005995

Robert D. Miller Consulting
INC.
Construction Management • Environmental Services

June 5, 1996

Ms. Patricia Martin
Department of Ecology
Southwest Region Office
P.O. Box 47775
Olympia, WA 98504-7775

re: Astro #607 - TrailMart
13117 N.E. Hwy. 99
Vancouver, WA 98686-2728

FAC. #5995

SITE ASSESSMENT AND ROUTINE CLEANUP REPORT

INTRODUCTION

The purpose of this report is to provide documentation of the Site Assessment and Voluntary Routine Cleanup of a petroleum release at the subject site.

A Site Assessment is required by the State of Washington under WAC173-360-390, whenever an underground storage tank (UST) system is permanently closed or a change in service is completed. At this site the UST system was permanently closed by the tank owner, Western Stations.

The Site Assessment and Soil and Groundwater Cleanup are discussed in this report. Appendix A contains site photographs, Sample Plans, and Laboratory Reports. Appendix B contains the Independent Remedial Action Report Summary. Appendix C contains the UST Site Check/Site Assessment Checklist.

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BACKGROUND

The property is located at 13117 N.E. Hwy. 99, Vancouver, Washington. Past and current uses of this subject site include gasoline fuel sold to the public, and a Trail Mart food store. Photo 1, page A1 shows the site prior to decommissioning the UST's. With the 1996 replacement of the UST system, diesel fuel is now being dispensed for the first time.

A topographic Vicinity Map is included in Appendix A, page A7. On that map the subject property is located in the southeast quarter of the northwest quarter, of Section 26; T3N, R1E, of the Willamette Meridian. The local topography suggests that first occurring groundwater gradient is in a southeasterly direction toward Salmon Creek. Local geology is alluvium overlying basalt rock. The alluvium consists of silt and sand layers extending far below the groundwater table.

The old UST system was decommissioned during February 1996. A new slightly relocated system has been installed during March 1996. The old UST system consisted of three fuel dispensers and three UST's (T1, T2, and T3). Refer to Photo 2, page A1, and Sample Plan 1, page A8 for a layout of the old UST system and the locations of soil samples 1 through 4.

Specifics of the old UST system include the following:

Tank T1 - A 6,000 gallon single walled steel tank containing Super Unleaded gasoline. Refer to Photograph 4, page A2.

Tank T2 - A 10,000 gallon single walled steel tank containing Unleaded gasoline. Refer to Photograph 8, page A4.

Tank T3 - A 6,000 gallon single walled steel tank containing Unleaded Plus gasoline. Refer to Photograph 6, page A3.

Although the three tanks and associated piping were observed to be in good condition, a release of petroleum impacting soil and groundwater was subsequently discovered. A discussion of the investigation and cleanup activities is presented later in this report.

In summary, the petroleum release was immediately reported to DOE. We found no preferential pathways for migration. We found no immediate threat to public safety or environment. Our investigation suggests the release is confined to the subject property, as explained below.

UST SITE CHECK/SITE ASSESSMENT CHECKLIST

A 30 Day Decommissioning Notice of Intent was previously submitted to DOE by Western Stations. Within Appendix C we have include the UST Site Check/Site Assessment Checklist. The form is self explanatory.

The tank contents were completely removed from the UST's by the Owner, transported to other facilities, and sold to the public. There were no residual sludges encountered. The steel tanks and associated piping were crushed by Montgomery Development Co. and transported to Schnitzer Steel Products Co. in Portland, Oregon for recycling. Three receipts, dated March 29, 1996, are attached in Appendix C.

SITE INSPECTION/ROUTINE SOIL CLEANUP

This section discusses in chronological order the field activities which occurred during the routine cleanup. For expediency and cost effectiveness, the Site Inspection was performed during the Cleanup.

On **February 21, 1996**, Montgomery Development Co. began decommissioning the three UST's and related piping at the subject site. Montgomery Development Co. was under contract with Western Station, the UST owner.

On the same date, Ms. Cathy Demcheck, a licensed Washington Site Assessor, arrived at the site to observe the decommissioning of the UST system. Ms. Demcheck observed petroleum stained soil and petroleum odors surrounding the filler tube of tank T1. Ms. Demcheck collected soil sample 1 from beside the filler tube of tank T1 at 1 1/2 feet below ground surface (BGS).

During collection, soil sample 1 was placed in a 9 ounce jar, uniquely numbered with a Chain of Custody form, and placed on ice for same day delivery to the laboratory. This procedure was typical of all subsequent sampling.

Later the same day, soil samples 2, 3, and 4 were collected from 3 feet below ground surface (BGS) beside the filler necks of tanks T1, T2, and T3. Petroleum stained soil continued at tank T1 and was also observed at tank T2. No release of petroleum was observed around the filler tube of tank T3. The release of petroleum discovered around the filler necks of tank T1 and T2 appear to be isolated from each other, and therefore, separate incidents.

We directed the laboratory to run multiple tests on soil samples 1 through 4, in order to characterize the discovered contamination. The laboratory performed WTPH-HCID tests on all four samples, and detected gasoline only at tanks T1 and T2. The result for tank T3 was "Not-Detected". Where gasoline was detected, samples were then submitted to WTPH-G test procedure and the results varied between 4,330 ppm and 8,370 ppm. These concentrations exceed the Washington DOE Soil Cleanup Limit of 100 ppm by Method A. Thus, soil removal and treatment was necessary.

Soil sample 1 was also analyzed for Flash Point, because the thermal treatment facility required the test in order to accept the contaminated soil. The Flash Point result was acceptable to TPS, a thermal treatment facility located in Portland, Oregon.

For the convenience of the reader we have summarized the laboratory test results for soil samples 1 through 4 and all subsequent soil sample test results in Table 1, page 5. Specific soil sample locations and detailed laboratory reports are presented in Appendix A, pages A8 through A15.

On **February 21, 1996** Mr. Montgomery, with Montgomery Development Co., excavated to the tops of the three UST's. Refer to Photograph 3, page A2. He also expose the 2-inch steel product and vent lines. We observed that tanks and lines appeared to be in good condition. We observed no corrosion holes or significant rust in either tanks or lines. On this date and subsequent dates of contaminated soil removal, Mr. Montgomery separated contaminated soil from clean soil. The contaminated soil was temporarily stockpiled on-site until trucks arrived to transport to TPS for thermal treatment and disposal.

On **February 23,1996** Ms. Demcheck returned to the site to supervise the excavation of the UST's from the tank cavity. Mr. Montgomery excavated contaminated soil from around the filler tube end of tank T1 prior to removing the tank. After the tank was excavated, additional contaminated soil was excavated from the tank pit sidewalls and floor to a depth of 12 feet BGS. Ms. Demcheck

Table 1 - Laboratory Test Results for Soil Samples
Astro #607 - Trail Mart, Vancouver, WA

Sample	Date	Location	HCID	WTPH-G	Other
				---ppm---	
1	02/21/96	T1 filler tube @ 1.5' BGS	G	4330	Flash Pt.
2	02/21/96	T3 filler neck	ND		
3	"	T2 filler neck	G	7200	
4	"	T1 filler neck	G	8370	
5	02/23/96	E wall @ 9' BGS	ND	ND	
6	"	T1, south end @ 12' BGS	ND	ND	
7	"	T1, south wall @ 9' BGS	ND	ND	
8	02/26/96	NE end of T1 @ 12' BGS		ND	
9	"	T2, south end @ 12' BGS	ND	ND	
10	"	T2, south end @ 12' BGS		ND	
11	"	S wall T2 @ 10' BGG		ND	
12	"	S wall T3 @ 10' BGS		ND	
13	"	W wall @ 10' BGS	ND	ND	
14	"	Fuel island 9' from W end @ 8' BGS	G	10600	
15	"	Dispenser #3 @ 2' BGS		ND	
16	"	Duplicate - not run		ND	
17	"	T2, north end @ 12' BGS		ND	
18	"	T3, north end @ 12' BGS	G	288	
19	"	N wall between T1 and T2 @ 9' BGS		ND	
20	"	N wall between T2 and T3 @ 9' BGS		ND	
21	02/28/96	N wall of fuel island @ 5' BGS		ND	
22	"	T3, N end @ 20' BGS		ND	
24	"	Fuel island bottom @ 14' BGS		27	
25	"	W end fuel island @ 8'		1260	
26	"	N wall fuel island @ 6' 8"		ND	
27	03/14/96	MW1 @ 20' BGS		ND	
28	"	B1 @ 10'		ND	
29	"	B1 @ 15'		ND	
30	"	B1 @ 20'		ND	
31	"	B1 @ 25'		ND	
DOE Cleanup Limit for Method A				100	

Notes:

* "ND" means "Not-Detected"
* "G" means gasoline
* "ppm" means parts per million
* RED indicates results above DEQ action limits

Soil samples 5, 6, and 7 were submitted to the laboratory. The same day the laboratory analyzed each for WTPH-HCID, and WTPH-G. In each and every test, the laboratory result was "Not-Detected". Based upon field observations and laboratory test results, the contaminated soil associated with the release at tank T1 is believed to be adequately excavated per DOE requirements.

On this date, 325.36 tons of contaminated soil were hauled to TPS in Portland, Oregon. TPS thermally treated and disposed of the soil. A receipt from TPS indicating dates and quantities of contaminated soil received is attached on page A39.

On **February 26, 1996** Ms. Demcheck returned to the site to continue supervision of the UST decommissioning. Mr. Montgomery excavated contaminated soil from the sides of tank T2, prior to removal of tanks T2 and T3. Discolored contaminated soil was observed on the tank pit floor and excavation sidewalls following the removal of these tanks. Refer to Photograph 7, page A4. The contaminated soil consisted of fine silty sand, and was excavated prior to collecting soil samples.

Ms. Demcheck collected soil samples 8, 9, 10, 17, and 18 directly beneath the bottoms of the UST's. Locations of these samples are shown on Sample Plan 3, page A22. All soil from the floor of the excavation appeared clean, except at sample 18, the north end of tank T3. At this location petroleum contamination appeared to extend up the sidewall toward the fuel island. We subsequently discovered that the source of this contamination was in fact a release beneath a dispenser at the east end of the fuel island. All of these soil samples were submitted to the laboratory for WTPH-G analysis. The laboratory reported "Not-Detected" in each sample except sample 18. The laboratory reported 288 ppm of hydrocarbons within sample 18. This sample was also subjected to HCID analysis and the laboratory reported "gasoline only".

On this same date, Ms. Demcheck collected confirmatory soil samples from the sidewalls of the tank excavation. Soil samples 11 and 12 were collected from the south sidewall at a depth of 10 feet BGS, while samples 19 and 20 were collected from the north sidewall at a depth of 9 feet BGS. As before, all four samples were submitted to the laboratory for WTPH-G testing. The laboratory reported "Not-Detected" in each of the four samples.

Mr. Montgomery then began to excavate contaminated soil from the fuel island area. The excavation extended to a depth of 8 feet below the eastern portion of the fuel island. Ms. Demcheck collects sample 14 at that depth and submitted it to the laboratory for analysis. The WTPH-G test resulted in 10,600 ppm hydrocarbons. At the western end of the fuel island there did not appear to be any significant contamination. Sample 15 was collected at a depth of 2 feet BGS

and the laboratory WTPH-G test result was "Not-Detected". Refer to Photograph 9, page A5.

On this date, 269.26 tons of contaminated soil were excavated and hauled off-site to TPS for thermal treatment and disposal.

On **February 28, 1996**, Ms. Demcheck returned to the site to oversee the continued excavation of gasoline contaminated soil in the vicinity of the fuel island and the north end of tank T3.

During the afternoon Ms. Demcheck began collecting soil samples from the sidewalls and floor of the excavation. As before, locations for soil sampling were determined on the basis of potential residual contamination and general area coverage. Refer to Sample Plan 4, page A25, for specific locations of soil and water samples collected this date. On Sample Plan 4, the full and final extent of the soil excavation is outlined.

Soil samples 21, 25, and 26 were collected from the north wall of the fuel island excavation at depths of 5 to 8 feet BGS. The laboratory test results for WTPH-G were "Not-Detected" for samples 21 and 26, but 1,260 ppm for sample 25. Soil sample 24 was collected from the bottom of the fuel island excavation at a depth of 14 feet BGS. The WTPH-G test result was 27 ppm, which is below the DOE Action Limit of 100 ppm.

The area immediately south of the fuel island and west of tank T3 was excavated to provide the trackhoe a platform below the ground surface in order to excavate contaminated soil to 20 feet BGS in the vicinity of sample 22. This platform area did not contain any contaminated soil. Its sole purpose was to assist the trackhoe operator in his ability to provide a more thorough removal of contaminated soil.

Adjacent to the trackhoe platform, contaminated soil extended all the way to groundwater as noted above. Soil sample 22 was collected at the soil/water interface at a depth of 20 feet BGS. The WTPH-G test result was "Not-Detected", indicating the full vertical extent of contaminated soil had been delineated. Refer to Photograph 10, page A5.

By the end of the day, **one pocket of contaminated soil remained** on the north wall of the excavation, directly behind soil sample 25. The extent of sidewall contaminated soil was approximately 5 feet east-west by 10 feet vertically between 3 feet BGS and 13 feet BGS. Refer to Photograph 11, page A6. The contaminated soil in this sidewall was left in-place because of the difficulty in removing the soil given its close proximity to underground building utilities. We

also observed that the vertical extent of residual contamination was entirely above the soil/water interface. The northerly extent of this pocket of contamination was determined by drilling boring B1 on March 14, 1996 as discussed below.

On February 28, 1996, 220.63 tons of contaminated soil were excavated and hauled off-site to TPS for thermal treatment and disposal. The excavation was then completely backfilled with clean imported soil, except for the location of where the new UST system was to be installed.

On **March 14, 1996** we returned to the site with a drill rig in order to investigate the northerly extent of the residual pocket of contamination. Boring B1 was drilled approximately 10 feet north of the excavation sidewall where a pocket of contaminated soil remained. Refer to the Groundwater Gradient Map, page A30, for the location of B1. In this boring, a hollow stem auger was utilized with standard penetration sampler to explore the subsurface. At shallow depths the auger bit was drilled into the soil and retracted. This technique allowed us to remove cuttings from the auger flight and visually check for soil staining and petroleum odors. None were observed. At 5 foot increments, beginning at 10 feet BGS to 25 feet BGS, individual soil samples were collected and submitted to the laboratory for WTPH-G tests. The laboratory reported "Not-Detected" for each of the four soil samples, 28 through 31. Based upon our field observations and subsurface investigation, we believe the residual contaminated soil occupies a volume of 11 cubic yards. Assuming a concentration of 1,260 ppm (per sample 25), we estimate the maximum residual volume of gasoline at approximately 2.7 gallons.

GROUNDWATER CLEANUP

As stated above, groundwater was encountered within the tank excavation on February 28, 1996 at a depth of 20 feet BGS. Water sample 23, was collected from the pit water and analyzed for BTEX, EDB/EDC, WTPH-G, and Total Lead. The sample was found contaminated with gasoline and various constituents above DOE Groundwater Action Limits for the following tests; WTPH-G; BTEX; EDB; EDC; and Total Lead. A summary of the laboratory analysis for this and subsequent water samples is provided in Table 2, page 10. Individual laboratory report and Chain of Custody are provided on pages A26 through A29.

For safety reasons, the excavation was backfilled the same day. We returned on **March 14, 1996** and set Monitor Well 1 (MW1) in the location of the pit water, where sample 23 had been collected. Upgradient Monitor Well 2 (MW2) and downgradient Monitor Well 3 (MW3) were also set on this date. MW2 is located west of the former tank pit and MW3 is located north of the tank pit. On **March 15, 1996**, we drilled and set downgradient Monitor Well 4 (MW4). It is located east of the tank pit. Refer to the Groundwater Gradient Map, page A30, for locations of the monitor wells.

On **March 20, 1996** we returned to the site to measure static water levels in Monitor Wells 1, 2, 3, and 4; and collected a water sample from each well. The water samples were submitted to the laboratory for BTEX analysis and the laboratory reported "Not-Detected" in MW2 and MW3. MW1 contained all BTEX compounds with Benzene and Xylenes above DOE Groundwater Action Limits. MW4 did not contain any BTEX compounds except Toluene, which was below DOE Groundwater Action Limits. These results are summarized in Table 2, page 10.

On March 20, 1996 the depth from ground surface to the static water level of groundwater was measured in each of the four wells. The wells were also surveyed so that the elevations of the static water levels could be calculated. We then plotted this information on the Groundwater Gradient Map, page A30. The groundwater gradient was determined to be 45° east of due south at a slope of 0.2%. In computing this analysis the static water level at MW1 was ignored, since it was located within the disturbed zone of the tank excavation. MW2 through MW4 are all outside of the excavation. If MW1 had been included in the gradient analysis, the gradient would tend to be more of an easterly direction.

Between April 9 and April 25, 1996 a submersible pump was placed within MW1 to allow withdrawal of contaminated water. Between these two dates, a total of 2,800 gallons of groundwater was withdrawn and placed into a poly holding tank.

Table 2 - Contaminant Concentrations in Groundwater
Astro #607 - Trail Mart, Vancouver WA

Location/ Collection Date	B	T	E	X	Total Lead	EDB/EDC
	parts per billion (ppb)				ppb	ppb
Tank Pit (at MW1) Sample 23 - 02/28/96	1330	6810	2110	9120	59	61/19.7
MW1 1st Event - 03/20/96	21	4.9	0.9	81		
MW2 1st Event - 03/20/96	ND	ND	ND	ND		
MW3 1st Event - 03/20/96	ND	ND	ND	ND		
MW4 1st Event - 03/20/96	ND	1	ND	ND		
DOE Groundwater Limits	5	40	30	20	5	1/5

Notes:

* RED Indicates result is above DOE groundwater action limit
* "ND" means "Not-Deteoted" or below DOE reporting limits

Table 3 - Static Water Levels (SWL) of Groundwater in Feet
Astro #607 - Trail Mart, Vancouver WA

Location and Physical Data		Date	Measured Depth to SWL	Calc. SWL Elevation	Rise+/Fall - Between Events
MW1					
Top of Casing Elevation	198.76	03/20/96	15.59	183.17	--
Well Bottom Elevation	168.78				
Depth of Well	29.98				
MW2					
Top of Casing Elevation	199.07	03/20/96	15.85	183.22	--
Well Bottom Elevation	169.88				
Depth of Well	29.19				
MW3					
Top of Casing Elevation	198.53	03/20/96	15.36	183.17	--
Well Bottom Elevation	169.05				
Depth of Well	29.48				
MW4					
Top of Casing Elevation	198.42	03/20/96	15.31	183.11	--
Well Bottom Elevation	169.00				
Depth of Well	29.42				

Notes:

* Assumed elevation of 200.00 feet at entrance door threshold to Trail Mart store.
* RED indicates current event's data

On **April 26, 1996**, another water sample was collected from MW1. As before, this sample was submitted to the laboratory for multiple testing procedures. The laboratory reported "Not-Detected" for the following tests: WTPH-G; EDB; Total Lead; and all BTEX constituents. The laboratory did however detected EDC at 31.5 ppb. This level is above the DOE Groundwater Action Limit of 5 ppb per Method A.

On **May 2, 1996** a pumper truck from Cowlitz Clean Sweep (CCS) of Longview, Washington arrived at the site and removed the 2,800 gallons of contaminated water from the holding tank. CCS then properly disposed of the water at their off-site facility. A receipt from CCS is attached on page A40.

CONTAMINATED SOIL DISPOSAL

Between February 23 and 28, 1996 a total of 815.25 tons of contaminated soil was excavated from the tank pit and the fuel dispenser areas. The contaminated soil was hauled off-site. It was thermally treated and properly disposed at the TPS treatment facility, which is located in Portland, Oregon. Refer to page A39 for a TPS Disposal Summary. By the end of the day on February 28, 1996, no contaminated soil remained on-site. The excavation was backfilled with clean imported material.

CONCLUSIONS

Based upon the cleanup activities which occurred between February 21, 1996 and May 2, 1996, we find:

* The source of the petroleum release appeared to be from independent releases via gasoline spillage at the filler tubes of tanks T1 and T2, and a gasoline leak from the fuel dispenser at the west end of the fuel island.

* Type of release was characterized by the laboratory. In all three instances the initial soil samples (samples 1, 3, and 14) were characterized as "gasoline only" via WTPH-HCID test procedure. In each instance, the WTPH-G result exceeded the DOE Soil Action Limit via Method A.

* Contaminated soil was exhumed to the full extent required by DOE Method A beneath the release points at tanks T1 and T2. Almost all of the contaminated soil was exhumed beneath the fuel dispenser at the west end of the fuel island. The vertical limit of contamination beneath tank T1 was 12 feet BGS. Soil samples 6 and 8 confirmed this limit. The vertical limit of contamination beneath tank T2 was also 12 feet, with samples 9 and 17 confirming this limit. The

vertical limit of soil contamination beneath the fuel dispenser was 14 feet BGS. Sample 24 confirmed this limit, however, this release extended to groundwater at 17 feet BGS.

* Residual contaminated soil - One pocket of gasoline contaminated soil was left in-place. Based on field observations and multiple laboratory test results, the maximum concentration of residual petroleum detected in the soil is 1,260 ppm. This level is above the DOE maximum limit of 100 ppm via Method A. We estimate a total of 11 cubic yards of contaminated soil remains at a depth between 6 and 14 feet BGS. The actual product volume is estimated at 2.7 gallons.

* Groundwater contaminated with gasoline was encountered at a depth of 20 feet BGS during the soil cleanup activities. Rather than pumping pit water, a recovery well (MW1) was installed, and 2,800 gallons of groundwater was withdrawn. Recharging groundwater was sampled (sample 36) and tested. Recharging groundwater was found to be free of all DOE contaminants of concern, except for EDC at 31.5 ppb.

* All contaminated soil excavated from this site was hauled to TPS in Portland, Oregon for thermal treatment and proper disposal. A total of 815.25 tons was treated and properly disposed during February, 1996. No stockpiled contaminated soil remains on this site. Clean imported soil was used to backfill the excavation.

* The full extent of petroleum contamination in soil and groundwater has been investigated and defined. A residual pocket of contaminated soil was delineated by the excavation on the south side and boring B1 on the north side. Residual contamination in groundwater has been defined by sampling Monitor Wells 1 through 4, and analyzing those water samples and groundwater gradient direction. We have found no evidence of off-site migration.

RECOMMENDATIONS

Based upon the extent of investigation and cleanup activities performed by the UST Owner, we recommend no further action except for monitoring groundwater in Monitor Wells 1 through 4 during the next 90 days. At the end of 90 days, we believe it is appropriate to re-evaluate whether Western Stations has any further involvement or liability regarding any residual contaminants of concern.

Sincerely,

Cathy H. Demcheck
Washington Licensed Site Assessor

Reviewed by:

Robert D. Miller
President

Attachments

c: John Phimister, Western Stations

Photo 1 - North view of subject site prior to decommissioning UST's. Note the three fuel dispensers (02/21/96).

Photo 2 - West view of exposed tanks T1 (right), T2 (middle), T3 (buried on left) prior to excavation. Grey petroleum stained soil on right side of photo (02/21/96).

Photo 3 - Gray petroleum stained soil on south wall prior to excavation of tanks T1, T2, and T3 (02/23/96).

Photo 4 - View of tank T1 after excavation. The tank was found in good condition with no holes or pitting, and only minor rust (02/23/96).

Photo 5 - Brown colored native soil in floor of excavation at 12' BGS is "clean" per laboratory test results (02/23/96).

Photo 6 - View of tank T3 after excavation. Tank was in good condition with no holes or pitting, and only minor rust (02/23/96).

Photo 7 - Gray stained soil on floor of tank pit after removal of tank T3. Tank T2 is on right in photo (02/26/96).

Photo 8 - View of tank T2 after excavation. Tank appeared to be in good condition with only minor surface rust (02/26/96).

Photo 9 - Overhead view of west end of former fuel island excavated to 2' BGS. Note sample jar (#15) at collection point, where soil around sample is clean (02/26/96).

Photo 10 - Groundwater was encountered at 20' BGS in excavation. Note thin oily sheen on pit water surface. Brown soil in photo is clean (02/28/96).

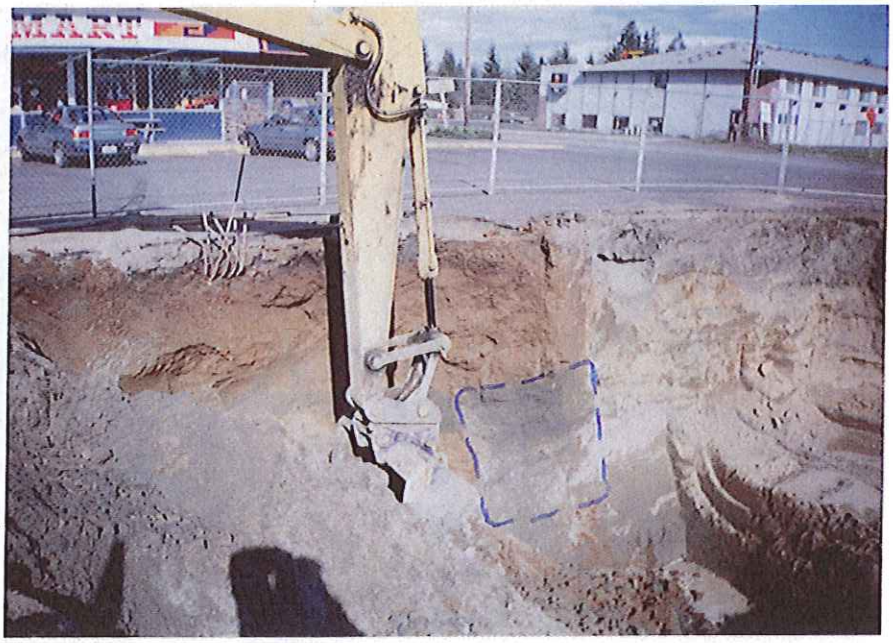
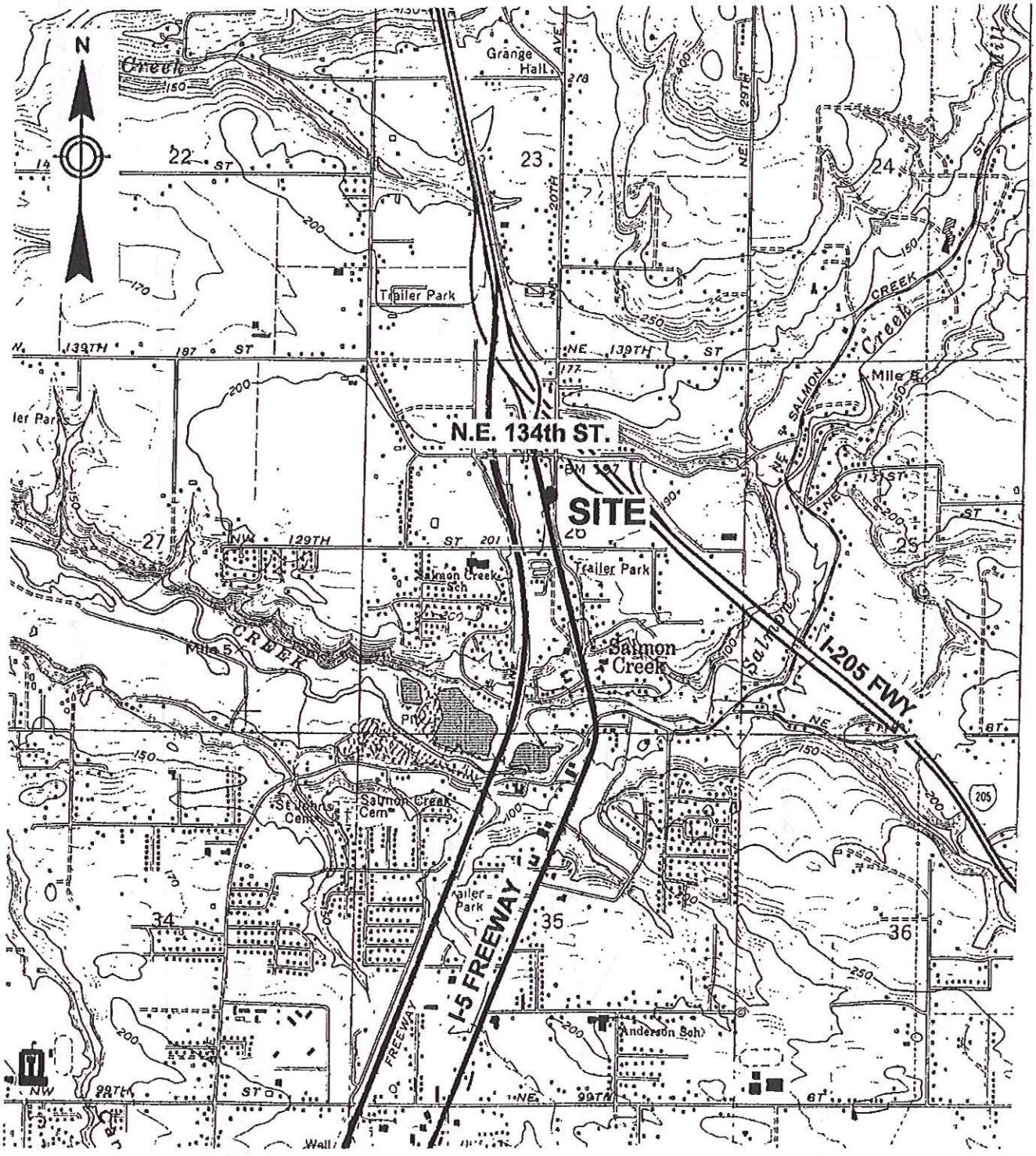
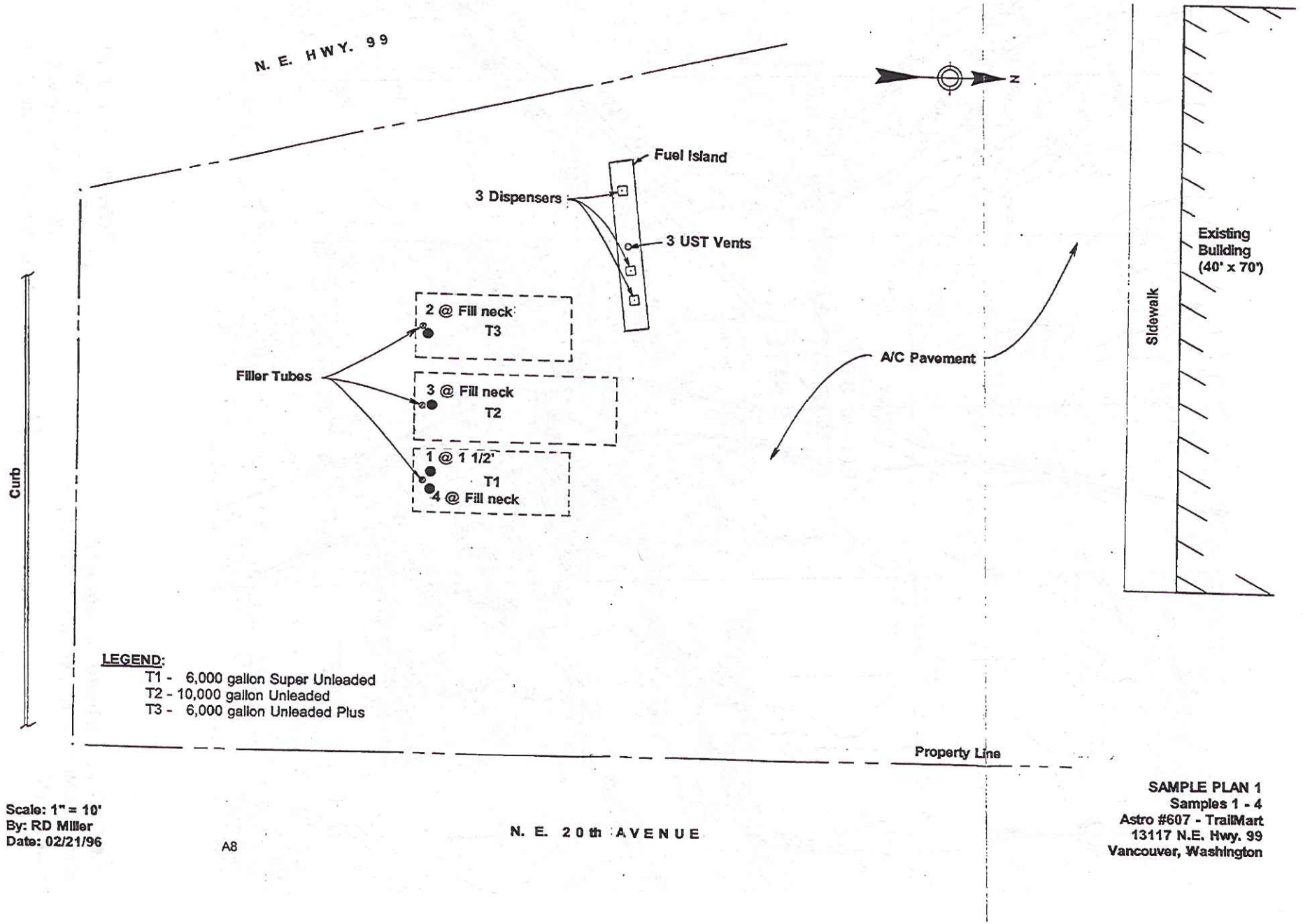


Photo 11 - View of north wall showing residual pocket of contamination from 6' to 13' BGS. Brown soil on top is "clean". Trail Mart is store behind excavation (02/28/96).



Ref: USGS 7.5 Minute Topographic Map, "VANCOUVER, WASH.-OREG.", dated 1978

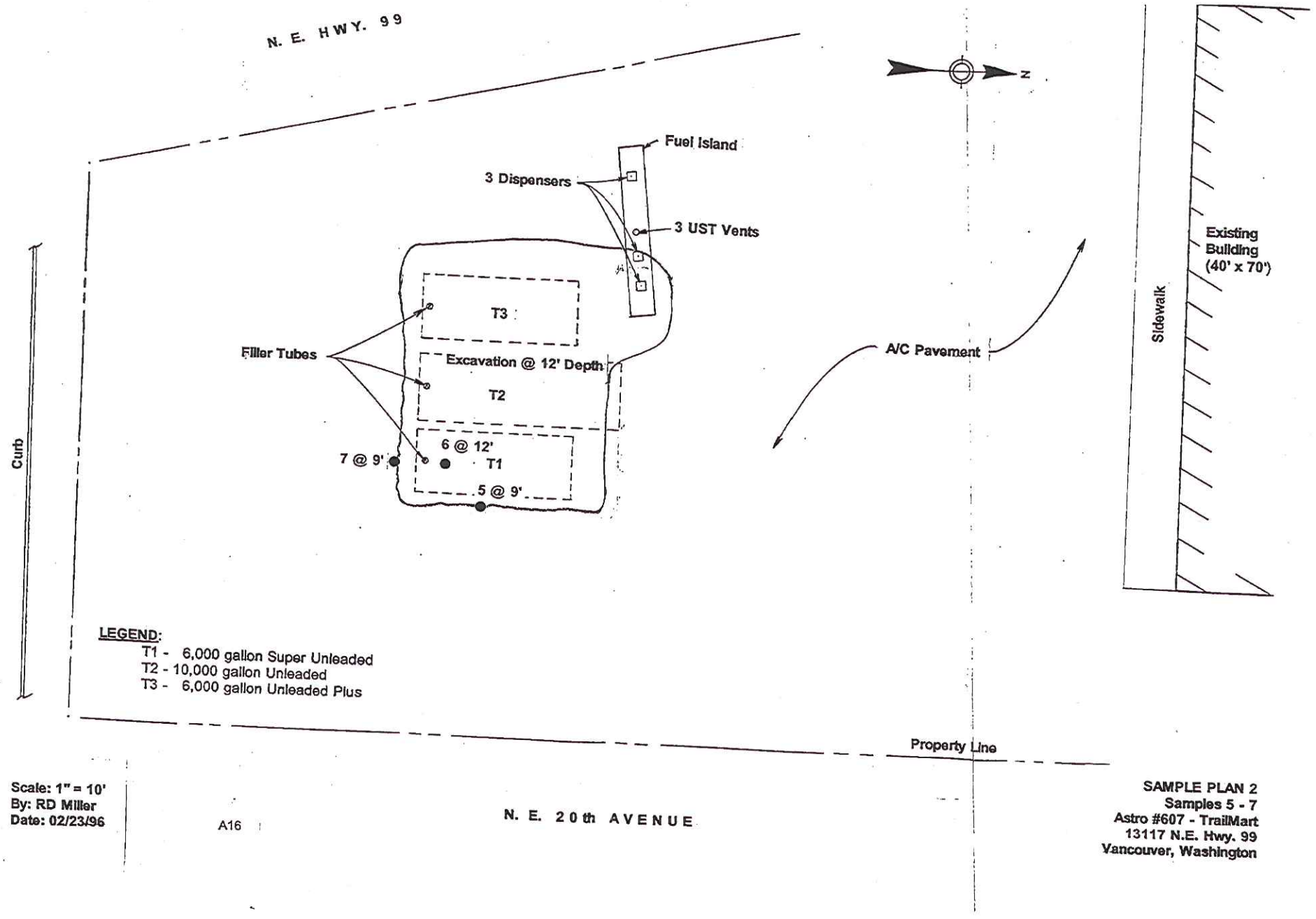
SITE VICINITY MAP
Astro #607 - Trail Mart
13117 N.E. Hyw. 99
Vancouver, Washington



Scale: 1" = 10'
By: RD Miller
Date: 02/21/96

A8

SAMPLE PLAN 1
Samples 1 - 4
Astro #607 - TrailMart
13117 N.E. Hwy. 99
Vancouver, Washington



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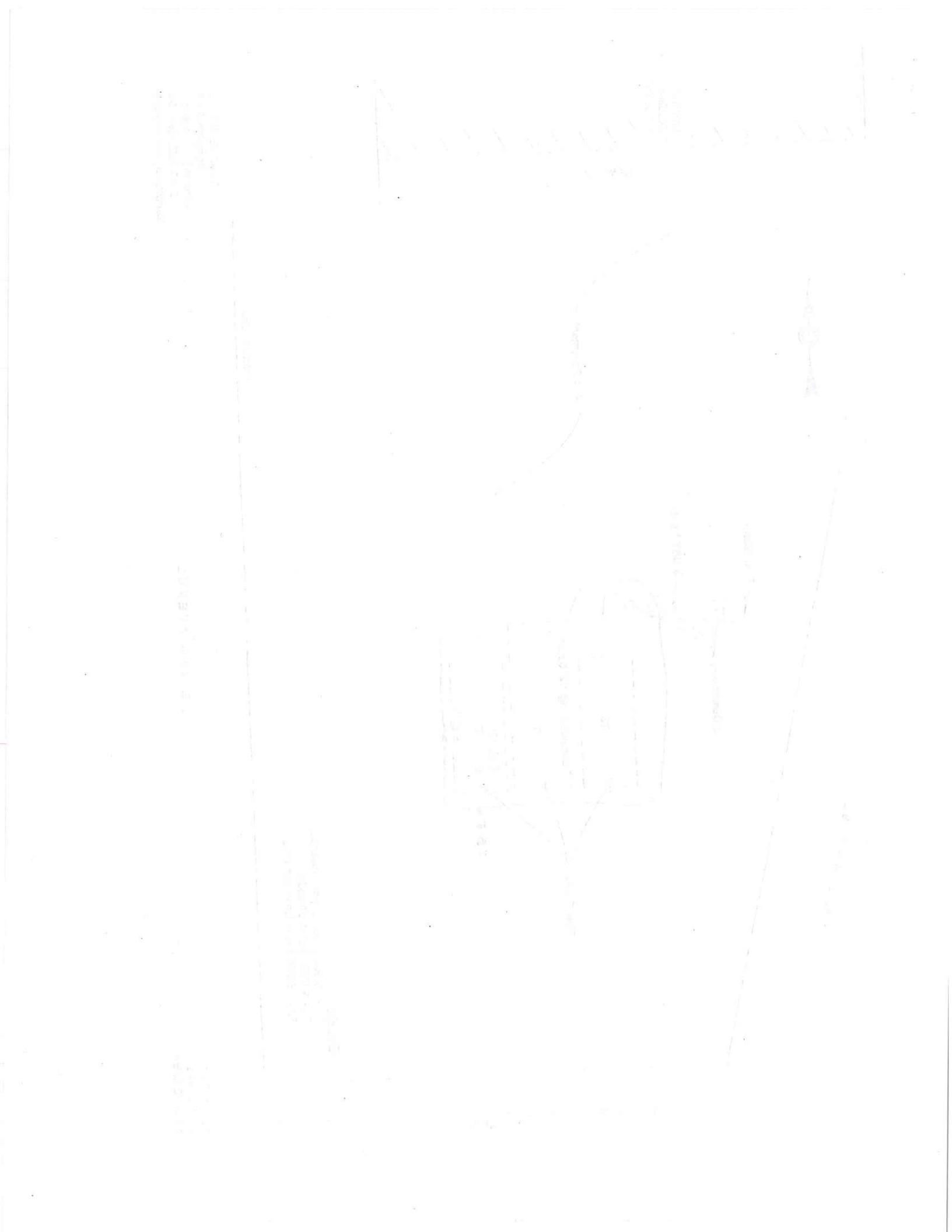
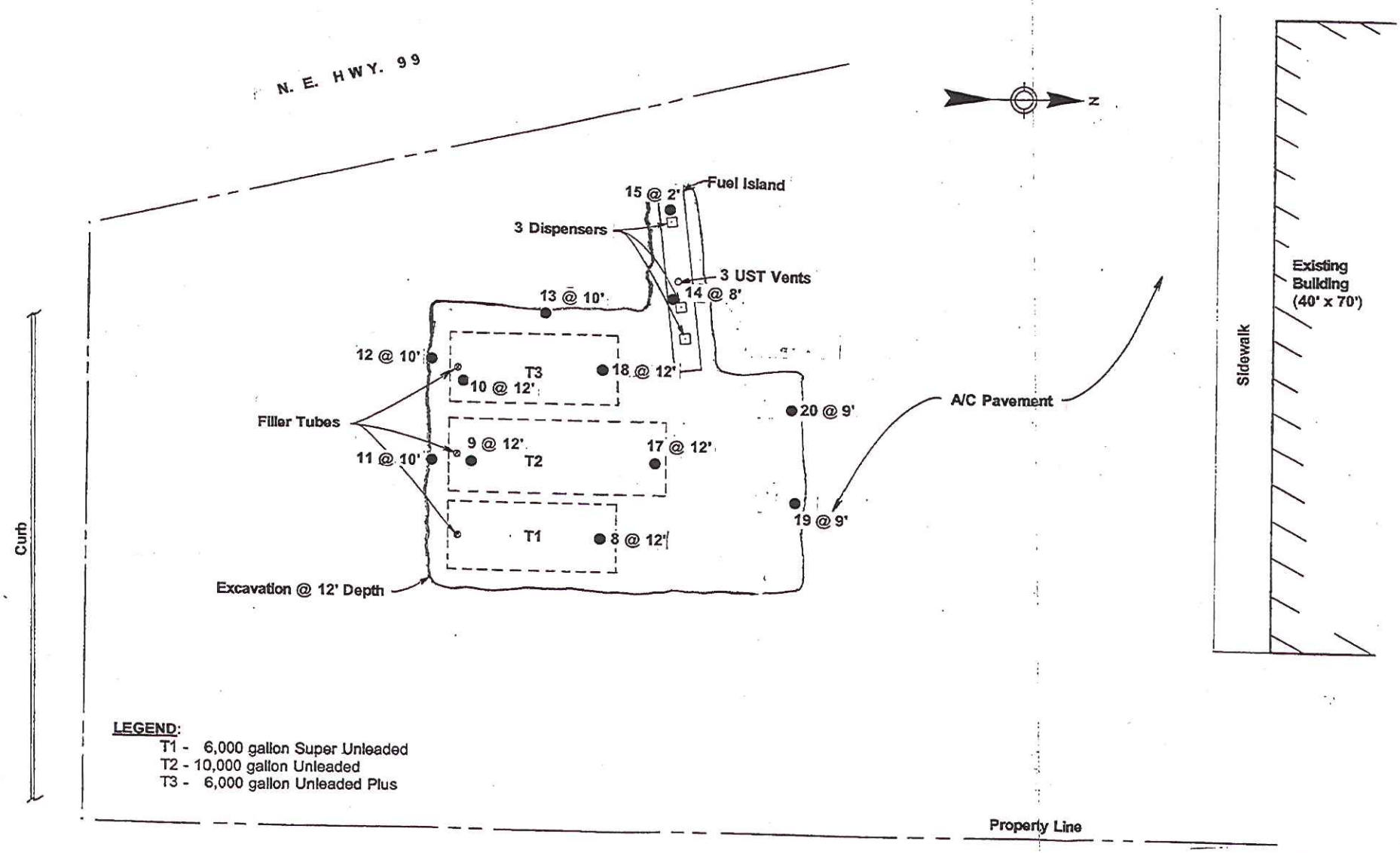
By: RD Miller
Date: 02/23/96

A16

SAMPLE PLAN 2
Samples 5 - 7
Astro #607 - TrailMart
13117 N.E. Hwy. 99
Vancouver, Washington





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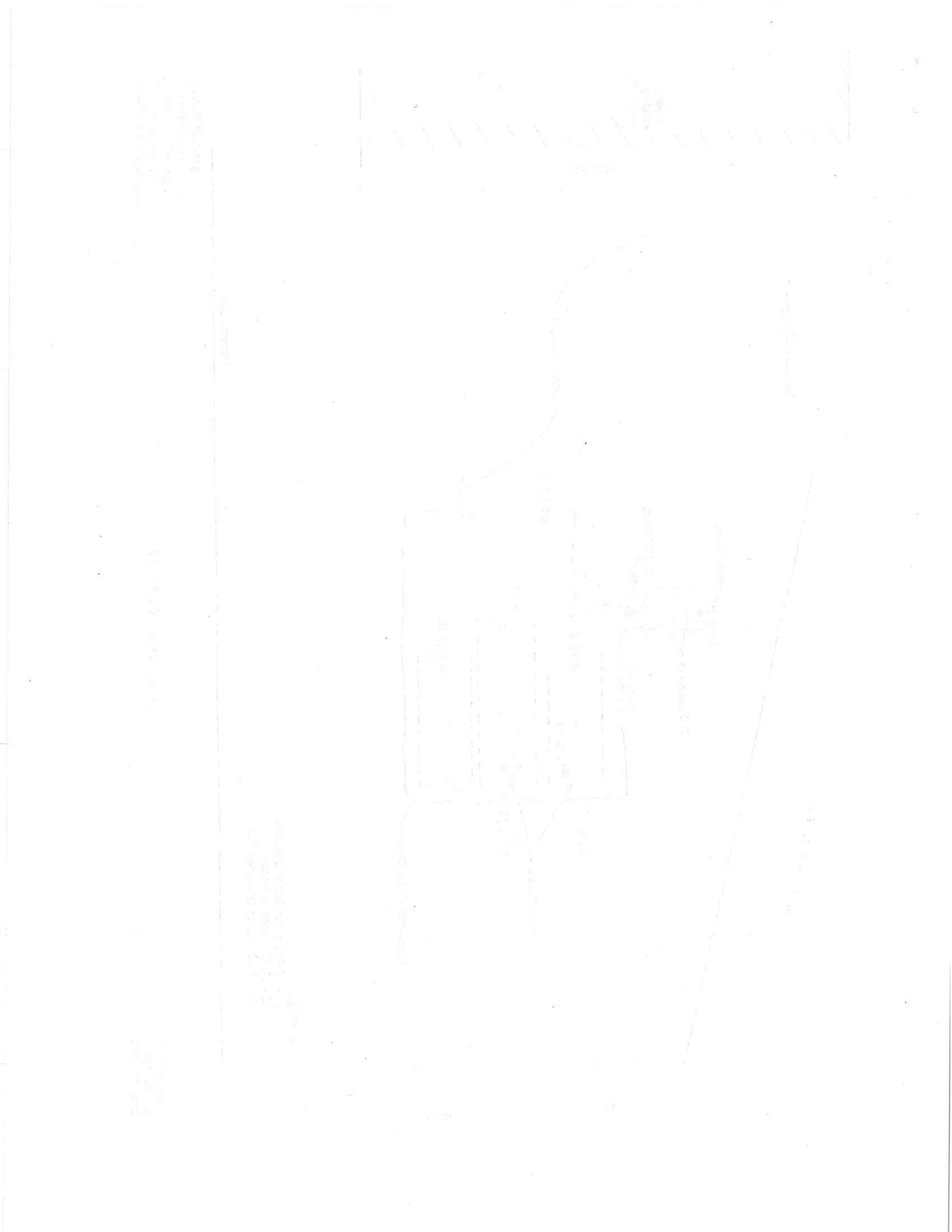
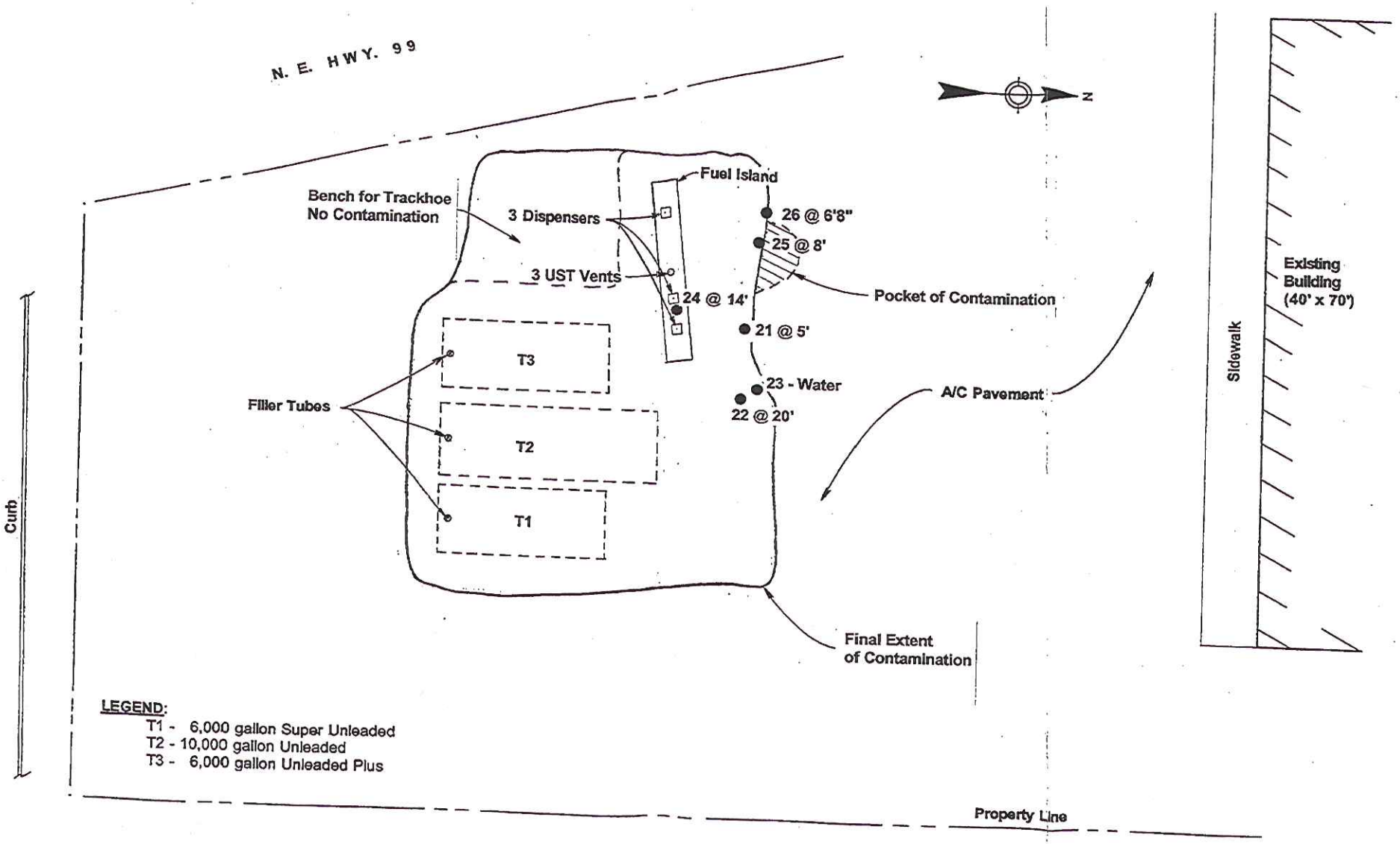
By: RD Miller
Date: 02/26/96

A22

SAMPLE PLAN 3
Samples 8 - 20
Astro #607 - TrailMart
13117 N.E. Hwy. 99
Vancouver, Washington

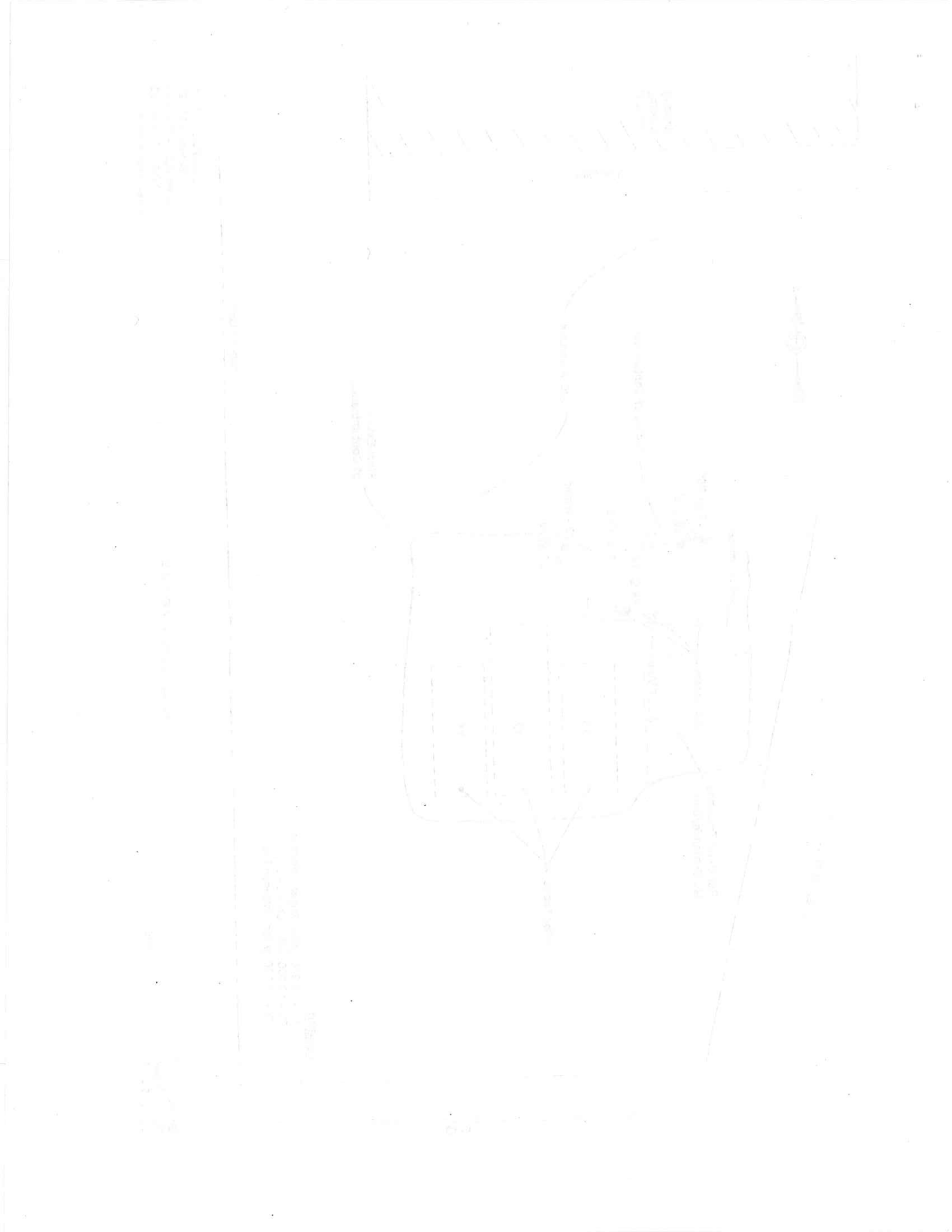


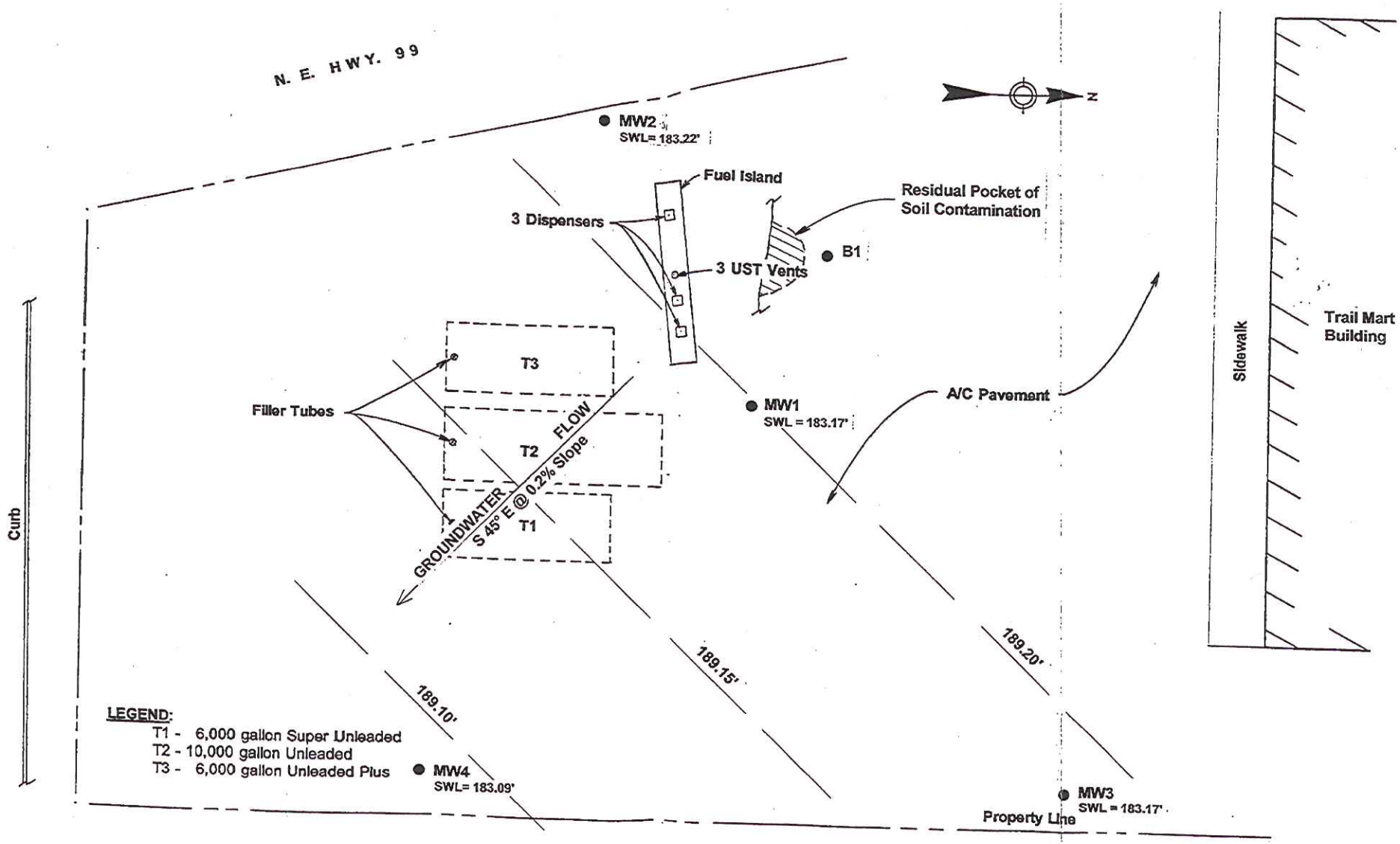


Scale: 1" = 10'
By: RD Miller
Date: 02/28/96

A25

SAMPLE PLAN 4
Samples 21- 26
Astro #607 - TrailMart
13117 N.E. Hwy. 99
Vancouver, Washington





Scale: 1" = 10'
By: RD Miller
Date: 03/20/96

A30

GROUNDWATER GRADIENT MAP
Astro #607 - TrailMart
13117 N.E. Hwy. 99
Vancouver, Washington