APPENDIX B

Data Compilation and Work Plan for Investigation of the Magnitude and Extent of Contamination City of Ashland Maintenance Shop B Street Compound Ashland, Oregon

February 2008

CES
Natural Solutions for Water

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City of Ashland Maintenance Shop
B Street Compound
Ashland, Oregon

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ODEQ USTC #15-00-0024

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PN: 2823006/February 22, 2008

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EXECUTIVE SUMMARY

The City of Ashland (City) owns a maintenance yard at 1097 B Street in Ashland, Oregon (Site). The Site has been primarily used over the years by the City for maintenance and repair of vehicles. On April 29, 1988, three single-walled, steel underground storage tanks (USTs) were decommissioned in-place at the Site. Two of the USTs contained gasoline and were each 1,000 gallons in volume; the other UST contained diesel fuel and was 2,500 gallons in volume. At the time of decommissioning, the diesel fuel UST was approximately 10 years old, and the gasoline USTs were approximately 30 years old. No Site assessment was conducted during decommissioning and no reported release of fuel to the subsurface from the USTs was noted.

During the development of a new shop facility in May 2000, City contractor's encountered petroleum-contaminated soil, which appeared to originate from the decommissioned USTs. The City contracted with Pump, Pipe, and Tank to excavate the USTs and collect soil samples. Several test pits and trenches were excavated in the area adjacent and downgradient from the former location of the USTs.

On May 12, 2000, a soil sample was collected at 3.8 feet below ground surface (bgs), from an excavation approximately 50 feet downgradient of the USTs. Analysis of the sample indicated the presence of gasoline range hydrocarbons at a concentration of 270 milligrams per kilogram (mg/kg) and diesel fuel range hydrocarbons at a concentration of 84 mg/kg. Gasoline range and diesel fuel range hydrocarbons were detected subsurface soils at concentrations as high as at 440 mg/kg and 85 mg/kg in three additional subsurface investigations conducted by Pump, Pipe, and Tank in June 2000. On June 9, 2000, the Oregon Department of Environmental Quality (ODEQ) collected soil and groundwater samples from several excavations at the Site. Benzene was detected in groundwater at 144 micrograms per liter (µg/L), in the "North Trench", which was located approximately 60 feet downgradient of the former USTs. In addition, two soil samples collected at depths of 9 and 10 feet bgs, exhibited concentrations of gasoline range hydrocarbons at 840 mg/kg and 610 mg/kg, in trenches 35 feet and 50 feet downgradient of the former USTs.

As a result of the investigations conducted in May and June 2000, the Site was placed on ODEQ's leaking underground storage tank (LUST) database and was identified as underground storage tank cleanup (USTC) #15-00-0024. Since 2000, no subsurface investigations have occurred at the Site. The ODEQ has asked the City to compile the work completed to date into a formal report and complete an investigation regarding the magnitude and extent of contamination at the Site. The goals of this Work Plan are as follows:

- Satisfy ODEQ's request to amass all work completed to date and organize it in a manner that provides a better understanding of conditions at the Site.
- Provide a Work Plan to further delineate the magnitude and extent of contamination at the Site.

1.0 INTRODUCTION

The City of Ashland (City) owns a maintenance yard at 1097 B Street in Ashland, Oregon (Site). The Site has primarily been used over the years by the City for maintenance and repair of vehicles. On April 29, 1988, three single-walled, steel underground storage tanks (USTs) were decommissioned in-place at the Site. Two of the USTs contained gasoline and were each 1,000 gallons in volume; the other UST contained diesel fuel and was 2,500 gallons in volume. At the time of decommissioning, the diesel fuel UST was approximately 10 years old, and the gasoline USTs were approximately 30 years old. No Site assessment was conducted during decommissioning and no reported release of fuel to the subsurface from the USTs was noted.

During the development of a new shop facility in May 2000, City contractor's encountered petroleum-contaminated soil, which appeared to originate from the decommissioned USTs. The City contracted with Pump, Pipe, and Tank to excavate the USTs and collect soil samples. Several test pits and trenches were excavated in the area adjacent and downgradient from the former location of the USTs.

On May 12, 2000, a soil sample was collected at 3.8 feet below ground surface (bgs), from an excavation approximately 50 feet downgradient of the USTs. Analysis of the sample indicated the presence of gasoline range hydrocarbons at a concentration of 270 milligrams per kilogram (mg/kg) and diesel fuel range hydrocarbons at a concentration of 84 mg/kg. Gasoline range and diesel fuel range hydrocarbons were detected subsurface soils at concentrations as high as at 440 mg/kg and 85 mg/kg in three additional subsurface investigations conducted by Pump, Pipe, and Tank in June 2000. On June 9, 2000, the Oregon Department of Environmental Quality (ODEQ) collected soil and groundwater samples from several excavations at the Site. Benzene was detected in groundwater at 144 micrograms per liter (µg/L), in the "North Trench", which was located approximately 60 feet downgradient of the former USTs. In addition, two soil samples collected at depths of 9 and 10 feet bgs, exhibited concentrations of gasoline range hydrocarbons at 840 mg/kg and 610 mg/kg, in trenches 35 feet and 50 feet downgradient of the former USTs.

2.0 OBJECTIVES AND SCOPE

As a result of the investigations conducted in May and June 2000, the Site was placed on ODEQ's leaking underground storage tank (LUST) database and was identified as underground storage tank cleanup (USTC) #15-00-0024. Since 2000, no subsurface investigations have occurred at the Site. The ODEQ has asked the City to compile the work completed to date into a formal report and complete an investigation regarding the magnitude and extent of contamination at the Site.

The objective of this document is to satisfy ODEQ's request to amass all work completed to date and organize it in a manner that provides a better understanding of conditions at the Site. In addition, the Work Plan is intended to provide a basis to further delineate the magnitude and extent of contamination at the Site. The scope of this Work Plan includes the following:

- A compilation of work completed to date, including tables with sampling and analysis data.

- An evaluation of soil and groundwater data using ODEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (ODEQ, 2003a).
- Development of a list of contaminants of potential concern (COPCs).
- New and revised drawings depicting work conducted to date, including sampling and analysis results.
- Drawings showing potential groundwater monitoring well and soil boring locations to further delineate contamination at the Site.
- Sampling and analysis plan.

3.0 SITE LOCATION AND DESCRIPTION

The location of the subject property is shown in Figure 1, which is based on the United States Geological Survey (USGS) 7.5 Minute Ashland Quadrangle (USGS, 1996). The Site is located adjacent to the north of B Street and south of a Union Pacific Railroad (UPRR) line in Ashland, Oregon. The City owns and maintains the Site. The legal description is given as the northeast quarter of the northeast quarter of Section 9, Township 39 south, Range 1 east of the Willamette Meridian, Jackson County, Oregon. Based on the USGS 7.5 minute series topographic map of the area (Ashland Quadrangle), the latitude is 42° 11' 46" north and the longitude is 122° 42' 01" west.

3.1 Site Description

The Site consists of the 1.68-acre, City of Ashland, B Street Maintenance Facility in Ashland, Oregon. It has primarily been used over the years by the City for maintenance and repair of vehicles. As previously discussed, three USTs were decommissioned in-place at the Site in 1988. The USTs were located to the southeast and east of the shop building (Figure 2; Photograph 1; Appendix A). The Site slopes to the north toward the UPRR tracks and the Rogue Valley (Photograph 2).

3.2 Improvements and Utilities

The Site is located in a developed area of Ashland, Oregon. A shop building is situated near the southern section of the Site and a warehouse/repair building is located on the northern portion of the Site near the UPRR tracks. Underground electrical and telephone lines are located around the Site. Underground City storm sewer drains and lines are located on the northern and central sections of the Site.

4.0 ENVIRONMENTAL SETTING

4.1 Geology

Ashland, Oregon is located within the Klamath Mountains physiographic province, an elongate north-south trending area of Southwestern Oregon (Orr and Orr, 1999). The Site is situated near the interface between the Rogue Valley to the north and Siskiyou Mountains to the south and west. The Jurassic-age Ashland plutonic complex, which consists of quartz monzonite and granodiorite comprise the primary exposures south and west of Ashland. The geology of the Rogue Valley to the north largely consists of ocean and river sedimentary deposits and volcanic deposits from the Cascade Mountains and Siskiyou Mountains. The area in the immediate

vicinity of the Site is underlain by Jurassic to Cretaceous age light-gray, medium-grained rock comprised of sodic plagioclase and quartz, with minor amounts of hornblende or biotite (USGS, 1972).

Based on a review of logs on file with the Oregon Water Resources Department (OWRD; Appendix B) for wells within an approximately one-mile radius of the Site, surficial geology consists primarily of sands and silty clays with some gravel to about 20 feet bgs. Cemented silt was encountered in one monitoring well completed in the Union Pacific Railroad (UPRR) yard located northwest of the Site, at 17 to 20 feet bgs.

4.2 Soils

Soils at the Site are mapped as Kubli loam (USDA/NRCS. 1983). These are very deep, somewhat poorly drained soils on stream terraces. It formed in alluvium derived predominantly from granitic rock and underlain by clayey sediment. Typically, the surface layer is very dark brown loam about nine inches thick. The next layer is very dark grayish brown loam about six inches thick. The subsoil is dark grayish brown loam about 16 inches thick. The lower portion of the substratum is brown clay loam to about 60 inches bgs.

A review of soils descriptions during the May and June 2000 subsurface investigations at the Site indicated soils consisted primarily of silty clay to a depth of about 5 feet bgs. The soil changed to a dense sandy (decomposed granite) silty clay at about six to 7 feet bgs (Clough, 2000).

4.3 Hydrology

4.3.1 Surface Water

The Site and surrounding properties slope to the north toward the Rogue Valley. In the absence of development and graded conditions, surface water originating at the Site would likely follow topography toward Bear Creek in the Rogue Valley to the north.

4.3.2 Groundwater

As previously discussed, topography in the vicinity of the Site slopes to the north toward the Rogue Valley. As such, groundwater likely follows topography to the north. Based on a review of logs on file with OWRD for wells within an approximately one-mile radius of the Site, groundwater contact is estimated to be about 4 to 13 feet bgs (OWRD, 2008; Appendix B).

A review of the subsurface work completed in May and June 2000 indicated groundwater was encountered in test pits and trenches completed at the Site. In each case, trenches were advanced to the depth of groundwater, which was described as less than 10 feet bgs (Clough, 2000).

Fluctuations in this alluvial water table may occur seasonally in response to surface water recharge, precipitation, and irrigation pumping drawdown. The groundwater flow direction is expected to be toward the Rogue Valley and Bear Creek to the north, but may be influenced by depositional features associated with the area geology.

5.0 SITE HISTORY AND PREVIOUS INVESTIGATIONS

The following sections provide a brief discussion of the known history of the Site based on a review of historical documents and a summary of previous subsurface soil and groundwater investigations conducted to date. Information regarding previous investigations at the Site is based on a review of documents at the City Public Works Department in Ashland, Oregon, and documents provided by ODEQ in Bend, Oregon.

5.1 Site History

Based on a review of available Sanborn Fire Insurance Maps (Appendix C) from the Multnomah County Library in Portland, Oregon, the Site was developed by 1928 by the Standard Oil Company as fuel storage facility. A review of the 1928 map indicates gasoline and kerosene aboveground storage tanks (AST) are visible on concrete bases on the western section of the Site. Gasoline and distillate ASTs are depicted to the east on concrete piers. Oil pumps and an oil warehouse are visible on the northern portion of the Site near a spur from the adjacent Southern Pacific Railroad (SPRR) line. The 1949 Sanborn Map depicts the Site as a contractors' storage area, with warehouses, a storage building, and railroad spur line (Multnomah County, 2008).

The Site was acquired by Jackson County, and later by the City for use as a storage area and maintenance and repair facility for vehicles. Improvements to the Site in 2000 led to the discovery of petroleum-related contamination in soil and groundwater.

5.2 Previous Investigations

A total of four subsurface investigations were conducted in 2000 at the Site following the discovery of a release of petroleum hydrocarbons to the subsurface. A summary of the soil and groundwater analytical results for the investigations is presented in Tables 1 and 2. Figure 2 identifies the locations of the test pits and trenches advanced at the Site as part of the investigations.

5.2.1 Underground Storage Tank Decommissioning

In 1988, two 1,000-gallon gasoline USTs and one 2,500-gallon diesel fuel UST at the Site were registered with ODEQ. The ODEQ identified the Site as UST facility #6280. On April 29, 1988, the USTs were decommissioned in-place by filling with sand, capping the piping, and removing the two aboveground pumps from the Site. At the time of decommissioning, the gasoline USTs were approximately 30 years old and the diesel fuel UST was 10 years in age. The USTs were reportedly single-walled, steel tanks that were new when installed (City of Ashland, 2008). No reported subsurface investigation of soils or groundwater occurred at the time the USTs were decommissioned.

5.2.2 May 2000 Investigation

In May 2000, the City began improvements to the Site and encountered petroleum contamination in subsurface soils. On May 12, 2000, Pump, Pipe, and Tank advanced three test pits in the vicinity of the USTs. Soil samples were collected and shipped to Nielsen Research Corporation (NRC) in Medford, Oregon for analysis. Results of the analysis of the soil samples identified

gasoline range hydrocarbons in Sample #2 (approximately 50 feet northwest of the USTs) at 3.8 feet bgs, at 270 mg/kg and diesel fuel range hydrocarbons at 84 mg/kg. On May 23, 2000, Pump, Pipe, and Tank reported the release to ODEQ, the Site was placed on the leaking underground storage tank (LUST) database, and was identified as underground storage tank cleanup (USTC) #15-00-0024 (ODEQ, 2008).

5.2.3 June 6, 2000 Investigation

On June 6, 2000, Pump, Pipe, and Tank excavated three trenches under the supervision of ODEQ personnel. The "Center Trench" was advanced approximately 50 feet north of the USTs. Obvious signs of petroleum contamination were noted at approximately four to 8 feet bgs, at which point groundwater was encountered. The soil below 7 feet bgs had a strong weathered gasoline odor and a sheen was noted on the groundwater entering the excavation. A soil sample (#5) was collected by Pump, Pipe, and Tank at about 11.5 feet bgs, but did not contain detectable concentrations of petroleum hydrocarbons using Method NWTPH-HCID screening. A pit water sample (#7A) collected from the trench did contain benzene, ethylbenzene, and naphthalene at 3.3 micrograms per liter (µg/L), 39 µg/L, and 21 µg/L, respectively.

Trenches were also excavated about 23 feet to the east and west of the Center Trench. These were identified by Pump, Pipe, and Tank as the "North Trench" and "South Trench". Both trenches were excavated to the depth of groundwater (less than 10 feet bgs). Visual indications of contamination were noted at about six to 8 feet bgs in the trenches. Soil samples were collected from both excavations and delivered to NRC for petroleum hydrocarbon screening using Method NWTPH-HCID. The soil sample collected from the South Trench (#6) did not contain detectable concentrations of petroleum hydrocarbons. The Sample from the North Trench (#8) had a concentration of gasoline range hydrocarbons at 340 mg/kg.

5.2.4 June 9, 2000, Investigation

On June 9, 2000, Pump, Pipe, and Tank advanced two trenches about 23 feet east and west of the North and South Trenches. These trenches were identified by Pump, Pipe, and Tank as "North Trench 2" and "South Trench 2". Obvious contamination was only present in North Trench 2 (westernmost trench). Soil and pit water samples (#12 and #13) and were collected by Pump, Pipe, and Tank from North Trench 2 following purging of the excavation by the City of Ashland. In addition, on-site ODEQ personnel collected a groundwater sample (Item #3) from North Trench 2 for separate analysis at the ODEQ laboratory in Medford, Oregon. Results of the analysis of the soil and groundwater samples collected by Pump, Pipe, and Tank indicated petroleum hydrocarbons were not present in the samples above laboratory method reporting limits (MRLs). The pit water sample collected by ODEQ contained benzene and naphthalene at 144 µg/L and 36.5 µg/L, respectively. Toluene, ethylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were also detected in Item #3 above laboratory MRLs.

Personnel from ODEQ also collected a soil sample (identified as Item #2) from the Center Trench at about 9 feet bgs. The sample was analyzed at the ODEQ laboratory in Medford, Oregon and was identified with a concentration of gasoline range hydrocarbons as 840 mg/kg.

A total of three test pits, identified as Test Pit #1, #2, and #3, were also excavated on June 9, 2000. Test Pits # 1 and #2 were advanced between the City shop building and in situ USTs. Both test pits had a slight sheen and Pump, Pipe, and Tank collected a pit water sample (#9) from Test Pit #1. Analysis of the sample did not identify petroleum hydrocarbons using the NWTPH-HCID screen.

Test Pit #3 was excavated between the USTs and the previous trenches, and appeared to contain the highest level of visual contamination. A soil sample collected by ODEQ (Item #4) at 10 feet bgs contained gasoline range hydrocarbons at 610 mg/kg and minor concentrations of ethylbenzene, total xylenes, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. However, the soil sample collected by Pump, Pipe, and Tank (#10) did not contain detectable concentrations of petroleum hydrocarbons using the NWTPH-HCID screen.

5.2.5 June 12, 2000 Investigation

Little information was available from the ODEQ file or City regarding the subsurface investigation conducted on June 12, 2000. According to the Site map available in the City file, four soil samples were collected by Pump, Pipe, and Tank at 11 feet bgs from 4 test pits excavated adjacent to the south of the warehouse/repair building (approximately 75 feet north of the USTs). Analysis of the samples identified gasoline range hydrocarbons at 440 mg/kg and diesel fuel range hydrocarbons at 85 mg/kg in Sample #16.

6.0 CONTAMINANTS OF POTENTIAL CONCERN

For the purposes of this Work Plan, concentrations of specific constituents that exceed the most stringent generic ODEQ risk-based concentrations (RBCs), outlined in Appendix A of *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (ODEQ, 2003a), or ODEQ Level 1 Numeric Soil Matrix Cleanup Levels (ODEQ, 2003b), are referred to as contaminants of potential concern (COPCs). A complete list of COPCs for soil and groundwater based on the history of the Site and the subsurface investigations conducted in 2000 are presented in Table 3.

As shown on Table 3, gasoline range hydrocarbons, benzene, and naphthalene were detected in soil and groundwater at concentrations exceeding the most stringent ODEQ comparison criteria[1]. Based on the results of the subsurface investigations conducted in 2000, these constituents represent COPCs for the Site.

7.0 WORK PLAN TO ASSESS MAGNITUDE AND EXTENT OF CONTAMINATION

Considering the concentrations of some COPCS in soil and groundwater exceeded RBCs and ODEQ Level Soil Matric Cleanup Levels during the subsurface investigations in 2000, it is likely ODEQ will require further investigation at the Site to assess the magnitude and extent of contamination. The following sections present a Work Plan to further delineate magnitude and extent of contamination in soil and groundwater at the Site.

[1] A risk assessment has not been conducted at the Site and some of the pathways may not be appropriate. The most stringent ODEQ RBCs are used here for comparison purposes only.

7.1 Utility Locates

The Oregon Utility Notification Center should be contacted at least 48 hours prior to the commencement of subsurface work at the Site. A more extensive private utility locate may also be arranged if there are concerns regarding subsurface work in areas with potential underground utilities.

7.2 Site Specific Health and Safety Plan

A Site Specific Health and Safety Plan (HASP) should be completed prior to any fieldwork conducted at the Site. The HASP should identify chemical, physical, and biological hazards associated with proposed fieldwork and identification, monitoring, and training procedures that may be implemented to reduce risk. Level "D" personal protective equipment (PPE) is probable for future subsurface investigations at the Site.

7.3 Subsurface Investigation

If ODEQ concludes the full nature, magnitude, and extent of soil and groundwater at the Site has not been established based on the initial Site characterizations performed in 2000, the areal and vertical extent of soil contamination and areal extent of groundwater contamination must be determined. Based on the preliminary review of well logs, Site geology, and records of the previous investigations, the subsurface should be penetrable with an expedited assessment tool such as a GeoProbe™ hydraulic push probe.

7.3.1 Borehole Drilling

The areal extent of groundwater contamination at the Site, including an estimation of groundwater flow and direction is necessary to assist with the investigation for magnitude and extent of contamination. Groundwater monitoring systems must include at least one hydraulically upgradient and two hydraulically downgradient monitoring wells, as per Oregon Administrative Rule (OAR) 340-122-0240(a). The CES visit to the Site on January 23, 2008, and a review of regional hydrogeologic information indicates that the likely groundwater flow direction is to the north toward Bear Creek and the Rogue Valley floor.

An Oregon Registered Geologist or Oregon Registered Professional Engineer must oversee the installation of the groundwater monitoring wells at the Site. The depth of the wells will likely be determined based on field observations, but will probably not need to exceed 20 feet bgs. All monitoring wells must be completed in accordance with OAR 690-240-0005 through 690-240-018 *Construction and Maintenance of Monitoring Wells and Other Holes in Oregon.*

7.3.2 Monitoring Well Placement

As shown in Figure 3, one monitoring well should be advanced to the south of UST #1 (hydraulically upgradient), and at least two, preferably three monitoring wells should be placed to the north of USTs #2 and #3 (hydraulically downgradient) to delineate extent of contamination and provide a basis for groundwater flow and direction. Three quarter inch pre-packed wells, advanced with a GeoProbe™ hydraulic push probe and screened from about 20 feet bgs to 5 feet

bgs, will likely be sufficient. Continuous core of the subsurface soil should be obtained during placement of the points as they are advanced. The borings should be logged as they are advanced and screened with a photoionization detector (PID) to provide qualitative indications of the presence of volatile organic compounds (VOCs) of subsurface soil. Use of the PID will guide placement of the borings and provide qualitative evidence of the areas of highest potential contamination for monitoring well development.

7.4 Sampling and Analysis Plan

Sampling and analysis of soil and groundwater will need to be conducted during the course of the characterization at the Site. A summary of sample collection, preservation, and holding times is presented in Table 4.

7.4.1 Monitoring Well Sampling

Within approximately 24 hours of placement of the monitoring wells, groundwater samples should be collected. Prior to sampling, the wells need to be developed by alternately surging and pumping to establish ambient groundwater conditions within the well. Purge water should be stored on Site or at an approved City-owned facility for disposal pending analysis. Field parameters of pH, temperature, and conductivity need to be collected during purging to assess groundwater conditions.

Following development, a groundwater sample should be collected from each well for analysis. The water samples should be analyzed in accordance with OAR 340-122-0218(b) for the following constituents (Table 4):

- Total petroleum hydrocarbons (TPH) in the gasoline and diesel fuel ranges by Methods NWTPH-Gx and NWTPH-Dx.
- Risk-based corrective action (RBCA) constituents, including benzene, toluene, ethylbenzene, total xylenes, naphthalene (BTEX+N); 1,2-dichloroethane (EDC); 1,2-dibromomethane (EDB); and methyl-tert butyl ether (MTBE) using U.S. Environmental Protection Agency (EPA) Method 8260B for volatile organic compounds (VOCs).
- Dissolved lead, using a 0.45 micron filter, and analyzed by EPA Method 6010B for dissolved metals.
- Polynuclear aromatic hydrocarbons (PAHs) using EPA method 8270C for semi-volatile organic compounds (SVOCs).

All samples should be collected into laboratory-supplied 1-liter amber bottles; three 40 milliliter (ml) glass vials preserved with hydrochloric acid; and 500 mL poly containers preserved with nitric acid and placed on ice and maintained at a temperature of 4°C. Samples need to be immediately transported under chain-of-custody protocol to an EPA-accredited laboratory for analysis.

During sampling activities, depth to groundwater measurements should be collected in all developed monitoring wells. Prior to measurement, the wells will need be opened and allowed to equilibrate with atmospheric conditions. The elevations of the top of the well casings should be surveyed to mean sea level, preferably by City personnel, to obtain accurate groundwater flow and direction measurements.

7.4.2 Soil

At least one soil sample should be collected during advancement of each boring for the monitoring wells during the investigation for magnitude and extent of contamination. As discussed in Section 7.3.2, soils should be screened with a PID during the advancement of the borings for the monitoring wells to qualitatively assess soil conditions. Soil cores may also be assessed by obvious visual and olfactory indications of contamination. Soil samples should be collected into laboratory-supplied containers from an area of obvious contamination, or from near the groundwater interface.

Soil samples may also be required near the decommissioned UST locations to attain a better understanding of subsurface conditions near the tanks. Figure 3 shows potential soil boring locations to further delineate contamination around the decommissioned USTs.

Soil samples collected during the investigation should be analyzed for the following:

- TPH in the gasoline and diesel fuel ranges by Methods NWTPH-Gx and NWTPH-Dx.
- RBCA constituents by EPA Method 8260B for VOCs.
- Total lead by EPA Method 6010B for metals.
- PAHs by EPA method 8270C for SVOCs.

All samples should be collected into laboratory-supplied 4-ounce or 8-ounce containers with Teflon-lined screw caps, as appropriate, for the required analysis. The samples need to be placed on ice, maintained at a temperature of 4°C, and shipped immediately under chain-of-custody protocol to an EPA-accredited laboratory for analysis.

7.4.3 Chain-of-Custody

A chain-of-custody form will need to accompany all samples collected during investigation activities. At a minimum, the chain-of-custody should contain the following information:

- Sample identification number
- Dates and times of sample collection
- Names and signatures of the samplers
- Analysis or analyses required

Sample labeling information should be used on container labels, the chain-of-custody form, and field notes.

7.4.4 Quarterly Monitoring

On a quarterly basis for, at least, the next three consecutive quarters, groundwater samples should be collected from the monitoring wells and submitted for the abovementioned analyses. In addition, data needs to be collected for groundwater elevation to develop gradient maps for the Site.

Quarterly sampling reports, including Site maps depicting monitoring well locations and groundwater flow directions, need to be submitted to ODEQ. Following submittal of four quarters of monitoring at the Site, a risk-based evaluation of Site conditions, including development of a Conceptual Site Model (CSM), may be prepared and presented to ODEQ.

7.5 Quality Assurance/Quality Control

The following standards should be maintained during sampling and analysis to ensure that the data generated for the assessment meets appropriate data quality objectives.

7.5.1 Field QA/QC

The intent of field precision assessment is to assure contamination has not occurred in the field and that decontamination procedures were followed. Due to the inherent variability of contaminants in soil and the low likelihood of creating a representative split of soil, a duplicate should not be collected for this project.

A QA/QC duplicate sample should be collected from the well with the highest potential for contamination or one that exhibits the highest concentration of contaminants during the previous sampling event. The sample should be submitted to the laboratory as a blind duplicate and analyzed for all of the parameters outlined in Section 7.4.1.

All samples should be collected in laboratory-supplied jars and bottles, labeled and transported according to the protocol described above. A chain-of-custody will be maintained from the time of sample collection until the time the samples are received by the analytical laboratory. The chain-of-custody should be signed by anyone who accepts responsibility for the samples, except the shipper. Shipping documents will represent custody of the samples by the shipper.

7.5.2 Laboratory QA/QC

All sample analyses should be conducted by an EPA-certified laboratory. The laboratory should follow all requirements for analysis and reporting, including, laboratory blanks, laboratory duplicates, matrix spikes and matrix spike duplicates. All samples should be analyzed within the holding times specified for the individual analytical procedure. All values between the method detection limit (MDL) and the practical quanitation limit (PQL) should be noted on the laboratory analytical reports. Any sample analyses completed after the specified holding time will need to be noted in the laboratory analytical report. All analytical reports should be reviewed to see that all spikes, duplicates and lab blanks are within acceptable limits.

7.6 Investigation-Derived Waste Plan

Waste generated as a result of the monitoring well development and soil boring activities will likely include soil, liquid, and miscellaneous refuse. The following waste materials are expected to be generated as part of the investigation for magnitude and extent of contamination at the Site:

- Petroleum contaminated soil,
- Purge water from groundwater monitoring wells, and

- Personal Protective Equipment (PPE) and miscellaneous refuse (used gloves, paper towels, etc.).

7.6.1 Petroleum Contaminated Soil

Soil contaminated solely with petroleum is not considered a hazardous waste under federal law and may be disposed at a landfill that accepts petroleum-contaminated soil (PCS). Contaminated soil generated from soil boring activities may be drummed in 55-gallon containers and stored on-site or at an approved City-owned facility pending disposal.

7.6.2 Purge Water

Liquid waste generated the Site will originate from purging groundwater monitoring wells prior to sampling. Purge water may also be stored on-site or at an approved City-owned facility pending disposal.

7.6.3 PPE and Miscellaneous Refuse

Miscellaneous refuse and PPE generated as a result of investigatory activities may be disposed as a solid waste.

8.0 LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in the report. They are intended only for the purpose, Site location, and project indicated. The conclusions presented in this report are based on the assumption that Site conditions do not change from those observed during our investigation and as described in this report. This report is not a definitive study of contamination at the Site and should not be interpreted as such. A thorough evaluation of soil or groundwater conditions was not performed as part of this investigation.

CES staff participating in this ESA are engineers and scientists, not attorneys. Therefore, it must be clear to all parties that this report does not offer any legal opinion, representation, or interpretation of environmental laws, rules, regulations, or policies of federal, state, or local government agencies.

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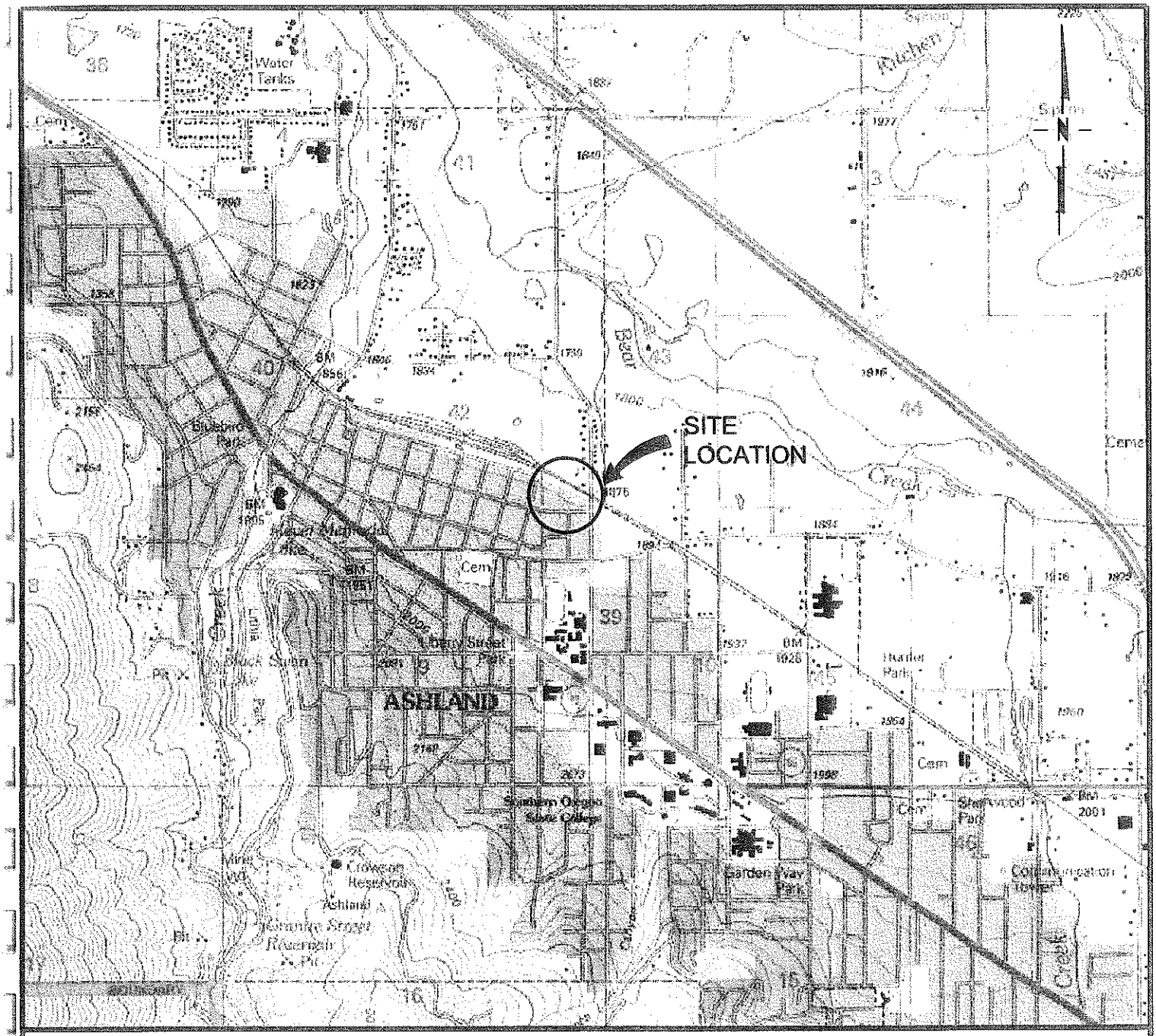
FIGURES

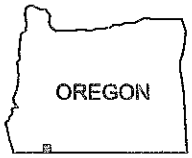


SCALE 1 INCH = 2,000 FEET

1 1/2 0 1 MILE

CONTOUR INTERVAL = 40 FEET

Figure 1. Site Location Map



PROJECT NUMBER: 2823006	City of Ashland - B Street Compound
DATE: 2/14/08	
DWG BY: 3kac / DWG NO: 2823006F1.dwg	1097 B Street Ashland, Oregon
PROJECT MANAGER: 1RMT	
REVISED:	CES CASCADE EARTH SCIENCES A Valmont Industries Company

(SOURCE: USGS 7.5 Minute Topographic Maps of Oregon on CD-ROM, TOPO! Software ©2006 NGHT, Inc.)

LEGEND

-Test pits & trenches were advanced during four subsurface investigations on 5/12/2000, 6/6/2000, 6/9/2000 & 6/12/2000.
-Samples were collected by Pump, Pipe and Tank, Talent, Oregon and by Eric Clough, Oregon Dept. of Environmental Quality, Coos Bay, Oregon.
B= Benzene concentration in micrograms per liter (µg/L) in groundwater.
T= Toluene concentrations in µg/L in groundwater.
E= Ethylbenzene concentration in µg/L in groundwater.
X= Total Xylenes concentration in µg/L in groundwater.
N= Naphthalene concentration in µg/L in groundwater.
Gx= Gasoline range hydrocarbon concentration in milligrams per kilogram (mg/kg) in soil.
Dx= Diesel fuel range hydrocarbons concentration in mg/kg in soil.
HCID= Petroleum hydrocarbon screen by method NWTPH-HCID in soil.
ND= Not detected above laboratory method reporting limits.
UST= Decomissioned undergroung storage tank location.

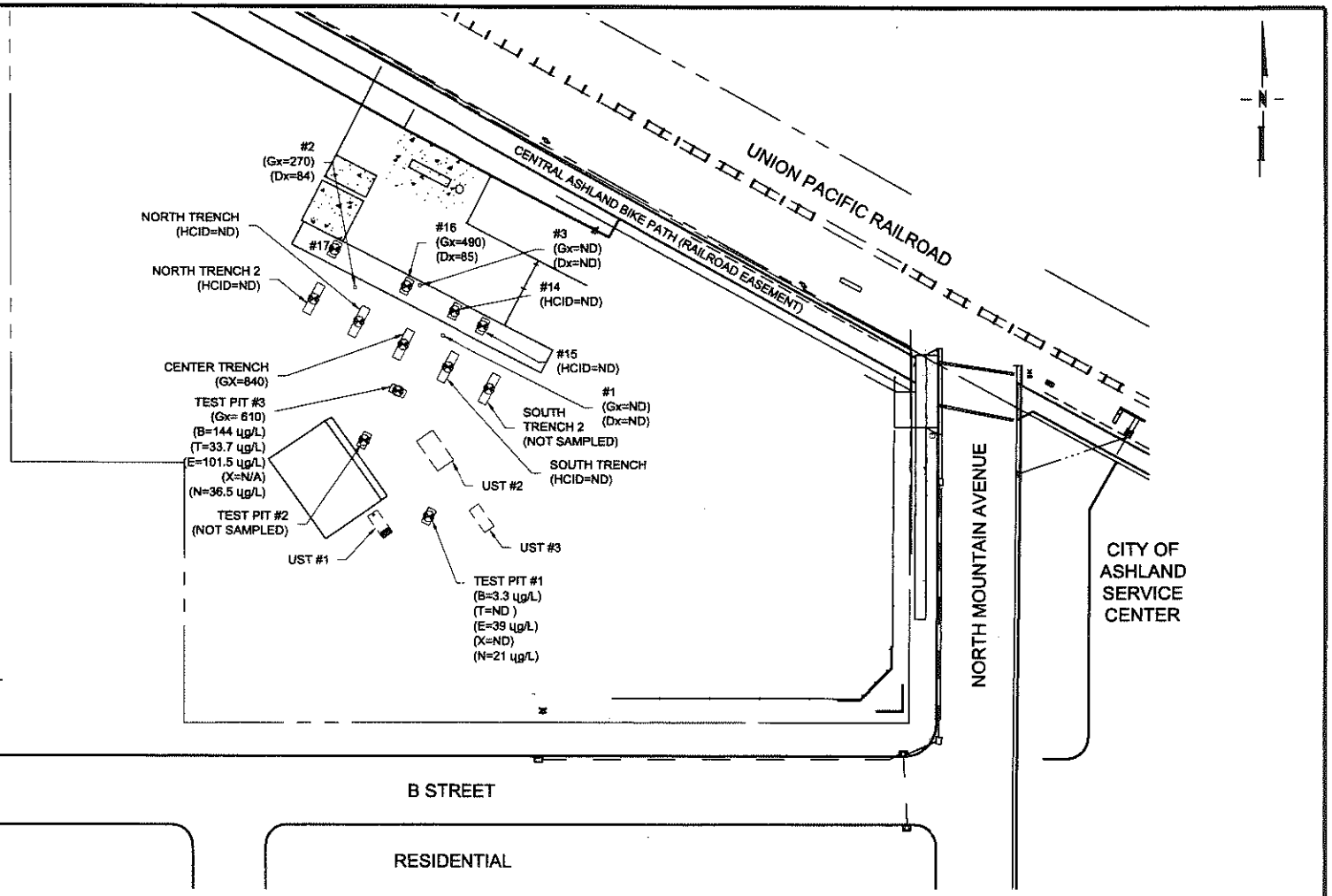


Figure 2. Subsurface Soil and Groundwater Sampling Locations (2000)

0 50 FEET
(SCALE & LOCATIONS ARE APPROXIMATE)

PROJECT NUMBER: 2823006	City of Ashland B Street Compound
DATE: 2/20/2008	
DRWG BY: BJSG / DWG NO: 2823006 C-1.dwg	Ashland, Oregon
PROJECT MANAGER: 1RMT	
REVISED:	CES CASCADE EARTH SCIENCES A Valmont Industries Company

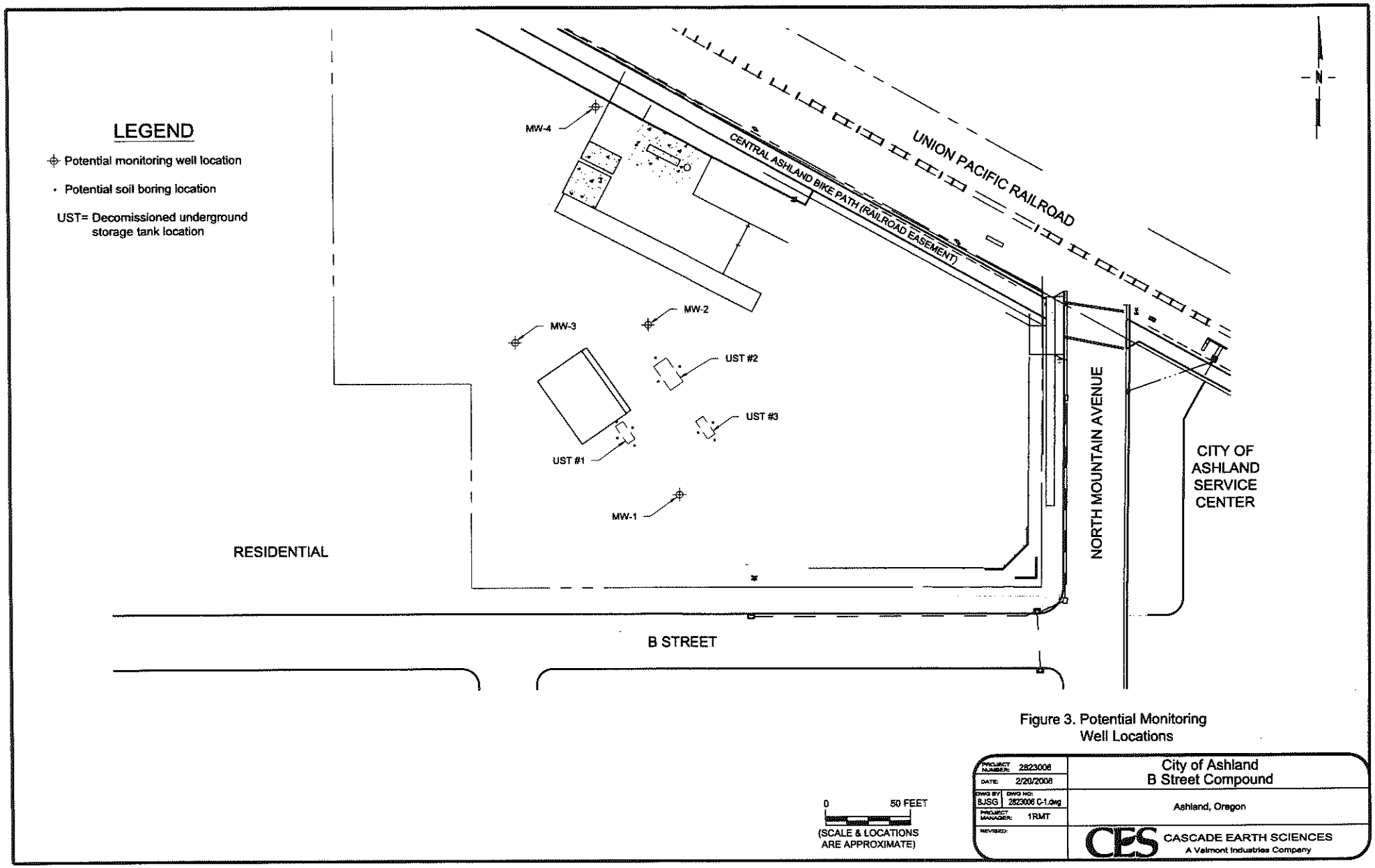


Figure 3. Potential Monitoring Well Locations

TABLES

Table 2. Groundwater Analytical Data Summary
City of Ashland, Oregon, B Street Compound

Petroleum Hydrocarbon Analyses (µg/L)									Volatile Organic Compounds[2] (µg/L)										Dissolved Metals
					Petroleum Hydrocarbons														
Pump Pipe and Tank Sample ID	Sample Date	Sample Location	Matrix	Depth	NWTPH-HCID[1]	Gasoline Range Hydrocarbons	Diesel Fuel Range Hydrocarbons	Heavy Oil Range Hydrocarbons	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	EDB	EDC	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Lead
#7A	6/6/2000	Center Trench (50 feet north of USTs)	Pit Water	11'6"	--	--	--	--	3.3	<2.5	39	<2.5	21	<2.5	<2.5	<2.5	--	--	--
#9	6/9/2000	Test Pit #1 (between shop building and USTs)	Pit Water	10'	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#12	6/9/2000	North Trench 2 (70 feet northwest of USTs)	Pit Water (After Purging)	8'8"	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ODEQ Sample ID																			
Item #3	6/9/2000	North Trench 2 (70 feet northwest of USTs)	Pit Water (After Purging)	6	--		--	--	144	33.7	101.5	--	36.5	<0.5	<0.5	<0.5	107	371	--
Most Stringent ODEQ Groundwater RBCs[3]					NS	100	88	NS	0.35	720	1,300	210	6.2	6.4	0.00064	0.13	12	12	15

Notes:
Pump, Pipe, and Tank samples were analyzed by Nielsen Research Corporation in Medford, Oregon
ODEQ samples were analyzed the ODEQ Laboratory Division in Medford, Oregon
µg/L=micrograms per liter, < = less than method detection limit.
[1] Method NWTPH-HCID is a semi-qualitative scan to identify petroleum product in a sample. DET: Indicates the petroleum constituent was detected in the HCID scan.
[2] EPA Method 8260B analyzes for volatile organic compounds. Only those identified in ODEQ's *Risked-Based Decision Making for the Remediation of Petroleum Contaminated Sites* are identified here.
[3] Risk-based concentration outlined in *Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites*. A formal risk analysis was not conducted on the Site and these values are intended for comparison purposes only
-- Not analyzed
NS=No standard
DET indicates hydrocarbons are present in the sample above laboratory reporting limits.
ND=Not detected above laboratory method reporting limits
>S indicates the soil RBC exceeds the solubility limit. Groundwater concentrations in excess of S indicate free product may be present.
Bold indicates the analyte was detected at a concentration exceeding one or more comparison criteria

Table 1. Soil Analytical Data Summary
City of Ashland, Oregon, B Street Compound

Petroleum Hydrocarbon Analyses									Volatile Organic Compounds (mg/kg)[2]										Total Metals
					Petroleum Hydrocarbons[1] (mg/kg)														
Pump Pipe and Tank Sample ID	Sample Date	Sample Location	Matrix	Depth	NWTPH-HCID[1]	Gasoline Range Hydrocarbons	Diesel Fuel Range Hydrocarbons	Heavy Oil Range Hydrocarbons	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	1,2-Dibromoethane (EDB)	1,2-Dichloroethane (EDC)	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Lead
#1	5/12/2000	50 feet north of USTs	Soil	3'8"	--	<1.1	<15	--	--	--	--	--	--	--	--	--	--	--	--
#2	5/12/2000	50 feet northwest of USTs	Soil	3'8"	--	270	84	--	--	--	--	--	--	--	--	--	--	--	--
#3	5/12/2000	75 feet north of USTs	Soil	4'	--	<1.2	<15	--	--	--	--	--	--	--	--	--	--	--	--
#4B PCS	5/12/2000	PCS pile west of USTs	Soil (PCS Pile)	Surface	DET	67	15	45	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025	--	--	--
#5	6/6/2000	Center Trench (50 feet north of USTs)	Soil	11'6"	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#6	6/6/2000	South Trench (50 feet north of USTs)	Soil	6'	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#8	6/6/2000	North Trench (60 feet northwest of USTs)	Soil	8'	DET	340	--	--	--	--	--	--	--	--	--	--	--	--	--
#10	6/9/2000	Test Pit #3 (35 feet north of USTs)	Soil	10'	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
#11	6/9/2000	Center Trench (50 feet north of USTs	Soil	9'	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#13	6/9/2000	North Trench 2 (70 feet northwest of USTs)	Soil	10'	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#14	6/12/2000	75 feet north of USTs	Soil	11'	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#15	6/12/2000	75 feet north of USTs	Soil	11'	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
#16	6/12/2000	75 feet north of USTs	Soil	11'	DET	440	85	--	--	--	--	--	--	--	--	--	--	--	--
#17	6/12/2000	75 feet north of USTs	Soil	11'	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ODEQ Sample ID																			
Item #1	6/9/2000	South Trench (50 feet north of USTs)	Soil	6'	--	<20	--	--	--	--	--	--	--	--	--	--	--	--	--
Item #2	6/9/2000	Center Trench (50 feet north of USTs)	Soil	9'	--	840	--	--	--	--	--	--	--	--	--	--	--	--	--
Item #4	6/9/2000	Test Pit #3 (35 feet north of USTs)	Soil	10'	--	610	--	--	<0.1	<0.1	0.9	1.7	0.8	<0.1	<0.1	<0.1	7.7	2.9	--
ODEQ Level I Soil Matrix Cleanup Standards[3]					NS	40	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Most stringent ODEQ Soil RBCs[4]					NS	720	3900	NS	6.9	2,200	4,000	790	34	150	0.0074	2.9	48	48	400

Notes:
Pump, Pipe, and Tank samples were analyzed by Nielsen Research Corporation in Medford, Oregon
ODEQ samples were analyzed the ODEQ Laboratory Division in Medford, Oregon
mg/kg=milligrams per kilogram, < = less than method detection limit.
[1] Method NWTPH-HCID is a semi-qualitative scan to identify petroleum product in a sample. DET: Indicates the petroleum constituent was detected in the HCID scan.
[2] EPA Method 8260B analyzes for volatile organic compounds. Only those identified in ODEQ's *Risked-Based Decision Making for the Remediation of Petroleum Contaminated Sites* are identified here.
[3] ODEQ Numeric Soil Cleanup Standards outlined in OAR 340-122-0335. Level 1 is the most stringent standard and these values are intended for comparison purposes only
[4] Risk-based concentration outlined in *Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites*. A formal risk analysis was not conducted on the Site and these values are intended for comparison purposes only
-- Not analyzed
PCS=Petroleum-contaminated soil
UST=Underground storage tank
NS=No standard
DET indicates hydrocarbons are present in the sample above laboratory reporting limits.
ND=Not detected above laboratory method reporting limits
>Csat indicates the soil RBC exceeds the limit of three phase equilibrium partitioning. Soil with concentrations in excess of Csat indicate free product may be present.
>MAX The constituent for this RBC is greater than 100,000 mg/kg ODEQ does not anticipate these concentrations will ever be encountered
Bold indicates the analyte was detected at a concentration exceeding one or more comparison criteria

Table 3. Contaminants of Potential Concern in Soil and Groundwater
City of Ashland, Oregon, B Street Compound

Sample ID	Collection	Contaminants of Potential Concern		
		Soil	Groundwater	
		Gasoline Range Hydrocarbons	Benzene	Naphthalene
		mg/kg	µg/L	
#2	Pump, Pipe, and Tank	**270**	--	--
#8	Pump, Pipe, and Tank	**340**	--	--
#16	Pump, Pipe, and Tank	**440**	--	--
Item #2	ODEQ	**840**	--	--
Item #4	ODEQ	**610**	--	--
#7A	Pump, Pipe, and Tank	--	**3.3**	**21**
Item #3	ODEQ	--	**144**	**36.5**
Most Stringent RBC[1]		**720**	**0.35**	**6.2**
Level 1 Soil Matrix Cleanup[2]		**40**	**NS**	**NS**

NOTES:

Bold value indicates compound detected above the most stringent RBC or Numeric Soil Cleanup Level.

mg/kg=milligrams per kilogram; µg/L=micrograms per liter; -- = not analyzed

[1] RBC = Risk Based Concentrations taken from ODEQ Risk Based Decision Making for the Remediation of Petroleum-Contaminated Sites, September 2003.

[2] ODEQ Numeric Soil Cleanup Standards. Level 1 is the most stringent standard.

NS=No Standard

Table 4. Laboratory Sample Collection, Preservation and Holding Times
City of Ashland, Oregon, B Street Compound

Media	Laboratory Analysis	Analysis Method	Preservation	Container	Holding Time
Soil	Gasoline Range Hydrocarbons	NWTPH-Gx	Ice to 4 °C	Glass - Clear (4 or 8-oz)	14 Days
Soil	Diesel Fuel Range Hydrocarbons	NWTPH-Dx	Ice to 4 °C	Glass - Clear (4 or 8-oz)	14 Days Pre-Extraction and 40 Days Post Extraction
Soil	BTEX+N, EDC, EDB, MTBE	EPA Method 8260B	Ice to 4 °C	Glass - Clear (4 or 8-oz)	14 Days
Soil	Total Lead	EPA Method 6010B	Ice to 4 °C	Glass - Clear (4 or 8-oz)	6 Months
Soil	Polynuclear Aromatic Hydrocarbons	EPA Method 8270C	Ice to 4 oC	Glass - Clear (4 or 8-oz)	14 Days Pre-Extraction and 40 Days Post Extraction
Water	Gasoline Range Hydrocarbons	NWTPH-Gx	Ice to 4 °C	Glass - Clear (40 mL VOA) preserved with HCL	14 Days
Water	Diesel Fuel Range Hydrocarbons	NWTPH-Dx	Ice to 4 °C	Glass - Amber (1 L) preserved with HCL	7 Days Pre-Extraction and 40 Days Post Extraction
Water	BTEX+N, EDC, EDB, MTBE	EPA Method 8260B	Ice to 4 °C	Glass - Clear (40 mL VOA) preserved with HCL	14 Days
Water	Dissolved Lead	EPA Method 6010B	Ice to 4 °C	Poly - (500 mL) preserved with HNO_3	6 Months
Water	Polynuclear Aromatic Hydrocarbons	EPA Method 8270C	Ice to 4 °C	Glass - Amber (1 L) Unpreserved	7 Days Pre-Extraction and 40 Days Post Extraction

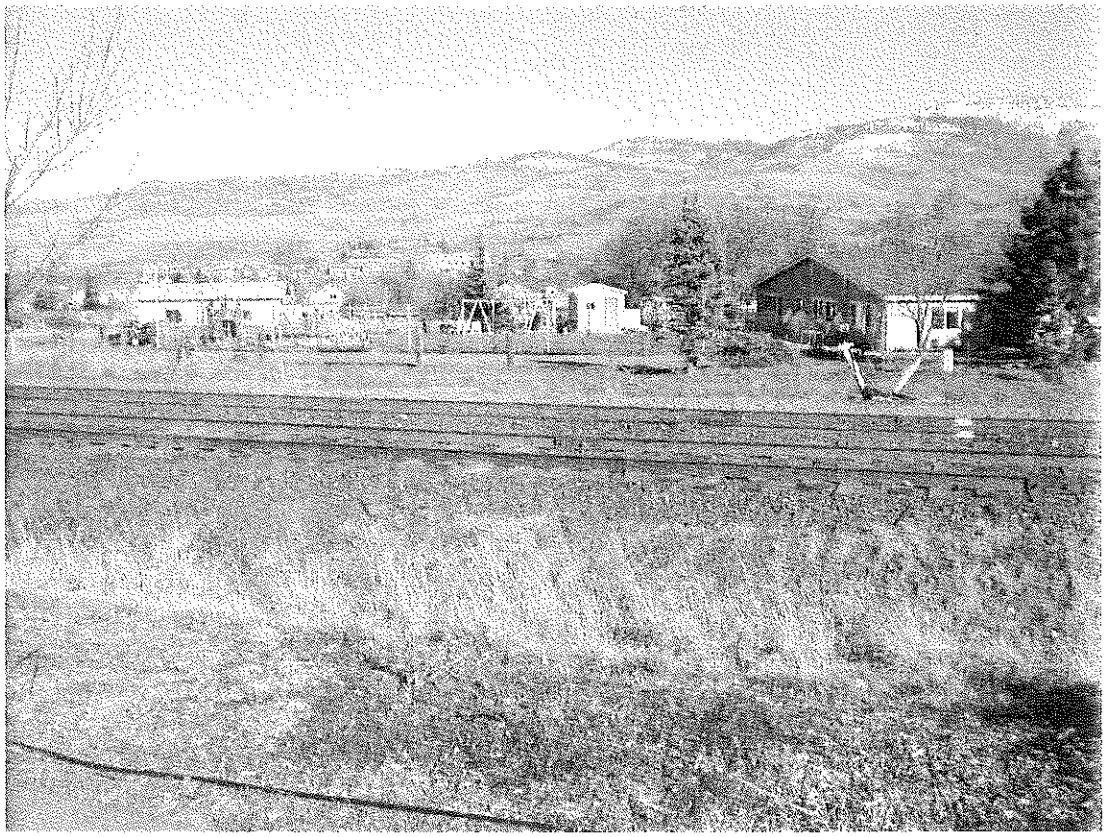
Notes:

BTEX+N=Benzene, toluene, ethylbenzene, total xylenes, and naphthalene
EDC=1,2-dichloroethane
EDB=1,2-dibromoethane

APPENDICES

Appendix A.	**Site Photographs**
Appendix B.	**Oregon Water Resources Department Well Logs**
Appendix C.	**Sanborn Fire Insurance Maps**

Photograph 1. Looking south toward the shop building and former location of underground storage tanks.



Photograph 2. View to the north from the Site toward Union Pacific Railroad tracks shows surrounding topography slopes to the north toward the Rogue Valley.

STATE OF OREGON
MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)

Jack 31446

MAR 2 - 1992

Took Water Sample

Start Card # 39206

(1) OWNER/PROJECT:

WELL NO. #1

WATER RESOURCES DEPT. SALEM, OREGON

Name: Cascade Earth Sciences

Address: 1133 So. Riverside Ave.

City: Medford State: Oregon Zip: 97501

(2) TYPE OF WORK:

- [ ] New construction
- [ ] Repair
- [ ] Recondition
- [ ] Conversion
- [ ] Deepening
- [x] Abandonment

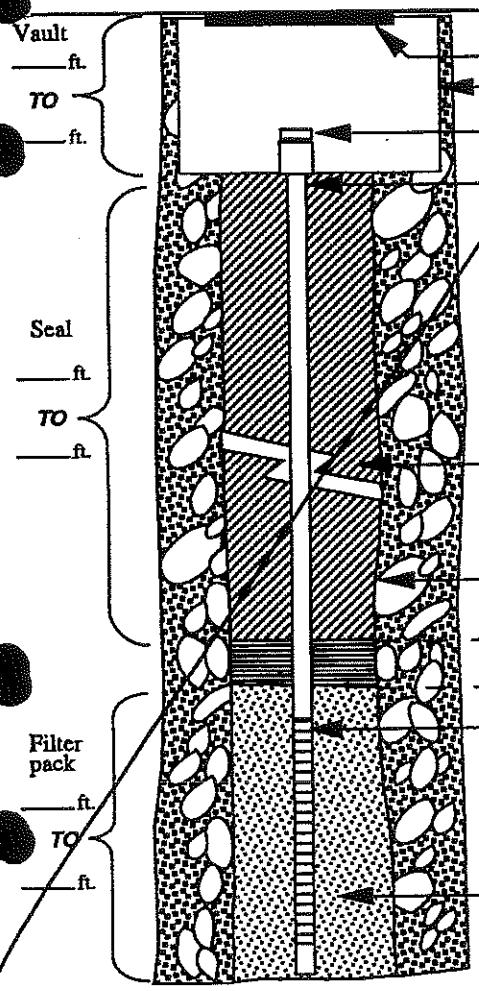
(3) DRILLING METHOD

- [ ] Rotary Air
- [ ] Rotary Mud
- [ ] Cable
- [ ] Hollow Stem Auger
- [ ] Other

(4) BORE HOLE CONSTRUCTION

Special Standards: Yes [x] No [ ]

Depth of completed well _____ ft.



Casing: diameter _____ in. material _____ Welded [ ] Threaded [ ] Glued [ ]

Liner: diameter _____ in. material _____ Welded [ ] Threaded [ ] Glued [ ]

Well seal: Material _____ Amount _____

Borehole diameter _____ in.

Screen: material _____ interval(s): From _____ To _____ From _____ To _____ Slot size _____ in.

Filter pack: Material _____ Size _____ in.

(5) WELL TEST: N/A

- [ ] Pump
- [ ] Bailer
- [ ] Air
- [ ] Flowing Artesian

Permeability _____ Yield _____ GPM

Conductivity _____ PH _____

Temperature of water 57 °F/C Depth artesian flow found _____ ft.

Was water analysis done? [ ] Yes [ ] No

By whom? _____

Depth of strata to be analyzed. From _____ ft. to _____ ft.

Remarks: _____

Name of supervising Geologist/Engineer _____

(6) LOCATION OF WELL By legal description

Well Location: County Jackson

Township 39S (N or S) Range 1E (E or W) Section 9 BA

1. NE 1/4 of NW 1/4 of above section.
2. Street address of well location 421 "A" Street Ashland, Oregon
3. Tax lot number of well location 14601
4. ATTACH MAP WITH LOCATION IDENTIFIED.

(7) STATIC WATER LEVEL:

12 Ft. below land surface. Date 2-17-92

Artesian Pressure _____ lb/sq. in. Date _____

(8) WATER BEARING ZONES:

Depth at which water was first found _____

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation _____

Material	From	To	SWL
Clay, Gravel & Sand	0	19	
Sandstone	19	21.5	
Back Filled with Bentonite.			

RECEIVED
APR 1 1992
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 2-17-92 Completed 2-17-92

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

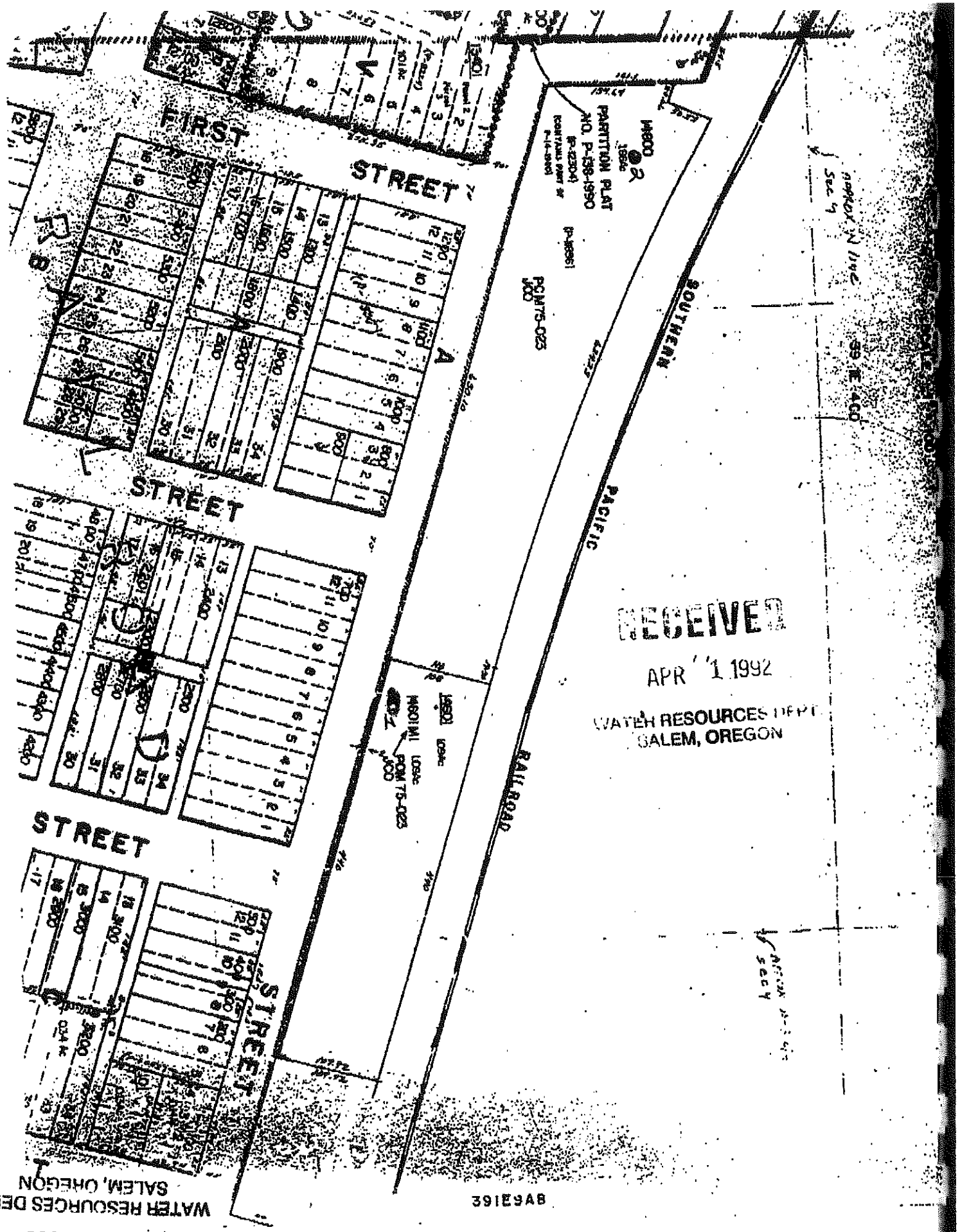
Signed Andre C. Wood MWC Number 10039 Date 2-17-92

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed John Studebaker MWC Number 10031 Date 2-25-92

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER



RECEIVED
APR 1 1992
WATER RESOURCES DEPT
SALEM, OREGON

RECEIVED
MAR 2 - 1992
WATER RESOURCES DEPT.
SALEM, OREGON

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

Jack S2204

COA01ISI.984(A) APR 24 1998

WATER RESOURCES DEPT.
SALEM, OREGON

(1) OWNER/PROJECT: Hole Number P-7

Name City of Ashland / Service Center

Address 90 N. Mountain Ave.

City Ashland State Oregon Zip

(2) TYPE OF WORK

[X] New [ ] Deepening [ ] Alteration (repair/recondition) [X] Abandonment

(3) CONSTRUCTION:

[ ] Rotary Air [ ] Hand Auger [ ] Hollow Stem Auger

[ ] Rotary Mud [ ] Cable Tool [X] Push Probe [ ] Other

(4) TYPE OF HOLE:

[X] Uncased Temporary [ ] Cased Permanent

[ ] Uncased Permanent [ ] Slope Stability [ ] Other

(5) USE OF HOLE:

Soil sampling

(6) BORE HOLE CONSTRUCTION:

Special Construction approval [ ] Yes [X] No Depth of Completed Hole 12' ft.

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
2"	0'	12'	Bentonite	0'	12'	15 lbs.

Backfill placed from -- ft. to -- ft. Material --

Filter Pack placed from -- ft. to -- ft. Size of pack --

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Screen:					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]

Slot size

(8) WELL TEST:

[ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian

Permeability -- Yield -- GPM --

Conductivity -- PH --

Temperature of water -- °F/C Depth artesian flow found -- ft.

Was water analysis done? [ ] Yes [X] No

By whom? N/A

Depth of strata analyzed. From 0' ft. to 12' ft.

Remarks: Dan Mumford, RPG, BB&A

(9) LOCATION OF HOLE by legal description:

County Jackson Latitude -- Longitude --

Township T 39 S N or S Range R 1 E E or W. WM.

Section 9 NE 1/4 SE 1/4

Tax Lot -- Lot -- Block -- Subdivision --

Street Address of Well (or nearest address)

90 N. Mountain Ave., Ashland, OR

Map with location indentified must be attached

(10) STATIC WATER LEVEL:

8' ft. below land surface. Date 3/3/98

Artesian pressure ____ lb. per square inch. Date ____

(11) SUBSURFACE LOG:

Ground Elevation 2,000'

Material Description	From	To	SWL
Asphalt	0'	2"	
Crushed rock w/sand (fill)	2"	1'	
Sand, coarse to very coarse	1'	8'	8'
w/fine gravels brown gray			
Sand tan & greenish tan	8'	12'	
w/fine gravels, silty clay			
wet.			

Date Started 3/3/98 Date Completed 3/3/98

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
Bentonite 3/8" chips	0'	12'	15 lbs.

Date started 3/3/98 Date Completed 3/3/98

Professional Certification

(to be signed by a licensed water supply or monitoring well constructor, or registered geologist or civil engineer).

I accept responsibility for the construction, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon's geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License or Registration Number 10348

Signed _____ Date 4/3/98

Affiliation Pacific NW Drilling

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

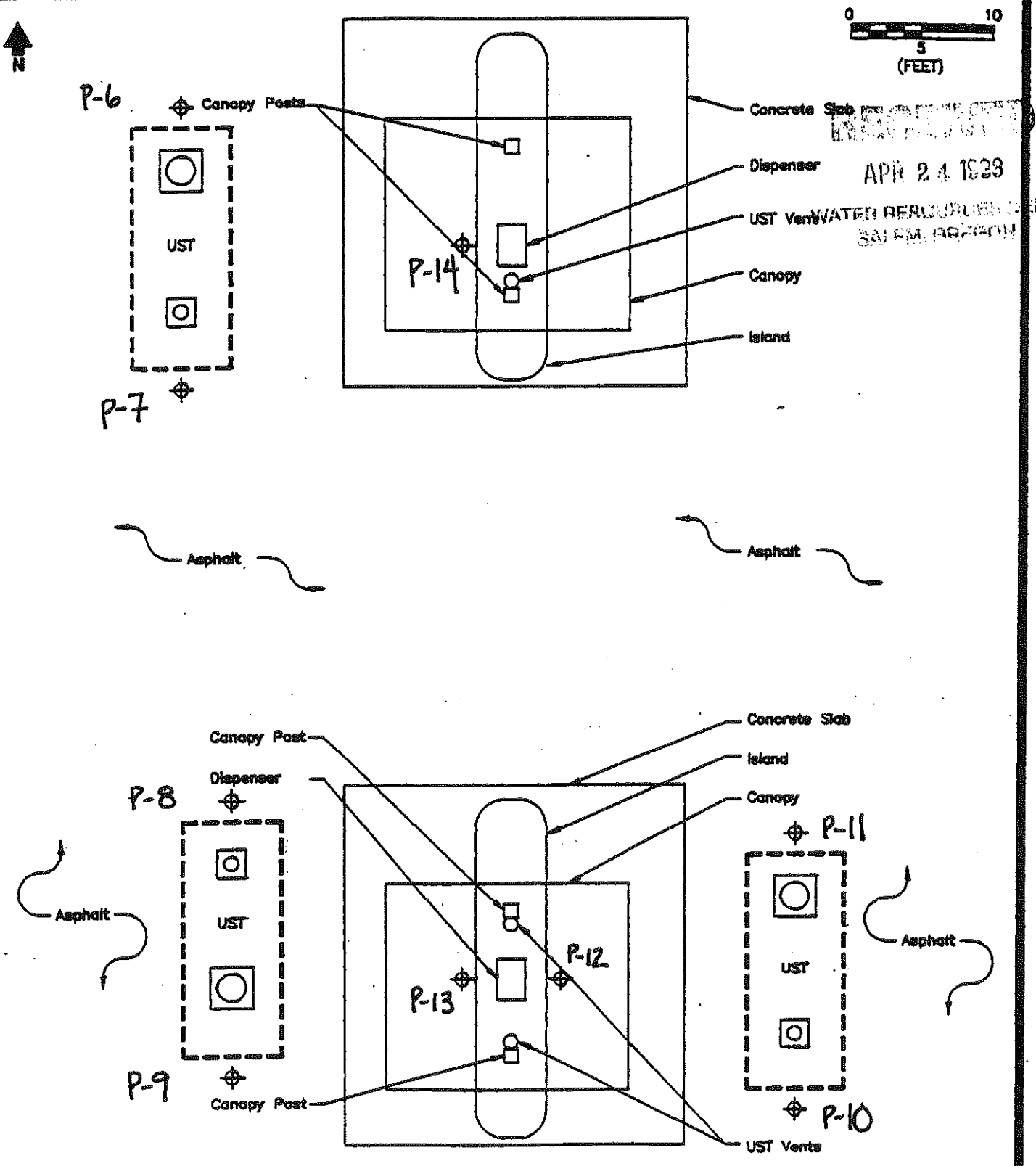


FIGURE 1

LEGEND

⊕ Recommended soil probe location

CITY OF ASHLAND, 20 E. Main Street, Ashland, Oregon

SITE PLAN—SERVICE CENTER GASOLINE USTS

Bergeson—Boese & Associates, Inc.
Environmental Engineering
65 Centennial Loop
Eugene, Oregon 97401
(541) 484—9484

Job Code:	COA01SI.98U
CADD File:	COA01.DWG
Scale:	1" = 10'
Drawn:	ROBERT ROBINSON
Checked:	RONALD BERGESON
Date:	2/5/98

Jack 52209

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

COA01ISI.984(A)

APR 24 1998

WATER RESOURCES DEPT.

(1) OWNER/PROJECT: Hole Number P-3

Name City of Ashland / Service Center

Address 90 N. Mountain Ave.

City Ashland State Oregon Zip

(2) TYPE OF WORK

[X] New [ ] Deepening [ ] Alteration (repair/recondition) [X] Abandonment

(3) CONSTRUCTION:

[ ] Rotary Air [ ] Hand Auger [ ] Hollow Stem Auger

[ ] Rotary Mud [ ] Cable Tool [X] Push Probe [ ] Other

(4) TYPE OF HOLE:

[X] Uncased Temporary [ ] Cased Permanent

[ ] Uncased Permanent [ ] Slope Stability [ ] Other

(5) USE OF HOLE:

Soil sampling

(6) BORE HOLE CONSTRUCTION:

Special Construction approval [ ] Yes [X] No Depth of Completed Hole 12' ft.

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
2"	0'	12'	Bentonite	0'	12'	15 lbs.

Backfill placed from -- ft. to -- ft. Material --

Filter Pack placed from -- ft. to -- ft. Size of pack --

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Screen:					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]

Slot size

(8) WELL TEST:

[ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian

Permeability -- Yield -- GPM --

Conductivity -- PH --

Temperature of water -- °F/C Depth artesian flow found ____ ft.

Was water analysis done? [ ] Yes [X] No

By whom? N/A

Depth of strata analyzed. From 0' ft. to 12' ft.

Remarks: Daniel Mumford, RPG

(9) LOCATION OF HOLE by legal description:

County Jackson Latitude -- Longitude --

Township T 39 S N or S Range R 1 E E or W. WM.

Section 9 NE 1/4 SE 1/4

Tax Lot -- Lot -- Block -- Subdivision --

Street Address of Well (or nearest address) 90 N. Mountain Ave., Ashland, OR

Map with location indentified must be attached

(10) STATIC WATER LEVEL:

6' ft. below land surface. Date 3/3/98

Artesian pressure ____ lb. per square inch. Date ____

(11) SUBSURFACE LOG:

Ground Elevation 2,000'

Material Description	From	To	SWL
Asphalt	0'	2"	
Crushed rock (fill)	2"	6"	
Wood waste fill	6"	2'	
Clay, sand, coarse med. gray	2'	4'	
Sand w/clay silt granite gravels micaceous brown green gray	4'	12'	6'

Date Started 3/3/98 Date Completed 3/3/98

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
Bentonite 3/8" chips	0'	12'	15 lbs.

Date started 3/3/98 Date Completed 3/3/98

Professional Certification

(to be signed by a licensed water supply or monitoring well constructor, or registered geologist or civil engineer).

I accept responsibility for the construction, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon's geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License or Registration Number 10348

Signed _____ Date 4/3/98

Affiliation Pacific NW Drilling

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

APR 24 1998
WATER RESOURCES DEPT.
SALEM, OREGON

0 5 10
(FEET)

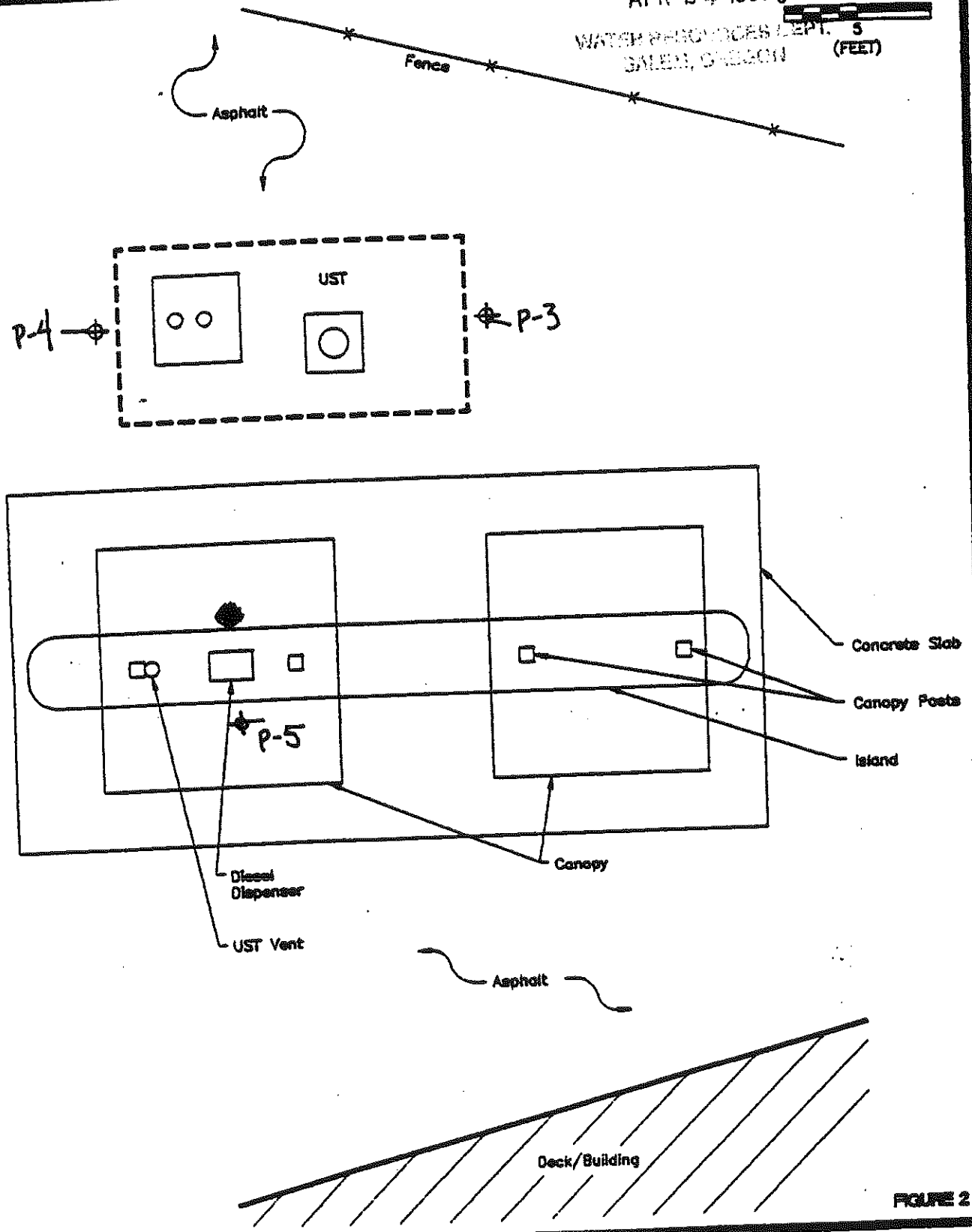


FIGURE 2

Recommended soil probe location

CITY OF ASHLAND, 20 E. Main Street, Ashland, Oregon

SITE PLAN—SERVICE CENTER DIESEL UST

Bergeson—Boese & Associates, Inc.
Environmental Engineering
65 Centennial Loop
Eugene, Oregon 97401
(541) 484-9484

Job Code:	COA01SI.98U
CADD File:	COA01.DWG
Scale:	1" = 10'
Drawn:	ROBERT ROBINSON
Checked:	RONALD BERGESON
Date:	2/6/98

MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-095) WELL I.D.# 50970 [redacted]

Start Card # 097600

Instructions for completing this report are on the last page of this form.

(1) OWNER/PROJECT:

WELL NO. MW-D

Name Grange Co-op

Address P.O. Box 3637

City Central Point State OR Zip 97502

(2) TYPE OF WORK:

☒ New construction ☐ Alteration (Repair/Recondition)

☐ Conversion ☐ Deepening ☐ Abandonment

(3) DRILLING METHOD

☐ Rotary Air ☐ Rotary Mud ☐ Cable

☒ Hollow Stem Auger ☐ Other

(4) BORE HOLE CONSTRUCTION

Special Standards Yes ☐ No ☐ Depth of completed well 12.5 ft.

Land surface

Vault 0 ft. TO 1 ft.

Water-tight cover

Surface flush vault

Locking cap

Casing diameter 4 in.

material PVC Sch 40

Welded ☐ Threaded ☒ Glued ☐

Liner diameter N/A in.

material

Welded ☐ Threaded ☐ Glued ☐

Seal 1 ft. TO 2.5 ft.

Well seal:

Material Neat Cement

Amount 30 #

Grout weight 15.6 PPG

Borehole diameter 10 in.

Bentonite plug at least 3 ft. thick

Screen material PVC Sch 40

interval(s):

From 6 To 12.5

From To

Slot size .020 in.

Filter pack 5 ft. TO 12.5 ft.

Filter pack:

Material Sand

Size 20 mesh in.

(5) WELL TEST:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Permeability Yield GPM

Conductivity PH

Temperature of water 18°C °F Depth artesian flow found N/A ft.

Was water analysis done? ☒ Yes ☐ No

By whom? Karl Kriegh - Gem Consulting

Depth of strata to be analyzed. From 5 ft. to 12.5 ft.

Remarks:

(6) LOCATION OF WELL By legal description

Well Location: County Jackson

Township 39 (N or S) Range 1 (E or W) Section 9

1. NE 1/4 of NW 1/4 of above section.

2. Either Street address of well location 421 "A" Street Ashland, OR

or Tax lot number of well location 141601

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

5.5 Ft. below land surface. Date 2-6-97

Artesian Pressure N/A lb/sq. in. Date

(8) WATER BEARING ZONES:

Depth at which water was first found 5.5

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation

Material	From	To	SWL
Asphalt	0	.3'	
Sandy Cinders Blk	.3'	3'	
Blue-Gray Silty Sand	3'	6.5'	
" " V. moist	6.5	11	6'
Silty Clayey Sand Soft - Saturated	11	12.5	

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MAR 17 2000
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SALEM, OREGON

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APR - 1 1997
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 2-6-97 Completed 3-6-97

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number

Signed Date

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 10405

Name of supervising Geologist/Engineer Karl Kriegh - Geologist Signed Date 3-5-97

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STATE OF OREGON

MONITORING WELL REPORT

as required by ORS 537.765 & OAR 690-240-095)

WELL I.D.# ~~097601~~ 50969

L-14996

Start Card # 097601

Instructions for completing this report are on the last page of this form.

1) OWNER/PROJECT:

WELL NO. MW-C

Name Grange Co-op

Address P.O. Box 3637

City Central Point State OR Zip 97502

(2) TYPE OF WORK:

- [X] New construction
- [ ] Alteration (Repair/Recondition)
- [ ] Conversion
- [ ] Deepening
- [ ] Abandonment

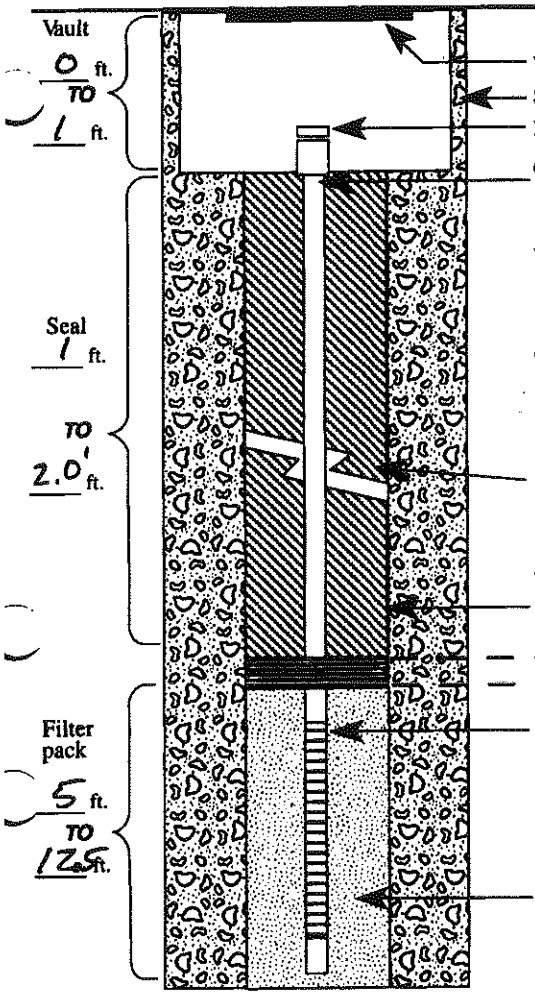
(3) DRILLING METHOD

- [ ] Rotary Air
- [ ] Rotary Mud
- [ ] Cable
- [X] Hollow Stem Auger
- [ ] Other

(4) BORE HOLE CONSTRUCTION

Special Standards Yes [ ] No [X]

Depth of completed well 12.5 ft.



(5) WELL TEST:

- [ ] Pump
- [ ] Bailer
- [ ] Air
- [ ] Flowing Artesian

Permeability Yield GPM

Conductivity PH

Temperature of water 19°C °F/C Depth artesian flow found ft.

Was water analysis done? [X] Yes [ ] No

By whom? Karl Kriegh - Coen Consulting

Depth of strata to be analyzed. From 4' ft. to 12.5 ft.

Remarks:

Name of supervising Geologist/Engineer Karl Kriegh - Geologist

(6) LOCATION OF WELL By legal description

Well Location: County Jackson

Township 39 (N or S) Range 1 (E or W) Section 9

1. NE 1/4 of NW 1/4 of above section. " "

2. Either Street address of well location 421 A Street Ashland, OR.

or Tax lot number of well location 14601

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

4.5 Ft. below land surface. Date 2-6-97

Artesian Pressure N/A lb/sq. in. Date

(8) WATER BEARING ZONES:

Depth at which water was first found

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation

Material	From	To	SWL
Asphalt	0	.4'	
Road Base fill	.4	2.5'	
Sandy Silty Clay	2.5	10'	4.5
Clayey Silty Sand	10	13'	

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MAY 23 1997
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SALEM, OREGON

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APR - 1 1997
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 2-6-97 Completed 2-6-97

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number

Signed Date

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 10405

Signed Date 5-5-97

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MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-095)

Instructions for completing this report are on the last page of this form.

? 503 ?

605140

Start Card # 81691

(1) OWNER/PROJECT:

WELL NO. 91

Name Southern Pacific Trans. Co.

Address 1 Market Plaza

City San Fran. State Ca. Zip 94105

(2) TYPE OF WORK:

- [x] New construction
- [ ] Alteration (Repair/Recondition)
- [ ] Conversion
- [ ] Deepening
- [ ] Abandonment

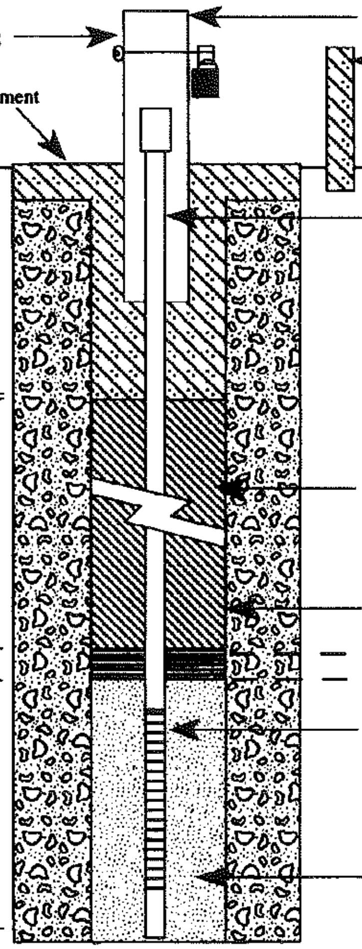
(3) DRILLING METHOD

- [ ] Rotary Air
- [ ] Rotary Mud
- [ ] Cable
- [x] Hollow Stem Auger
- [ ] Other ______

(4) BORE HOLE CONSTRUCTION

Special Standards: Yes [ ] No [x]

Depth of completed well 20 ft.



Monument +2.5 ft. TO 2.5 ft.

Seal 1 ft. TO 7 ft.

Filter pack 7 ft. TO 20 ft.

Casing diameter 2 in.
material PVC

Welded [ ] Threaded [x] Glued [ ]

Liner diameter ______ in.
material ______

Welded [ ] Threaded [ ] Glued [ ]

Well seal:
Material Bentonite Pellets/Chip
Amount 300
Grout weight ______

Borehole diameter 10 in.

Bentonite plug at least 3 ft. thick

Screen material PVC
interval(s):
From 9 To 19
From ______ To ______
Slot size .010 in.

Filter pack:
Material Co Silica
Size 10/20 in.

(5) WELL TEST:

- [ ] Pump
- [ ] Bailer
- [ ] Air
- [ ] Flowing Artesian

Permeability ______ Yield ______ GPM

Conductivity ______ PH ______

Temperature of water 57 °F/C Depth artesian flow found ______ ft.

Was water analysis done? [ ] Yes [ ] No

By whom? ______

Depth of strata to be analyzed. From ______ ft. to ______ ft.

Remarks: ______

Name of supervising Geologist/Engineer Torrence? Tania

(6) LOCATION OF WELL By legal description

Well Location: County Jackson

Township 39 (N or S) Range 1 (E or W) Section 9

1. SW 1/4 of NE 1/4 of above section.

2. Either Street address of well location 536 A St Ashland Or

or Tax lot number of well location 6509

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

7 Ft. below land surface. Date 5/13/96

Artesian Pressure ______ lb/sq. in. Date ______

(8) WATER BEARING ZONES:

Depth at which water was first found 7

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation ______

Material	From	To	SWL
Fill & Gravel	0	2	
Silty Sand	2	12	
Gravel	12	17	
Cemented Silt	17	20	

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SALEM, OREGON

Date started 5/13/96 Completed 5/13/96

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number 10228

Signed [signature] Date 6/5/96

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 10011

Signed [signature] Date 6/12/96

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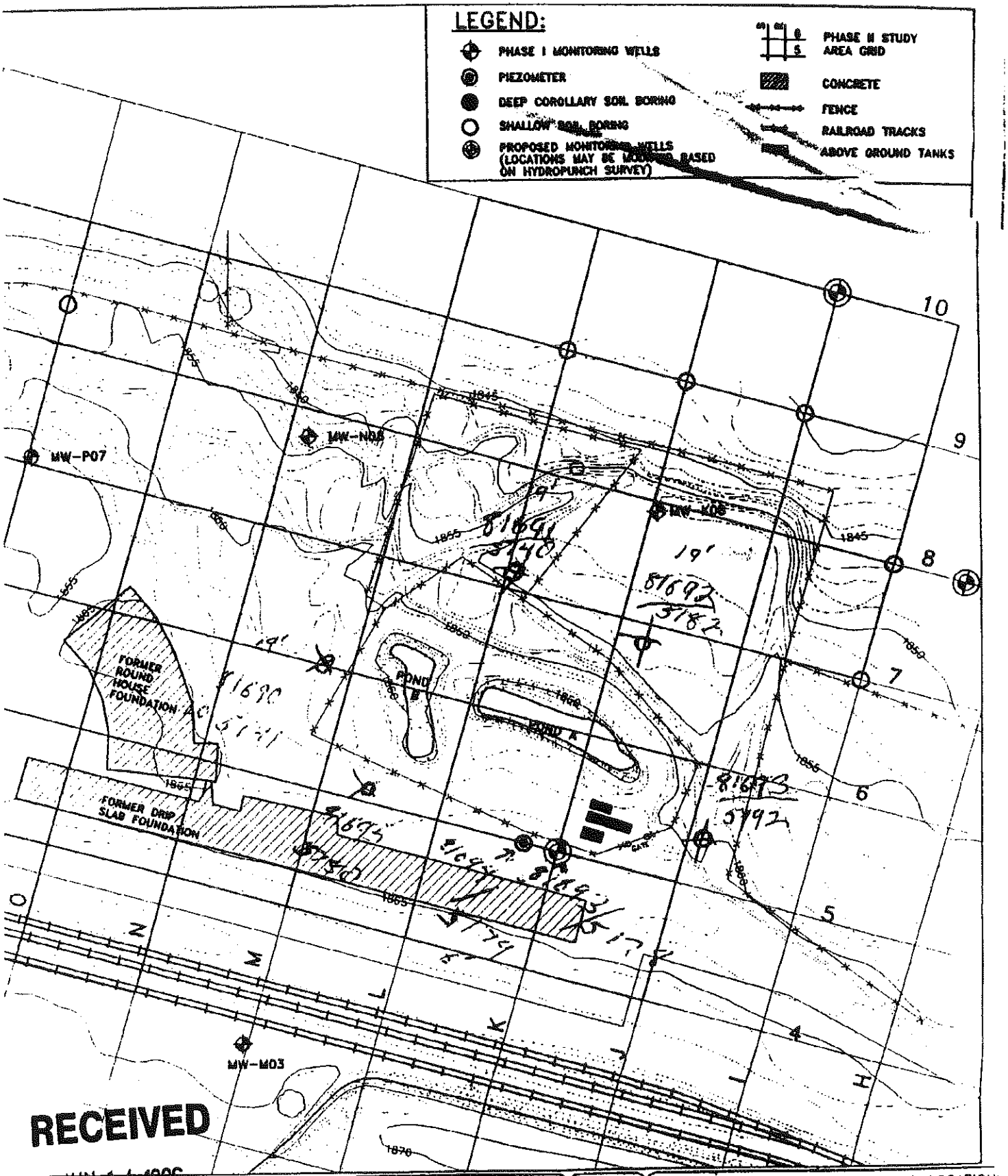

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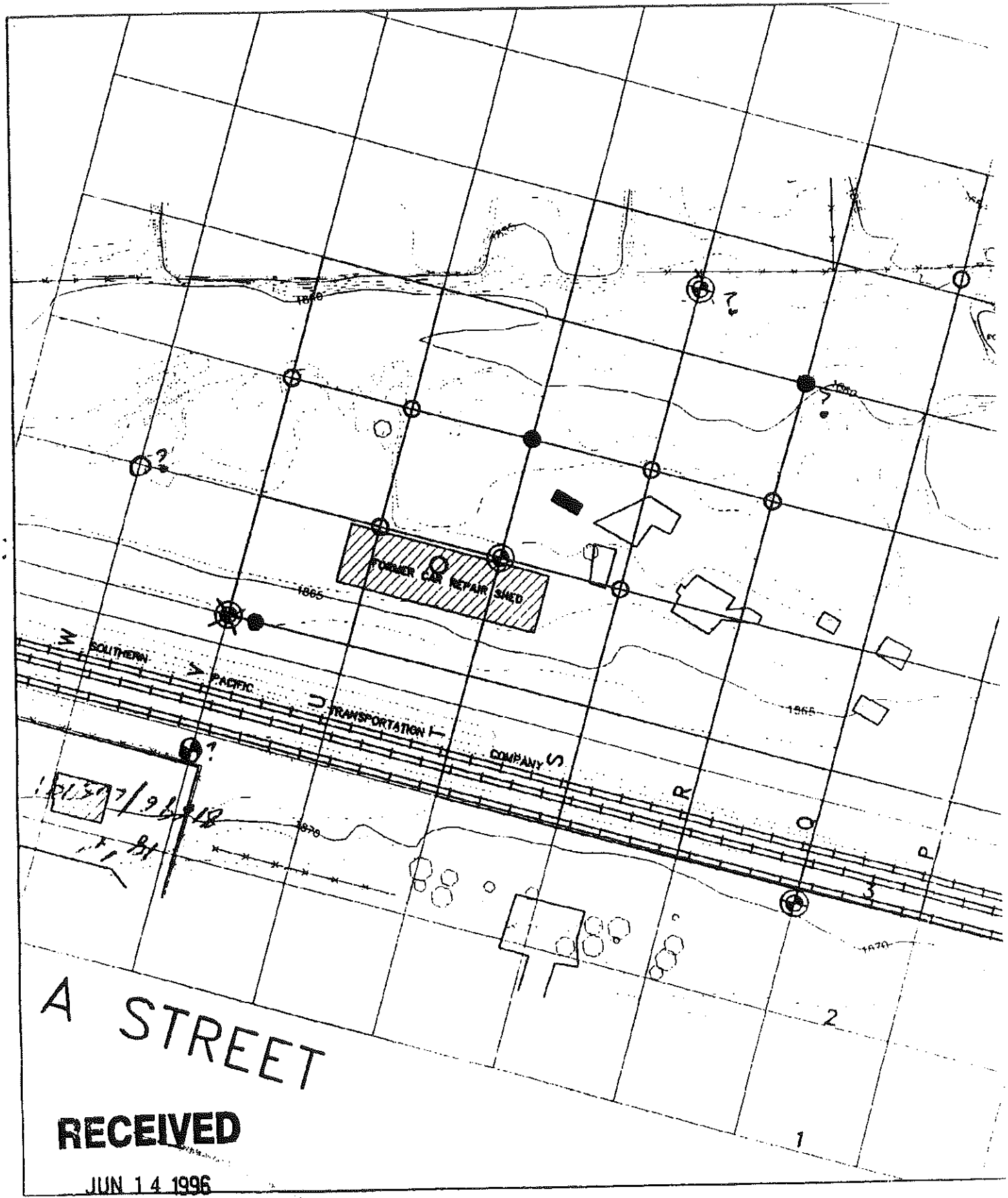
PROJ.# 651-00540	PAGE#
SCALE: 1" = 50'	DRAWN BY: PRICE
FILE NO. ASH	
DATE: 5-12-94	FIG. 6-a

SOIL BORING AND MONITORING WELL LOCATIONS
PHASE II REMEDIAL INVESTIGATION
ASHLAND YARD, ASHLAND, OREGON

Industrial Compliance
A Subsidiary of IT Environmental Systems, Inc.



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SALEM, OREGON

MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)

S03-11 — 205182

Start Card # 8692

(1) OWNER/PROJECT:
WELL NO. 92

Name Southern Pacific Trans. Co.

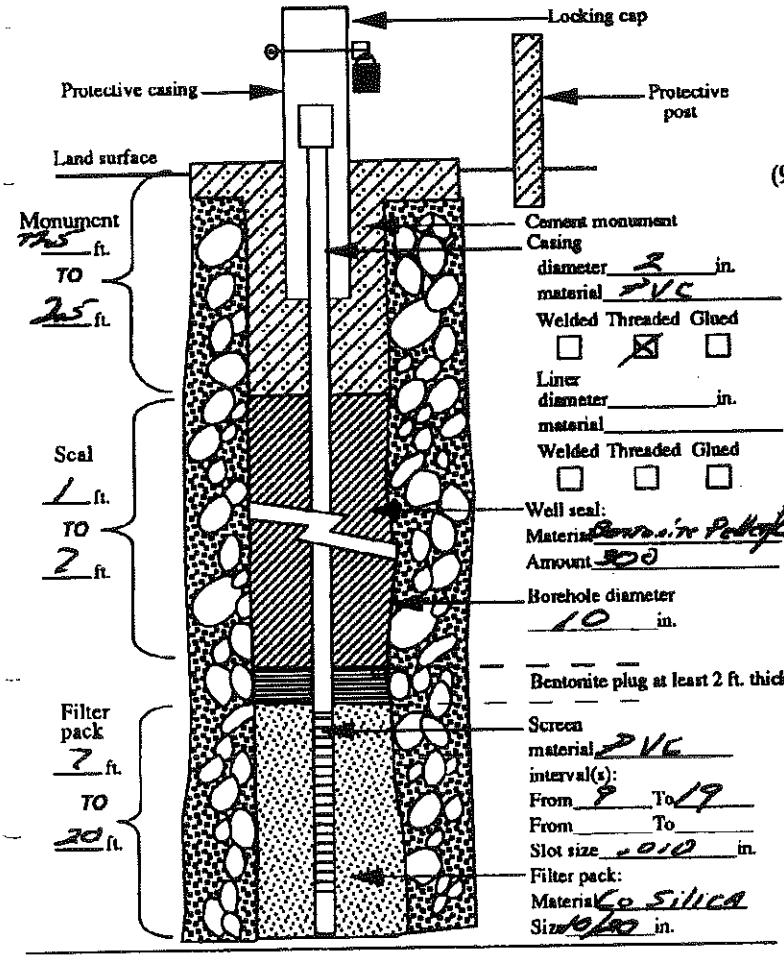
Address 1 Market Plaza

City San Fran. State CA Zip 94105

(2) TYPE OF WORK:
☒ New construction ☐ Repair ☐ Recondition
☐ Conversion ☐ Deepening ☐ Abandonment

(3) DRILLING METHOD
☐ Rotary Air ☐ Rotary Mud ☐ Cable
☒ Hollow Stem Auger ☐ Other

(4) BORE HOLE CONSTRUCTION
Special Standards Yes ☐ No ☒ Depth of completed well 20 ft.



(5) WELL TEST:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Permeability Yield GPM

Conductivity PH

Temperature of water 57 °F Depth artesian flow found ft.

Was water analysis done? ☐ Yes ☐ No

By whom?

Depth of strata to be analyzed. From ft. to ft.

Remarks:

Name of supervising Geologist/Engineer Tammer Tonia

(6) LOCATION OF WELL By legal description
Well Location: County Jackson

Township 39 (N or S) Range 1 (E or W) Section 9

1. SW 1/4 of NE 1/4 of above section.
2. Street address of well location 536 A St Ashland Or
3. Tax lot number of well location 6509
4. ATTACH MAP WITH LOCATION IDENTIFIED.

(7) STATIC WATER LEVEL:
7 Ft. below land surface. Date 5/13/96

Artesian Pressure lb/sq. in. Date

(8) WATER BEARING ZONES:
Depth at which water was first found 7

From	To	Est. Flow Rate	SWL

(9) WELL LOG:
Ground elevation

Material	From	To	SWL
Gravel & Fill debris	0	2	
Silty Sand	2	11	
Cemented Sand & Gravel	11	20	

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WATER RESOURCES DEPT.
SALEM, OREGON

Date started 5/13/96 Completed 5/13/96

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number 0328

Signed Date 6-5-96

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 1001

Signed Date 6/12/96

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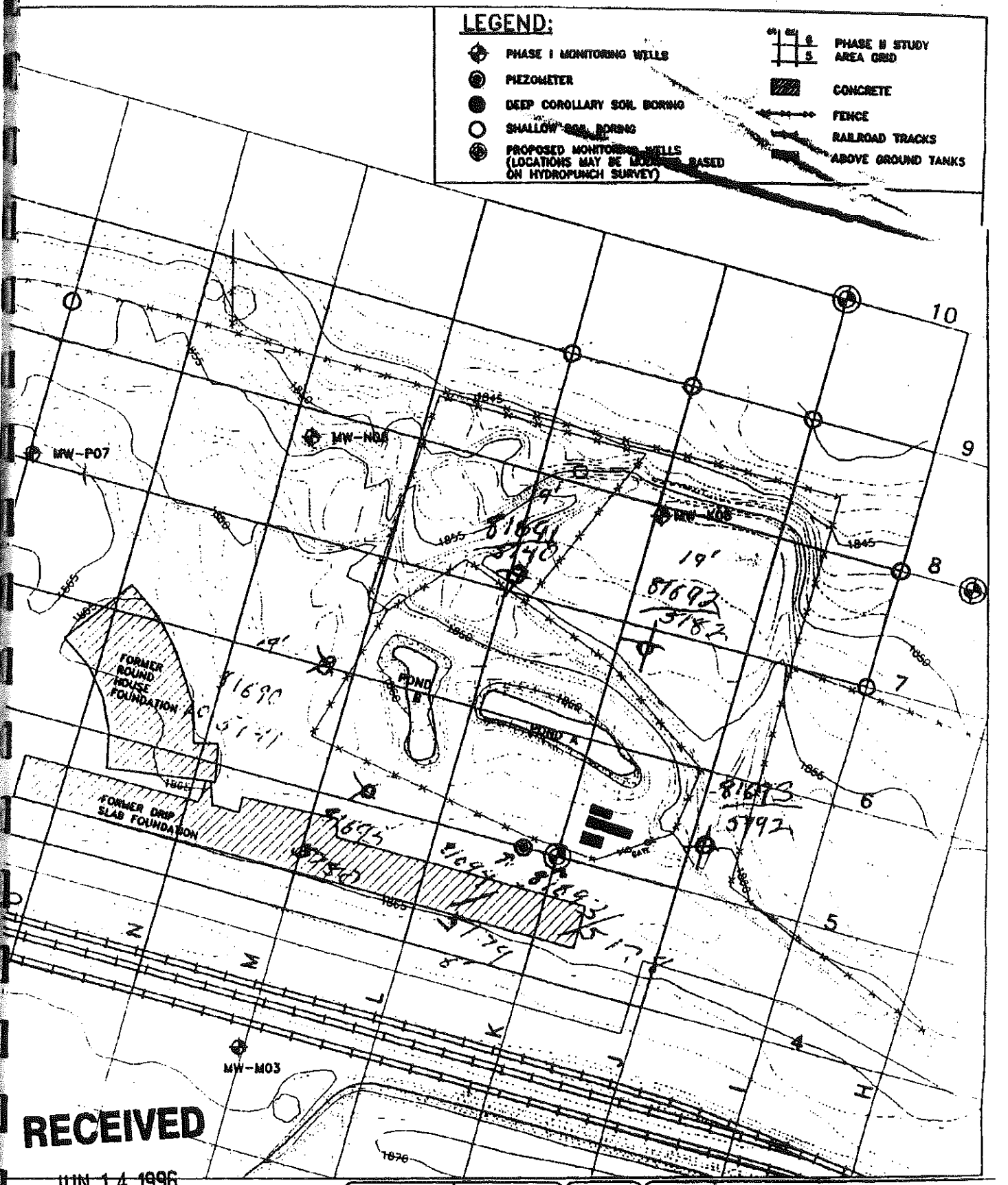

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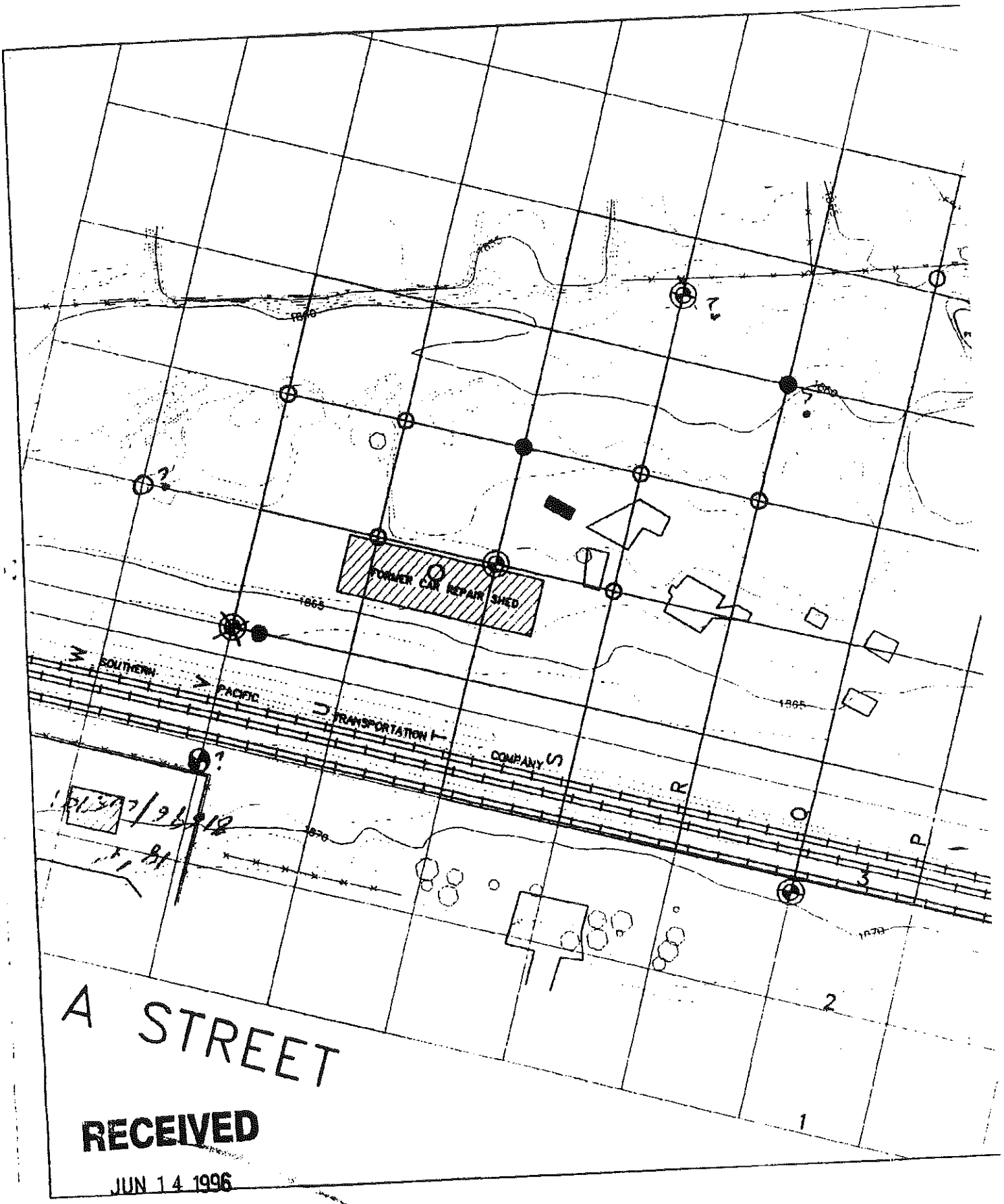
SALEM, OREGON

PROJ.# 681-98340	PAGE#
SCALE: 1" = 50'	DRAWN BY: PRICE
FILE NO. ASH	
DATE: 9-12-94	FIG. 8-3

SOIL BORING AND MONITORING WELL LOCATIONS
PHASE II REMEDIAL INVESTIGATION
ASHLAND YARD, ASHLAND, OREGON

Industrial Compliance
A Subsidiary of GP Environmental Systems, Inc.



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JUN 14 1996
WATER RESOURCES DEPT.
SALEM, OREGON

STATE OF OREGON

MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-095)

Instructions for completing this report are on the last page of this form.

505'

L05192

Start Card # 8693

(1) OWNER/PROJECT:

WELL NO. 92

Name Southern Pacific Trans. Co.

Address 1 Market Plaza

City S. F. State CA Zip 94105

(2) TYPE OF WORK:

- [X] New construction
- [ ] Alteration (Repair/Recondition)
- [ ] Conversion
- [ ] Deepening
- [ ] Abandonment

(3) DRILLING METHOD

- [ ] Rotary Air
- [ ] Rotary Mud
- [ ] Cable
- [X] Hollow Stem Auger
- [ ] Other

(6) LOCATION OF WELL By legal description

Well Location: County Jackson

Township 39 (N or S) Range 1 (E or W) Section 9

1. SW 1/4 of NE 1/4 of above section.

2. Either Street address of well location 5361 S. 1st Ashland Or

or Tax lot number of well location 6509

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

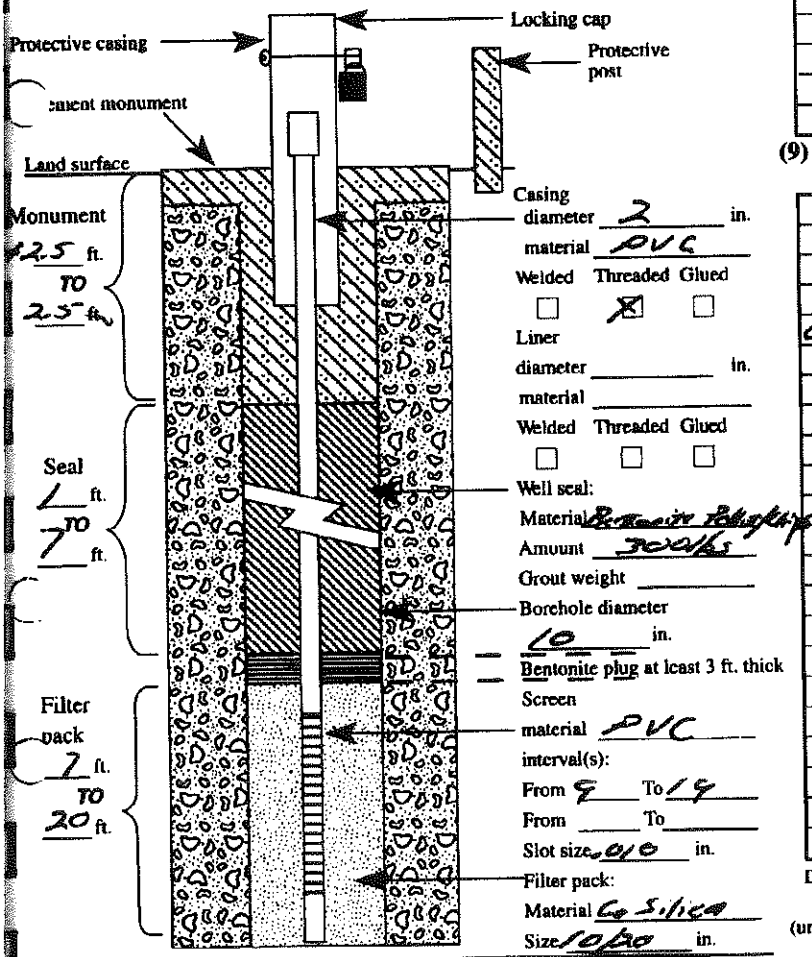
6 Ft. below land surface. Date 5/14/96

Artesian Pressure _____ lb/sq. in. Date _____

(4) BORE HOLE CONSTRUCTION

Special Standards: [ ] Yes [X] No

Depth of completed well 20 ft.



Casing diameter 2 in.
material PVC
Welded [ ] Threaded [X] Glued [ ]

Liner diameter _____ in.
material _____
Welded [ ] Threaded [ ] Glued [ ]

Well seal:
Material Bentonite Pellets
Amount 30 lbs
Grout weight _____
Borehole diameter 10 in.
[ ] Bentonite plug at least 3 ft. thick

Screen material PVC
interval(s):
From 9 To 19
From _____ To _____
Slot size .010 in.

Filter pack:
Material Co Silica
Size 10/20 in.

(8) WATER BEARING ZONES:

Depth at which water was first found 6

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation _____

Material	From	To	SWL
Gravel	0	1	
Silty Sand	1	12	
Gravel	12	17	
Cemented Silt	17	20	

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WATER RESOURCES DEPT.
SALEM, OREGON

Date started 5/14/96 Completed 5/14/96

(5) WELL TEST:

[ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian

Permeability _____ Yield _____ GPM

Conductivity _____ PH _____

Temperature of water 57 °F Depth artesian flow found _____ ft.

Was water analysis done? [ ] Yes [ ] No

By whom? _____

Depth of strata to be analyzed. From _____ ft. to _____ ft.

Remarks: _____

Name of supervising Geologist/Engineer Lawrence Tonin

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number 0328

Signed _____ Date 6/5/96

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 1001

Signed _____ Date 6/12/96

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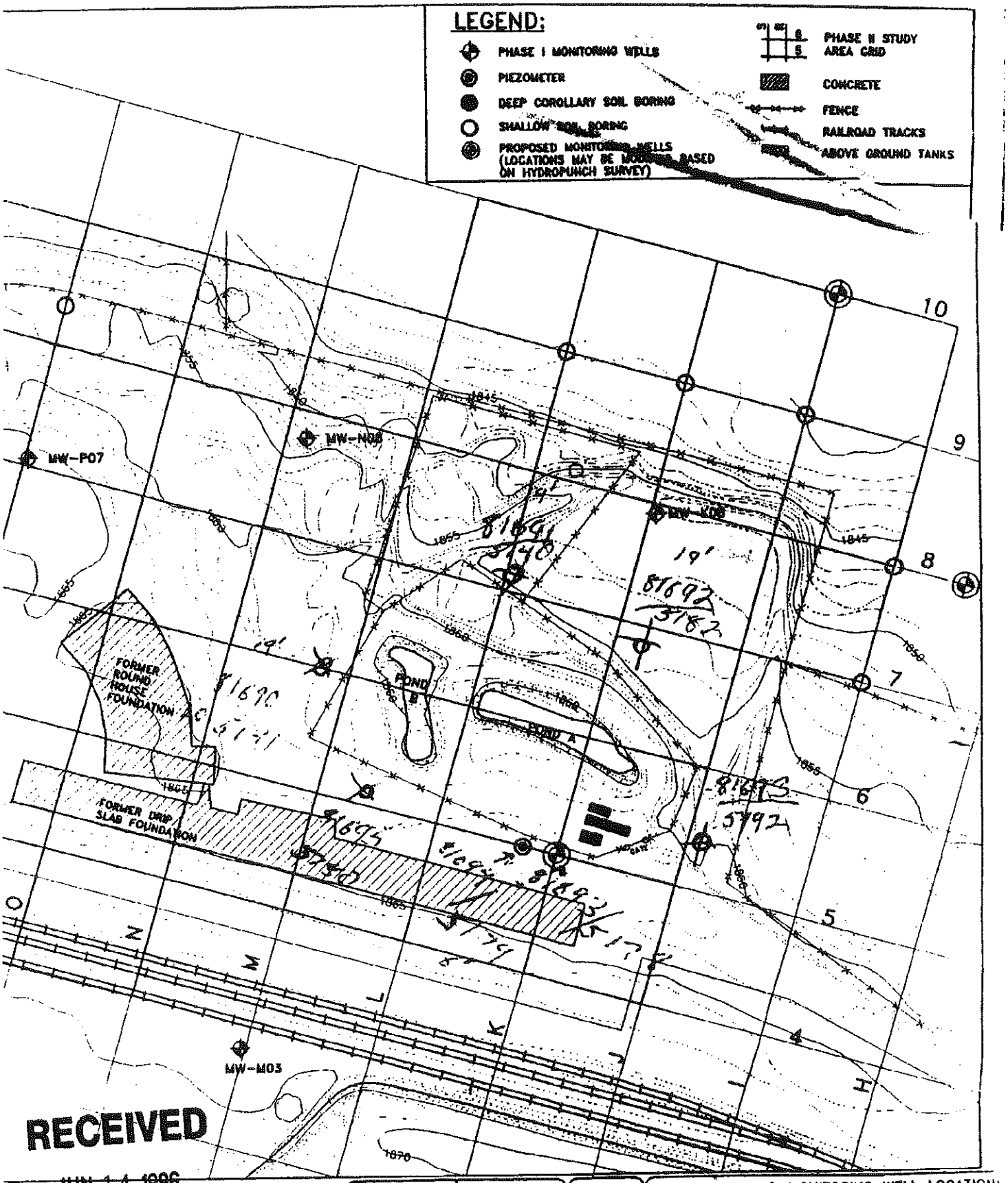

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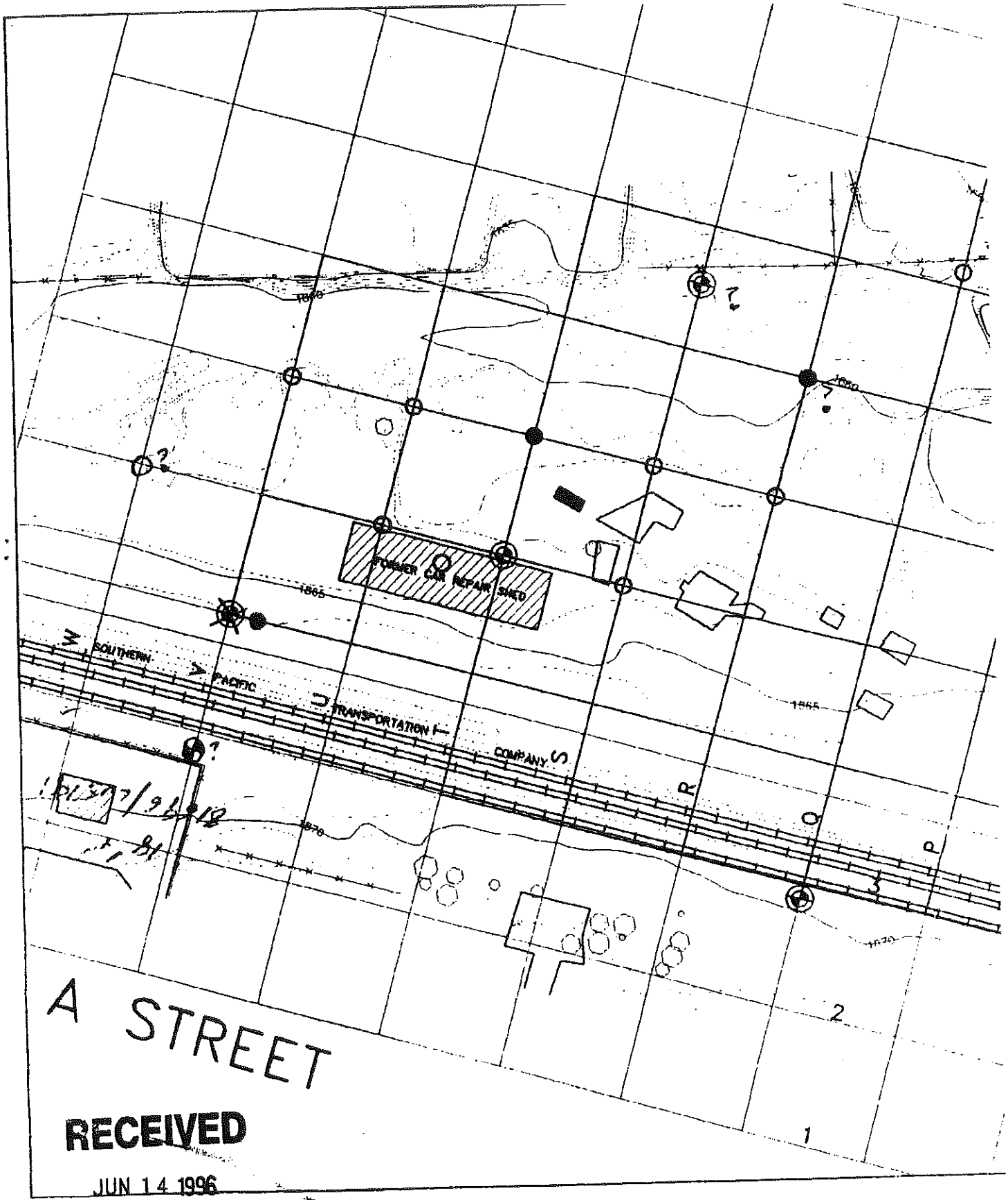
WATER RESOURCES DEPT.
SALEM, OREGON

PROJ.# 651-00340	PAGE#
SCALE: 1" = 50'	DRAWN BY: PRICE
FILE NO. ASH	
DATE: 9-12-94	FIG. 8-2

SOIL BORING AND MONITORING WELL LOCATIONS
PHASE II REMEDIAL INVESTIGATION
ASHLAND YARD, ASHLAND, OREGON

Industrial Compliance
A Subsidiary of IT Environmental Systems, Inc.



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JUN 14 1996
WATER RESOURCES DEPT.
SALEM, OREGON

STATE OF OREGON

MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)

APR 29 1994

33174

Start Card # 63382

WATER RESOURCES DEPT.
SALEM, OREGON

(1) OWNER/PROJECT:

Name Southern Pacific Transportation
Address 1 Market Plaza. S.
City S.F. San Fran State Calf. Zip 94105

(2) TYPE OF WORK:

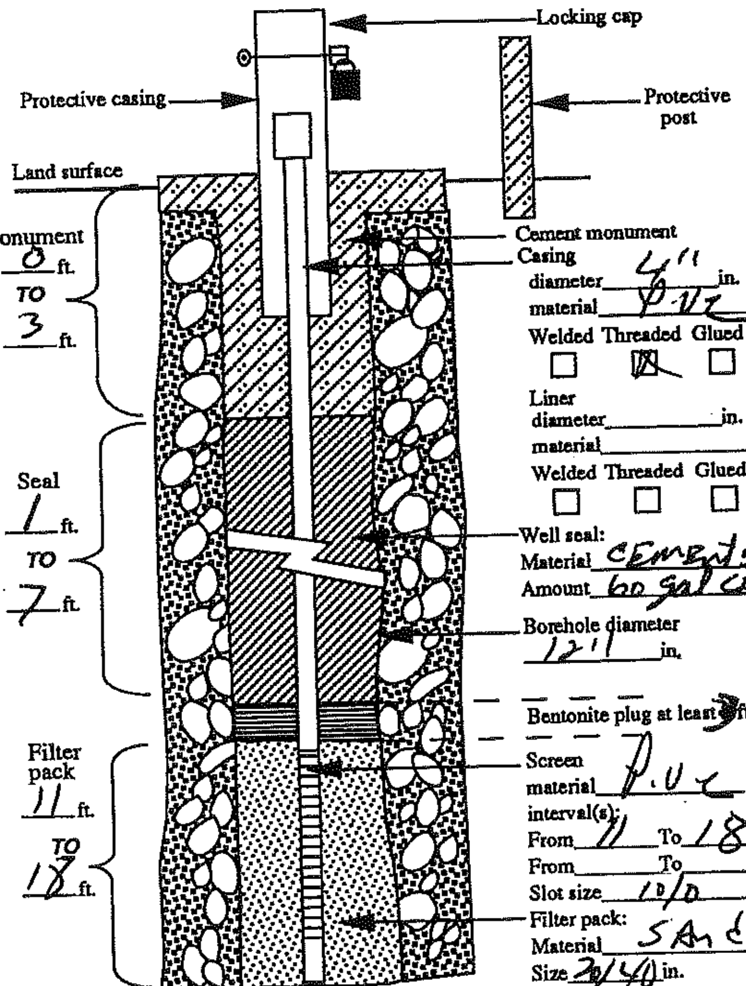
- [x] New construction
- [ ] Conversion
- [ ] Repair
- [ ] Deepening
- [ ] Recondition
- [ ] Abandonment

(3) DRILLING METHOD

- [ ] Rotary Air
- [x] Hollow Stem Auger
- [ ] Rotary Mud
- [ ] Other
- [ ] Cable

(4) BORE HOLE CONSTRUCTION

Special Standards Yes [ ] No [x] Depth of completed well 18' ft.



Monument 0 ft. TO 3 ft.

Cement monument

Casing diameter 4" in. material P.V.C.
Welded [ ] Threaded [x] Glued [ ]

Liner diameter ____ in. material ____
Welded [ ] Threaded [ ] Glued [ ]

Seal 1 ft. TO 7 ft.

Well seal: Material Cement Grout. Amount 60 gal Cement Grout.

Borehole diameter 12" in.

Bentonite plug at least 3 ft. thick

Filter pack 11 ft. TO 18 ft.

Screen material P.V.C. interval(s): From 11 To 18 From ____ To ____ Slot size 10/0 in.

Filter pack: Material Sand Size 20/40 in.

(5) WELL TEST:

- [ ] Pump
- [ ] Bailer
- [ ] Air
- [ ] Flowing Artesian

Permeability ____ Yield ____ GPM

Conductivity ____ PH ____

Temperature of water 53° °F/C Depth artesian flow found ____ ft.

Was water analysis done? [ ] Yes [ ] No

By whom? ____

Depth of strata to be analyzed. From ____ ft. to ____ ft.

Remarks: ____

Name of supervising Geologist/Engineer Scott Gabel/ I.C.

(6) LOCATION OF WELL By legal description

Well Location: County Jackson
Township 39S (N or S) Range 1E (E or W) Section 9
1. S.W. 1/4 of N.E. 1/4 of above section.
2. Street address of well location 51 RY Yard Ashland Or.
3. Tax lot number of well location ____
4. ATTACH MAP WITH LOCATION IDENTIFIED.

(7) STATIC WATER LEVEL:

13' Ft. below land surface. Date 4-1-94
Artesian Pressure ____ lb/sq. in. Date ____

(8) WATER BEARING ZONES:

Depth at which water was first found 13'

From	To	Est. Flow Rate	SWL
13'	18'		13'

(9) WELL LOG:

Ground elevation ____

Material	From	To	SWL
Rubble	0	8	
Clay	8	12	
Sandy silt	12	18	13'

Date started 4-1-94 Completed 4-1-94

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number 1001
Signed [signature] Date 4-1-94

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 1001
Signed [signature] Date 4/26/94

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)

APR 2 9 1994

53175

Start Card # 63823

WATER RESOURCES DEPT.
SALEM, OREGON

(1) OWNER/PROJECT:

Name Southern Pacific Transp Co

Address 1 Market St.

City S.F. San Francisco State Calif Zip 94105

(2) TYPE OF WORK:

- [X] New construction
- [ ] Repair
- [ ] Recondition
- [ ] Conversion
- [ ] Deepening
- [ ] Abandonment

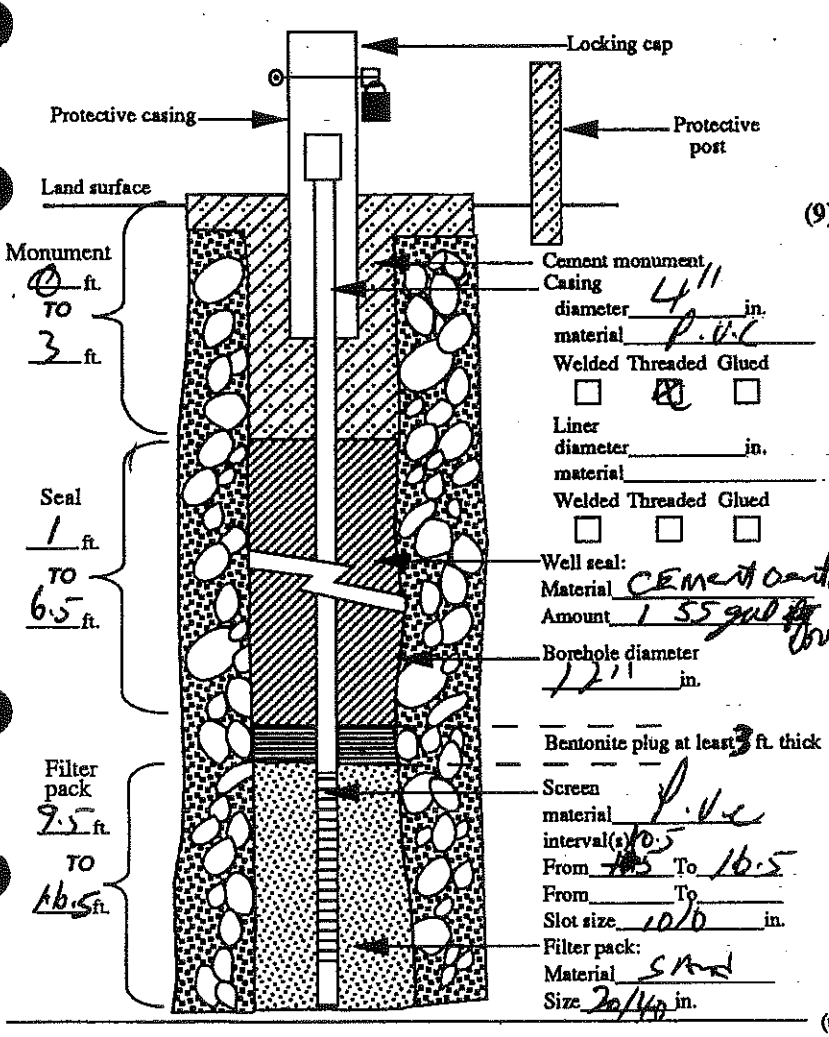
(3) DRILLING METHOD

- [ ] Rotary Air
- [ ] Rotary Mud
- [ ] Cable
- [X] Hollow Stem Auger
- [ ] Other

(4) BORE HOLE CONSTRUCTION

Special Standards: Yes [ ] No [X]

Depth of completed well 16.5' ft.



(5) WELL TEST:

- [ ] Pump
- [ ] Bailer
- [ ] Air
- [ ] Flowing Artesian

Permeability Yield GPM

Conductivity PH

Temperature of water 52° [X] F [ ] C Depth artesian flow found ft.

Was water analysis done? [ ] Yes [ ] No

By whom?

Depth of strata to be analyzed. From ft. to ft.

Remarks:

Name of supervising Geologist/Engineer Scott Gable

(6) LOCATION OF WELL By legal description

Well Location: County Multnomah

Township 3S (N or S) Range 1E (E or W) Section 9

1. S.W. 1/4 of N.E. 1/4 of above section.
2. Street address of well location S.P. Yard Ashland Or.
3. Tax lot number of well location
4. ATTACH MAP WITH LOCATION IDENTIFIED.

(7) STATIC WATER LEVEL:

101 Ft. below land surface. Date 4-4-94

Artesian Pressure lb/sq. in. Date

(8) WATER BEARING ZONES:

Depth at which water was first found 101

From	To	Est. Flow Rate	SWL
101	16.5'		101

(9) WELL LOG:

Ground elevation

Material	From	To	SWL
Rubble	0	5	
Clay	5	10	
Silt + Sand	10	16.5	101

Date started 4-4-94 Completed 4-4-94

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed MWC Number 1001

Date 4-4-94

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed MWC Number 1001

Date 4/26/94

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Aug. 1928 ASHLAND OREGON

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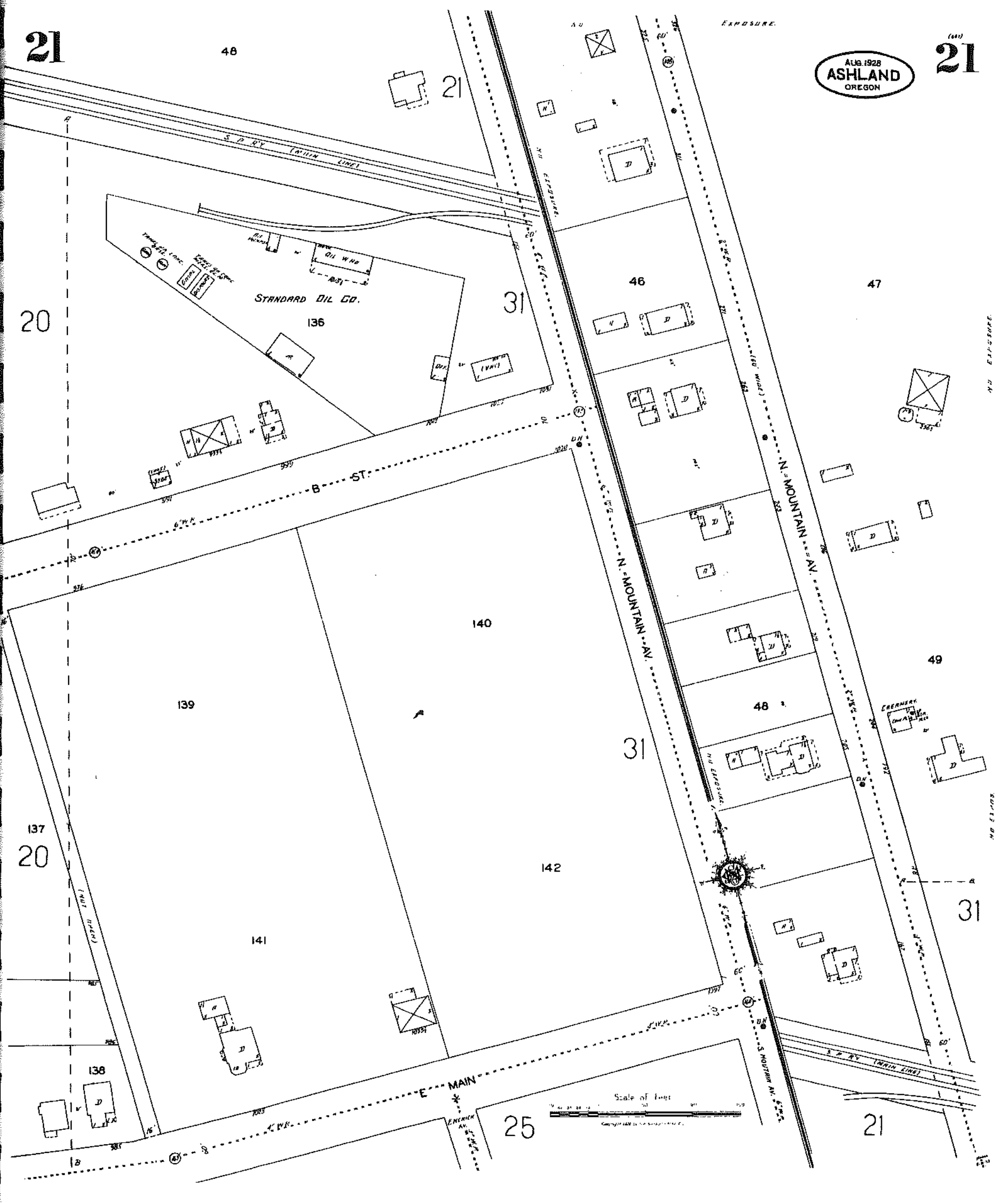

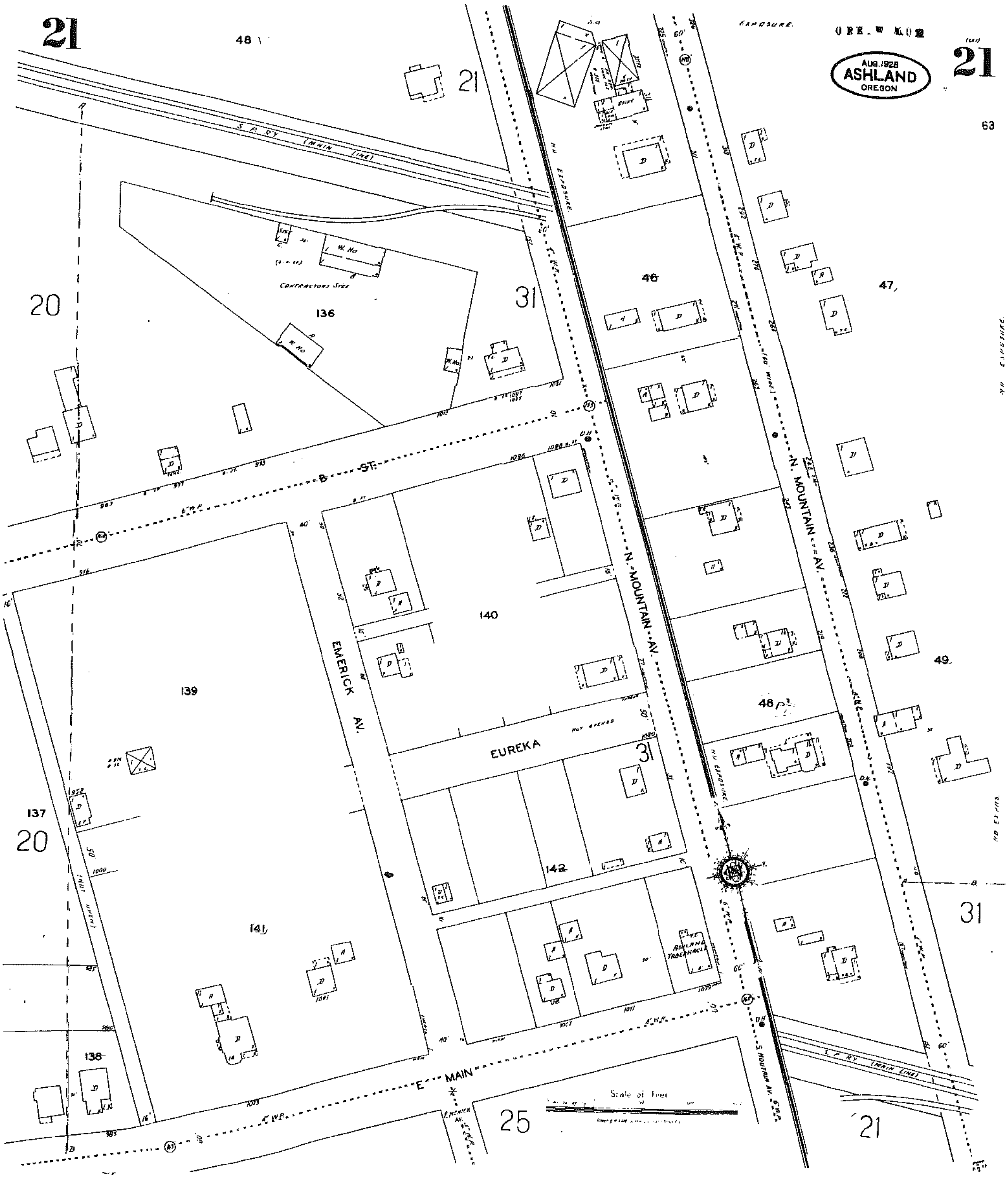

ORE. No. 1102
Aug. 1928
ASHLAND
OREGON
63
S. P. R'Y (MAIN LINE)
W. HO
CONTRACTORS STGE
136
20
31
46
47
B ST.
N. MOUNTAIN AV.
140
139
EMERICK AV.
EUREKA
NOT OPENED
48
49
137
20
142
141
ASHLAND TABERNACLE
31
138
E. MAIN
EMERICK AV.
S. MOUNTAIN AV.
25
21