet bgs. Soil samples were collected at five-foot intervals from each boring and submitted for laboratory analysis of TPHg and BTEX. Soil samples collected from boring A-5 were also analyzed for Halogenated Volatile Organics (HVO). A total of four soil samples were selected for laboratory analysis. Borings A-5 and A-6 were converted into two-inch groundwater monitoring wells A-5 and A-6. Well A-5 was installed to a total approximate depth of 30 feet bgs and well A-6 was installed to a total approximate depth of 28.5 feet bgs.

In September 1993, GSI conducted an off-site well search and environmental records search. The results of the off-site well search concluded that forty off-site wells are located within a ½-mile radius of the Site. However, none of these wells included drinking water wells. The environmental records search indicated that forty one sites of environmental concern are located within a ½-mile radius of the Site, which included 5 sites located less than a ¼-mile in the predominant upgradient direction. Based on proximity, location, and historical data, GSI concluded that three of these sites (Chevron #91853 – 850 West Grand Ave., Fyne Building –

774 West Grand Ave., and Greyhound Bus Terminal – 2103 San Pablo Ave.) could be potential secondary sources of hydrocarbon contamination within off-site well A-5.

On September 7 and 8, 1993, GSI advanced five on-site soil borings (AS-1 through AS-3, AV-4 and AV-6). Borings AS-1 through AS-3 were converted into air sparge wells and borings AV-4 and AV-5 were converted into vapor extraction wells. On September 15 and 17, 1993, GSI performed two eight-hour air sparge/vapor extraction tests at two locations on-site. Well AV-4 was utilized as the vapor extraction well and well AS-2 as the sparge well during the first test. Well AV-2 was utilized as the vapor extraction well and well AS-1 as the sparge well during the second test.

On December 6 and 7, 1993, GSI oversaw the installation of two air sparge wells (AS-4 and AS-5), two vapor extraction wells (AV-6 and AV-7), and two dual groundwater recovery/vapor extraction wells ADR-1 and ADR-2. In December 1993 and January 1994, installation of an on-site remediation system with the capability for air sparging (optional), vapor extraction, and groundwater extraction (optional) was completed.

The vapor extraction and air sparging remediation system began operation on June 2, 1994. Vapor treatment was accomplished using a thermal/catalytic oxidizer. The remediation system consisted of a vapor extraction blower, moisture separator, oxidizer, and controls. Operation of the air sparge and vapor extraction system continued until December 2001 when it was shut down due to the observation of low concentrations. During remediation system operation, approximately 9,151 pounds of hydrocarbons were removed from the soil and groundwater on-site. Based on review of the available historical documents, the groundwater extraction system was not operated at the Site.

In June 2010, 15 monitor/remedial wells associated with the Site were abandoned due to scheduled raze and rebuild activities, which included installation of a carwash facility onsite. Additionally, during this same time two on-site borings, SB-1 and SB-2, were installed in order to collect post-remediation verification sampling data in the area of the former USTs.

Groundwater monitoring has occurred at the Site since 1992.

4.0 REFERENCES

Alameda County Environmental Health Services, 25 May 2010. RE: Raze and Rebuild at ARCO #2169 / ACEH Case #RO72. Email reply from Mr. Paresh Khatri (ACEH) to Mr. Tom Venus (BAI).

Alameda County Environmental Health Services, 6 April 2012. Notice of Enforcement Referral; Fuel Leak Case No. RO00002514 and GeoTracker Global ID T06019749466; Burke Property, 949 W. Grand Ave., Oakland, CA 94607

Broadbent & Associates, Inc., April 6, 2009. Preferential Pathway Evaluation and Soil & Ground-Water Investigation Work Plan, Atlantic Richfield Company (A BP affiliated company) Station No. 2169, 889 West Grand Avenue, Oakland, California.

Broadbent & Associates, Inc., September 24, 2010. Soil & Ground-Water Investigation with Well Abandonment Report. Atlantic Richfield Company Station No. 2169, 889 West Grand Avenue, Oakland, California.

Broadbent & Associates, Inc., October 25, 2013. Third Quarter 2013 Monitoring Report. Atlantic Richfield Company Station #2169, 889 West Grand Avenue, Oakland, California ACEH Case #RO000007.

California Regional Water Quality Control Board, San Francisco Bay Region, Groundwater Committee, June 1999. East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda County and Contra Costa Counties, CA.

California Regional Water Quality Control Board, San Francisco Bay Region, November 2007 (Revised May 2008; ESL Workbook updated February 2013). Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.

GeoStrategies, Inc., June 30, 1992. Well Installation Report, ARCO Service Station No. 2169, 889 West Grand Avenue, Oakland, California.

GeoStrategies, Inc., November 24, 1992. Continuing Site Assessment/Quarterly Monitoring Report, ARCO Service Station No. 2169, 889 West Grand Avenue, Oakland, California.

GeoStrategies, Inc., April 9, 1993. Quarterly Monitoring/Well Installation Report, ARCO Service Station No. 2169, 889 West Grand Avenue, Oakland, California.

GeoStrategies, Inc., May 6, 1994. Additional Subsurface Investigation and Remedial Action Plan, ARCO Service Station No. 2169, 889 West Grand Avenue, Oakland, California.

GeoStrategies, Inc., September 27, 1994. Letter Report Vapor Extraction Start Up and Quarterly Ground-Water Monitoring Second Quarter 1994, ARCO Service Station No. 2169, 889 West Grand Avenue, Oakland, California.

Gettler-Ryan, Inc., July 1, 1991. Preliminary Tank Replacement Report, ARCO Service Station No. 2169, 889 West Grand Avenue, Oakland, California.

Potter, T.L. and K.E. Simmons, 1998. Composition of Petroleum Mixtures. TPHCWG Series, Vol. 2 Amherst Scientific Publishers, MA.

ROUX Associates, 14 July 1992. Underground Storage Tank Removal and Soil Sampling, ARCO Facility No. 2169, 889 West Grand Avenue, Oakland, California.

State Water Resources Control Board, 2012. Low-Threat Underground Storage Tank Case Closure Policy, August 17.

APPENDIX C

PERMITS

APPLICATION FOR TRAFFIC CONTROL PLAN

TSD14-0135

Transportation Services Fee: \$123/hour
(Check or Money Order Only)



City of Oakland

Public Works Agency
Transportation Services Division

- Check the box that apply:
- New Application (Utility, Excavation)
 - Renewal Application
 - New Development w/ Mgmt Plan
 - City of Oakland Project

Please Read the Following Statements Below:

1. Processing time for a Traffic Control Application is a minimum of 10 business days.
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9. The traffic control provision dates cannot be changed or extended if work has already commenced.
10. After receiving TSD approval of the traffic control application, contractor shall proceed to the Permit Center to "Obstruction obtain an obstruction permit.

Contact Person: Lu DAMERELL Phone (510) 364-2079
 Name of Company: BROADBENT Fax: (707) 455-7265
 Address of Company: 4920 BUSINESS CENTER DR, #110
 Describe type of work to be performed: MAINTAINING WELL DESTRUCTION

Location of work: MARKET ST Between W GRAND And 21 ST STREET
 Work date (s): JUL 21 & 22 Mon-Fri Sat-Sun Work Hours: 9AM to 4PM

Please Follow these Steps in Order to Complete a Traffic Control Plan:

- A. Drawing Area: The full width of all streets adjacent to the site MUST be included in the drawing. Include the entire block in which your work is located for every street that is adjacent to your site.
- B. Include Street Names, Direction of Traffic on the Street, and North Arrow
- C. Show Existing Number of Lanes in all Directions (with any pavement arrows)
- D. Check the Box(s) that Apply: All checked items MUST be shown on the drawing
 - Lane Closure
 - Street Closures (must provide detour plan)
 - Use of Median
 - Use Parking Lane
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- E. Show All Dimensions of street widths (curb to curb), lane widths, sidewalk widths, and work area dimension.
(Note: Traffic Control Application / Plans missing the above information will not be accepted or processed.)
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RENEWAL PROCESS: Resubmit a completed Traffic Control Application with the old approved plan (with the necessary modifications / changes to the plans)

FOR HELP in preparing a traffic control plan, see Temporary Traffic Control Pocket Reference Guide 2007, Work Area Traffic Control Handbook 2006, or the California Manual on Uniform Traffic Control (MUTCD) 2003, Chapter 6.
http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd.htm
 For City website: <http://www.oaklandpw.com/Page548.aspx>

* Name the streets that are the boundaries of your work area

CITY OF OAKLAND



Public Works Agency • 250 Frank H. Ogawa Plaza • Suite 4344 • Oakland, California 94612-2033
 Transportation Services Division

Office (510) 238-3466
 FAX (510) 238-7415
 TDD (510) 839-6451

Traffic Engineering Services Analysis Fee Invoice

Date: August 20, 2014

TSD Invoice # : 14-0135

To: Lu Damerall *510-364-2079*
 Company: Broadbent
 Address: 4820 Business Center Dr #110, Fairfield CA 94534
 Phone: 707-455-7290

8/21 LM
11/04/93
93-394167
ENM196059 ??

Created/Received By: Bert Chang

| Location | Description of Work | Project Name / Permit # | # of Hours * |
|-------------------------|---------------------|-------------------------|------------------|
| 889 W Grand Ave | Walk In TCP Review | | 1.5 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Total Hours | | | 1.5 |
| TSD Service Rate | | | \$ 123.00 |
| Total Fee | | | \$ 184.50 |

* - minimum 1 hour service

| FOR CITY USE ONLY | |
|-------------------|-------|
| Cost Center No. | W045 |
| Organization No. | 30265 |
| Account No. | 45119 |
| Fund No. | 1750 |

Cc: Rosalie

Applications for which no permit is issued with a 180-day period to complete the project. If the project is not completed within the 180-day period, the permit expires and a new permit must be obtained.



CITY OF OAKLAND

250 FRANK H. OGAWA PLAZA • 2ND FLOOR • OAKLAND, CA 94612

Planning and Building Department
 www.oaklandnet.com

PH: 510-238-3891
 FAX: 510-238-2263
 TDD: 510-238-3254

Permit No: X1402146 **Excavation** **Filed Date:** 8/22/2014
Job Site: 889 W GRAND AVE **Schedule Inspection by calling:** 510-238-3444

Parcel No: 003 002900100

For SL; X; and CGS permits see **SPECIAL NOTE** below

District:
Project Description: Abandon two monitoring wells on Market St and on 22nd St.
 Alameda County documentation provided. Contact Lu Damerell, Broadbent, 510-364-2079.
 Permit valid 90 days. Separate Obstruction permit required to reserve/block parking lane.
 Call PWA INSPECTION prior to start: 510-238-3651. 4th FLOOR.

Encroach into the public right-of-way of market & 22nd streets with 2 monitoring wells.
 recorded: 11/4/93

Related Permits: X1402145

| | <u>Name</u> | <u>Applicant</u> | <u>Address</u> | <u>Phone</u> | <u>License #</u> |
|-----------------------------|----------------------------|------------------|------------------------------|----------------|------------------|
| Owner: | ATLANTIC RICHFIELD COMPANY | | | 1111111 | |
| Contractor-Employee: | CASCADE DRILLING L P | X | P O BOX 1184 WOODINVILLE, WA | (425) 485-8908 | 938110 |

PERMIT DETAILS: Building/Public Infrastructure/Excavation/NA

General Information

Excavation Type: Private Party Special Paving Detail Required: Tree Removal Involved:
 Date Street Last Resurfaced: Holiday Restriction (Nov 1 - Jan 1):
 Worker's Compensation Company Name: Limited Operation Area (7AM-9AM) And (4PM-6PM):
 Worker's Compensation Policy #:

Key Dates

Approximate Start Date:
 Approximate End Date:

TOTAL FEES TO BE PAID AT FILING: \$436.05

| | | | | | |
|----------------------------|---------|---------------------------------|----------|------------------------|---------|
| Application Fee | \$71.00 | Excavation - Private Party Type | \$309.00 | Records Management Fee | \$36.10 |
| Technology Enhancement Fee | \$19.95 | | | | |

Plans Checked By _____ Date _____

Permit Issued By  Date 8/22

Finalized By _____ Date _____

ADDRESS: _____
 DIST: _____

Christine
 707 430 7133

SPECIAL NOTE

- For SL; X; and CGS permits Call PWA INSPECTION prior to start: 510-238-3651 or visit 4th FLOOR.
- SL and X permits valid 90 days; CGS permits valid 30 days

Applications for which no permits are issued with the City of Oakland and its public works departments and the expiration of the permit.



CITY OF OAKLAND

250 FRANK H. OGAWA PLAZA • 2ND FLOOR • OAKLAND, CA 94612

Planning and Building Department
 www.oaklandnet.com

PH: 510-238-3891
 FAX: 510-238-2263
 TDD: 510-238-3254

Permit No: X1402145 Excavation

Filed Date: 8/22/2014

Job Site: 889 W GRAND AVE

Schedule Inspection by calling: 510-238-3444

Parcel No: 003 002900100

For SL; X; and CGS permits see **SPECIAL NOTE** below

District:

Project Description: Abandon two monitoring wells on Market St and on 22nd St.
 Alameda County documentation provided. Contact Lu Damerell, Broadbent, 510-364-2079.
 Permit valid 90 days. Separate Obstruction permit required to reserve/block parking lane.
 Call PWA INSPECTION prior to start: 510-238-3651. 4th FLOOR.

Encroach into the public right-of-way of market & 22nd streets with 2 monitoring wells.
 recorded: 11/4/93

Related Permits: ENMI96059

| | <u>Name</u> | <u>Applicant</u> | <u>Address</u> | <u>Phone</u> | <u>License #</u> |
|----------------------|----------------------------|------------------|------------------------------|----------------|------------------|
| Owner: | ATLANTIC RICHFIELD COMPANY | | | 1111111 | |
| Contractor-Employee: | CASCADE DRILLING L P | X | P O BOX 1184 WOODINVILLE, WA | (425) 485-8908 | 938110 |

PERMIT DETAILS: Building/Public Infrastructure/Excavation/NA

General Information

Excavation Type: Private Party Special Paving Detail Required: Tree Removal Involved:
 Date Street Last Resurfaced: Holiday Restriction (Nov 1 - Jan 1):
 Worker's Compensation Company Name: Limited Operation Area (7AM-9AM) And (4PM-6PM):
 Worker's Compensation Policy #:

Key Dates

Approximate Start Date:
 Approximate End Date:

TOTAL FEES TO BE PAID AT FILING: \$436.05

| | | | | | |
|----------------------------|---------|---------------------------------|----------|------------------------|---------|
| Application Fee | \$71.00 | Excavation - Private Party Type | \$309.00 | Records Management Fee | \$36.10 |
| Technology Enhancement Fee | \$19.95 | | | | |

Plans Checked By _____ Date _____

Permit Issued By [Signature] Date 8.22

Finalized By _____ Date _____

SPECIAL NOTE

- For SL; X; and CGS permits Call PWA INSPECTION prior to start: 510-238-3651 or visit 4th FLOOR.
- SL and X permits valid 90 days; CGS permits valid 30 days

ADDRESS: _____
DIST: _____



Applications for which major permits issued within 180 days shall expire by limitation of funds more than 180 days after expiration of final.



CITY OF OAKLAND

250 FRANK H. OGAWA PLAZA • 2ND FLOOR • OAKLAND, CA 94612

Planning and Building Department
 www.oaklandnet.com

PH: 510-238-3891
 FAX: 510-238-2263
 TDD: 510-238-3254

JOB SITE

Permit No: OB1400665 **Obstruction** **Filed Date:** 8/22/2014
Job Site: 889 W GRAND AVE **Schedule Inspection by calling:** 510-238-3444

Parcel No: 003 002900100

District:

Project Description: Reserve 3 non-metered spaces on 22nd St and divert maximum 200' traffic on either 22nd St or on Market St per TSD 14-0135 on Aug 26, Sept 2 and Sept 5 2014.
 Abandon two monitoring wells on Market St and on 22nd St.
 Note: two spaces NO FEE per X1402145/-02146.
 Alameda County documentation provided. Contact Lu Damerell, Broadbent, 510-364-2079.
 Permit valid 90 days. Separate Obstruction permit required to reserve/block parking lane.
 Call PWA INSPECTION prior to start: 510-238-3651. 4th FLOOR.

Encroach into the public right-of-way of market & 22nd streets with 2 monitoring wells.
 recorded: 11/4/93

Related Permits: X1402146

| | <u>Name</u> | <u>Applicant</u> | <u>Address</u> | <u>Phone</u> | <u>License #</u> |
|-----------------------------|----------------------------|------------------|------------------------------|----------------|------------------|
| Owner: | ATLANTIC RICHFIELD COMPANY | | | 1111111 | |
| Contractor-Employee: | CASCADE DRILLING L P | X | P O BOX 1184 WOODINVILLE, WA | (425) 485-8908 | 938110 |

PERMIT DETAILS: Building/Public Use/Activity/Obstructions

Work Information

Start Date: 08/26/2014 Obstruction Permit Type: Short Term (Max 14 Days)
 End Date: 09/05/2014 Number of Meters (Metered Area):
 Length Of Obstruction (Unmetered Area): 225

TOTAL FEES TO BE PAID AT FILING: \$615.92

| | | | | | |
|----------------------------|---------|------------------------|---------|--------------------|----------|
| Application Fee | \$71.00 | Records Management Fee | \$50.99 | Short Term Permits | \$465.75 |
| Technology Enhancement Fee | \$28.18 | | | | |

Plans Checked By _____ Date _____

Permit Issued By [Signature] Date 8-22

Finalized By _____ Date _____

ADDRESS:

DIST:

CITY OF OAKLAND

SPECIAL PROVISION 7-10.1 TRAFFIC REQUIREMENTS

Project Name: _____
 Project Number: TSD-14-0135
 Reviewed By: BChang *BChang*
 Date: 8/20/2014_
 Permit good from 8/21/2014
 to 9/21/2014

ADD NEW SUBSECTION TO READ:
SP 7-10.1.4 Vehicular Traffic

Attention is directed to Section 7-10. Public Convenience and Safety, of the City of Oakland Standard Specification for Public Works Construction, 2006 Edition (Include this paragraph for p-jobs, excavation permits or obstruction permits).

The Contractor shall conduct its work in such a manner as to provide public convenience and safety and according to the provisions in this subsection. The provisions shall not be modified or altered without written approval from the Engineer.

Standard traffic control devices shall be placed at the construction zone according to the latest edition of the Work Area Traffic Control Handbook or Manual on Uniform Traffic Control Devices (MUTCD), Chapter 6 – "Traffic Controls for Construction and Maintenance Work Zone," or as directed by the Engineer.

All trenches and excavations in any public street or roadway shall be back filled and opened to traffic, or covered with suitable steel plates securely placed and opened to traffic at all times except during actual construction operations unless otherwise permitted by the Engineer.

Each section of work shall be completed or temporarily paved and open to traffic in not more than 5 days after commencing work unless otherwise permitted in writing by the Engineer.

Where construction encroaches into the sidewalk area, a minimum of 5 ½ feet of unobstructed sidewalk shall be maintained at all times for pedestrian use. Pedestrian barricades, shelter, and detour signs per Caltrans standards may be required.

The contractor shall conduct its operation in such a manner as to leave the following traffic lanes unobstructed and in a condition satisfactory for vehicular travel during the Obstruction Period. At all times traffic lanes will be restricted and reopened to travel. Emergency access shall be provided at all times.

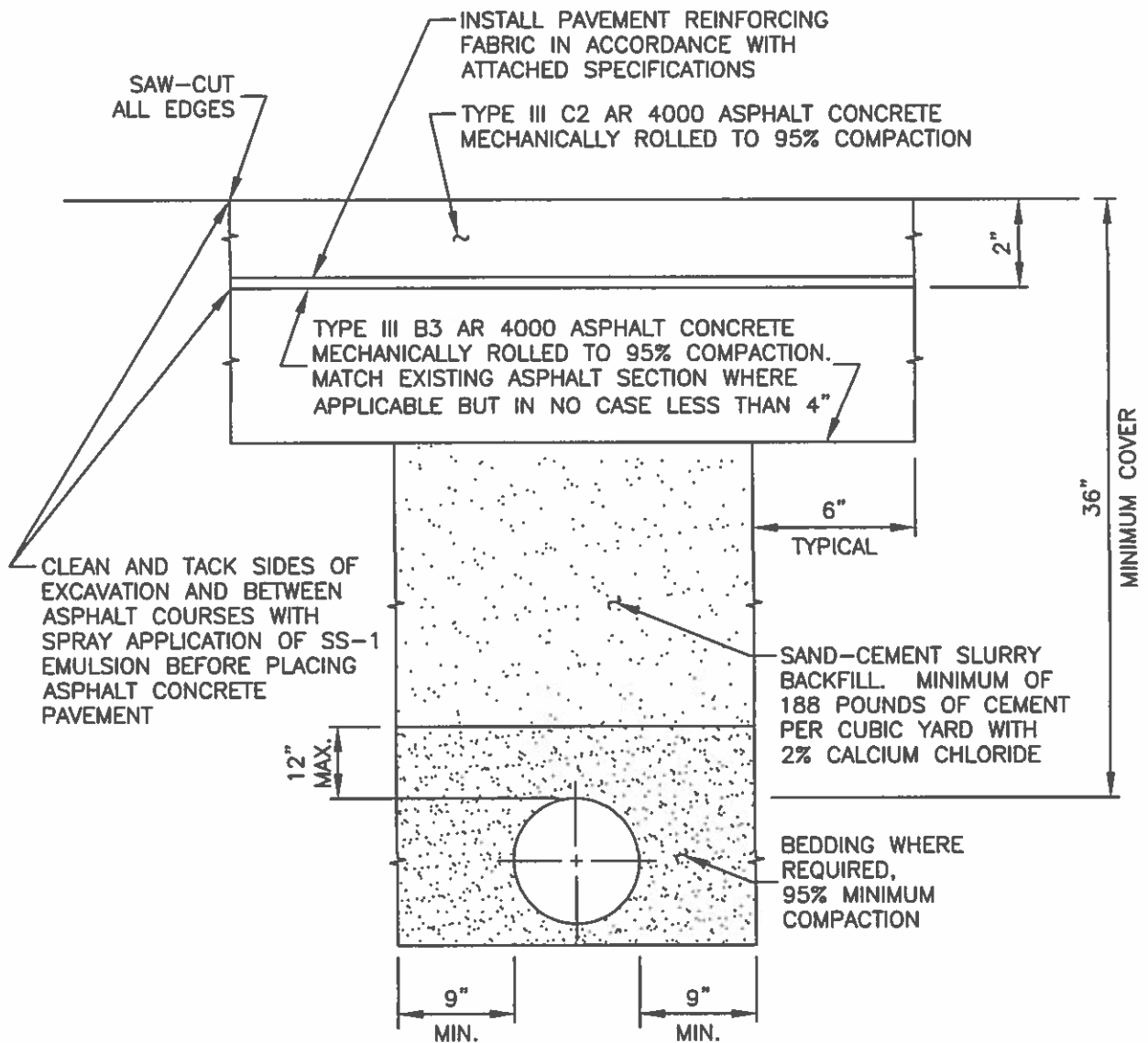
| Street Name Limits | Obstruction Period | North Bound | South Bound | East Bound | West Bound |
|---|--------------------------|---|---|---------------------------------|------------|
| Market St between 21 st St and W Grand Ave (phase 1) | Mon. – Fri. 9am – 4pm | N/A | Shoulder Closed / NO PARKING | N/A | N/A |
| Market St between 21 st St and W Grand Ave (phase 2) | Mon. – Fri. 9am – 4pm | Lane Closed / 1–12' Min Lane / NO PARKING | Lane Closed / 1–12' Min Lane / NO PARKING | N/A | N/A |
| 22 nd St at the intersection of Market St | Mon. – Fri. 8am – 5pm | N/A | N/A | Shoulder Closed / NO PARKING | N/A |

Coordinate all work dates and locations with City of Oakland Right-Of-Way Inspection team.
 Notify AC Transit with work location(s), work date(s), and working schedule. Becca Homa – bhoma@actransit.org

The Contractor Shall Also include all check item:

1. Design a construction traffic control plan and submit (2) copies to the Engineer for approval prior to starting any work.
2. Replace all signs, pavement markings, and traffic detector loops damaged or removed due to construction within 3 days of completion of work or the final pavement lift.
3. Provide advance notice to Oakland Police at (510) 777-3333 (24-hrs) and Oakland Fire at (510) 238-3331 (2-rhs) when a single lane of traffic or less is provided on any street.
4. Provide 72-hour advance notice to AC Transit at (510) 891-4909 when affecting a bus stop.
5. For Caltrans roadways, ramps, or maintained facilities, the Contractor shall obtain appropriate permits and notify the Traffic Management Center 24 hours in advance of any work.
6. Flagger control is required. Certified Flagger is required.
7. Pedestrian walkway by K-rail, Canopy or Plywood is required. (See detour plan)
8. Pedestrian traffic shall be maintained and guided through the project at all times.
9. Provide advance notice to Business and Residence within 72-hours.
10. Allow all traffic movement at intersection.

Nothing specified herein shall prohibit emergency work and/or repair necessary to ensure public health and safety.



GENERAL REQUIREMENTS:

1. DELIVERY TAGS FOR ASPHALT CONCRETE AND BACKFILL MATERIAL SHALL BE SUBMITTED TO THE ENGINEER ON DEMAND. ASPHALT CONCRETE DELIVERY TAGS SHALL INDICATE THE MATERIAL SPECIFIED.
2. FINAL ASPHALT CONCRETE COURSE TO BE ROLLED WITH CERTIFIED EIGHT TON TANDEM ROLLER.

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE SIGNED CITY OF OAKLAND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION IS AVAILABLE FOR PURCHASE FROM THE CONTRACT ADMINISTRATION DEPARTMENT

CITY OF OAKLAND

DESIGN AND CONSTRUCTION SERVICES DEPARTMENT



**SPECIAL TRENCH PAVING
DETAIL
ASPHALT CONCRETE STREET**

ENGINEERING DESIGN MANAGER

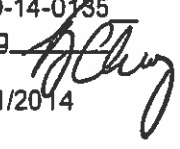
DATE: FEBRUARY 2002

DWG.

REV. DATE: _____

D-30

SPECIAL PROVISION 7-10.1 TRAFFIC REQUIREMENTS

Project Name: _____
 Project Number: TSD-14-0135
 Reviewed By: BChang 
 Date: 8/20/2014
 Permit good from 8/21/2014
 to 9/21/2014

ADD NEW SUBSECTION TO READ:
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APPLICATION FOR TRAFFIC CONTROL PLAN

TSD14-0135

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(Check or Money Order Only)



City of Oakland

Public Works Agency
Transportation Services Division

- Check the box that apply:
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- D. Check the Box(s) that Apply: All checked items MUST be shown on the drawing
- | | | |
|---|---|---|
| <input checked="" type="checkbox"/> Lane Closure | <input type="checkbox"/> Use of Median | <input type="checkbox"/> Sidewalk Closure |
| <input type="checkbox"/> Street Closures (must provide detour plan) | <input type="checkbox"/> Use Parking Lane | (must provide pedestrian walk way) |
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http://www.dot.ca.gov/hq/traffic/signtech/mutcdsupp/ca_mutcd.htm
For City website: <http://www.oaklandpw.com/Page548.aspx>

* Name the streets that are the boundaries of your work area

TOW-AWAY

NO PARKING

SEC 22651 (M) C.V.C

FOR TOWED CAR CALL 238-3021

OB1400665

No. of days: 3

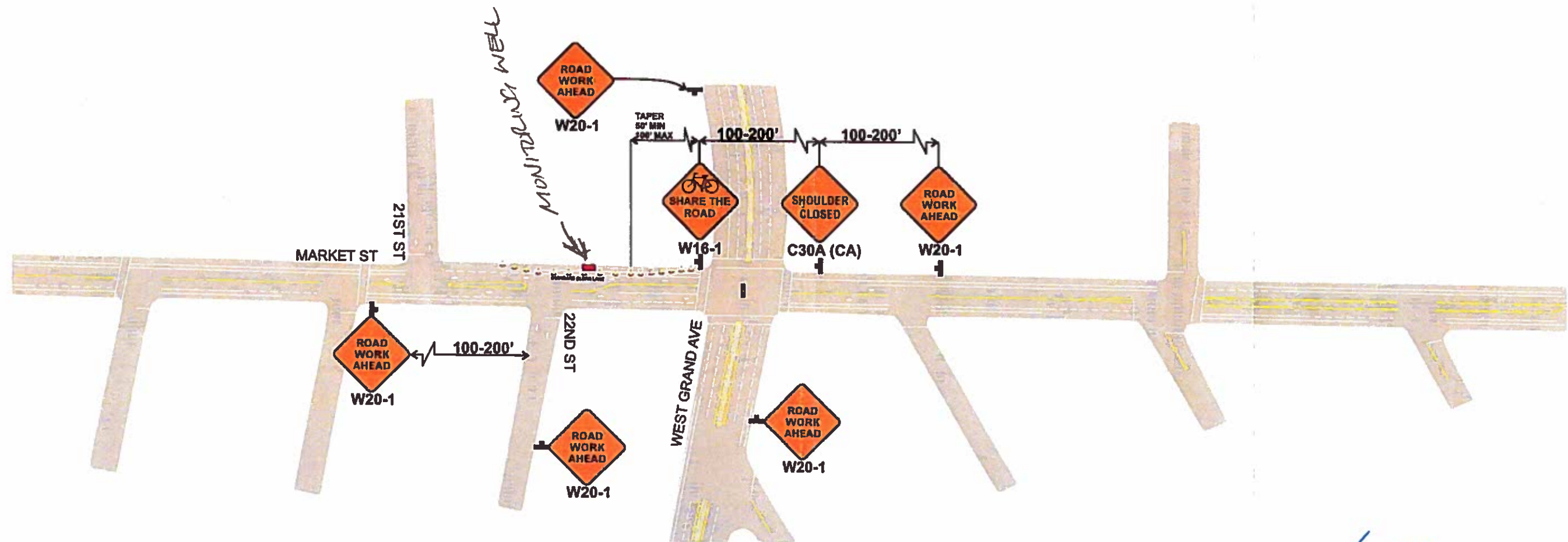
No. of spaces: 3

On 22nd Street.

Day #1: Aug 26

Day #2/3: Sept 2 & Sept 5

889 W GRAND AVE



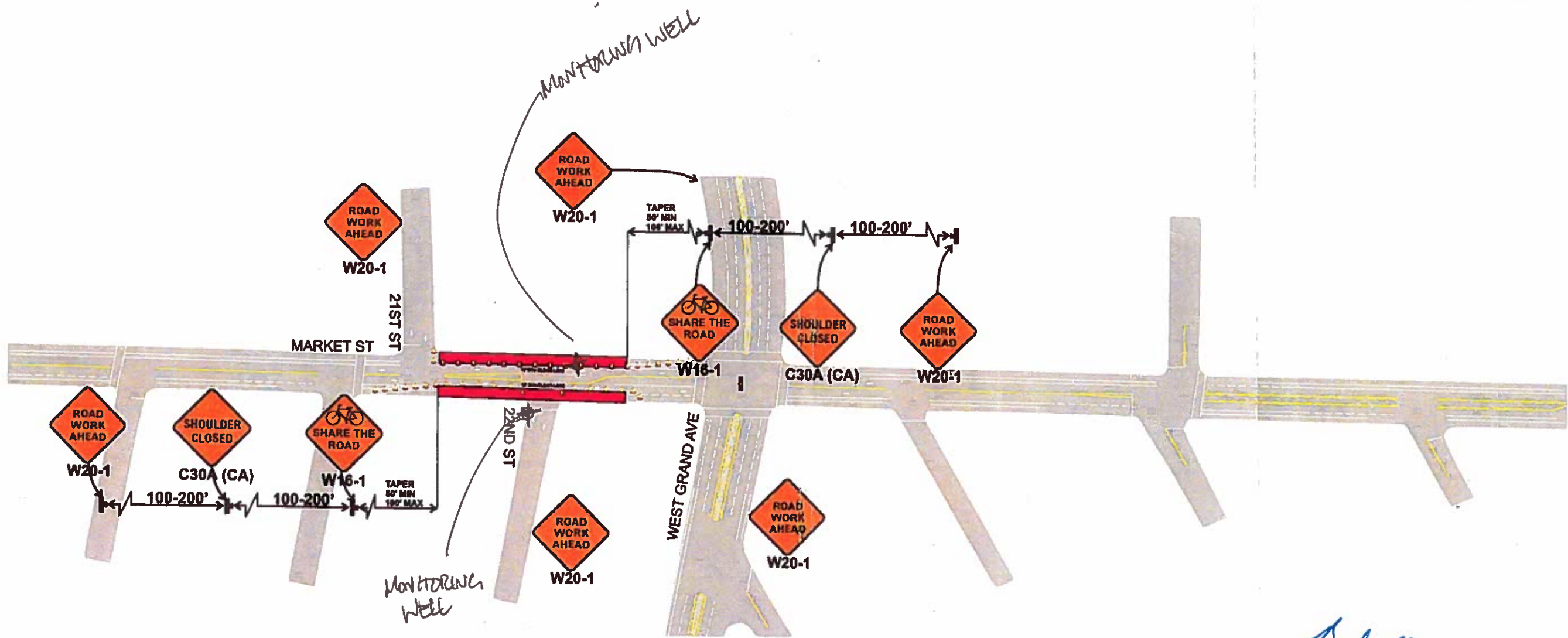
Approved *Dest Chang 8/20/2014*
 Transportation Services Division
 CITY OF OAKLAND
TSD 14-0135

LIMITED WORK HOURS
 M-F 9am - 4pm



| | | | | |
|-------------------------|--------------------------------|---------------------|---------------------------|--------------------|
| POSTED SPEED: 25 MPH | TAPER LENGTH: 125' | CONE SPACING: 25' | SIGN SPACING: 100-200' | BUFFER ZONE: 155' |
| WORK ZONE | CERTIFIED FLAGGER | REFLECTIVE CONE | STATIONARY C.A.S. | ARROW BOARD |
| CHANGEABLE MESSAGE SIGN | LIGHT TOWER | BARRICADE | SAND FILLED CRASH CUSHION | ABSORB 350 ELEMENT |
| | WATER WALL/WATER FILLED K RAIL | 20' CONCRETE K RAIL | | |

| | |
|--|-----------------------------|
| Owner: CITY OF OAKLAND | Date Prepared: 1/21/2013 |
| Project Name: 889 WEST GRAND AVE | Project Sheet #: # 2099 |
| Prime Contractor: BROADBENT | |
| Phone Number: 530-566-1400 | |
| Prepared By: STATEWIDE TRAFFIC SAFETY & SIGNS | |



LIMITED WORK HOURS
M-F 9am - 4pm

Approved *Paul Chang* 8/20/2014
Transportation Services Division
CITY OF OAKLAND
TSD 14-0135

* NOTIFY ALL TRANSIT OF WORK SCHEDULE

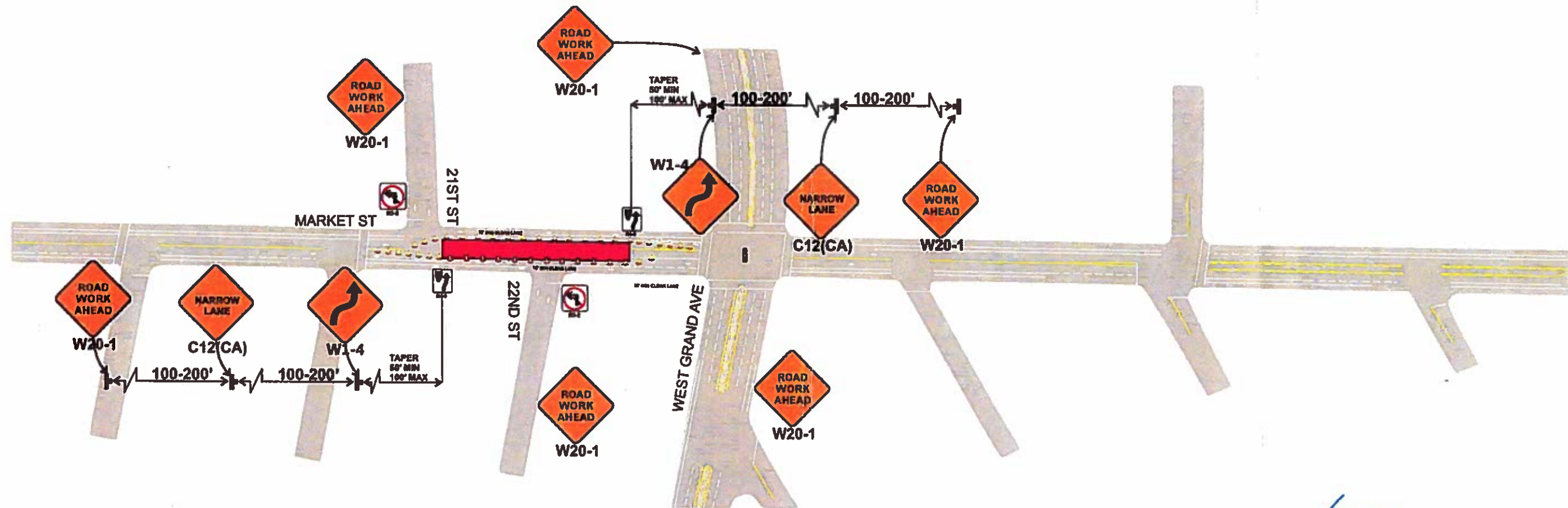


| | | | | |
|----------------------|--------------------|-------------------|------------------------|-------------------|
| POSTED SPEED: 25 MPH | TAPER LENGTH: 125' | CONE SPACING: 25' | SIGN SPACING: 100-200' | BUFFER ZONE: 155' |
|----------------------|--------------------|-------------------|------------------------|-------------------|



| | | | |
|--|-------------------------|--|--------------------------------|
| | WORK ZONE | | LIGHT TOWER |
| | CERTIFIED FLAGGER | | BARRICADE |
| | REFLECTIVE CONE | | SAND FILLED CRASH CUSHION |
| | STATIONARY C.A.S. | | ABSORB 350 ELEMENT |
| | ARROW BOARD | | WATER WALL/WATER FILLED K RAIL |
| | CHANGEABLE MESSAGE SIGN | | 20' CONCRETE K RAIL |

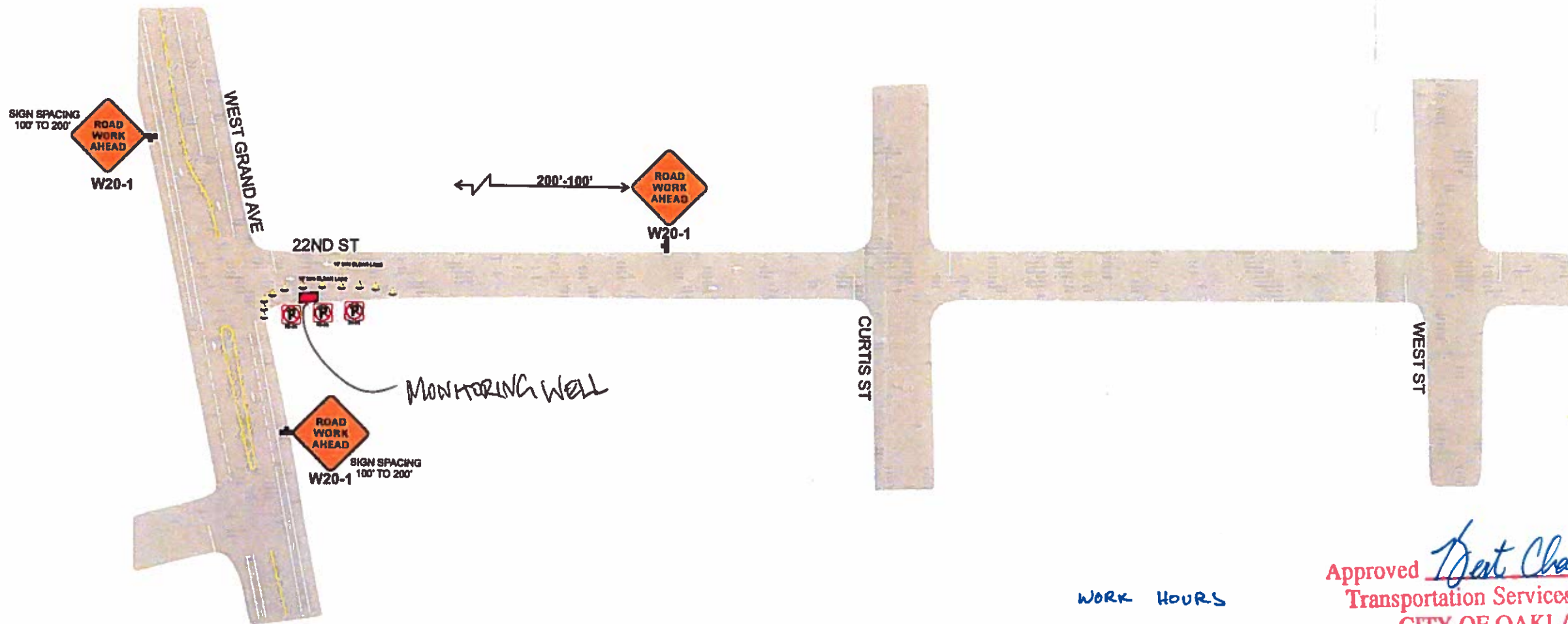
| | |
|--|----------------------------|
| Owner: CITY OF OAKLAND | |
| Project Name: 889 WEST GRAND AVE | |
| Prime Contractor: BROADBENT | |
| Phone Number: 530-566-1400 | Date Prepared: 6/7/2012 |
| Prepared By: STATEWIDE TRAFFIC SAFETY & SIGNS | Project Sheet #: # 1901 |



LIMITED WORK HOURS **Approved Test Change 8/20/2014**
 M-F 9am - 4pm
Transportation Services Division
CITY OF OAKLAND
 TSD 14-035



| | | | | | |
|----------------------|-------------------------|-------------------|--------------------------------|--|--------------------------------|
| POSTED SPEED: 25 MPH | TAPER LENGTH: 125' | CONE SPACING: 25' | SIGN SPACING: 100-200' | BUFFER ZONE: 155' | Owner: CITY OF OAKLAND |
| | WORK ZONE | | LIGHT TOWER | Project Name: 889 WEST GRAND AVE | Prime Contractor: BROADBENT |
| | CERTIFIED FLAGGER | | BARRICADE | Phone Number: 530-566-1400 | Date Prepared: 6/7/2012 |
| | REFLECTIVE CONE | | SAND FILLED CRASH CUSHION | Prepared By: STATEWIDE TRAFFIC SAFETY & SIGNS | Project Sheet #: # 1902 |
| | STATIONARY C.A.S. | | ABSORB 350 ELEMENT | | |
| | ARROW BOARD | | WATER WALL WATER FILLED K RAIL | | |
| | CHANGEABLE MESSAGE SIGN | | 20' CONCRETE K RAIL | | |



WORK HOURS
M-F 8am - 5pm

Approved Best Chang 8/20/2014
 Transportation Services Division
 CITY OF OAKLAND
 TSD 13-0135



| | | | | |
|----------------------|--------------------|-------------------|------------------------|-------------------|
| POSTED SPEED: 25 MPH | TAPER LENGTH: 125' | CONE SPACING: 25' | SIGN SPACING: 100-200' | BUFFER ZONE: 155' |
|----------------------|--------------------|-------------------|------------------------|-------------------|



| | | | |
|--|-------------------------|--|--------------------------------|
| | WORK ZONE | | LIGHT TOWER |
| | CERTIFIED FLAGGER | | BARRICADE |
| | REFLECTIVE CONE | | SAND FILLED CRASH CUSHION |
| | STATIONARY C.A.S. | | ABSORB 350 ELEMENT |
| | ARROW BOARD | | WATER WALL/WATER FILLED K RAIL |
| | CHANGEABLE MESSAGE SIGN | | 20' CONCRETE K RAIL |

| | |
|--|-----------------------------|
| Owner: CITY OF OAKLAND | |
| Project Name: 889 WEST GRAND AVE | |
| Prime Contractor: BROADBENT | |
| Phone Number: 530-566-1400 | Date Prepared: 1/21/2013 |
| Prepared By: STATEWIDE TRAFFIC SAFETY & SIGNS | Project Sheet #: # 2100 |

STATEWIDE

TRAFFIC SAFETY & SIGNS™

TRAFFIC CONTROL PLANS BROADBENT & ASSOC INC.

889 WEST GRAND AVE
JOB# 06-88-621

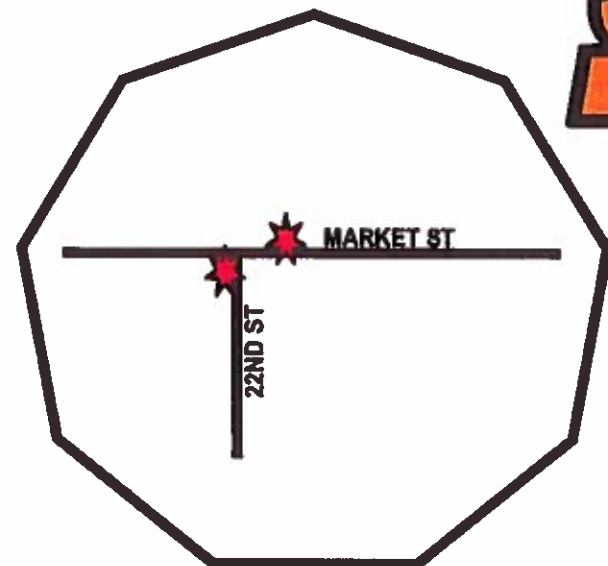
CONTRACTOR:
BROADBENT & ASSOCIATES INC.
CONTACT:
JAMES RAMOS 707-455-7290

NOTE:

1. CONTRACTOR WILL ASSIST ALL ADA, PED FOOT TRAFFIC AS NEEDED THROUGH WORK AREA. (MIN 5')
2. MAINTAIN ACCESS TO BUSINESS & RESIDENTS AT ALL TIMES.
3. NOTIFY AND COORDINATE WITH REGIONAL TRANSIT RELOCATION, CLOSURE OR MAINTAIN ACCESS TO BUS STOPS.
4. NO PARKING SIGNS WILL BE PLACED 24HRS BEFORE WORK BEGINS.
5. SIGNS SHALL BE 48X48".
6. SIDEWALKS WILL REMAIN OPEN AT ALL TIMES.

BOTH ARE BASED ON:
1.) 85TH % TILE OR IF NOT AVAILABLE, THEN USE
2.) POSTED SPEED LIMIT (PSL)
L = TAPER LENGTH
S = SPEED
W = WIDTH (OFFSET FROM PATH OF TRAVEL)

*CONES SHOWN ON THIS PLAN ARE ILLUSTRATION PURPOSE ONLY. EXACT NUMBER OF CONES REQUIRED SHALL BE BASED ON CONE SPACING, TAPER LENGTHS, ACTUAL FIELD, ACTUAL FIELD CONDITIONS, ECT....



PROJECT LOCATION

THIS PROJECT IS LOCATED ON MARKET ST AND 22ND ST IN OAKLAND, CA. THESE PLANS WILL BE USED TO WORK IN THE STREET TO MONITOR GROUNDWATER. WORK HOURS WILL BE 8AM TO 5PM MONDAY THRU FRIDAY. CONTRACTOR WILL COMPLY WITH THE CITY OF OAKLAND STANDARD SPECIFICATIONS.

CONTRACTOR WILL COMPLY WITH THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS (ARTICLE 10), CONTRACT SPECIAL SPECIFICATIONS, TRAFFIC CONTROL PLAN SUPPLEMENT AND CALTRANS SPECIFICATIONS, M.U.T.C.D 2012 EDITION. THIS PLAN MAY BE MODIFIED BY THE ENGINEER AT ANY TIME TO ELIMINATE OR AVOID TRAFFIC CONDITIONS THAT ARE HAZARDOUS TO THE SAFETY OF THE PUBLIC.

CONTINUAL MONITORING AND MAINTENANCE OF THE TRAFFIC CONTROL ZONE, EMERGENCY ACCESS, ACCOMMODATION FOR PEDESTRIANS, BICYCLE TRAFFIC AND THE DISABLED, PROPER TRAINING OF FLAGGERS, PROPER DEVICES AND DEVICE USAGE AND APPROPRIATE NOTIFICATIONS SHALL BE USED ON THIS PROJECT.

NOTES:


1. SIGN SPACING, CONE SPACING AND TAPER LENGTHS REFER TO TABLE.
2. THE LOCATION OF THE SIGNS AS SHOWN ON THE PLANS ARE GUIDELINES AND ACTUAL LOCATIONS WILL DEPEND UPON ALIGNMENT, GRADE, LOCATION OF STREET INTERSECTIONS, POSTED SPEED LIMITS, AND 85TH % TILE.
3. ALL HIGH LEVEL WARNING DEVICES WILL BE EQUIPPED WITH FLAGS FOR DAY CLOSURES.
4. IF THE WORK AREA ENCLOSES UPON A SIDEWALK OR WALKWAY, "SIDEWALK CLOSED, USE OTHER SIDE" SIGNS WILL BE USED TO GUIDE PEDESTRIANS TO CROSS TO ANOTHER MARKER CROSSWALK. PEDESTRIANS MAY NOT BE GUIDED ONTO PRIVATE PROPERTY OR THE TRAVELED WAY.
5. TRAFFIC LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH MIN CLR.
6. WHENEVER FEASIBLE AN ADDITIONAL 5 FEET SHALL BE PROVIDED FOR A BICYCLE LANE. IF IT IS NOT FEASIBLE TO PROVIDE A SEPARATE BICYCLE LANE, THE CONTRACTOR SHALL POST SIGNAGE BEFORE THE CONSTRUCTION AREA STATING: "SHARE the Road with Bicyclists". WHEN THE LANE IS SHARED, THE CONTRACTOR SHALL POST SIGNAGE FOR A MAXIMUM SPEED LIMIT OF 25 MPH IN THE SHARED LANE.
7. MONITOR AND MAINTAIN TRAFFIC CONTROL ZONE AT ALL TIMES.
8. MAINTAIN ACCESS FOR EMERGENCY VEHICLES.
9. ASSURE SAFE PASSAGE OF PEDESTRIANS & BICYCLISTS INCLUDING PERSONS WITH DISABILITIES IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT OF 1990 (ADA), TITLE II, PARAGRAPH 35.130.
10. ALL DEVICES TO CONFORM TO CALTRAN'S STANDARDS.
11. DEVICE PLACEMENT TO CONFORM TO CALTRAN'S GUIDELINES.
12. FLAGGERS TO BE TRAINED PER TITLE 8 CCR.

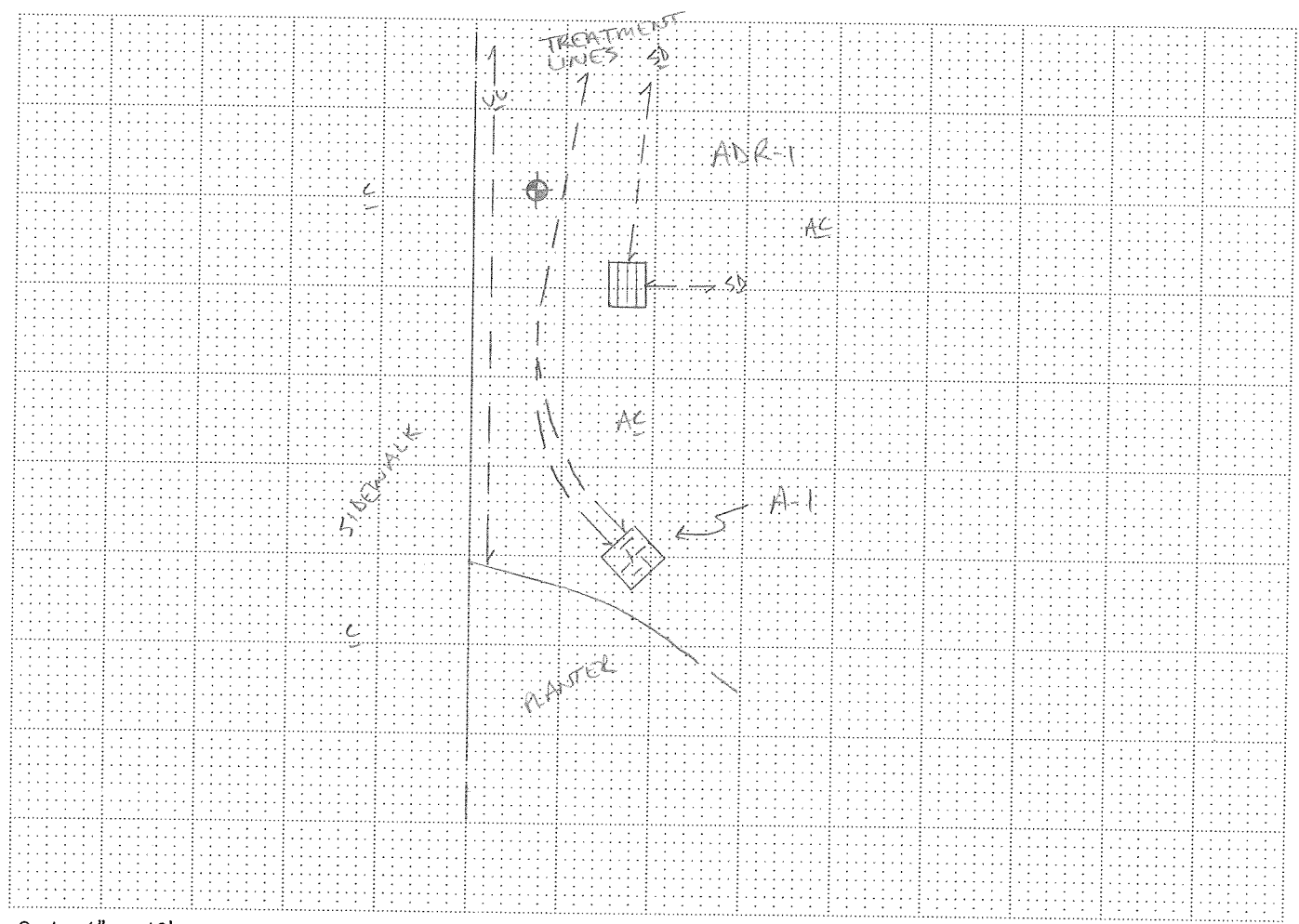
| POSTED SPEED | FORMULAS | BUFFER SPACE | MINIMUM TAPER LENGTH | | | | | | | | | MAX CONE SPACING | SIGN SPACING |
|--------------|----------|--------------|----------------------|-------------|----------------|------------|-------------|----------------|------------|-------------|----------------|------------------|--------------|
| | | | 10' OFFSET | | | 11' OFFSET | | | 12' OFFSET | | | | |
| | | | L MERGE | 1/2 L SHIFT | 1/3 L SHOULDER | L MERGE | 1/2 L SHIFT | 1/3 L SHOULDER | L MERGE | 1/2 L SHIFT | 1/3 L SHOULDER | | |
| 25 | | 155' | 104' | 52' | 35' | 115' | 57' | 38' | 125' | 63' | 42' | 25' | 100-200' |
| 30 | L= | 200' | 150' | 75' | 50' | 165' | 83' | 55' | 180' | 90' | 60' | 30' | 120-240' |
| 35 | (WS)(WS) | 250' | 204' | 102' | 68' | 225' | 112' | 75' | 245' | 123' | 82' | 35' | 140-280' |
| 40 | 60 | 305' | 267' | 133' | 89' | 293' | 147' | 98' | 320' | 160' | 107' | 40' | 160-320' |
| 45 | | 360' | 450' | 225' | 150' | 495' | 248' | 165' | 540' | 270' | 180' | 45' | 350-500' |
| 50 | | 425' | 50' | 250' | 167' | 550' | 275' | 183' | 600' | 300' | 200' | 50' | 525' MIN |
| 55 | L= (WS) | 495' | 550' | 275' | 183' | 605' | 303' | 202' | 660' | 330' | 220' | 50' | 550' MIN |
| 60 | | 570' | 600' | 300' | 200' | 660' | 330' | 220' | 720' | 360' | 240' | 50' | 575' MIN |
| 65 | | 645' | 650' | 325' | 217' | 715' | 358' | 240' | 780' | 390' | 260' | 50' | 600' MIN |
| 70 | | 730' | 700' | 350' | 233' | 770' | 385' | 240' | 840' | 420' | 280' | 50' | 650' MIN |



APPENDIX D





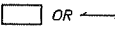
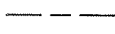
UTILITY CLEARANCE SURVEY

| | |
|--|-------------------------|
| PERSONNEL: DJK TWB | CLIENT: BROADBENT |
| JOB: | DATE: 8-7-14 |
|  | LOCATION: ARCO, OAKLAND |
| | BORING: ADR-1 & A-1 |



Scale: 1" = 10'

EXPLANATION

-  Original Boring Location
 -  Final Boring Location
 -  Existing Well Location
 -  GPR Traverse
 -  Localized GPR Anomaly
 -  Utility Alignment
- Utilities
- T (Telephone, Comm.)
 - E (Electric)
 - NG (Natural Gas)
 - CA (Compressed Air)
 - STM (Steam)
 - SS (Sanitary Sewer)
 - ✓ SD (Storm Drain)
 - W (Water)
 - FS (Fire Suppression)
 - ✓ UU (Undifferentiated Utility)
- Surface
- RC (Reinforced Concrete)
 - ✓ AC (Asphalt)
 - C (Concrete)
 - Soil
 - Gravel
 - other

NOTES

- | | | |
|---------------|--------------------|---------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| ✓ RD 4000 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | ✓ Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: DSK TWB

CLIENT: BROADBENT

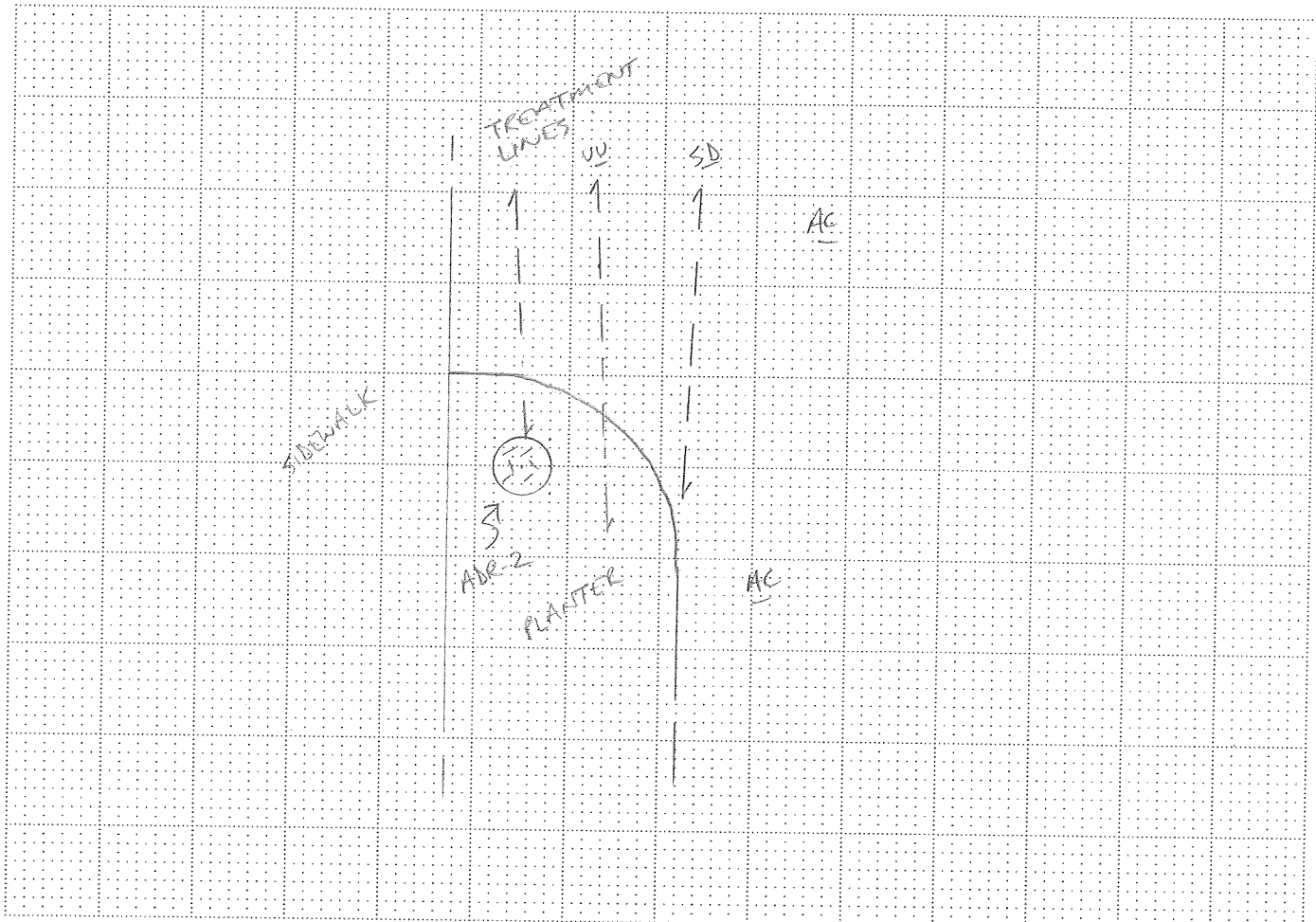
JOB:

DATE: 8-7-14

LOCATION: ARCO, OAKLAND



BORING: ADR-2



Scale: 1" = 10'

EXPLANATION

NOTES

- Original Boring Location
Final Boring Location
Existing Well Location
GPR Traverse
Localized GPR Anomaly
Utility Alignment

- Equipment: GPR (Radar), RD 4000, M Scope, other
Procedure: EMC (Conduction), EMI (Induction), Ambient, GPR
Surface Conditions: Wet, Dry, other

- Utilities: T (Telephone, Comm.), E (Electric), NG (Natural Gas), CA (Compressed Air), STM (Steam), SS (Sanitary Sewer), SD (Storm Drain), W (Water), FS (Fire Supression), UU (Undifferentiated Utility)
Surface: RC (Reinforced Concrete), AC (Asphalt), C (Concrete), Soil, Gravel, other

REMARKS



PERSONNEL: TWB / DJK

CLIENT: BROADBENT INC.

JOB: 14-1034.30

DATE: 8-7-14

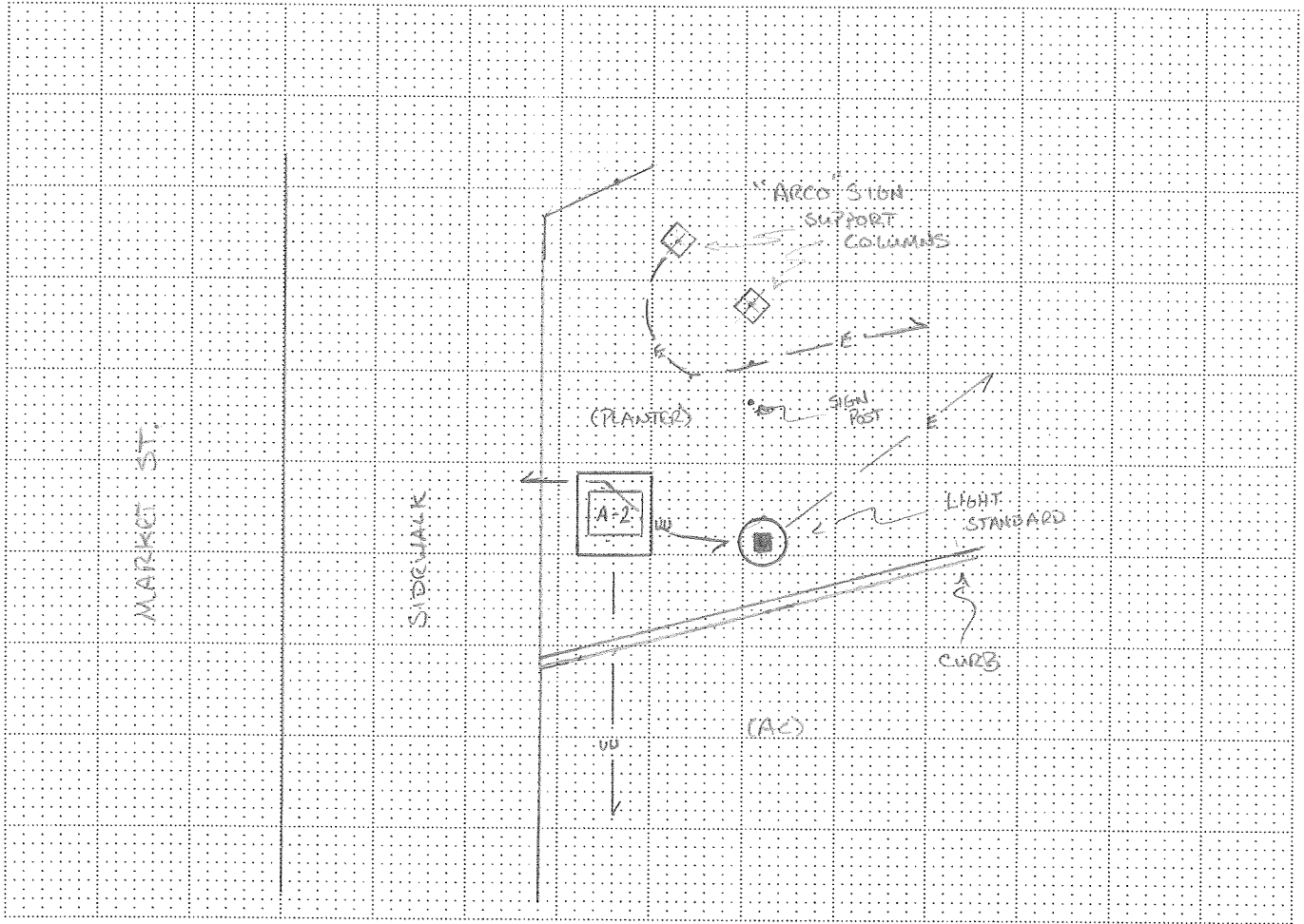
LOCATION: ARCO STN. 2169 OAKLAND, CA

NORCAL

GEOPHYSICAL CONSULTANTS INC.



BORING: A-2



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- GPR Traverse
- OR ← Localized GPR Anomaly
- - - Utility Alignment

Utilities

- T (Telephone, Comm.)
- ✓ E (Electric)
- NG (Natural Gas)
- CA (Compressed Air)
- STM (Steam)
- SS (Sanitary Sewer)
- SD (Storm Drain)
- W (Water)
- FS (Fire Suppression)
- ✓ UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- AC (Asphalt)
- C (Concrete)
- Soil
- Gravel
- ✓ other

NOTES

- | | | |
|---------------|--------------------|---------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | ✓ EMC (Conduction) | - Wet |
| ✓ RD 400 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | ✓ Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: TWB/DJK

CLIENT: BROADBENT INC.

JOB: 14-1034.30

DATE: 8-7-14

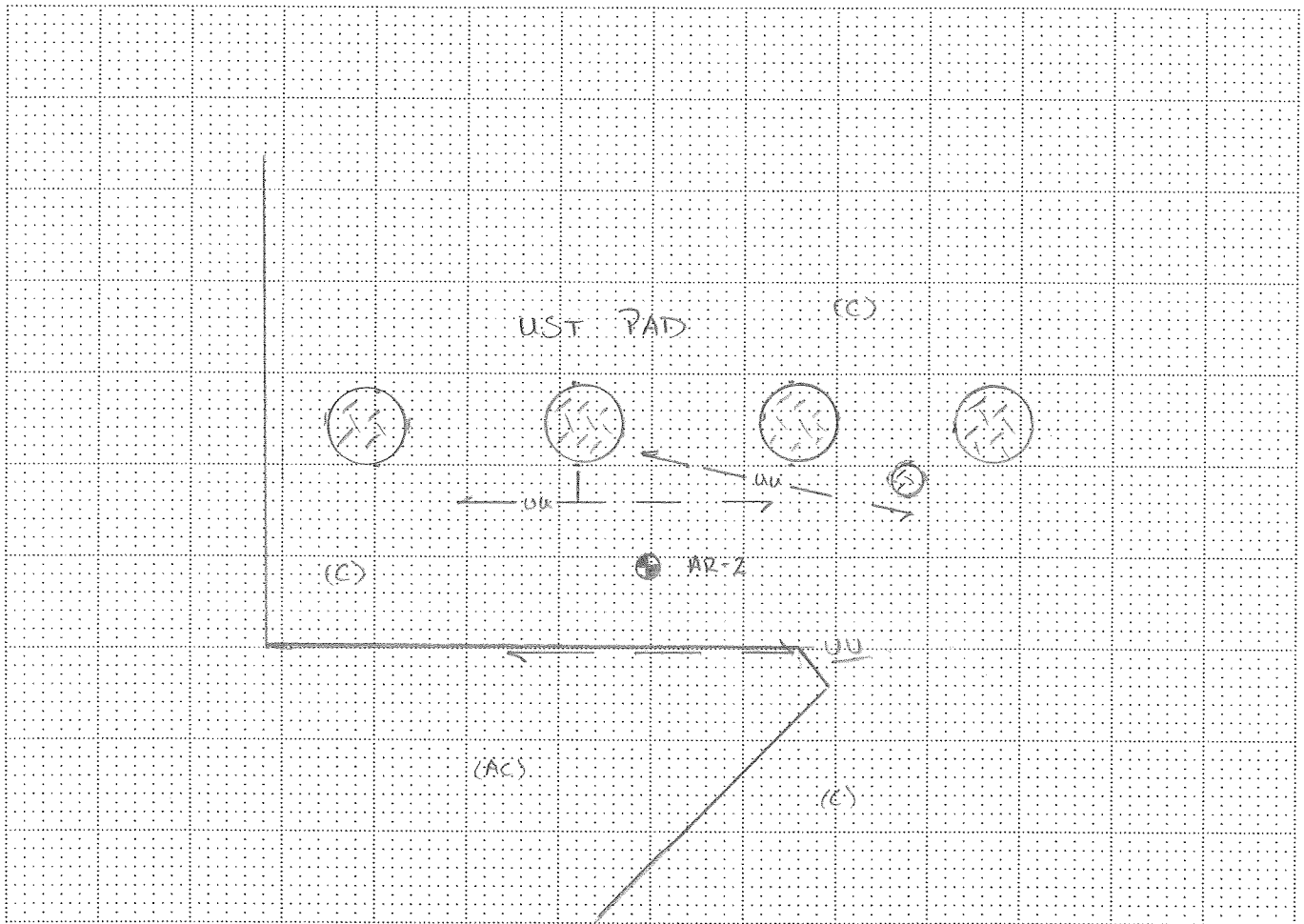
LOCATION: ARCO STN. 2169 OAKLAND, CA

NORCAL

GEO PHYSICAL
CONSULTANTS
INC.



BORING: AR-2



Scale: 1" = 10'

EXPLANATION

- Original Boring Location .
- Final Boring Location
- |— GPR Traverse
- or ← Localized GPR Anomaly
- - - - Utility Alignment

Utilities

- T (Telephone, Comm.)
- E (Electric)
- NG (Natural Gas)
- CA (Compressed Air)
- STM (Steam)
- SS (Sanitary Sewer)
- SD (Storm Drain)
- W (Water)
- FS (Fire Supression)
- ✓ UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- AC (Asphalt)
- ✓ C (Concrete)
- Soil
- Gravel
- other

NOTES

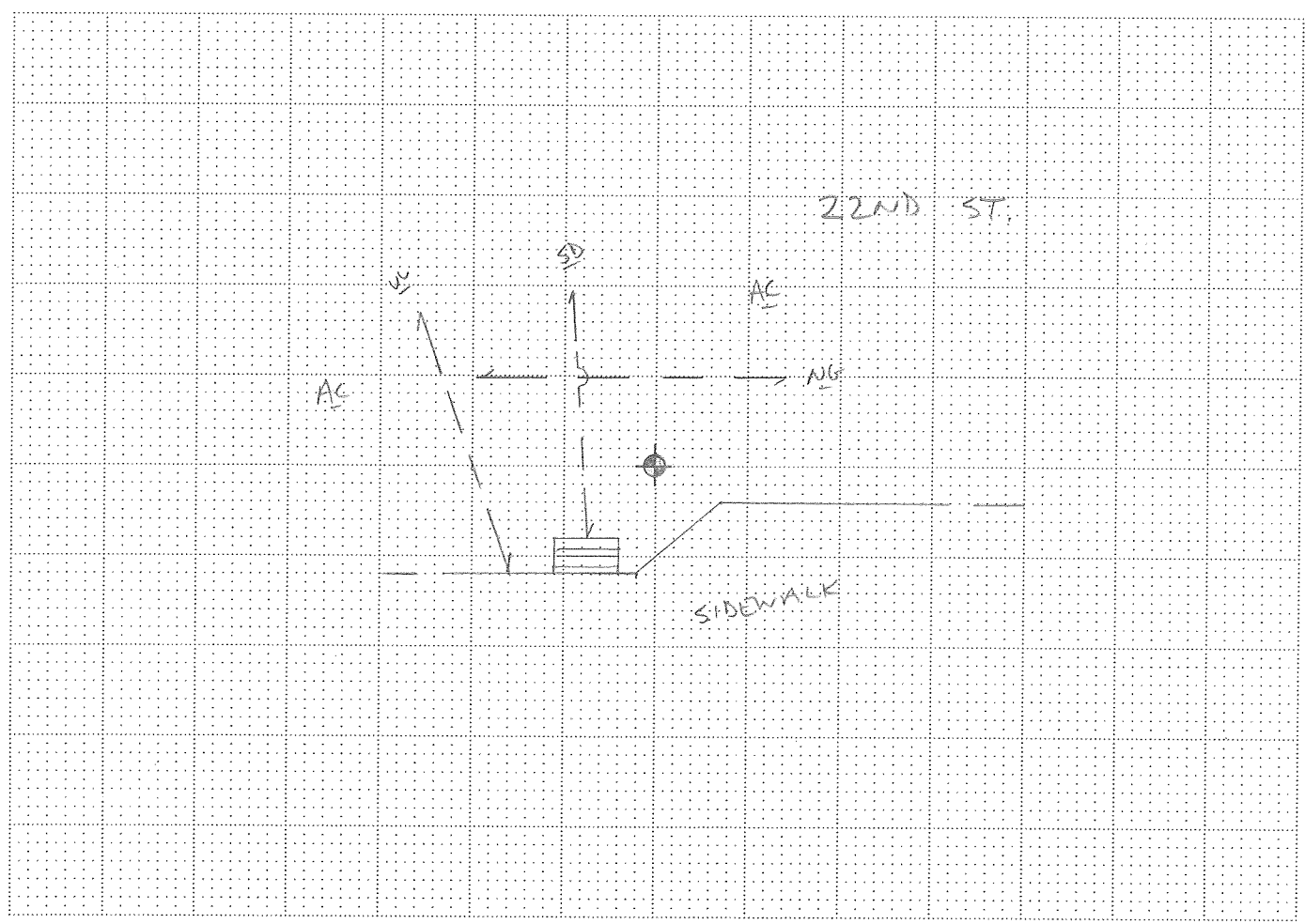
- | | | |
|---------------|--------------------|---------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| ✓ RD 400 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | ✓ Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: DJK TwB
 JOB: _____ DATE: 8-7-14

CLIENT: BROADBENT
 LOCATION: ARCO, OAKLAND
 BORING: A-5



Scale: 1" = 10'

EXPLANATION

NOTES

- Original Boring Location
 - Final Boring Location
 - Existing Well Location
 - GPR Traverse
 - Localized GPR Anomaly
 - Utility Alignment
- Utilities
- T (Telephone, Comm.)
 - E (Electric)
 - ✓ NG (Natural Gas)
 - CA (Compressed Air)
 - STM (Steam)
 - SS (Sanitary Sewer)
 - ✓ SD (Storm Drain)
 - W (Water)
 - FS (Fire Suppression)
 - ✓ UU (Undifferentiated Utility)
- Surface
- RC (Reinforced Concrete)
 - ✓ AC (Asphalt)
 - C (Concrete)
 - Soil
 - Gravel
 - other

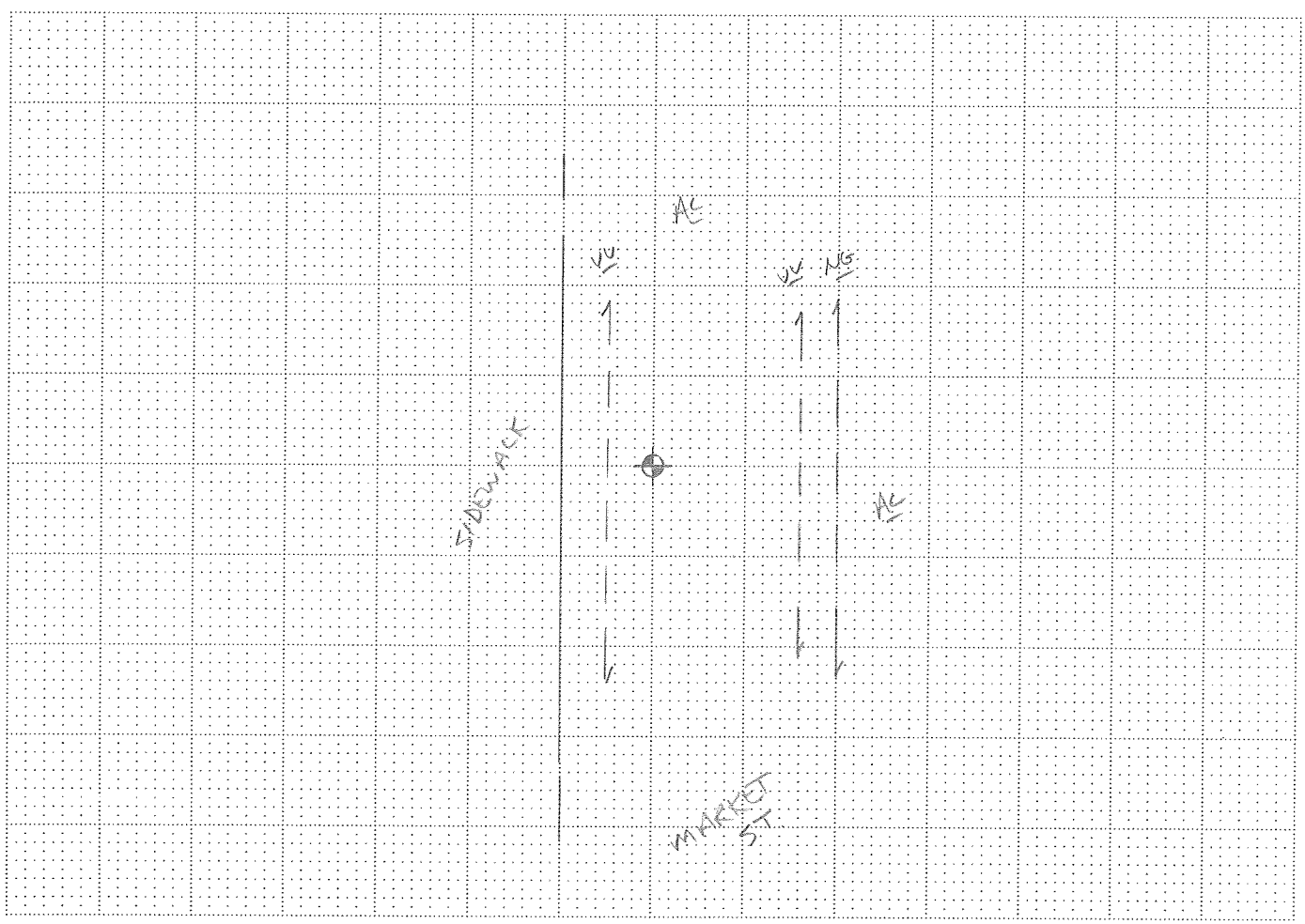
- | | | |
|---------------|--------------------|---------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| ✓ RD 4000 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | ✓ Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: WJK TB
 JOB: _____ DATE: 8-7-14

CLIENT: BROADBENT
 LOCATION: ARCO, OAKLAND
 BORING: A-6



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- Localized GPR Anomaly
- Utility Alignment

Utilities

- T (Telephone, Comm.)
- E (Electric)
- NG (Natural Gas)
- CA (Compressed Air)
- STM (Steam)
- SS (Sanitary Sewer)
- SD (Storm Drain)
- W (Water)
- FS (Fire Suppression)
- UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- AC (Asphalt)
- C (Concrete)
- Soil
- Gravel
- other

NOTES

- | | | |
|---|---|---|
| Equipment: | Procedure: | Surface Conditions: |
| <input checked="" type="checkbox"/> GPR (Radar) | <input type="checkbox"/> EMC (Conduction) | <input type="checkbox"/> Wet |
| <input checked="" type="checkbox"/> RD 4000 | <input checked="" type="checkbox"/> EMI (Induction) | <input checked="" type="checkbox"/> Dry |
| <input checked="" type="checkbox"/> M Scope | <input type="checkbox"/> Ambient | <input type="checkbox"/> other |
| <input type="checkbox"/> other | <input checked="" type="checkbox"/> GPR | |

REMARKS



August 25, 2014

Mr. Alexander Martinez
Broadbent & Associates
4820 Business Center Drive, Suite 110
Fairfield, CA 94534

Subject: Geophysical Investigation
Arco Station 2169, 889 West Grand Avenue, Oakland, CA
NORCAL Job No. 14-1034.30

Dear Mr. Martinez:

This report presents the findings of a geophysical survey performed by NORCAL Geophysical Consultants, Inc. at the subject property on the southeast corner of Market and 22nd Streets in Oakland, CA. The field survey was conducted on August 7th by NORCAL California Professional Geophysicist Donald J. Kirker and Geophysical Technician Travis Black. Site information and logistical support were provided by Alex Martinez of Broadbent & Associates (Broadbent).

1.0 SITE DESCRIPTION AND PURPOSE

Geophysical investigations were conducted at 7 present groundwater monitoring well locations, as shown on the attached Borehole Log forms. They are designated as A-1, A-2, A-5, A-6, ADR-1, ADR-2, and AR-2 and are located on and near the subject Arco station. Specifically, A-1, A-2, ADR-1, ADR-2, and AR-2 are located on the station property. A-5 is located on the south side of 22nd Street. A-6 is located on the west side of Market Street. Some of these wells are associated with an on-site treatment facility and have underground PVC piping attached.

The survey area at each of these locations measures approximately 10- by 10-ft and comprises asphalt, concrete, and/or reinforced concrete paving. Each area was free and clear of above ground obstructions and parked vehicles at the time of the investigation.

As part of ongoing work, CRA is planning to destruct these groundwater monitoring wells. Therefore, the purpose of the geophysical survey is to investigate each location for detectable underground utilities and other potential subsurface obstructions.

2.0 FIELD INVESTIGATIONS

2.1 EQUIPMENT

We investigated each well location using the electromagnetic line locating/metal detection (EMLL) and ground penetrating radar (GPR) methods. The EMLL method was used in the electromagnetic conduction, ambient and metal detection (MD) modes. The conduction mode was used to locate metal utilities that are accessible from the surface in at least one location. This



is typically done by applying a current to a line by directly connecting the transmitter to the exposed utility through a vault or a hose bib. The ambient procedure was used to locate utilities that exhibit currents already flowing on the line (passive signals). The most common passive signals are generated by live electric lines, water lines acting as electrical grounds, and metal pipes re-radiating radio signals.

The MD mode was used to locate metal utilities that are not accessible at the surface, and isolated buried objects such as utility vaults and other debris. This is done by holding the transmitter-receiver unit above the ground and continuously scanning over the surface. Metallic utilities and isolated objects will produce a response indicating when the unit is directly over the metal object.

The GPR method was used to confirm the location of the utilities detected with the EMLL, and to locate possible non-metallic utilities. Since GPR depth of detection is based on site specific soil conditions, not all subsurface features are detectable. Descriptions of the MD, EMLL, and GPR methods are provided in Appendix A.

2.2 LIMITATIONS

2.2.1 Electromagnetic Line Locating

The detection of underground utilities is dependent upon the composition and construction of the line of interest, as well as depth. Utilities detectable with standard line location techniques include any continuously connected metal pipes, cables/wires or utilities with tracer wires. Unless carrying a passive current these utilities must be exposed at the surface or accessible in utility vaults. These generally include water, electric, natural gas, telephone, and other conduits related to facility operations. Utilities that may not be detectable using standard electromagnetic line location techniques may include certain abandoned utilities, utilities not exposed at the ground surface, or those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and metal pipes with insulating joints. Also, pipes generally deeper than about five to seven feet may not be detected.

2.2.2 Ground Penetrating Radar

The ability to detect subsurface targets is dependent on site specific conditions. These conditions include depth of burial, the size or diameter of the target, the condition of the specific target in question, the type of backfill material associated with the target, and the surface conditions over the target. Under ideal conditions, the GPR can generally detect objects buried to approximately six feet. However, as the clay content in the subsurface increases, the GPR depth of detection decreases. Therefore, it is possible that on-site soil conditions and target features may limit the depth of detection to the upper two to four feet below ground surface.



2.3 SITE SURVEYS

We investigated the monitoring well locations for detectable underground utilities and other potential subsurface features using a two-phased approach. The first phase consisted of a survey over the general area to determine what utilities may trend towards the specific sampling locations. The second phase consisted of a more direct survey over the individual wells. A brief description of our field procedures are presented below:

PHASE 1

- A. Site Reconnaissance: We visually inspected the general area to locate visible man-way covers, utility vaults, valves, clean-outs, meters, hose bibs, etc.
- B. EMLL Direct Connect and Induction Survey: We traced accessible utilities within the general area using the EMLL direct connect and induction methods, as described above.

PHASE 2

- A. EMLL Ambient Survey: We used the EMLL ambient procedure to investigate the respective well location for non-accessible utilities emitting a passive signal, as described above.
- B. EMLL Metal Detection (MD) Survey: We scanned each well location with the MD to investigate for metal utilities that were not accessible at the surface. Since the specific type of utility (i.e. water, gas, etc.) cannot be determined by this method, they are referred to as undifferentiated utilities. We also used the MD method to investigate the well location for possible buried metal objects.
- C. GPR Survey: We obtained GPR data over each well location. We examined the GPR records for reflection patterns characteristic of underground utilities and other potential subsurface objects.
- D. Field Documentation: Upon completion of the geophysical surveys, we used Borehole Site Survey Log forms to document our field work. They present the pertinent information associated with each well location. Copies of the Borehole Site Survey Log forms are provided in Appendix B.



3.0 RESULTS

The results of the site surveys at A-1, A-2, A-5, A-6, ADR-1, ADR-2, and AR-2 are shown on the enclosed copies of the Borehole Site Survey Logs (Appendix B). A-1, A-2, ADR-1, ADR-2, and AR-2 are located on the station property. A-5 and A-6 are located on the south side of 22nd Street and the west side of Market Street, respectively.

3.1 STATION PROPERTY

On the gas station property near A-1, A-2, ADR-1, ADR-2, and AR-2, we identified several utility alignments and treatment lines associated with the wells. Specifically, at A-1 we identified an undifferentiated utility approximately 8-ft to the west. We also identified treatment lines that trend northwest from the well to within 1.5-ft of nearby ADR-1. At ADR-1 we identified a storm drain line 5.5-ft to the east and an undifferentiated utility approximately 2-ft to the west. At ADR-2 we identified treatment lines trending north from the well. An undifferentiated utility was also detected 4.5-ft to the east. At A-2 we identified treatment lines trending south from the well and an undifferentiated utility approximately 1-ft to the north-northeast. Since these wells are located on the gas station property, the undifferentiated utilities probably represent water and/or electric lines associated with the station.

At AR-2 we identified undifferentiated utilities approximately 3.5-ft to the north and 5-ft to the south. Since this well is located within 2- to 4-ft of the USTs, these utilities probably represent product and electric associated with the tanks. It should be noted that we could not detect the south ends of the USTs. Therefore we believe that they are buried deeper than the detection capabilities of the equipment.

3.2 MARKET AND 22ND STREETS

At A-5 (22nd Street) we identified a natural gas line 5-ft to the north, a storm drain line 4-ft to the west and an undifferentiated utility 10-ft to the west. At A-6 (Market Street) we identified a natural gas line 10-ft to the east and undifferentiated utilities 8-ft to the east and 2.5-ft to the west. Since both of these wells are located in public streets, the undifferentiated utilities may represent abandoned lines, as well as electric, water, communications etc.

4.0 STANDARD CARE AND WARRANTY

The scope of NORCAL's services for this project consisted of using geophysical methods to explore the area of investigation for underground utilities. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the level of skill ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.



Broadbent & Associates
August 25, 2014
Page 5

We appreciate having the opportunity to provide our geophysical services to Broadbent & Associates. If you have any questions, or require additional geophysical services, please do not hesitate to call.

Respectfully,

NORCAL Geophysical Consultants, Inc.

A handwritten signature in black ink that reads "Donald J. Kirker".

Donald J. Kirker
Professional Geophysicist, PGp-997

Enclosure: Appendix A: GEOPHYSICAL METHODOLOGY
 Appendix B: BOREHOLE SITE SURVEY LOGS



Appendix A

GEOPHYSICAL METHODOLOGY



Appendix A

ELECTROMAGNETIC LINE LOCATION/METAL DETECTION (EMLL/MD)

METHODOLOGY

Electromagnetic line location techniques (EMLL) are used to locate the magnetic field resulting from an electric current flowing on a line. These magnetic fields can arise from currents already on the line (passive) or currents applied to a line with a transmitter (active). The most common passive signals are generated by live electric lines and re-radiated radio signals. Active signals can be introduced by connecting the transmitter to the line at accessible locations or by induction.

The detection of underground utilities is affected by the composition and construction of the line in question. Utilities detectable with standard line location techniques include any continuously connected metal pipes, cables/wires or utilities with tracer wires. Unless the utilities carry a passive current, they must be exposed at the surface or in accessible utility vaults. These generally include water, electric, natural gas, telephone, and other conduits related to facility operations. Utilities that are not detectable using standard electromagnetic line location techniques include those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and pipes with insulated connections.

Buried objects can also be detected, without direct contact, by using the metal detection technique (MD). This is used to detect buried near surface metal objects such as rebar, manhole covers, USTs, and various metallic debris. The MD transmitter-receiver unit is held above the ground and continuously scanned over the surface. The unit utilizes two orthogonal coils that are separated by a specified distance. One of the coils transmits an electromagnetic signal (primary magnetic field) which in turn produces a secondary magnetic field about the subsurface metal object. Since the receiver coil is orthogonal to the transmitter coil, it is unaffected by the primary field. Therefore, the secondary magnetic fields produced by buried metal object will generate an audible response from the unit. The peak of this response indicates when the unit is directly over the metal object.

The instrumentation we used for the EMLL and MD survey consists of a Radio Detection RD-400 and a Fisher TW-6 inductive pipe and cable locator.

DATA ANALYSIS

The EMLL/MD instrumentation indicates the presence of buried metal by emitting an audible tone; there are no recorded data to analyze. Therefore, the locations of buried objects detected with these methods are marked on the ground surface during the survey.

LIMITATION

The detection of underground utilities is dependent upon the composition and construction of the line of interest, as well as depth. Utilities detectable with standard line location techniques include any continuously connected metal pipes, cables/wires or utilities with tracer wires. Unless carrying a passive current these utilities must be exposed at the surface or accessible in utility vaults. These generally include water, electric, natural gas, telephone, and other conduits related to facility operations. Utilities that may not be detectable using standard electromagnetic line location techniques include certain abandoned utilities, utilities not exposed at the ground surface, or those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and metal pipes with insulating joints. Pipes generally deeper than about five to seven feet may not be detected.

GROUND PENETRATING RADAR (GPR)

METHODOLOGY

Ground penetrating radar is a method that provides a continuous, high resolution cross-section depicting variations in the electrical properties of the shallow subsurface. The method is particularly sensitive to variations in electrical conductivity and electrical permittivity (the ability of a material to hold a charge when an electrical field is applied).

The GPR system operates by radiating electromagnetic pulses into the ground from a transducer (antenna) as it is moved along a traverse. Since most earth materials are transparent to electromagnetic energy, the signal spreads downward into the subsurface. However, when the signal encounters a variation in electrical permittivity, a portion of the electromagnetic energy is reflected back to the surface. When the signal encounters a metal object, all of the incident energy is reflected. The reflected signals are received by the same transducer and are printed in cross-section form on a graphical recorder. Changes in subsurface reflection character on the GPR records can provide information regarding the location of USTs, sumps, buried debris, underground utilities, and variations in the shallow stratigraphy.

The GPR system used was a Geophysical Survey Systems, Inc. SIR-3000 Subsurface Interface Radar Systems equipped with a 400 megahertz (MHz) transducer, respectively. This transducer is used to provide high resolution at shallow depths.

DATA ANALYSIS

GPR records are examined to identify reflection patterns characteristic of USTs, utilities, septic tanks, and other buried debris. Typically, USTs are manifested by broad localized hyperbolic (upside-down "U" shape) reflection patterns that vary in intensity. The intensity of a reflection pattern is usually dependent upon the condition of the respective UST, its burial depth, and the type of fill over the UST. Utilities and other buried debris are typically manifested by narrow localized hyperbolic reflections that also vary in intensity.



LIMITATIONS

The ability to detect subsurface targets is dependent on site specific conditions. These conditions include depth of burial, the size or diameter of the target, the condition of the specific target in question, the type of backfill material associated with the target, and the surface conditions over the target. Under ideal conditions, the GPR can generally detect objects buried to approximately six feet. However, as the clay content in the subsurface increases, the GPR depth of detection decreases. Therefore, it is possible that on-site soil conditions and target features may limit the depth of detection to the upper one to two feet below ground surface.

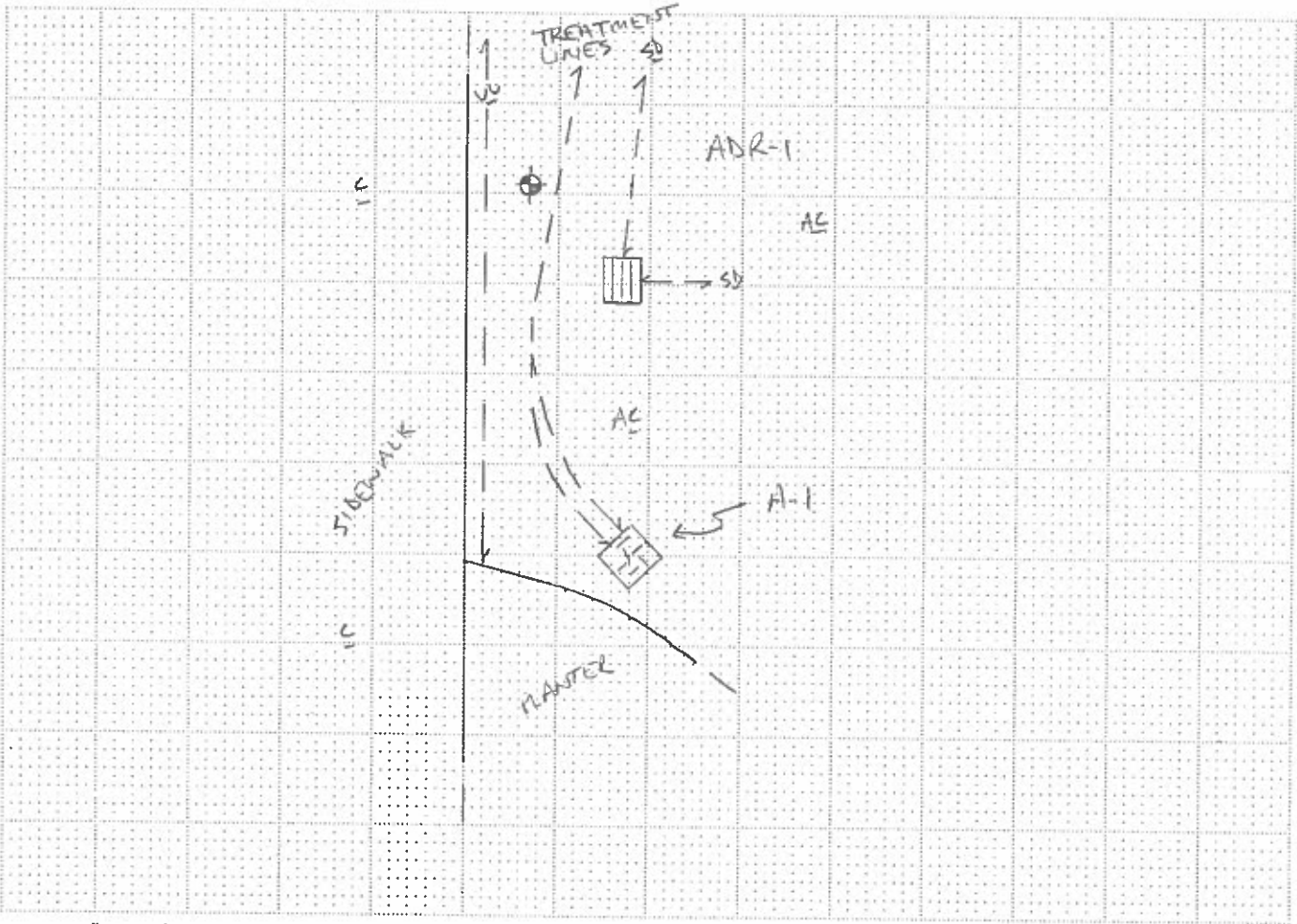


Appendix B

BOREHOLE SITE SURVEY LOGS

PERSONNEL: *BJK TwB*
 JOB: _____ DATE: *8-7-14*

CLIENT: *BROADBENT*
 LOCATION: *ARCO, OAKLAND*
 BORING: *ADR-1 A-1*



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
 - Final Boring Location
 - Existing Well Location
 - GPR Traverse
 - Localized GPR Anomaly
 - Utility Alignment
- Utilities
- T (Telephone, Comm.)
 - E (Electric)
 - NG (Natural Gas)
 - CA (Compressed Air)
 - STM (Steam)
 - SS (Sanitary Sewer)
 - ✓ SD (Storm Drain)
 - W (Water)
 - FS (Fire Suppression)
 - ✓ UU (Undifferentiated Utility)
- Surface
- RC (Reinforced Concrete)
 - ✓ AC (Asphalt)
 - C (Concrete)
 - Soil
 - Gravel
 - other

NOTES

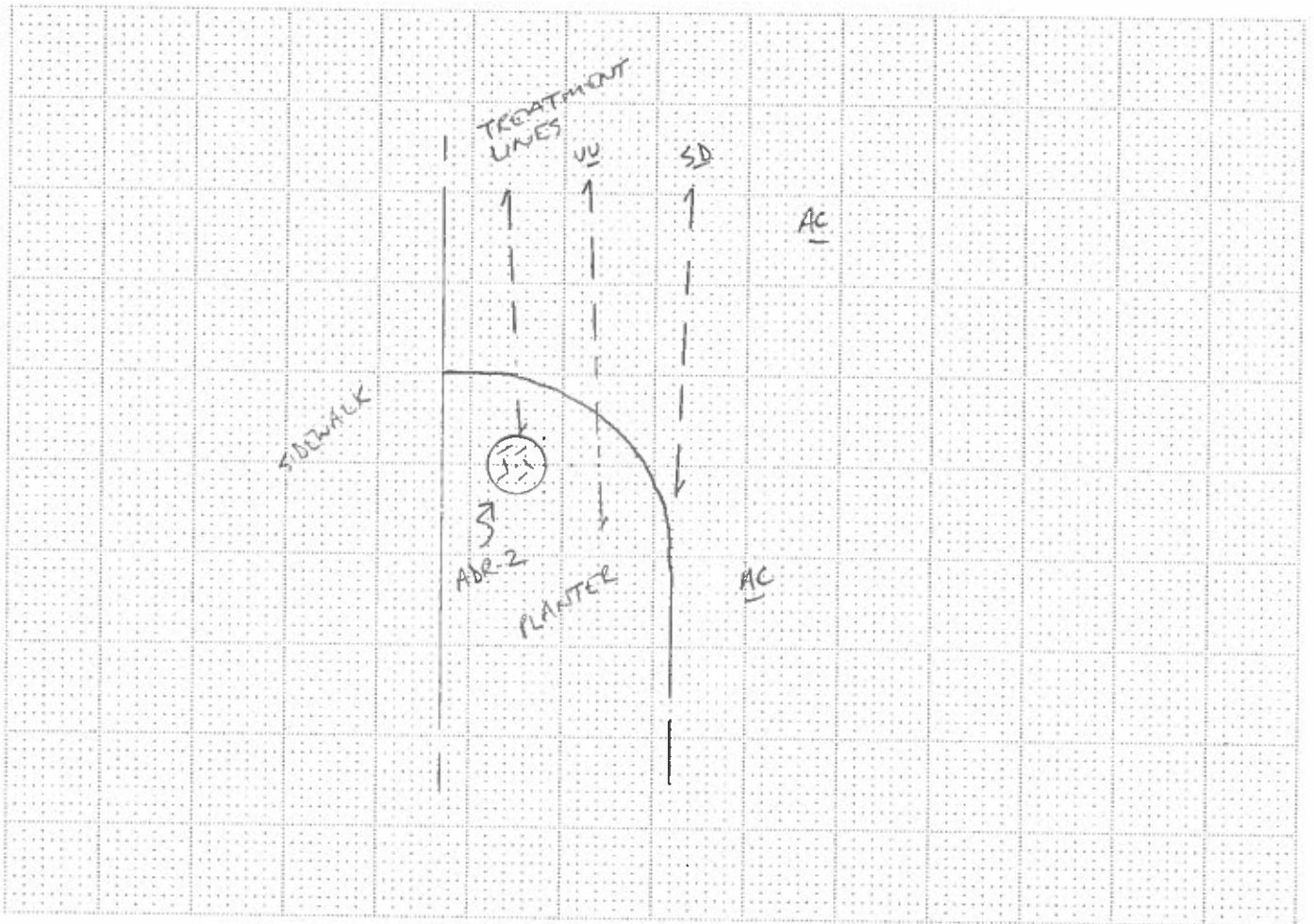
- | | | |
|-------------------|--------------------|----------------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| - RD 4000 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | - Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: DJK Twb
 JOB: DATE: 8-7-14

CLIENT: BROADBENT
 LOCATION: ARCO, OAKLAND
 BORING: ADR-2



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- Localized GPR Anomaly
- Utility Alignment

Utilities

- T (Telephone, Comm.)
- E (Electric)
- NG (Natural Gas)
- CA (Compressed Air)
- STM (Steam)
- SS (Sanitary Sewer)
- ✓ SD (Storm Drain)
- W (Water)
- FS (Fire Suppression)
- ✓ UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- ✓ AC (Asphalt)
- C (Concrete)
- Soil
- Gravel
- other

NOTES

- | | | |
|---------------|--------------------|---------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| ✓ RD 4000 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | ✓ Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: TWB / DJK

CLIENT: BROADBENT INC.

JOB: 14-1034.30

DATE: 8-7-14

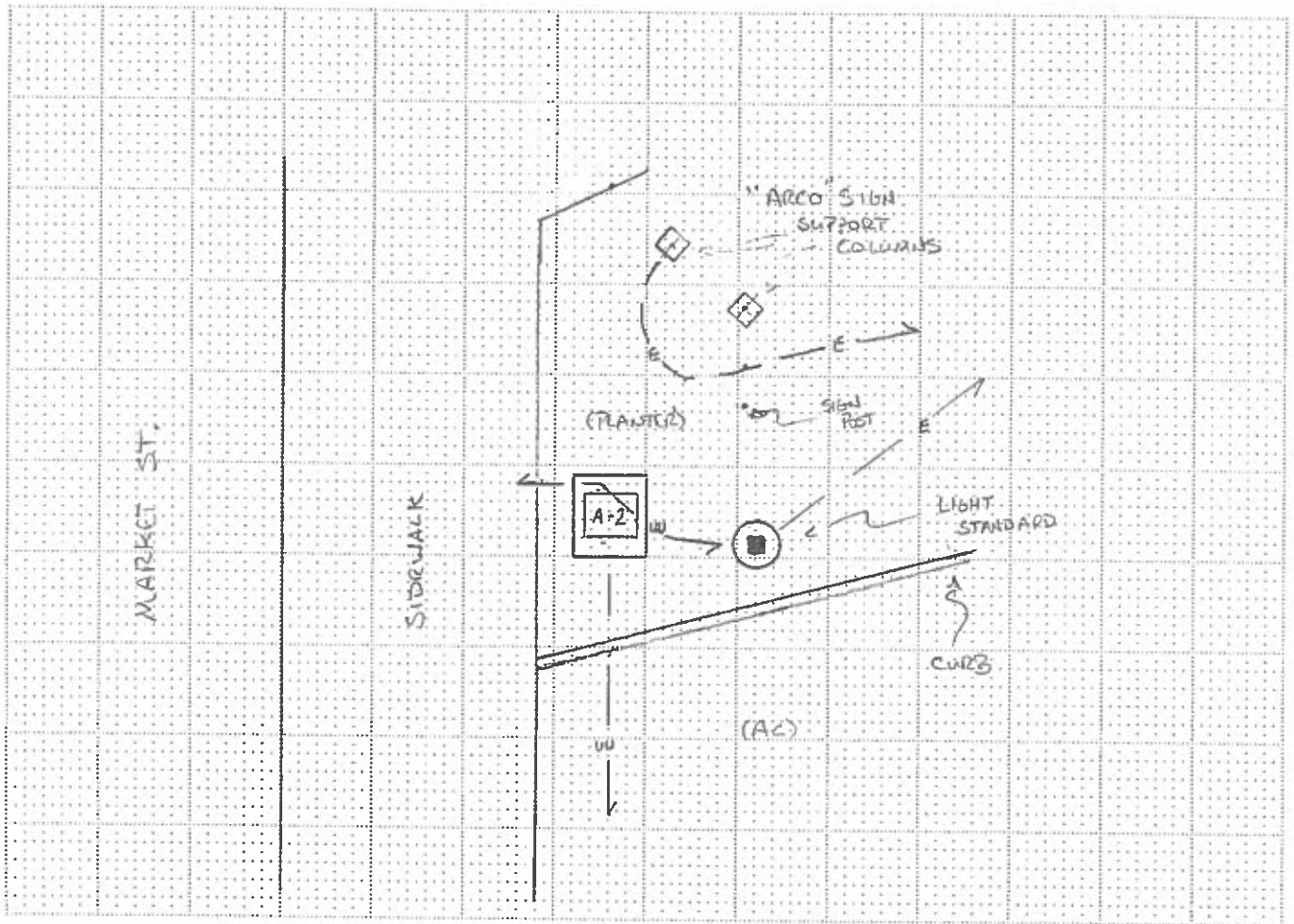
LOCATION: ARCO STN. 2169 OAKLAND, CA

NORCAL

GEOPHYSICAL CONSULTANTS INC.



BORING: A-2



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- GPR Traverse
- Localized GPR Anomaly
- Utility Alignment

Utilities

- T (Telephone, Comm.)
- SS (Sanitary Sewer)
- ✓ E (Electric)
- SD (Storm Drain)
- NG (Natural Gas)
- W (Water)
- CA (Compressed Air)
- FS (Fire Supression)
- STM (Steam)
- ✓ UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- Soil
- AC (Asphalt)
- Gravel
- C (Concrete)
- ✓ other

NOTES

- | | | |
|-------------------|--------------------|----------------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | ✓ EMC (Conduction) | - Wet |
| ✓ RD 400 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | ✓ Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: TWB/DJK

CLIENT: BROADBENT INC.

JOB: 14-1034.30

DATE: 8-7-14

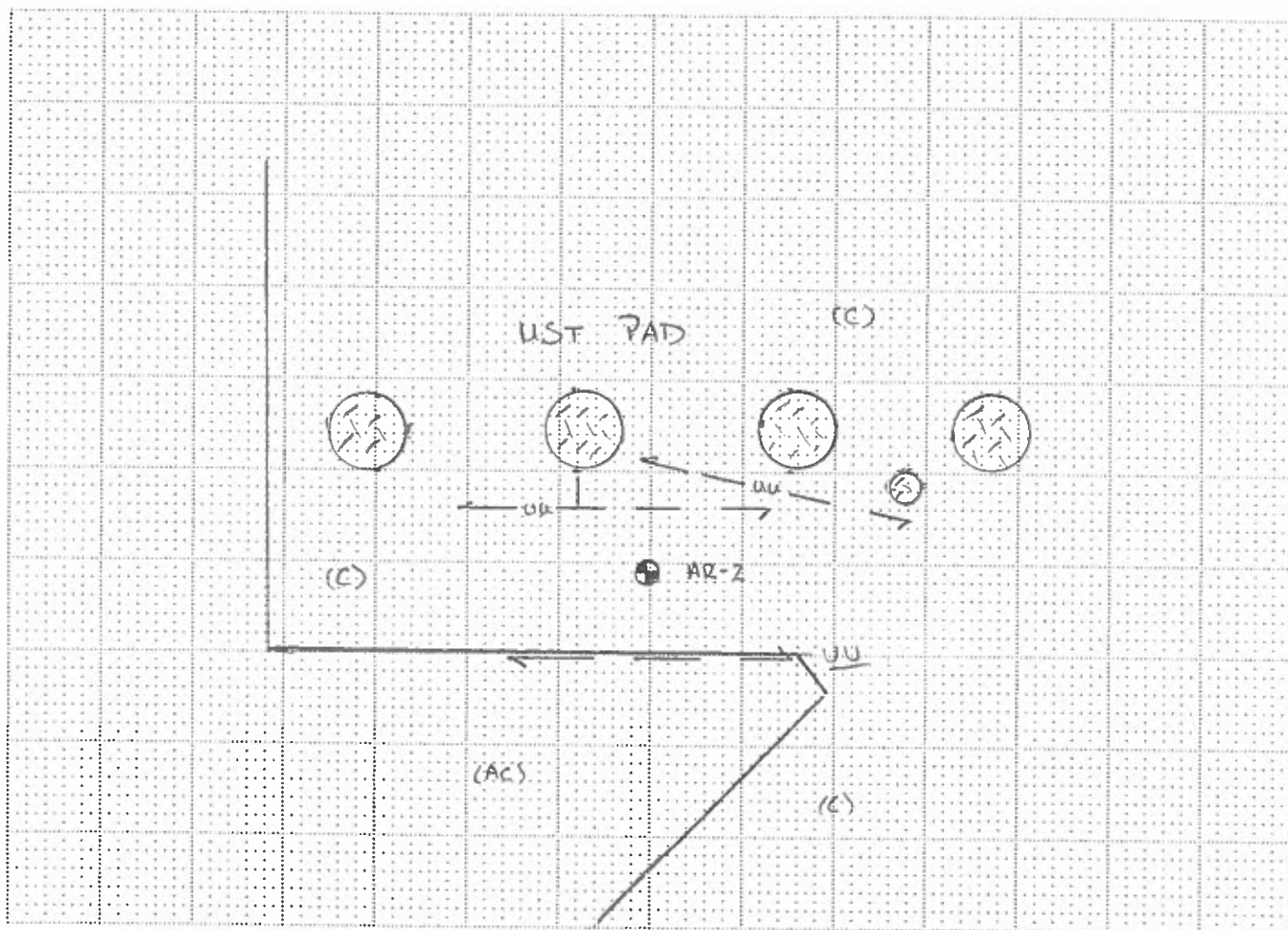
LOCATION: ARCO STN. 2169 OAKLAND, CA

NORCAL

GEOPHYSICAL CONSULTANTS INC.



BORING: AR-2



EXPLANATION

- Original Boring Location.
- Final Boring Location
- GPR Traverse
- Localized GPR Anomaly
- Utility Alignment

Utilities

- T (Telephone, Comm.)
- E (Electric)
- NG (Natural Gas)
- CA (Compressed Air)
- STM (Steam)
- SS (Sanitary Sewer)
- SD (Storm Drain)
- W (Water)
- FS (Fire Suppression)
- ✓ UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- AC (Asphalt)
- ✓ C (Concrete)
- Soil
- Gravel
- other

NOTES

- | Equipment: | Procedure: | Surface Conditions: |
|---------------|--------------------|---------------------|
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| ✓ RD 400 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | ✓ Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: DJK TwB

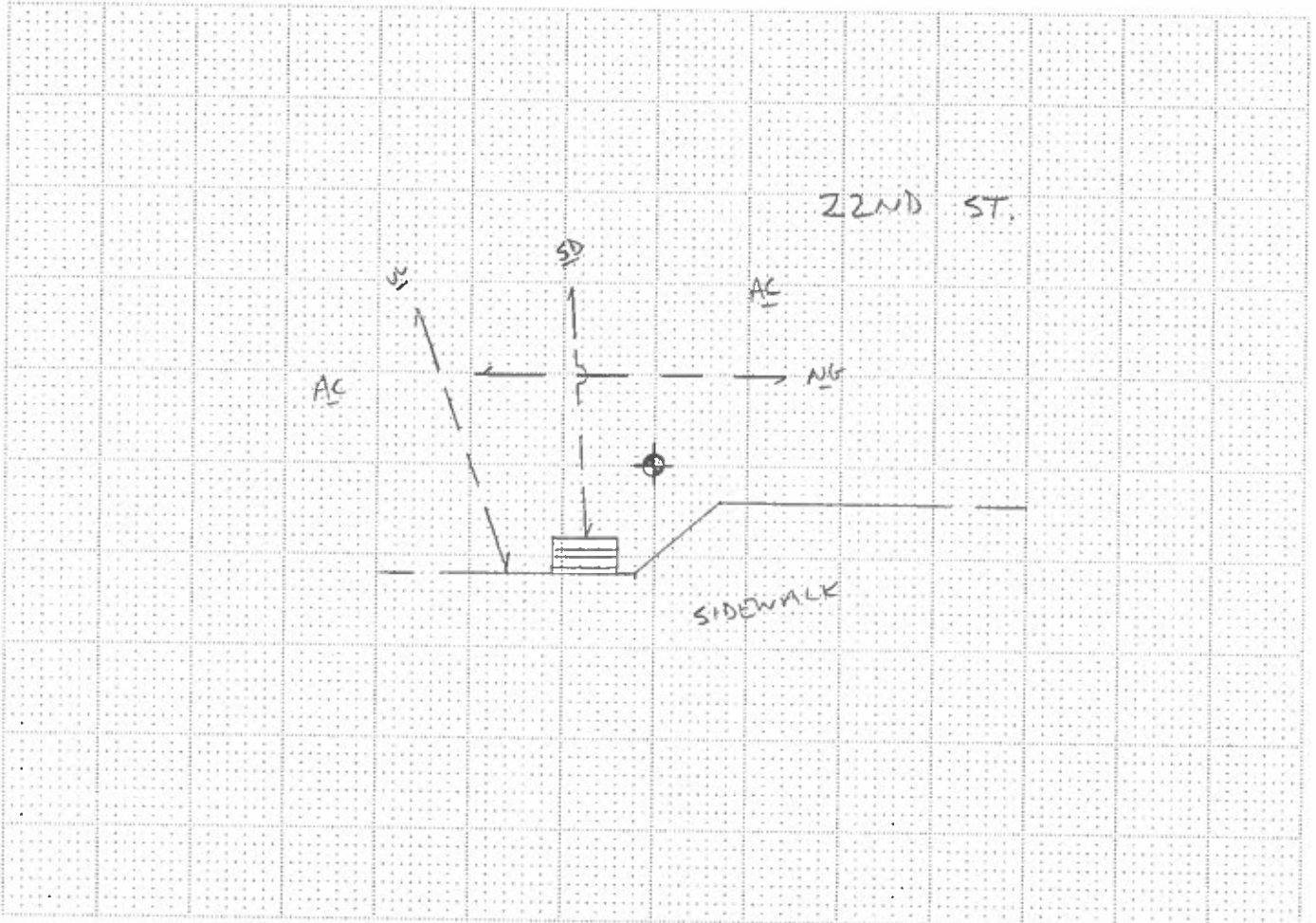
CLIENT: BROADBENT

JOB: DATE: 8-7-14

LOCATION: ARCO, OAKLAND



BORING: A-5



Scale: 1" = 10'

EXPLANATION

NOTES



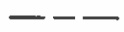
Original Boring Location
 Final Boring Location
 Existing Well Location



GPR Traverse



Localized GPR Anomaly



Utility Alignment

Utilities

- T (Telephone, Comm.)
- E (Electric)
- ✓ NG (Natural Gas)
- CA (Compressed Air)
- STM (Steam)
- SS (Sanitary Sewer)
- ✓ SD (Storm Drain)
- W (Water)
- FS (Fire Suppression)
- ✓ UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- ✓ AC (Asphalt)
- C (Concrete)
- Soil
- Gravel
- other

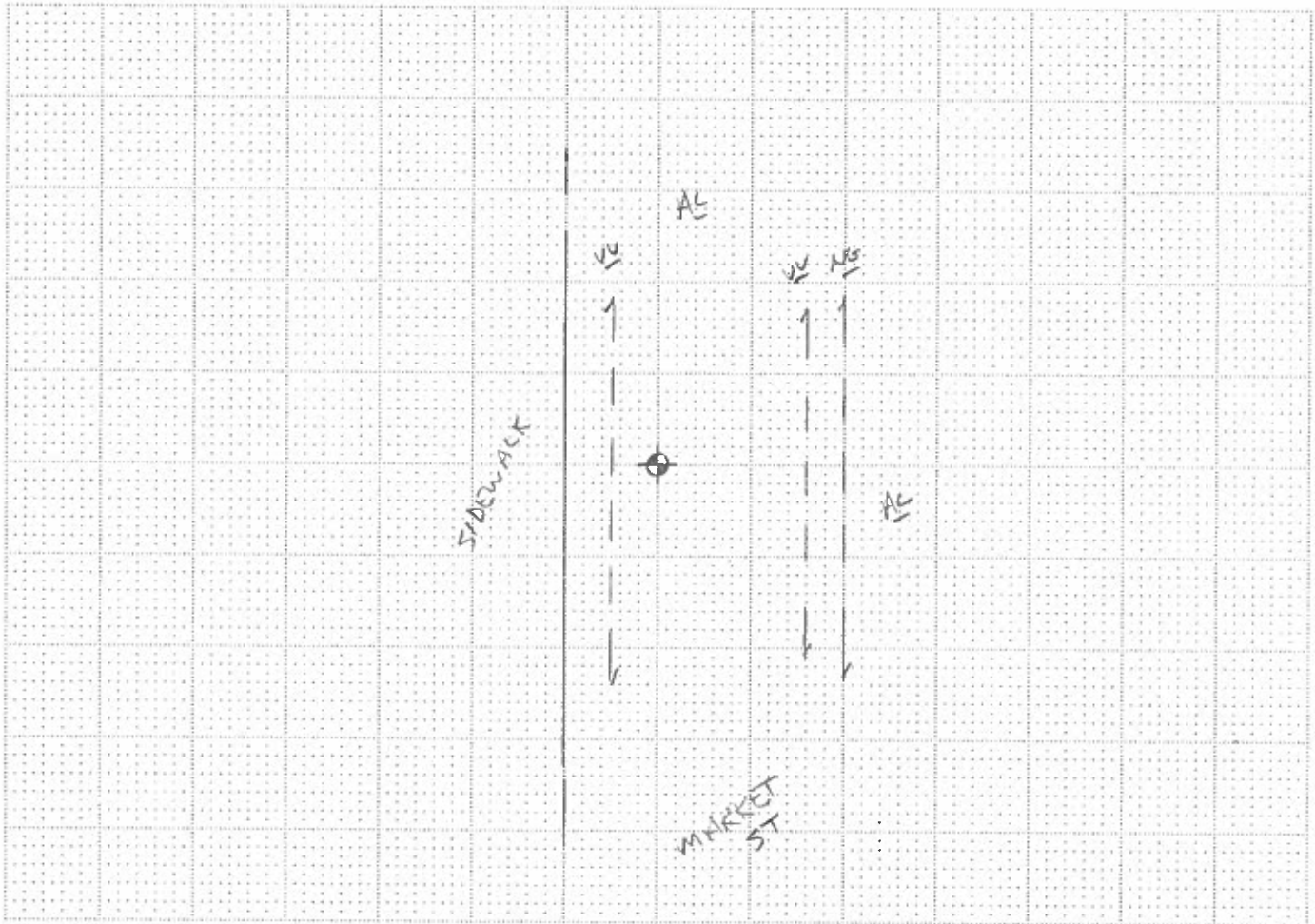
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|---------------|--------------------|---------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| ✓ RD 4000 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | - Ambient | - other |
| - other | ✓ GPR | |

REMARKS



PERSONNEL: *JK TB*
 JOB: _____ DATE: *8-7-14*

CLIENT: *BROADBENT*
 LOCATION: *ARCO, OAKLAND*
 BORING: *A-6*



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- Localized GPR Anomaly
- Utility Alignment

Utilities

- T (Telephone, Comm.)
- E (Electric)
- NG (Natural Gas)
- CA (Compressed Air)
- STM (Steam)
- SS (Sanitary Sewer)
- SD (Storm Drain)
- W (Water)
- FS (Fire Suppression)
- UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- AC (Asphalt)
- C (Concrete)
- Soil
- Gravel
- other

NOTES

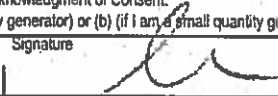
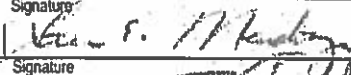

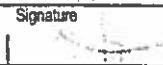
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|-------------------|--------------------|----------------------------|
| Equipment: | Procedure: | Surface Conditions: |
| ✓ GPR (Radar) | - EMC (Conduction) | - Wet |
| ✓ RD 4000 | ✓ EMI (Induction) | ✓ Dry |
| ✓ M Scope | - Ambient | - other |
| - other | ✓ GPR | |

REMARKS



APPENDIX E

UNIFORM HAZARDOUS WASTE MANIFEST

| | | | | |
|---|--|--|--|---|
| UNIFORM HAZARDOUS WASTE MANIFEST | 1. Generator ID Number CAL000244244 | 2. Page 1 of 1 | 3. Emergency Response Phone (800) 424-8300 | 4. Manifest Tracking Number 007626574 FLE |
| 5. Generator's Name and Mailing Address BP West Coast Products, LLC P.O. Box 80240 Rancho Santa Margarita, CA. 92698 | | Generator's Site Address (if different than mailing address) BP 02169 889 W GRAND AVENUE OAKLAND, CA 94607 | | |
| Generator's Phone: (649) 460-5200 | | | | |
| 6. Transporter 1 Company Name BELSHIRE | | U.S. EPA ID Number CAR000183912 | | |
| 7. Transporter 2 Company Name Nieto and sons Trucking, Inc. | | U.S. EPA ID Number CAT080016116 | | |
| 8. Designated Facility Name and Site Address L'Emenio Herdon 2000 N. Alameda St. Compton, CA 90222 | | U.S. EPA ID Number CAT080013352 | | |
| Facility's Phone: (310) 537-7100 | | | | |
| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. Type | | 11. Total Quantity |
| | 1. Non-RCRA Hazardous Waste, Liquid | 001 DM | | 055 |
| | 2. | | | |
| | 3. | | | |
| | 4. | | | |
| | 13. Waste Codes 134 | | | |
| 14. Special Handling Instructions and Additional Information ERG# 1 WEAR ALL APPROPRIATE PROTECTIVE CLOTHING Underground Vault Rain Water BESI:243926 IX55 BP CCN: 208883 | | | | |
| 15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true. | | | | |
| Generator's/Offeror's Printed/Typed Name Larry Moothart of BESI on behalf of generator | | Signature  | | Month Day Year 09 18 14 |
| 16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____ | | | | |
| 17. Transporter Acknowledgment of Receipt of Materials | | | | |
| Transporter 1 Printed/Typed Name STEVEN E. MENDOZA | | Signature  | | Month Day Year 09 16 14 |
| Transporter 2 Printed/Typed Name Tim Spana | | Signature  | | Month Day Year 09 25 14 |
| 18. Discrepancy | | | | |
| 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection | | | | |
| 18b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number: _____ | | | | |
| Facility's Phone: _____ | | | | |
| 18c. Signature of Alternate Facility (or Generator) _____ Month Day Year _____ | | | | |
| 19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) | | | | |
| 1. H059 | 2. | 3. | 4. | |
| 20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a | | | | |
| Printed/Typed Name Tim Spana | | Signature  | | Month Day Year 09 25 14 |