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MANCHESTER MOTORS
Manchester, Vermont

EXPANDED PHASE II ENVIRONMENTAL SITE ASSESSMENT
AUGUST 1992

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MANCHESTER MOTORS
Manchester, Vermont

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SUMMARY

1. In response to recommendations and concerns expressed by the Vermont Agency of Natural Resources and the Town of Manchester, we performed additional subsurface investigations of soils and groundwater at Manchester Motors during the spring and summer of 1992.

2. Total arsenic and chromium concentrations were determined in shallow soil samples throughout the property to evaluate impacts from a former tannery operation at the site. Concentrations of arsenic and chromium do not suggest significant contamination from this tannery. Although the levels of arsenic noted on the property are above published geometric means for uncontaminated soils in the Eastern United States, the levels are still within two geometric deviations of this geometric mean, and are not considered to be highly elevated. Concentrations of chromium in soils on the property are less than published geometric means for uncontaminated soils in the Eastern United States.

3. Seep sediment samples were collected at three locations along the northern property boundary of the site, coterminous with the right bank of the West Branch of the Battenkill River. No detectable volatile organic compounds were observed in these three soil samples, and in a duplicate sample for one of the seeps (seep #1). Concentrations of priority pollutant metals were also evaluated in soils at these seeps. Levels of antimony, beryllium, thallium, selenium, and silver were below the analytical method detection limits. Concentrations of arsenic, cadmium, chromium, lead, mercury, and nickel exceeded Policy Action Levels of 20 times the Groundwater Enforcement Standard at all 3 locations.

4. The concentrations of total metals in seep #3 are believed to be natural background levels, since this seep does not appear to have been impacted by solid waste refuse and waste oil deposit found on the property. The two remaining seeps (seep #1 and seep #2), which appear to be affected either by these waste oil deposits or by the solid waste refuse, show elevated levels of lead, zinc, cadmium, copper, and mercury.

5. Evaluation of groundwater samples (water samples) from seeps #1, #2, and #3 revealed no detectable volatile organic compounds from these seeps.

6. Groundwater seep #2 was evaluated for dissolved priority pollutant heavy metals (antimony, arsenic, beryllium, thallium, cadmium, chromium, copper, lead, nickel, mercury, selenium, silver, and zinc). Only dissolved mercury, with a concentration of 0.003 ppm, exceeded the Groundwater Enforcement Standard of 0.002 ppm.

7. A test pit excavated beneath the former locations of two above-ground storage tanks used to store waste oil on the property (near the southeast corner of the service garage), revealed petroleum contamination to a depth of approximately three feet below ground surface. The areal extent of contamination was approximately 25 square feet, but additional contamination may have extended onto the abutting property to the east. Laboratory analysis of soil from this test pit revealed aromatic hydrocarbons expected in petroleum constituents, and also revealed tetrachloroethene, a chlorinated organic solvent commonly used as a degreasing agent, at a level exceeding the Policy Action Level of 20 times the Groundwater Enforcement Standard.

8. Examination of three sets of air photographs (1941, 1948, and 1962) indicate that two or three buildings have been on the site since 1941, and that most of the fill surrounding the current two buildings on the property was likely in place prior to 1941.

   Four oblique photographs of the property, dated approximately 1915 and 1956, 1977 and 1986, provide additional history of land use of the property. In particular, comparison of the 1956 and 1986 photographs show the replacement of an old garage/storage building with a new steel building after addition of one to two feet of fill. The locations of the retail gasoline pump islands, and possible locations of tank fill curb boxes, are also provided on the 1956 and 1977 photographs.

9. Groundwater from Monitoring Well #MW-1B, located downgradient of the former site of the gasoline underground storage tanks, was re-sampled on May 18, 1992. Levels of aromatic hydrocarbons have decreased substantially since the original sample was obtained on January 20, 1992. However, Groundwater Enforcement Standards are still exceeded in this monitoring well.

10. A metal detector was used to thoroughly transect the site to search for an alleged 3,000-gallon underground storage tank. This instrument gave a very clear signal over the existing 2,000-gallon No. 2 fuel oil tank that serves the sales building, but did not detect any additional tanks or other large buried metal objects on the property.

11. Dufresne-Henry, Inc. recommended use of a magnetometer or ground penetrating radar to find large metal objects that might be located beneath the service garage. Hager-Richter Geoscience, Inc. does not recommend the use of ground penetrating radar on this property, as site conditions are not well suited to successful evaluation of the subsurface for buried metal objects. A magnetometer would not be effective in searching beneath the building pad due to the presence of rebar in the concrete slab.

12. During telephone interviews with a former employee of Manchester Motors, and with both a project manager and excavation contractor involved with construction of the service garage, we learned that some buried debris was found during construction of this building. A concrete slab, cistern, and other debris were removed, and clean fill was imported to the site before construction of the building slab. No person interviewed recalled seeing car bodies, drums, or underground tanks dumped, buried, or disposed of on the site, or exposed during excavations for the new building foundation.

13. During excavation of test pit TP-T at the top of the bank near the northwest corner of the service garage and a series of 9 additional test pits in the area, we observed a deposit of waste oil saturated soils impacting roughly 70 cubic yards of soil. Toxicity characteristic leachate procedure tests of this soil for semi-volatile organic compounds, volatile organic compounds, and heavy metals, indicated that the soil passed the characteristic of toxicity tests for all analyzed constituents with the possible exception of lead. Lead levels varied from 0.39 to 20.0 ppm, with an average concentration of 4.42 ppm. The maximum concentration permitted for lead to pass the characteristic of toxicity is 5.0 ppm.

RECOMMENDATIONS

Based on the facts, opinions, interviews, and data gathered during the Phase I, Phase II, and Expanded Phase II Environmental Site Assessments of the Manchester Motors site, we offer the following recommendations:

1. Remove and properly dispose of all soils impacted by disposal of waste oils on the bank of the West Branch of the Battenkill River, and impacted by releases from the above-ground waste oil tanks. Collect a composite sample of this material and perform a TCLP test for lead to establish whether the material requires disposal as a hazardous waste. If not, seek authorization for disposal in a licensed landfill as solid waste.

2. Remove and dispose of all visible surface refuse located to the north of the service garage. Then, consistent with construction plans for proposed future uses of the property, cover areas containing refuse with a minimum of two feet of clean fill, and stabilize this slope with vegetation. Complete removal of the solid waste refuse on this bank is not necessary, since our studies have not documented measurable impacts to the West Branch of the Battenkill.

3. Further subsurface investigations for buried tanks, drums, or other large metal objects are unnecessary, since a search for additional buried tanks has been performed. Interviews with Manchester Motors employees and personnel involved with construction of the service garage indicate that all debris beneath this building was removed prior to construction of the building slab.

4. Impacts to soils and groundwater have been documented from the former gasoline underground storage tanks on the property. We recommend that excavation not be performed in this area (except as necessary to remove asphalt). However, any excavations performed at or immediately downgradient to the former location of these tanks should include screening of soils with a photoionization detector (PID), and

segregation of all soils with PIDs greater than 20 ppm. Depending on the level of contamination of these soils, they may be treated offsite, landfarmed, landfilled, or handled as hazardous waste.

5. Impacts to groundwater in the immediate downgradient vicinity of the tanks have been documented. However, no impacts to the West Branch of the Battenkill River have been documented. We, therefore, recommend no action toward remediation of this groundwater, as there are no perceived receptors.

6. Asbestos-containing materials (ACM) may be present in the buildings. Our investigation did not screen for these materials. Prior to demolition or renovation of the property, the owner must notify the Environmental Protection Agency in accordance with 40 CFR Part 61, Subpart M (revised 11/20/90). The owner should also notify the Vermont Department of Health Asbestos Control Program according to the Vermont Regulations for Asbestos Control (VRAC). Lead-based paints may also have been used on surfaces of these buildings. This investigation did not screen for these materials.

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1.0 PROJECT HISTORY AND SCOPE OF THIS REPORT

Preliminary environmental site assessments were performed at the Manchester Motors site during a Phase I assessment performed by LaPrade Engineering in October of 1991, and during a Phase II environmental site assessment performed by Wagner, Heindel & Noyes, Inc. (WH&N) during the late winter of 1992. These documents were subsequently reviewed by personnel at the Hazardous Materials Management Division of the Agency of Natural Resources, and by engineering consultants for the Town of Manchester. The Town of Manchester is considering purchase of the Manchester Motors property at a future date to serve as a park. Review comments from the State and the Town's consultants were carefully considered in conducting further field investigations of this property. Each specific concern is identified in the following section, and the results of the field investigations are provided.

2.0 FINDINGS

Following release of our Phase II Environmental Site Assessment on March 13, 1992, we received written review comments in a letter dated April 6, 1992 from Sherri Kasten, Hazardous Materials Specialist, Sites Management Section, Hazardous Materials Management Division. A copy of the review letter is attached (Appendix 1, pages 1-4). In response to Sherri Kasten's review letter, WH&N outlined specific tasks that would provide additional information about the environmental status of the property (dated April 27, 1992; Appendix 1, pages 5-9). Sherri Kasten's letter dated May 1, 1992, provides sampling details, QA/QC requirements and recommends that air photographs of the site be consulted (Appendix 1, pages 10-11). In a letter to David Pendleton from Robert Woolmington dated April 20, 1992, concerns identified by Dufresne-Henry, Inc., consultants to the Town of Manchester are presented (Appendix 1, pages 12-13). Our responses to these concerns are

addressed in a letter to David Pendleton, dated May 7, 1992 (Appendix 1, pages 14-16). Additional correspondence from Dufresne-Henry, Inc. to Lee Krohn, Planning Director for the Town of Manchester, round out the Town's concerns (Appendix 1, pages 17-20).

Below is a description of each task identified in the letters listed above, followed by field and laboratory findings and conclusions.

2.1 Residual Arsenic and Chromium From Former Tannery Operations

To evaluate the distribution of arsenic and chromium in fill and native soils on the property, we collected shallow soil samples at six locations and analyzed composite samples from each shallow test pit for total arsenic and total chromium. The location of each test pit and resulting arsenic and chromium levels, evaluated in the laboratory, are provided on the map in Appendix 2, pages 1-2. Concentrations of these metals, and other metals analyzed in soils on the property are tabulated in Appendix 3 (pages 1-4). Supporting laboratory reports are also provided (Appendix 4, pages 1-4). Finally, test pit logs with brief descriptions of these soil horizons and photoionization detector (PID) levels are listed in Appendix 5 (pages 1-4).

Total arsenic levels in soils beneath the property vary in concentration from 2.6 to 13.7 parts per million (ppm; dry weight), with an average concentration of 7.79 ppm and a geometric mean of 7.23 ppm (n=14). The lowest concentration of arsenic was noted in TP-H, located at a low spot in the parking lot on the west side of the property, adjacent to the West Branch of the Battenkill River. The highest level of arsenic, 13.7 ppm, was observed in test pit TP-T, located at the top of the bank adjacent to the Battenkill River in soils saturated with waste oils. There is no obvious spatial trend in the concentrations of arsenic on the property.

Natural levels of metals in soils in the United States are reported in *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States, USGS Professional Paper 1270, 1984.* The geometric mean of arsenic in soil samples collected at 20 cm below ground surface in the Eastern United States is 4.8 ppm. A histogram provided with this document (page 18) indicates that about 9% of the samples analyzed for the study had arsenic levels greater than 10 ppm, so the results at the Manchester Motors site do not necessarily indicate contaminated conditions when compared to the regional mean.

Concentrations of chromium vary from a low of 1.33 ppm at SS-5, to a high of 33.0 ppm in TP-D, located in a refuse pile on the bank of the Battenkill River to the north of the service garage. The average concentration of chromium from 14 samples was 8.63 ppm, with a geometric mean of 6.55 ppm. A pattern of spatial variability of chromium is apparent on the property, with low levels observed on the west side of the property (west of SS-1), and higher levels noted on the east side of the property.

The published geometric mean (*Professional Paper 1270*) for chromium in the Eastern U.S. is 33 ppm, so the levels observed at the study site appear to be below the regional mean.

It is important to note that a statistically significant correlation does not exist ($r=0.25$) between the concentration of arsenic and the concentration of chromium at each of the 14 sampling locations. A significant correlation would be likely if these metals were derived from a common, manmade source, such as a tannery.

For further insights into the distribution of arsenic and chromium in soils on the site possibly originating from tannery and auto repair activities, we partitioned the soil sample results into three categories:

1. soil samples impacted by refuse or waste oil (TP-D, TP-M, & TP-T);

2. sediment samples taken below groundwater seeps (seep #1-soil, seep #2-soil, seep #3-soil); and,

3. shallow soil samples in areas apparently unaffected by refuse or waste oil (SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, TP-H).

Where duplicate samples were taken at a specific location, their results were averaged into a single value before the following statistical analyses were performed:

Category	Number of Samples	Range, ppm	Geometric Mean, ppm
1. **Refuse/Waste Oil**	3	Arsenic 8.06 - 13.7 Chromium 5.14 - 33.0	Arsenic 9.58 Chromium 12.49
2. Seep Sediments	3	Arsenic 7.70 - 11.7 Chromium 3.63 - 17.7	Arsenic 9.96 Chromium 7.43
3. Shallow Soil (Apparently Unaffected)	7	Arsenic 2.6 - 10.3 Chromium 1.33 - 12.0	Arsenic 5.61 Chromium 4.24
4. Eastern U.S. (USGS 1270)	approx. 600	Arsenic <0.1 - 73 Chromium 1 - 1,000	Arsenic 4.8 Chromium 33

Levels of arsenic and chromium in refuse and waste-oil impacted soils, and in seep sediments, are somewhat higher than those observed in shallow soils elsewhere at the site, but all levels are within two geometric deviations of published regional geometric means.

Toxicity characteristic leachate procedures (TCLP) were performed for arsenic and chromium (among other metals) on a soil sample from TP-T (3-4' bgs) (Appendix 4, page 5). At the detection limits for these metals (0.100 ppm for arsenic and 0.010 ppm for chromium), no detectable levels of these metals were found in the TCLP leachate.

To evaluate the mobility of arsenic, chromium and other heavy metals, we sampled and analyzed groundwater seep #2 (see map, Appendix 2, page 1 for location) for dissolved metals (laboratory results, Appendix 4, page 6). Concentrations of dissolved arsenic (0.010 ppm) and chromium (<0.010 ppm) are well below the Groundwater Enforcement Standards of 5.0 ppm for both metals.

2.2 Seep Sediment Samples

As requested by the ANR, we collected samples of sediments immediately below three groundwater seeps located along the bank of the Battenkill River, near the northern property boundary for the site. The locations of seeps #1, #2, and #3 are shown on the accompanying map (Appendix 2, page 3). Total levels of priority pollutant metals are provided on this map and are also tabulated in Appendix 3 (table, pages 1-4). Laboratory results of a duplicate soil sample from seep #1 are

also provided in the table in Appendix 3. Laboratory reports are also provided (Appendix 4, page 4).

Using EPA Method 8240 to screen for volatile organic compounds in these soils, no detectable organic compounds were noted in any of the seep soil samples, including the duplicate sample at seep #1. A soil trip blank consisting of silica pool filter sand also showed no detectable volatile organic compounds using EPA Method 8240.

Each seep soil sample was also analyzed for total Vermont Priority Pollutant metals: antimony, beryllium, thallium, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc (table, Appendix 3, pages 1-4; laboratory reports, Appendix 4, page 4). The levels of antimony, beryllium, thallium, selenium and silver are below the method detection limit for each of the seep soil samples (see table, Appendix 3 for method detection limits). Policy action levels of 20 times the Groundwater Enforcement Standard have been used by the Agency of Natural Resources in the past in evaluating "acceptable" levels of chemicals in soils. The table in Appendix 3 shows the Groundwater Enforcement Standard and 20 times this standard, in order to compare the field results with the policy action levels.

Soil samples have been evaluated for priority pollutant metals at five locations on the Manchester Motors site: TP-M (0.6' bgs), TP-T (3'-4' bgs), seep #1-soil, seep #2-soil, seep #3-soil. In addition, a duplicate sample of the seep #1-soil results in a total number of six analyses for priority pollutant metals in soil. The policy action level of 20 times the Groundwater Enforcement Standard is exceeded for arsenic, cadmium, chromium, lead, mercury, and nickel at <u>all</u> locations, with one exception (at seep #1-soil, mercury is <0.133 ppm). (No published Groundwater Enforcement Standard for copper was found.) These results suggest either a widespread, fairly uniform level of contamination with heavy metals throughout the site, or the natural levels of these metals exceed the policy action level. If natural levels of these metals are elevated above the policy action level, this would be best determined by analysis of a background sample not affected by any anthropogenic activities. Unfortunately, the small size of the subject parcel, the village setting, and the long historical use of the site prohibits the collection of a background soil sample that can be considered completely unimpacted by human activities on the site.

Among the five locations where soils were analyzed for priority pollutant heavy metals, groundwater seep #3-soil is most likely to characterize the levels of these metals in the natural environment. This seep, located to the west of waste oil

deposits and solid waste refuse near the service garage, may be relatively unimpacted by human use of the site.

Under the assumption that soils below seep #3 reveal natural levels of heavy metals, the following metals appear to be elevated at other portions of the site when compared with this sample:

lead: TP-M (0.6 ft bgs), TP-T (3-4 ft bgs), seep #1-soil, seep #1-soil duplicate, seep #2-soil

zinc: TP-M (0.6 ft bgs), TP-T (3-4 ft bgs), seep #1-soil duplicate, seep #2-soil

cadmium: TP-T (3-4 ft bgs), seep #2-soil

copper: TP-T (3-4 ft bgs), seep #2-soil

mercury: seep #2-soil

All soil samples listed above are either located within the waste oil and refuse contaminant sites near the service garage, or appear to be downgradient of these sites.

2.3 Groundwater Seeps

Groundwater samples collected on May 18, 1992 from seeps #1, #2, and #3 were analyzed for volatile organic compounds using EPA Method 8240. Results are attached (table, Appendix 3, page 7; laboratory results, Appendix 4, pages 7-22). A duplicate sample and trip blank are provided. No detectable organic compounds were observed in the groundwater at seep #1 and seep #3, while groundwater from seep #2 showed trace levels (less than 5 ppb) of 1,2 dichlorobenzene. The Groundwater Enforcement Standard for this compound is 620 ppb.

Only groundwater seep #2 yielded sufficient volumes of water to permit analyses for dissolved priority pollutant heavy metals. The laboratory report showing the results of these analyses is provided in Appendix 4, page 6. With the exception of dissolved arsenic, lead, and mercury, all other metals (antimony, beryllium, thallium, cadmium, chromium, copper, nickel, selenium, silver, and zinc) were below the method detection

limits for the analyses. These method detection limits are well below Groundwater Enforcement Standards.

Levels of dissolved arsenic, lead, and mercury were above the method detection limit. The results are tabulated below, with Groundwater Enforcement Standards shown.

Dissolved Metals Concentrations in Groundwater Collected from Seep #2 May 18, 1992

Chemical Parameter	Concentration (ppm)	Groundwater Enforcement Standard (ppm)
Dissolved Arsenic	0.010	0.050
Dissolved Lead	0.008	0.020
Dissolved Mercury	0.003	0.002

Only mercury is slightly elevated above the Groundwater Enforcement Standard at this seep.

2.4 Subsurface Investigation Beneath the Above-ground Waste Oil Tanks

In early May of 1992, the two 250-gallon waste oil tanks located near the southeast corner of the service garage were emptied of their contents and removed from the property by Jim Shippee of James H. Shippee Welding, Vernon, Vermont.

On May 18, 1992, two test pits were excavated near the former locations of these tanks, to determine the degree of subsurface impacts from release of petroleum products. Test pit TP-L was located 10 to 15 feet north of the former locations of the tank, adjacent to the east side of the service garage. A shallow test pit excavated to 1.8 feet below ground surface (ft bgs) revealed no signs of oil staining, or elevated Microtip readings. A soil sample collected from this pit (SS-5) was evaluated for arsenic and chromium, and revealed low levels of these metals, when compared to other concentrations determined throughout the site.

A second test pit, TP-M, was excavated directly beneath the former location of the above-ground waste oil tanks. Some surface oil staining was visible on the ground at this spot. Black oily sandy gravels with boulders were noted from the ground surface

to a depth of approximately 1.5 ft bgs, with elevated PID[1] readings of as high as 25.1, measured in an enclosed zip-lock bag. Some visual evidence of contamination appeared to a depth of 3.0 ft bgs. Soils below 3.0 ft appeared clean, and registered low PID readings in a ziplock bag (0.7). The visible areal extent of contamination was approximately 25 ft^2, but additional contamination was observed on the east side of this test pit and appears to extend beneath the asphalt surface on the abutting property to the east. (We did not have permission to extend our investigation onto this property.)

Laboratory analysis of soil from 0.6 ft bgs in TP-M, for EPA Method 8240 volatile organics revealed 1,2-dichlorobenzene, ethylbenzene, tetrachloroethene, toluene, and xylenes (Appendix 4, pages 24-25). The concentration of tetrachloroethene (177 ppb) exceeds the policy action level of 20 times the Groundwater Enforcement Standard for this compound (20 x 0.7 = 14 ppb).

2.5 Air Photographs

In response to Sherri Kasten's recommendation in her letter dated May 1, 1992, we attempted to locate as many historic photographs, including air photographs, of the Manchester Motors site as we could. We examined these photographs to determine the historic land uses of the property, especially the sequence and timing of the addition of fill to the site. While many flights provide coverage of the Manchester Motors site, the small scale of the property makes analysis of any photographs with scales smaller than 1:10,000 difficult, since individual buildings cannot be distinguished.

Below is a summary of observations of the Manchester Motors parcel following review of aerial photographs.

1. 1941 Photograph, Bennington Soil Conservation Services (SCS) office: On this photo, two buildings can clearly be seen in approximately the same location as the two buildings that are currently on the site. A third small building may possibly be located in the treeline at the top of the bank on the northwest edge of the site. The existence of both buildings implies that fill has been added to the property, with the same approximate dimensions as the fill currently on the site.

[1] PIDs measured with a Photovac Microtip with a 10.6 eV lamp, calibrated to benzene equivalents using a 100-ppm isobutylene standard.

2. 1948 Photograph, Bennington SCS office: This photo clearly shows three buildings on the property, two in the locations of the existing buildings on the site, and a third in the northwest corner of the property. This third building extends into the large parking lot currently on the site.

3. May 11, 1962 Photograph, University of Vermont collection, scale 1:6,000: This photograph shows only two buildings on the property, with a large number of parked cars around each building. There appears to be no fence or other barrier between the Manchester Motors property and the abutting property to the east, where the Royal Dragon Chinese Restaurant is currently located.

There is no evidence of recent filling on any of the three aerial photographs discussed above. From inquiries with local residents, we were able to locate four additional historic photographs of the Manchester Motors property. Photocopies of these photographs are attached (Appendix 6, pages 1-4), and their contents are described below:

1. The oldest photograph, from approximately 1950, shows a view of the original Manchester Motors sales and body shop building in the background (with the curved roof line), and a wood frame building housing the Manchester Farm Machinery Company in the foreground. This building is likely the "third" building observed in the 1942 and 1948 air photographs of the site, located near the northwest corner of the property. From the photographs, it is evident that farm implements were sold at the site. It's possible that the repair of farm implements was also performed upon the property, although there is no direct evidence of this service.

2. The photo dated approximately 1956 shows three buildings on the site: the Manchester Farm Machinery Company building in the left foreground, the Manchester Motors sales and service building in the right foreground, and a third building, at the rear of the lot where the service garage is presently located. (This building is hereafter referred to as the "north building.") A fueling island with three fuel pumps is also visible on the right side of the photograph. There is faint evidence of three flush-mounted filler caps located just northwest of this fuel pump island. Likely these caps serve underground storage tanks buried at this location.

There is a notable downward slope of the ground surface from the back of the sales and service building to the north building. Later photographs, and the current conditions at the site, show no appreciable slope between the sales building and the new service building, so it is likely that 1 to 2 feet of additional fill were brought to the site when the north building was later replaced with the large metal service garage that now rests on the property.

3. The oblique aerial photograph, dated approximately 1977, shows that the Manchester Farm Machinery Company building was no longer present on the site on that date. The old north building is still in place. There is free passage for the movement of cars and pedestrians between the Manchester Motors property and the abutting property to the east.

4. The most recent oblique aerial photograph, dated approximately 1986, shows the replacement of the north building with the new steel service garage at the rear of the lot. Access to the abutting property to the east is no longer available across the property line. A small wing (offices) has been added at the southeast corner of the front sales and service building. This photograph shows construction barriers and an unpaved Route 11/30. Obviously, the photo was taken during the widening of this State highway, and was probably taken not long after the removal of the fuel pump island and associated underground storage tanks.

2.6 Re-sampling of Groundwater from MW-1B

Dufresne-Henry, Inc. acting as consulting engineers to the Town of Manchester, recommended re-sampling of the monitoring well located downgradient of the former site of the gasoline underground storage tanks (letter from Robert E. Woolmington, dated April 20, 1992, in Appendix 1, pages 12 to 13).

We collected an additional groundwater sample on May 18, 1992, and evaluated it for purgeable aromatic compounds using EPA Method 602. The results are provided in Appendix 4, page 23. Results for both sampling and analysis rounds for this groundwater monitoring well are tabulated below:

Chemical Parameter	Concentration (ppb) January 20, 1992	Concentration (ppb) May 18, 1992
benzene	55	ND[1]
ethylbenzene	3,490	1,540
toluene	1,360	487
xylenes	16,800	9,500

[1] None detected.

The significant reduction in concentrations of aromatic hydrocarbons over a relatively short period of time in MW-1B may be associated with local affects on the aquifer during the installation of the well. It is possible that soils with fairly high levels of hydrocarbons were dragged down to lower depths in the borehole during installation of the well. During later sampling of this well, sufficient volumes of groundwater had passed through the borehole to flush out these "residual" contaminants, introduced into the well from the unsaturated zone.

Groundwater emanating from the seeps noted from the right bank of the Battenkill River provide excellence sampling portals for analysis of groundwater quality beneath the Manchester Motors site as a whole. As was previously reported, no detectable concentrations of volatile organic hydrocarbons were noted (with the exception of less than 5 ppb 1,2 dichlorobenzene in seep #2). These results strongly suggest that any releases from the former gasoline underground storage tanks on the property are not having measurable impacts to the West Branch of the Battenkill River.

2.7 Search for Alleged 3,000-Gallon Tank

Concern was raised in Mr. Woolmington's letter dated April 20, 1992 that a reported 3,000-gallon underground storage tank, that was recorded in State UST files, might still be located on the property. To search for this reported tank we used a Heli-Flux Magnetic Locator, Model #GA-52B, manufactured by Schonstedt Instrument Company, to search for underground buried metal objects. We tested the sensitivity of this instrument at the site by locating the existing 2000-gallon No. 2 fuel oil tank that serves the sales building. The instrument gave a very clear signal over this tank, permitting us to not only locate the tank, but also to determine its orientation and approximate dimensions.

A search was conducted of the site with the Heli-Flux metal detector by criss-crossing the property on transects on 10-foot centers, oriented both parallel and perpendicular to Route 11/30. At three locations on the property, faint signals of buried metal objects were observed, and exploratory test pits were excavated (TP-R, TP-S, and TP-T). No tanks or large buried metals objects were noted at any of these three locations. (It is likely that small metallic objects near the ground surface were detected by the instrument.) Since a 3,000-gallon tank would have a long dimension of nearly 10 feet, we conclude that there are no large buried metal tanks on the site, with the exception of the active 2,000-gallon No. 2 fuel oil tank serving the sales and body shop.

2.8 Subsurface Investigation Beneath Service Garage

Dufresne-Henry, Inc. also recommended a "broader assessment of subsurface conditions at this site" employing ground penetrating radar (GPR) or magnetometry (letter to Lee Krohn, dated July 23, 1992). These techniques are recommended to find larger metal objects such as nested drums or underground storage tanks.

Our search for the reported 3,000-gallon underground storage tank was conducted with a metal detector that uses very similar geophysical principals as a magnetometer, as discussed in Section 7.0; no buried tanks were observed, and all areas with positive signatures were further investigated by excavation.

Dufresne-Henry, Inc. requested that geophysical methods be employed to screen for buried metal objects directly beneath the rear building (the service garage). Magnetometry would not work for this investigation, since the presence of reinforcing steel in the concrete slabs of the building would not permit detection of metallic objects below this slab.

To evaluate the applicability of ground penetrating radar in searching for metal objects beneath the surface garage, we contacted Hager-Richter Geoscience Inc., in Salem, New Hampshire, and discussed site specifics with Dorothy Richter, Principal. After we described the soil conditions at the property, and the structure and building materials of the service garage, Ms. Richter explained that GPR is affected by metal objects, which can cause interferences with the receiving antenna. In addition, GPR is best suited to dry sandy soils, while clay and heavy tills will attenuate the radar signal. Cobbles and boulders will also reflect the radar signal. She explained that the use of a lower frequency antenna might permit scanning for materials located below

the reinforced concrete slab, but that in many cases it is not possible to "see" below a steel reinforced slab. This difficulty, coupled with the abundant cobbles and boulders noted in numerous test pit excavations at the property, makes the probability of success of a subsurface search with GPR very low.

We have concluded that further investigation of fill beneath the service garage slab is not necessary. During our investigation, we evaluated the toxicity of refuse located just north of the service garage (and closer to the receiving waters, the Battenkill River), and found, after TCLP analyses, that leachable concentrations of heavy metals are below maximum concentrations of contaminants for the characteristic of toxicity[2]. In addition, EPA Method 8240 analysis of this refuse for total volatile organic hydrocarbons revealed only low levels of total xylenes (62.0 ppb), a concentration that is less than the Groundwater Enforcement Standard for these compounds (ES = 400 ppb). Moreover, analysis of a downgradient groundwater seep (seep #2) for dissolved heavy metals and volatile organic compounds showed no detectable organic compounds, and no exceedances of Groundwater Enforcement Standards for these metals, with the exception of a slightly elevated level of mercury (0.003 ppm observed, as compared with a Groundwater Enforcement Standards of 0.002 ppm).

We conclude that the presence of this refuse is having no measurable impact on the West Branch of the Battenkill River, and that, with suitable coverage and stabilization of this refuse to prevent human contact (Recommendation #2), there should be no reason to entirely remove this refuse. Should the Town establish a park at the site at a later date, and remove the service garage, it will be possible to leave the reinforced concrete slab in place, and cover the slab with clean fill and topsoil to support vegetation.

We have conducted telephone interviews (on August 13-18, 1992) with Frank Thompson, Parts Superintendent at Manchester Motors for 21 years (1968-1989), with Bruce Potekhen, Project Manager with The Rutland Group, Inc. who managed construction of the service garage, and with David Chaves of Londonderry, excavating contractor during installation of the foundation for this building. From these interviews we learned the following:

- The service garage was erected at the former site of a "pole-barn" style building that was used as a body shop and warehousing facility. A concrete slab was

2 State of Vermont Hazardous Waste Management Regulations, 1991; Table 1, pages 25-28.

installed beneath the west half of the building, where the body shop had been located. A car lift was provided.

- The old building, including the concrete slab, and a cistern (possibly associated with the hydraulics of the car lift) were removed entirely before the new building was constructed. Removal of these structures is described in correspondence between The Rutland Group and Brook Nelson (in Appendix 7, pages 1-4). Included are change order documents for removal of the slab and cistern, and dump fees for disposal of debris generated from the old building.

- Bruce Potekhen recalled having to over-excavate portions of the east side of the building site to remove debris. After over-excavation and filling with clean structural sands, no refuse remained beneath the slab of the new building.

- Frost walls are provided around the perimeter of the new building, so soil or debris beneath the walls of this building would have been removed.

- No one interviewed recalled seeing car bodies, drums, or tanks dumped, buried or disposed on the building site, or exposed during excavations for the new building foundation.

2.9 Additional Findings

During the excavation of test pit TP-T at the top of the river bank, we observed a deposit of waste oil saturated soils from 3 to 4 feet below ground surface (the total depth of the test pit was 5 ft bgs). EPA Method 8240 analyses for total volatile organic compounds in soil from 3 to 4 ft bgs in TP-T showed 1,2-dichlorobenzene, ethylbenzene, toluene, xylenes, and a trace (<5 ppb) of benzene. The concentration of xylenes (68,900 ppb) exceeds the policy action levels of 20 times the Groundwater Enforcement Standard (20 x 400 ppb = 8,000 ppb) for this compound. Concentrations of all other compounds were below policy action levels. Nine additional test pits were excavated in this area to evaluate the approximate limits of this waste oil deposit, and to collect soil samples for laboratory analyses. The locations are provided on an enlarged map of this portion of the site (Appendix 2, page 8).

In our opinion, this waste oil deposit presents a distinct threat to the water quality of the West Branch of the Battenkill River, and requires removal. We have, therefore, thoroughly evaluated the toxicity of this waste oil deposit by conducting TCLP analyses of the waste oil saturated soils obtained from TP-T. All TCLP results are provided in Appendix 4, pages 28-32. The TCLP test results for volatiles (EPA Method 8240) and for semi-volatiles including PCBs (Method 8270) show that no detectable organic constituents are likely to leach from these soils, with the exception of 243 ppb total xylenes, and 1.19 ppb naphthalene. Table 1 (pages 25-28), listing Maximum Concentrations of Contaminants for the Characteristic of Toxicity (Vermont Hazardous Waste Management Regulations) provides no maximum concentrations of either xylenes or naphthalene. The Vermont Health Advisory Level for naphthalene in drinking water is 300 ppb, and the Health Advisory level for xylenes in drinking water is 400 ppb.

In addition, the waste oil contaminated soil sample from TP-T was analyzed for heavy metals after TCLP extraction (laboratory report in Appendix 4, page 33). Analyses for arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc showed that concentrations of these metals are below the maximum concentration listed in Table 1 with the exception of lead (copper is not listed in the table, but was below the detection limit of 0.010 ppm). The level of lead in this TCLP extract was 20.0 ppm, which exceeds the maximum concentration permitted for the characteristic of toxicity of 5.0 ppm.

Further TCLP analyses of composite soil samples within the waste oil contaminated profile of 5 additional test pits were evaluated for lead levels, to provide a sampling population of lead results within the waste oil deposit. Results are provided on a laboratory report (Appendix 4, page 34), and are also provided on a map of a portion of the site (Appendix 2, page 8). TCLP levels vary from 0.39 ppm to 8.87 ppm for the six analyses performed during the July 17, 1992 sampling round. The average TCLP lead level for these six samples is 4.42 ppm. Further composite samples of excavated waste oil saturated soil will be required to evaluate the average TCLP lead concentration of the waste oil deposit during removal. If these tests show exceedances of the TCLP lead characteristic of toxicity standard, the wastes will require treatment and disposal as hazardous wastes.

Although the downhill extent of the waste oil contamination has not been determined to date, we roughly estimate that a minimum of 70 cubic yards of soil contaminated by waste oil will require removal from the river bank. [RPT-MANCHESTER/DAG 6-25-92]

State of Vermont

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

Hazardous Materials Management Division
103 South Main Street
West Building
Waterbury, Vermont 05671-0404
(802) 244-8702

April 6, 1992

Mr. Dean Grover
Environmental Engineer
Wagner, Heindel, & Noyes, Inc.
P.O. Box 1629
Burlington, VT 05402-1629

RE: Manchester Motors, Manchester Center, Site #92-1192
Phase II Environmental Site Assessment, dated March 13, 1992

Dear Mr. Grover:

The Sites Management Section (SMS) has received and reviewed the above-mentioned report. Based on the information contained in this report, the SMS concurs with the following report conclusions:

- Groundwater contamination exists onsite and was detected in a sample collected from the only monitoring well installed. BTEX compounds were all present in concentrations exceeding Vermont Preventive Action Limits (PALs); all but toluene exceeded Maximum Contaminant Levels and Vermont enforcement standards;

- This groundwater contamination was detected near the locations of three former gasoline underground storage tanks (USTs);

- Some BTEX compounds were detected in soil samples collected from several locations on the property at depths of 4.6 to 7 feet;

- Elevated concentrations of inorganic elements were detected in soil samples collected from several locations around the property at depths of 2 to 8 feet. Cadmium, copper, lead, mercury, and zinc were detected at concentrations exceeding the U.S. average range for uncontaminated soils. Some of this contamination might date back to onsite tannery operations in the early 1900s;

- Groundwater in the overburden appears to discharge to the West Branch of the Battenkill River. Surface water samples collected from the river were not found to contain contaminants when analyzed with Method 8240.

- Bedrock is shallow beneath the site, ranging from 0 to 17 feet below the ground surface. Soil contamination exists just above bedrock in several locations, and there are bedrock outcrops in the vicinity of contaminated locations on the property;

- The above-ground waste oil tanks should be further assessed to determine the extent of soil contamination;

- Samples from onsite seeps should be collected and analyzed as a means of further assessing subsurface conditions at the site;

- Provisions should be made for proper handling and disposal of all spills and wastes generated onsite.

The following are comments with respect to specific sections of the report:

- Section 3.0: Although it seems likely that "contaminants released on the ground surface ... would readily migrate ... through the overburden and bedrock to the Battenkill River," additional investigation would be required before one could rely on such an assessment.

- Section 4.0: Due to the past use of the site as a tannery, all samples collected should be analyzed for inorganic elements as well as organic compounds. Analysis for total inorganics in soil samples is more helpful than is TCLP extraction for purposes of assessing risk from direct contact with the contaminated soils.

- Section 4.1: Dilution would likely make any contamination reaching the West Branch of the Battenkill River non-detectable in the fully-mixed stream. This probably would not apply, however, to the river sediments. The SMS recommends the collection of one upstream and at least two "downstream" sediment samples, the latter at current or former seep locations, to determine if contaminated groundwater is discharging into the river. In addition, how accessible is the river (and therefore the potentially-contaminated sediments) to children playing onsite? To people fishing? To any other recreational users of the river?

- Section 4.2: Was there any particular strategy for collecting the four chromium and arsenic soil samples, either regarding the depths or locations chosen? Although it is true that TCLP sample results did not exceed state regulations, the disposal of wastes likely occurred on the ground surface and the samples were collected from depths of between two and eight feet. It seems likely that samples collected from the upper six to 12 inches of the soil would contain

higher concentrations of contaminants. More samples will need to be collected to determine the extent of inorganic element contamination around the site.

In addition, the comparison made to the "natural ranges in soils" in the U.S. is not as helpful as if the comparisons were made to soils in Vermont. Mean concentrations of arsenic and nickel in soils in the eastern U.S. (as reported in U.S. Geological Survey Professional Paper 1270, dated 1984) as compared with the sample from location TP-D are: arsenic: 4.8 ± 2.56 ppm (vs. 8.06 ppm); and, nickel: 11 ± 2.64 ppm (vs. 26.4 ppm).

Using this comparison method, arsenic and nickel are present at elevated concentrations in onsite soils, in addition to the cadmium, copper, lead, mercury, and zinc contamination reported in the table on page 13 of the Phase II report. It would be preferable, however, to collect a background sample either from the site or from a nearby location, to use in comparison with the samples collected from the possibly contaminated locations, to determine whether or not the concentrations of inorganic elements in onsite soils are elevated.

- Section 6.0, part 1, item 9: Soil boring SB-3 appears to be upgradient of the dump area, so the fact that arsenic, chromium, and xylenes were not present in high concentrations is not very meaningful. Analyses of soil, groundwater, sediment, and/or seep samples collected from the north and east of the dump area would give a far better indication of the actual hazard posed.

- Section 6.0, part 2, item 1: It would be best to determine the extent of contamination onsite before concluding that remediation is not necessary. The SMS agrees that the seeps on the south bank of the West Branch of the Battenkill River should be sampled.

- Section 6.0, part 2, item 2: It would be advisable to reduce the capacity for direct contact from the dump area; however, this area appears to be very much in a flood plain. How stable would any cap be in such a place? Is waste removal an option? It seems premature to suggest a remedial plan before enough information has been gathered to adequately assess the site.

- Section 6.0, part 2, item 3: If evidence of serious soil contamination is found below the ground surface under the waste oil tanks, groundwater assessment should also be conducted at this location. Samples should be analyzed both for organic and inorganic contaminants, since both are constituents of waste oil. Presumably, the access problems mentioned in Section 4.1 will be remedied prior to any upcoming fieldwork.

- Attachment: Water table depth is not consistently reported. The well log reported groundwater at well MW-1 at 8 feet "immediately;" the site map, at 6.84 feet.

- Site Map: Where were the gasoline tanks located? The other tanks are on the map; however, the gas USTs are not. In addition, depths are not reported for test pits TP-A, TP-J, and TP-K, nor did I find this information elsewhere in the report.

A receptor assessment performed by the state indicates that the primary threats currently posed by the site appear to be to surface water and to onsite exposure. To address the latter concerns, the SMS requests additional information, including: How much of the site is paved? Where is the pavement? How accessible are contaminated surface soils to people/passers-by? What will the future use of the property be?

In addition to these questions, more information will need to be collected, as outlined in this letter, before decisions can be made regarding the extent of contamination present or the type or amount of remediation needed. If you have any questions, please feel free to contact me at 244-8702.

Sincerely,

Sherri Kasten
Hazardous Materials Specialist
Sites Management Section

cc: Ms. Christine Elias/LaPrade Engineering

Wagner, Heindel, and Noyes, Inc. consulting geologists
P.O. Box 1629 Burlington, Vermont 05402-1629 802-658-0820

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APR 2 7 1992

MAILED / FAXED / HD

April 27, 1992

Ms. Sherri Kasten
Hazardous Materials Specialist
Sites Management Section
Agency of Natural Resources
103 South Main Street
Waterbury, VT 05676-0404

Re: Manchester Motors
Manchester Center, Vermont
Site #92-1192
Review Letter Dated April 6, 1992 for Phase II Environmental Site Assessment

Dear Ms. Kasten:

Thank you for your timely review of the Phase II Environmental Site Assessment for the Manchester Motors site in Manchester Center, performed earlier this year by Wagner, Heindel, and Noyes, Inc. (WH&N). It appears that you agree with many of the observations and conclusions of our report, but seek additional details about the possible extent of contamination from previous tannery operations and automobile maintenance practices on the site. This letter and the accompanying site plan contain our proposal for additional samples to be collected at the site to satisfy your concerns. Our goal for this round of sample collection and analyses is to finalize the Phase II investigation of the site, and to provide to all parties adequate information to agree on a plan for remediation of the site in a timely, cost-effective manner.

Following is a list of responses to your review letter, with proposed field activities and laboratory analyses to provide the necessary additional information about the extent and degree of contamination at the site. The format of our list parallels the format of the second list in your April 6, 1992 letter.

1. Section 3.0: You refer to the following statement provided in our original report: "The relatively shallow and coarse nature of the overburden, coupled with the high conductivity of the fractured bedrock, suggests (emphasis added) that any contaminants released on the ground surface of the site would readily migrate to the water table,..." This is an inference about the hydrogeology of the site, based on our observations on the surface topography, proximity to the West Branch of the Battenkill River, and limited subsurface data. We agree

that additional investigation would be needed before we could fully rely on this assessment. Since this conclusion is not critical to the results of our assessment, we do not propose any further investigation at this time regarding this question.

2. Section 4.0: When the property was used as a tannery at the turn of the century, there was potential for disposal of arsenic and chromium (common inorganic elements involved in tanning processes) on the ground surface and in shallow soils at the site. However, a considerable amount of fill has been added to the site, since installation of the Manchester Motors facility. This is evident from the observation of buried A-horizons (topsoil) located 3 to 4 feet below ground surface in many of the test pits. Consequently, any contamination that may have been at or near the ground surface during operation of the tannery would now likely be buried at some depth below the surface. Many of our analyses for arsenic and chromium were collected below the original A-horizon, to check for elevated inorganic metals in these "original" soils. Because of the depth of our samples, our concerns related to groundwater contamination rather than direct contact, so the TCLP extraction procedure was more appropriate.

   We understand from your review letter that there is concern about health impacts from direct contact with contaminated soils at the site. To evaluate whether the soils, including fill, presently located at the ground surface are tainted by the deeper tannery residues, we propose to collect six additional shallow soil samples, each to be analyzed for total arsenic and chromium. At each of the six sampling stations located on the revised site plan (enclosed), we propose to collect a composite soil sample from a depth of 0 to 1.0 foot below either the ground surface or the bottom of asphalt (if in a paved area), to be analyzed for total arsenic and chromium.

3. Section 4.1: We concur with your suggestion to collect river sediment samples. Provided on the revised site plan are three locations for sediment samples, one located upstream of Manchester Motors, and two downstream and lateral to seep locations. These sediment samples will be analyzed for EPA Method 8240 organic constituents, and for total EPA Priority Pollutant Metals (13 metals).

   Regarding your question about potential accessibility of potentially-contaminated sediments to children, fisherman, and recreational river-users, the river bank on this property is quite steep and difficult to traverse, although someone determined to go down the bank could do so. Possible future plans for this parcel may include the establishment of a public park here. The park has not yet been designed, so we cannot speculate on whether it would include provisions for improved access to the river's edge. For general water safety reasons unrelated to the contamination history of the site, I imagine that river

access would not be provided, because there is no wide flat dry bench of land at the bottom of the steep bank. We are proposing a site visit with a representative from your office as part of the work plan approval process, at which time we could further evaluate this situation with you.

4. Section 4.2: Please refer to our responses for Section 4.0 to understand the strategy we used for collecting the four chromium and arsenic soil samples.

No doubt, comparisons made with natural averages of chemical concentrations in soils either in the entire U.S. or in soils in the Northeast may be misleading, since natural levels of metals in soils vary substantially from location to location. We had hoped to collect an uncontaminated background sample at the site to serve as control, but the prolonged history of human activity in the Manchester Village area made it virtually impossible to collect a sample that we could be assured was not affected by these activities.

It may be possible to collect a "background" soil sample on a similar stream terrace on the West Branch of the Battenkill River, at source location upstream of Manchester Village. Soil Conservation Service (SCS) maps could be used to choose a site with the same soil type as was originally found at the Manchester Motors site. This background sample would then be analyzed for total EPA priority pollutant metals, the same analysis that was performed for TP-D.

5. Section 6.0, Part 1, Item 9: We agree that soil boring SB-3 is likely located upgradient of most of the refuse encountered in test pits TP-D and TP-E; however, this boring was located at the northernmost access point for the hollow-stem auger drilling rig. We could drill no further north due to the presence of the river bank. Although the location of the original ground surface could not be identified in SB-3, it appeared from low blow counts (3 to 6 per 6 inches on the sampler) that we were in fill material. Our analyses of split-spoon samples from this boring were intended to evaluate the environmental status of this fill, and to identify any large releases of liquid petroleum fuels or solvents from the service garage.

As you suggest, we propose to collect additional sediment and seep samples from north and east of the dump area.

6. Section 6.0, Part 2, Item 1: We will collect samples of any seeps emanating along the south bank of the West Branch of the Battenkill River. These will be analyzed for EPA Method 8240 organic constituents, and priority pollutant metals (dissolved).

8

7. Section 6.0, Part 2, Item 2: We proposed a cap to minimize direct human exposure to the refuse on the site. A silt/clay cap could be protected from erosion with an overburden of successively coarser materials, culminating in boulder-size rip-rap. Waste removal is certainly an option on the site, but would likely only be economically viable if the wastes could be characterized as non-hazardous, and would be accepted as solid waste at a local landfill. Additional details about the remediation plan for the site can be formulated after further characterization of the dump area.

8. Section 6.0, Part 2, Item 3: We agree that extensive soil contamination by waste oil in the unsaturated zone, arising from the above-ground waste oil tanks, would raise concerns about groundwater quality, and may require an assessment of groundwater quality. However, it is important to keep in mind that both access restrictions and the shallow depth to bedrock would make evaluation of aquifer conditions very difficult at this site.

   We propose to empty and remove both waste oil tanks, perform test pit investigations beneath the former locations of the tanks, and screen these soils with a Photovac MicroTip. Any samples showing detectable levels of volatile organic compounds would be further analyzed in a laboratory for EPA Method 8240 organic compounds and for priority pollutant metals (total).

9. Attachment: You note that the water table depth is not consistently reported, with discrepancies noted between the well log and the site map. The water level recorded in the well log was an immediate estimation of the depth to the water table during installation of the well. Later, after the water level had equilibrated in the well, an accurate depth to the water table of 6.84 feet was obtained. This is confusing; in the future, we will report only the equilibrium water table measurements measure in the wells.

10. Site Map: We were unable to obtain specific information about the location of the gasoline tanks. However, the former approximate location of the gasoline pump islands is available, and has been added to the revised site map. We presume that the tanks were beneath or beside this island. Total depths of test pits TP-A, TP-J, and TP-K have also been added to the site map. The limits of pavement on the site are also indicated on the revised map.

11. Onsite Exposure: You have also asked about the accessibility of contaminated surface soils to people/passersby at the site. There are no fences or other manmade barriers to limit access to the site. The existing paved areas limit access to much of the surface soils of the property, but the pavement is old and heavily cracked in many locations, so the efficiency of this barrier is limited. The "dump area" is located below the top of a steep bank adjacent to the Battenkill River, and is not readily accessible to casual passersby.

The future use of the property has not yet been resolved. This site will likely either be a green space for the Village of Manchester, or will be converted to a commercial sales property, similar to the facilities located across Route 11/30. The fate of the property rests in the hands of the voters of the Village of Manchester.

If you agree with the additional field work and laboratory analyses proposed by this response to your review letter, we will expedite this work with your approval. If you would like to request any changes to our field or laboratory analysis plans, please contact us as soon as possible, either by telephone or during a meeting at the ANR in Waterbury. I would appreciate a call to discuss this matter after you have reviewed this letter.

Sincerely,

Dean A. Grover, P.E.
Environmental Engineer

DAG/tjr

cc: Christine Elias, LaPrade Engineering, Inc.
David Pendleton, Attorney for the Estate of Brook Nelson

[L-KASTEN/DAG 4/10/92]

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
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May 1, 1992

Mr. Dean Grover
Environmental Engineer
Wagner, Heindel, & Noyes, Inc.
P.O. Box 1629
Burlington, VT 05402-1629

RE: Manchester Motors (Site #92-1192)

Dear Mr. Grover:

Thank you for your letter of April 27, 1992; I appreciate your thorough response to mine of April 6. I understand that there is not an actual work plan for the upcoming investigation to be conducted at this property; tasks will be performed as outlined in your last letter. As we discussed in our telephone conversations this week, the Sites Management Section (SMS) concurs with the investigation as planned with the following additional comments:

- Air photographs, if available, would probably be helpful in identifying the extent of fill material on-site as well as past uses of the property (e.g.: locations of buildings and historic waste disposal).

- I understand that the asphalt is in poor condition and that the town is leaning toward converting the property into a park; therefore, the collection of shallow soil samples for total arsenic and chromium analyses from various locations around the property is warranted. If review of air photographs indicates little or no fill in this area, it seems to make sense to collect one shallow soil sample closer to Routes 11/30 than was proposed in your letter. Also, since this next phase of the investigation is not intended to be an exhaustive one, a single shallow sample should be sufficient near the dump area/old foundation near the river.

- Because contaminants in exposed upper-most soil horizons are expected to degrade quickly, the soil samples should

be collected from depths of at least 3 inches. It would be fine to composite these samples from 3 inches to 1.5 or 2 feet. If a sample is collected from an area of staining or a seep, however, the sample should be collected from the soil surface. If a suitable location for a "background" soil sample is not identified, it would be fine to compare on-site sample results to a less-contaminated on-site sample.

- I understand that you intend to address the access issue before you are next on-site; however, if access from the adjoining property is denied, sufficient space exists for the necessary work to be conducted at the waste oil tanks.

- Sediment samples will be collected from the river bank by or along the path of any observed seeps.

- Standard QA/QC samples will be collected during this next sampling phase, to include a duplicate/replicate soil sample (both for the total metals and 8240 analyses), an upstream sediment sample, a soil trip blank (for the 8240 analysis), and, if possible, a background soil sample (for the arsenic and chromium analyses).

I would appreciate being informed of the date of the fieldwork; if my schedule permits, I would like to join you on-site. Until then, please feel free to contact me for any reason at 244-8702.

Sincerely,

Sherri Kasten
Hazardous Materials Specialist
Sites Management Section

cc: Ms. Christine Elias/LaPrade Engineering
Mr. David Pendleton/Attorney for the Estate of Brook Nelson

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April 20, 1992

David Pendleton, Esq.
P.O. Box 1086
Manchester Center, VT 05255

Re: Manchester Motors

Dear David:

Thank you for providing us copies of the WH & N report on this property. The town has reviewed the report with its consultants, and I thought it would be useful to pass on to you specific concerns identified by Dufresne-Henry. Addressing these now would aid in satisfying the environmental contingency in our contract.

1. The drawing attached to the report does not identify the location of the former gasoline tanks or any location for the tannery buildings. If these are known, they should be identified, and testing conducted accordingly.

2. Dufresne-Henry recommends additional monitoring up and down gradient to identify more precisely the extent of migration of gasoline constituents.

3. Our consultants are recommending removal of the debris in the northeast corner of the site, rather than encapsulation.

4. In connection with the implementation of WH & N recommendation number five, for additional sampling and analysis of seeps along the river, our consultants recommend that test well MW-1B be resampled at the same time.

5. WH & N refers to a 3,000-gallon tank registered with the state, and comments that this tank is believed to be the 2,000-gallon fuel oil tank. Further confirmation is necessary, or the larger tank should be located and removed.

6. Our consultants recommend test pit excavations or borings to verify subsurface conditions, in the vicinity of the tank that was removed, and to confirm the source of the BTEX presence in MW-1B.

We thought it would be best to share our preliminary response now so your consultants can respond appropriately in shaping their work plan. Please feel free to call if you have questions. We look forward to receiving additional reports when you receive them, and appreciate your continuing cooperation.

Sincerely,

Robert E. Woolmington

cc: Jeffrey Wilson
Lee Krohn

Wagner, Heindel, and Noyes, Inc. consulting geologists
P.O. Box 1629 Burlington, Vermont 05402-1629 802-658-0820

May 7, 1992

Mr. David Pendleton, Esquire
P.O. Box 1086
Manchester Center, VT 05255

Re: Manchester Motors
Report Review by Town of Manchester

Dear David:

We have received a copy of a letter addressed to you from Robert E. Woolmington, an attorney representing the Town of Manchester in the matter of the purchase of Manchester Motors. We understand from the letter that Dufresne-Henry, Inc. is providing consultant's review of the project for the Town. The letter presents Dufresne-Henry's concerns following their review of our original report for the Phase II environmental site assessment of Manchester Motors. We received this report just before finalizing our work plan for additional Phase II work at the site, and have incorporated some of the recommendations provided in the letter.

Following are our specific responses to the six items addressed in Mr. Woolmington's letter:

1. Specific information about the former locations of gasoline tanks and the former tannery buildings on the site has not been found. The tank pull was not witnessed by ANR personnel. No map or sketch of the tank locations was available. We have, however, included the location of the pump island for the gasoline pumps at Manchester Motors on our revised site plan (included with our letter to Ms. Sherri Kasten, HMMD, dated April 27, 1992). It is likely that the gasoline tanks were located beneath or beside this pump island.

2. Dufresne-Henry recommends additional monitoring upgradient and downgradient of the former gasoline tanks. Any monitoring in the upgradient direction would require the installation of wells on the other side (south side) of Route 11/30. An upgradient well located at this site would, if found clean, provide only limited information about the upgradient extent of gasoline contamination, since the well would be some distance from the pump islands. Alternatively, if this upgradient well were found to be contaminated with gasoline constituents, it would be difficult to attribute this contamination to the original gasoline releases at Manchester Motors. There are certainly a number of other potential contaminant sources in Manchester Village that would be upgradient of this location. Therefore, we are not recommending the

establishment of upgradient monitoring points. Additional downgradient monitoring points have been recommended by us: groundwater seeps near the river, and river sediment samples.

3. Removal of the debris in the northeast corner of the site is recommended by the Town's consultants, rather than encapsulation. The fate of the visible debris along the bank of the West Branch of the Battenkill River cannot be completely resolved at this point in our investigation. We will await results of analyses of downgradient seeps to better characterize these wastes. Depending on the ultimate land use of the property, this debris may require removal or encapsulation, or a combination of the two remediation strategies. If a specific land use is intended for the property, the landscape architect/engineer should be consulted to help evaluate the best method for insuring that these wastes are inaccessible to the public.

4. Dufresne-Henry recommends a repeat sample of groundwater in monitoring well MW-1B. This is a reasonable request. We will perform repeat sampling and analysis of this well when we complete our other field work at the site.

5. Dufresne-Henry requests further confirmation about the status of a 3,000-gallon tank registered with the State. After carefully interviewing employees of Manchester Motors, and discussing the matter with Dorr Oil, who installed the other tanks on the site, we have found no evidence of additional underground storage tanks at Manchester Motors other than the existing 2,000-gallon No. 2 fuel oil tank, and the 275-gallon wastewater tank that was removed in January 1992. We observed no fill pipes or vents on the property that would suggest the existence of another underground storage tank. We are virtually certain that the tank registered as a 3,000-gallon tank is, in fact, the existing and active 2,000-gallon fuel oil tank which provides heating fuel service to the sales and service building.

   An attempt could be made to locate other tanks on the site, using a variety of geophysical techniques. However, other metal objects buried in the extensive fill material on the site would likely interfere with this search. A survey using ground-penetrating radar would also likely provide unreliable data, due to this extensive fill material.

   We will screen all portions of the site where a tank could be buried with a metal detector, during our next round of field work, in an attempt to distinguish this large object (if it exists) from other buried metal objects. The only other method of locating the tanks that we can foresee would be extensive test pit excavations at approximately 10- or 15-foot centers throughout the site. We feel that the cost and disruption associated with this exercise is unwarranted for a tank that, by the accounts of people who were active at Manchester Motors, does not exist.

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6. Dufresne-Henry recommends additional test pits in the vicinity of the tank that was removed, and to confirm the source of the BTEX present in MW-1B. We will be performing test pit work beneath the waste oil tanks during our next field visit, and have included the excavation of other test pits in the vicinity of MW-1B, and the 275-gallon wash water tank that was removed.

Should you have any questions or comments about these responses, please do not hesitate to call.

Sincerely,

Dean A. Grover, P.E.
Environmental Engineer

DAG/tjr

Enclosures

cc (w/Woolmington letter, dated April 20, 1992):

Christine Elias, W. Byrd LaPrade, Inc.
Sherri Kasten, HMMD

[L-PENDLETON/DAG 4-10-92]

DAVID-FYI — lee DAG

17

DH Dufresne-Henry

Dufresne-Henry, Inc.
Precision Park
North Springfield, Vermont 05150
802-886-2261
FAX: 802-886-2260

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Geologic
Hydrologic
Computer

May 21, 1992

Mr. Lee Krohn
Planning Director
P.O. Box 909
Manchester Center, Vermont 05255

Re: Manchester Motors
DH 11100.

Dear Mr. Krohn:

At your request, we have reviewed the following information regarding the Manchester Motors site in Manchester Center, Vermont:

1. Letter from Sherri Kasten, State of Vermont Hazardous Materials Management Division (HMMD) to Dean Grover, Wagner Heindel and Noyes (WHN), dated April 6, 1992.

2. Letter from Dean Grover, WHN to Sherri Kasten, HMMD, dated April 27, 1992.

3. Letter from Sherri Kasten, (HMMD) to Dean Grover, (WHN), dated May 1, 1992.

4. Letter/Proposal from Dean Grover, WHN, to Mr. David Pendleton, Esquire, dated May 5, 1992.

5. Letter from Dean Grover, WHN, to Mr. David Pendleton, Esquire, dated May 7, 1992.

The information presented in this correspondence addresses many of the concerns we raised during our review of the Wagner, Heindel and Noyes report dated March 11, 1992. The most comprehensive review of the site issues was outlined by Sherri Kasten in the April 6, 1992 letter to Dean Grover.

The above correspondence addressed most of the issues we previously raised, or, plans to resolve the issues have been initiated. One issue, however, that we feel remains unresolved is removal of the refuse pile located adjacent to the river. Our April 8, 1992 letter recommended "removal of the debris in the northeast corner of the site, rather than constructing a landfill cap over these materials." We believe that this is still the most prudent action for these materials.

If purchase of the property is concluded, then the Town may ultimately become responsible for removing the materials at some later date. Additionally, the situation could become more acute if the landfill cap is eroded in the future exposing debris and perhaps causing a release of contaminants to the river. If the Town at some later date chooses to sell the property, the "landfill" could affect the value of the property with respect to environmental liability.

We trust that the above information is helpful in your evaluation of this site. If we may be of additional service, please feel free to call.

Very truly yours;

DUFRESNE-HENRY, INC.

Theodore S. Reeves, P.E.
Manager - Environmental Services Division

Approved:

C. Jonathan Manning, P.E.
Vice President

TSR/dim
MANCHSTR.LTR

cc: Bob Bentley - Dufresne-Henry, Inc.
Robert Dufresne - Dufresne-Henry, Inc.

Dufresne-Henry

Dufresne-Henry, Inc.
Precision Park
North Springfield, Vermont 05150
802-886-2261
FAX: 802-886-2260

Engineering Disciplines
Civil
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Computer

JUL 27 1992

July 23, 1992

Mr. Lee Krohn
Planning Director
P.O. Box 909
Manchester Center, Vermont 05255

Re: Manchester Motors
DH 111001

Dear Mr. Krohn:

We have received your letter dated July 15, 1992. Your letter rasise a few issues which we believe deserve some comment.

You mention "anecdotal reports" of dumping which have occurred at the Manchester Motors site, perhaps under one of the buildings. Dufresne-Henry stands by our recommendation regarding removal of the debris at the site (reference our letter dated April 8, 1992). In addition, we feel it prudent to continue to investigate the reported dumping under the building.

As we discussed, it may also be prudent to make a switch in the investigative techniques being employed. If dumping under the building(s) and rumors of forgotten tanks continue to persist, it may be wise to employ ground penetrating radar or magnetometry at this site to gat a broader assessment of subsurface conditions at this site. Use of either of these techniques will assist in finding larger metallic objects buried at the site such as nested drums or underground storage tanks. Due to the potetnial presence of reinforcing steel in concrete slabs, ground penetrating radar will provide the best results for assessing the areas under concrete slabs.

Regardless of the methods employed to determine the presence of a dump under the rear building, we believe that this information should be verified by some site intrusive method.

Please feel free to contact us if we may be of further assistance.

Very truly yours;

DUFRESNE-HENRY, INC.

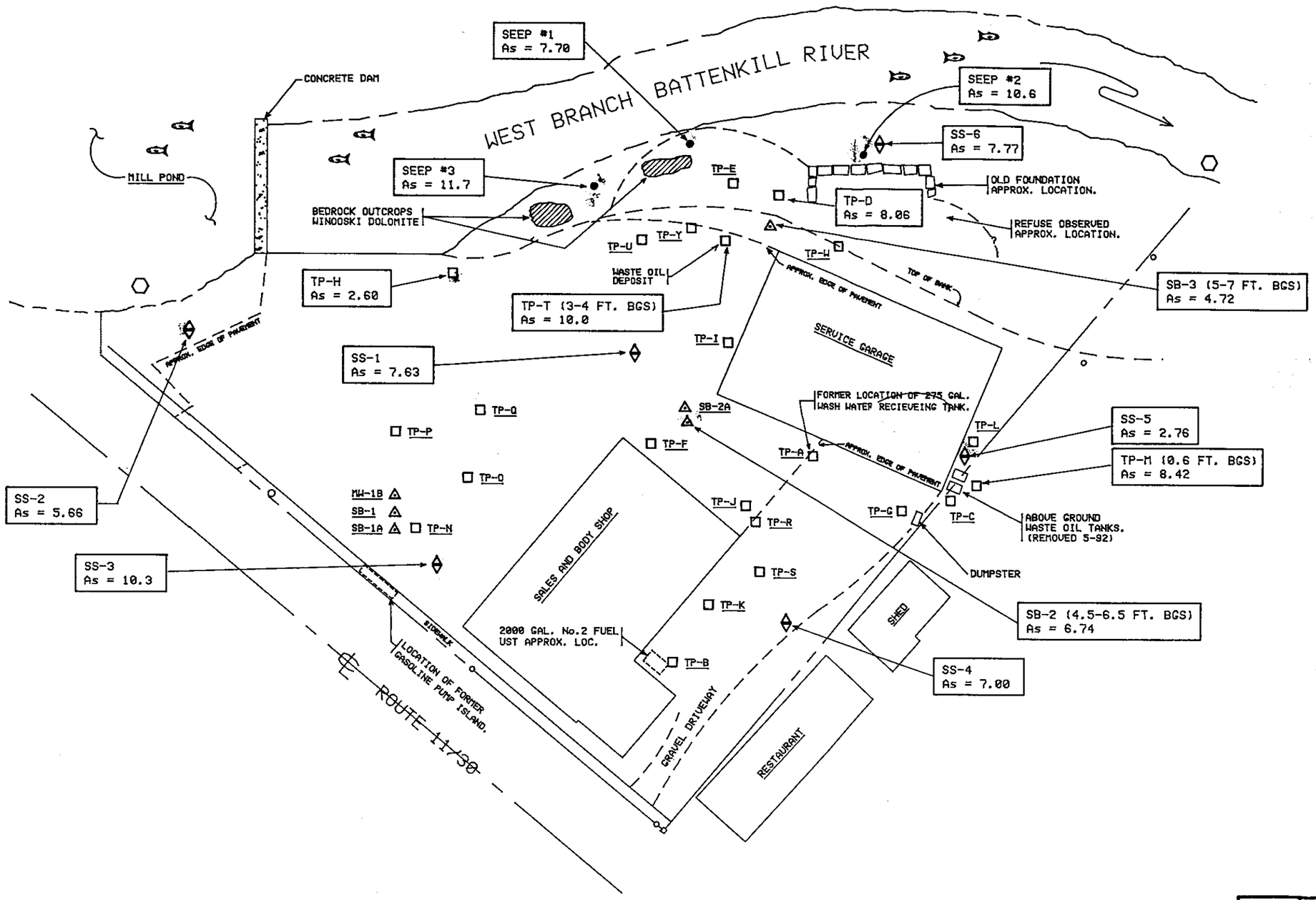
Theodore S. Reeves, P.E.
Manager - Environmental Services Division

Approved:

C. Jonathan Manning, P.E.
Vice President

TSR/dim
MANCHSTR.LTR

cc: Bob Bentley - Dufresne-Henry, Inc.
Robert Dufresne - Dufresne-Henry, Inc.



LEGEND

TP-0	TEST PIT LOCATION
SB-1	SOIL BORING/MONITOR WELL LOCATION
	SURFACE WATER SAMPLING LOCATION
SS-3	LOCATION OF SHALLOW SOIL SAMPLE FOR As & Cr ANALYSIS TO DETERMINE IMPACTS FROM FORMER TANNERY.
ND	NONE DETECTED
BGS	BELOW GROUND SURFACE
TBQ	TRACE BELOW QUANTITATION LIMIT
PID	PHOTO-IONIZATION DETECTOR PHOTOVAC MICROTIP EQUIPPED W/10.6 eV LAMP CALIBRATED 1/8/92 @ 9:30 AM TO BENZENE EQUIVALENTS USING 100 ppm ISO - BUTLYENE GAS.

NOTES:

METALS RESULTS ARE FOR TOTAL CONCENTRATIONS, UNLESS OTHERWISE NOTED.

SEE INDIVIDUAL REPORTS FOR SAMPLING DATES

THIS MAP PREPARED FROM 20-SCALE MAP BY W. BYRD LAPRADE CONSULTING ENGINEERS, PLANNERS AND LAND SURVEYORS DRAWING B NO. 1610 ENTITLED "THE LANDS OF BROOK NELSON, MANCHESTER MOTORS INC." DATED 10-24-91.

NORTH

PLATE NO.

Wagner, Heindel, and Noyes

CONSULTING SCIENTISTS AND ENGINEERS

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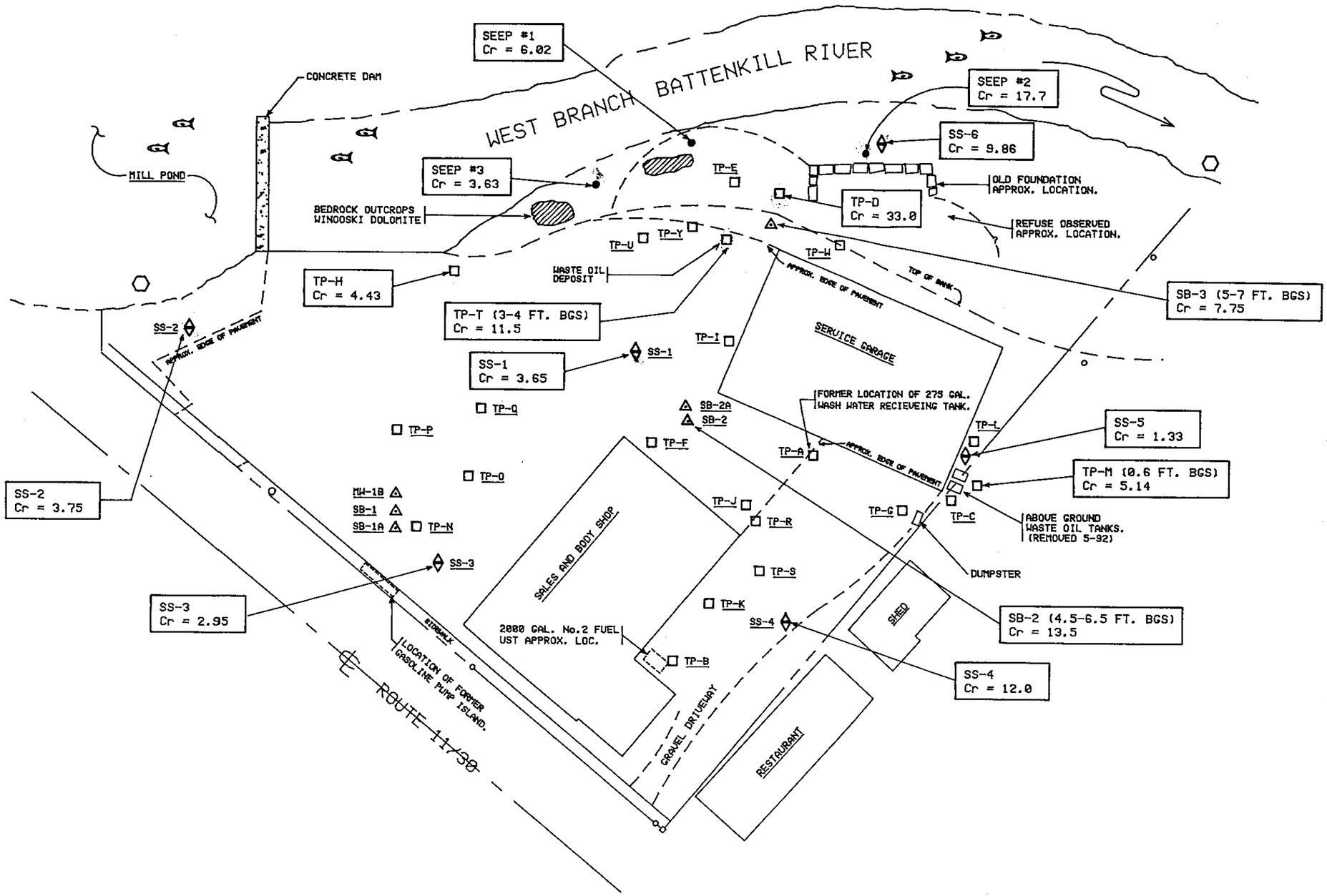
REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES; EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

MANCHESTER MOTORS Manchester Center, Vermont

PHASE II ENVIRONMENTAL SITE ASSESSMENT

TOTAL ARSENIC CONCENTRATION IN SOILS (PPM)

DATE: 6/23/92	SCALE: 1" = 40'	DRN. - SJB	APP. - DAG



LEGEND

□ TP-0	TEST PIT LOCATION
△ SB-1	SOIL BORING/MONITOR WELL LOCATION
⬡	SURFACE WATER SAMPLING LOCATION
◈ SS-3	LOCATION OF SHALLOW SOIL SAMPLE FOR As & Cr ANALYSIS TO DETERMINE IMPACTS FROM FORMER TANNERY.
ND	NONE DETECTED
BGS	BELOW GROUND SURFACE
TBQ	TRACE BELOW QUANTITATION LIMIT
PID	PHOTO-IONIZATION DETECTOR PHOTOVAC MICROTIP EQUIPPED W/10.6 eV LAMP CALIBRATED 1/6/92 @ 9:30 AM TO BENZENE EQUIVALENTS USING 100 ppm ISO - BUTLYENE GAS.

NOTES:

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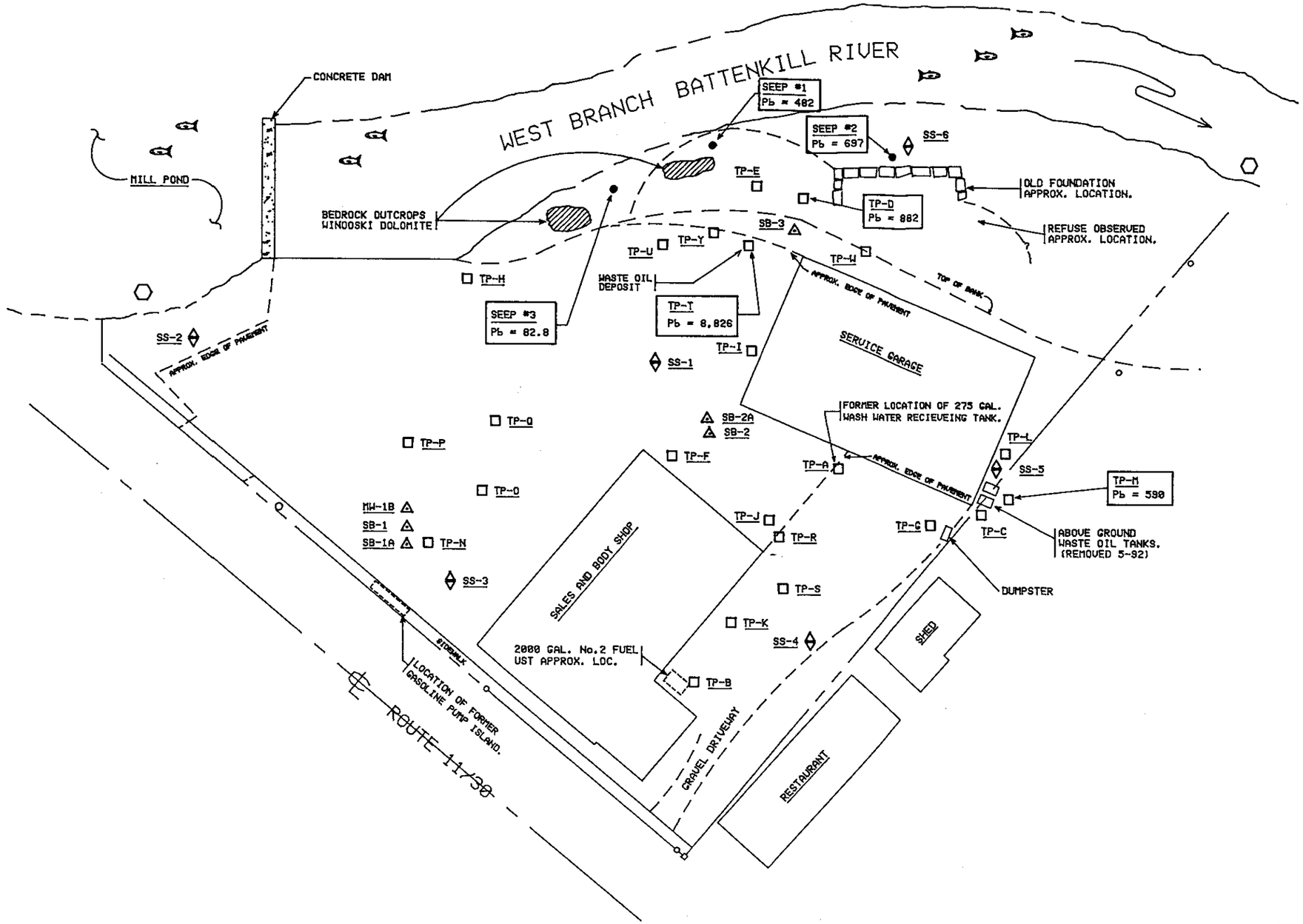
REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES; EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

MANCHESTER MOTORS Manchester Center, Vermont

PHASE II ENVIRONMENTAL SITE ASSESSMENT

TOTAL CHROMIUM CONCENTRATION IN SOILS (PPM)

DATE: 6/23/92	SCALE: 1" = 40'	DRN. - SJB	APP. - DAG



LEGEND

□ TP-0	TEST PIT LOCATION
△ SB-1	SOIL BORING/MONITOR WELL LOCATION
⬡	SURFACE WATER SAMPLING LOCATION
◇ SS-3	LOCATION OF SHALLOW SOIL SAMPLE FOR As & Cr ANALYSIS TO DETERMINE IMPACTS FROM FORMER TANNERY.
ND	NONE DETECTED
BGS	BELOW GROUND SURFACE
TBQ	TRACE BELOW QUANTITATION LIMIT
PID	PHOTO-IONIZATION DETECTOR PHOTOVAC MICROTIP EQUIPPED W/10.6 eV LAMP CALIBRATED 1/6/92 @ 9:30 AM TO BENZENE EQUIVALENTS USING 100 ppm ISO - BUTLYENE GAS.

NOTES:

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SEE INDIVIDUAL REPORTS FOR SAMPLING DATES

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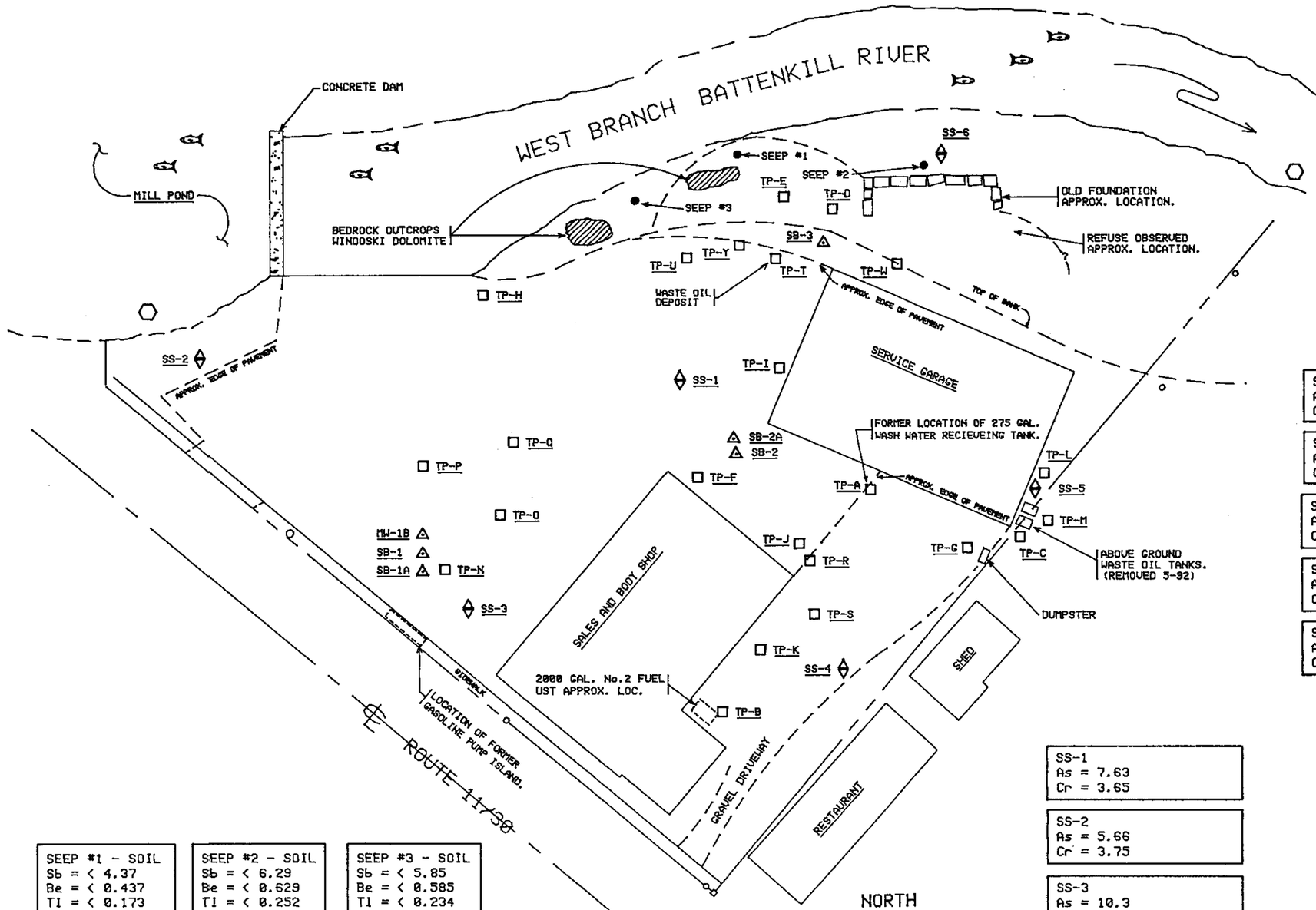
REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES; EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

MANCHESTER MOTORS Manchester Center, Vermont

PHASE II ENVIRONMENTAL SITE ASSESSMENT

TOTAL LEAD CONCENTRATION IN SOILS (PPM)

DATE: 6/23/92	SCALE: 1" = 40'	DRN. - SJB	APP. - DAG



LEGEND

TP-Q	TEST PIT LOCATION
SB-1	SOIL BORING/MONITOR WELL LOCATION
	SURFACE WATER SAMPLING LOCATION
SS-3	LOCATION OF SHALLOW SOIL SAMPLE FOR As & Cr ANALYSIS TO DETERMINE IMPACTS FROM FORMER TANNERY.
ND	NONE DETECTED
BGS	BELOW GROUND SURFACE
TBQ	TRACE BELOW QUANTITATION LIMIT
PID	PHOTO-IONIZATION DETECTOR PHOTOVAC MICROTIP EQUIPPED W/10.6 eV LAMP CALIBRATED 1/6/92 @ 9:30 AM TO BENZENE EQUIVALENTS USING 100 ppm ISO - BUTLYENE GAS.

NOTES:

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SEE INDIVIDUAL REPORTS FOR SAMPLING DATES

SB-2 (4.5-6.5 FT. BGS)
As = 6.74
Cr = 13.5

SB-3 (5-7 FT. BGS)
As = 4.72
Cr = 7.75

SS-4
As = 7.00
Cr = 12.0

SS-5
As = 2.76
Cr = 1.33

SS-6
As = 7.77
Cr = 9.86

TP-H
As = 2.60
Cr = 4.43

SS-1
As = 7.63
Cr = 3.65

SS-2
As = 5.66
Cr = 3.75

SS-3
As = 10.3
Cr = 2.95

TP-M (0.6 FT. BGS)	TP-D	TP-T (3-4 FT. BGS)
Sb = < 3.79	Sb = < 5.34	Sb = < 5.69
Be = < 0.379	Be = 0.124	Be = < 0.569
Tl = < 0.151	Tl = < 0.240	Tl = < 0.228
As = 8.42	As = 8.06	As = 10.0
Cd = 2.61	Cd = 55.9	Cd = 13.7
Cr = 5.14	Cr = 33.0	Cr = 11.5
Cu = 18.9	Cu = 212	Cu = 170
Pb = 590	Pb = 882	Pb = 8,826
Hg = 0.172	Hg = 1.05	Hg = 0.290
Ni = 8.84	Ni = 26.4	Ni = 9.90
Se = < 1.89	Se = < 2.28	Se = < 2.85
Ag = < 0.758	Ag = < 0.667	Ag = < 1.14
Zn = 259	Zn = 1,206	Zn = 559

SEEP #1 - SOIL	SEEP #2 - SOIL	SEEP #3 - SOIL
Sb = < 4.37	Sb = < 6.29	Sb = < 5.85
Be = < 0.437	Be = < 0.629	Be = < 0.585
Tl = < 0.173	Tl = < 0.252	Tl = < 0.234
As = 7.70	As = 10.6	As = 11.7
Cd = 2.45	Cd = 9.80	Cd = 1.60
Cr = 6.02	Cr = 17.7	Cr = 3.63
Cu = 25.8	Cu = 122	Cu = 19.5
Pb = 482	Pb = 697	Pb = 82.8
Hg = 0.247	Hg = 1.04	Hg = 0.282
Ni = 8.63	Ni = 15.7	Ni = 8.03
Se = < 2.16	Se = < 3.14	Se = < 2.93
Ag = < 0.874	Ag = < 1.26	Ag = < 1.17
Zn = 122	Zn = 350	Zn = 64.7ppm

THIS MAP PREPARED FROM 20-SCALE MAP BY W. BYRD LAPRADE CONSULTING ENGINEERS, PLANNERS AND LAND SURVEYORS DRAWING B NO. 1610 ENTITLED "THE LANDS OF BROOK NELSON, MANCHESTER MOTORS INC." DATED 10-24-91.

REV.		
REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES; EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

PLATE NO.

Wagner, Heindel, and Noyes
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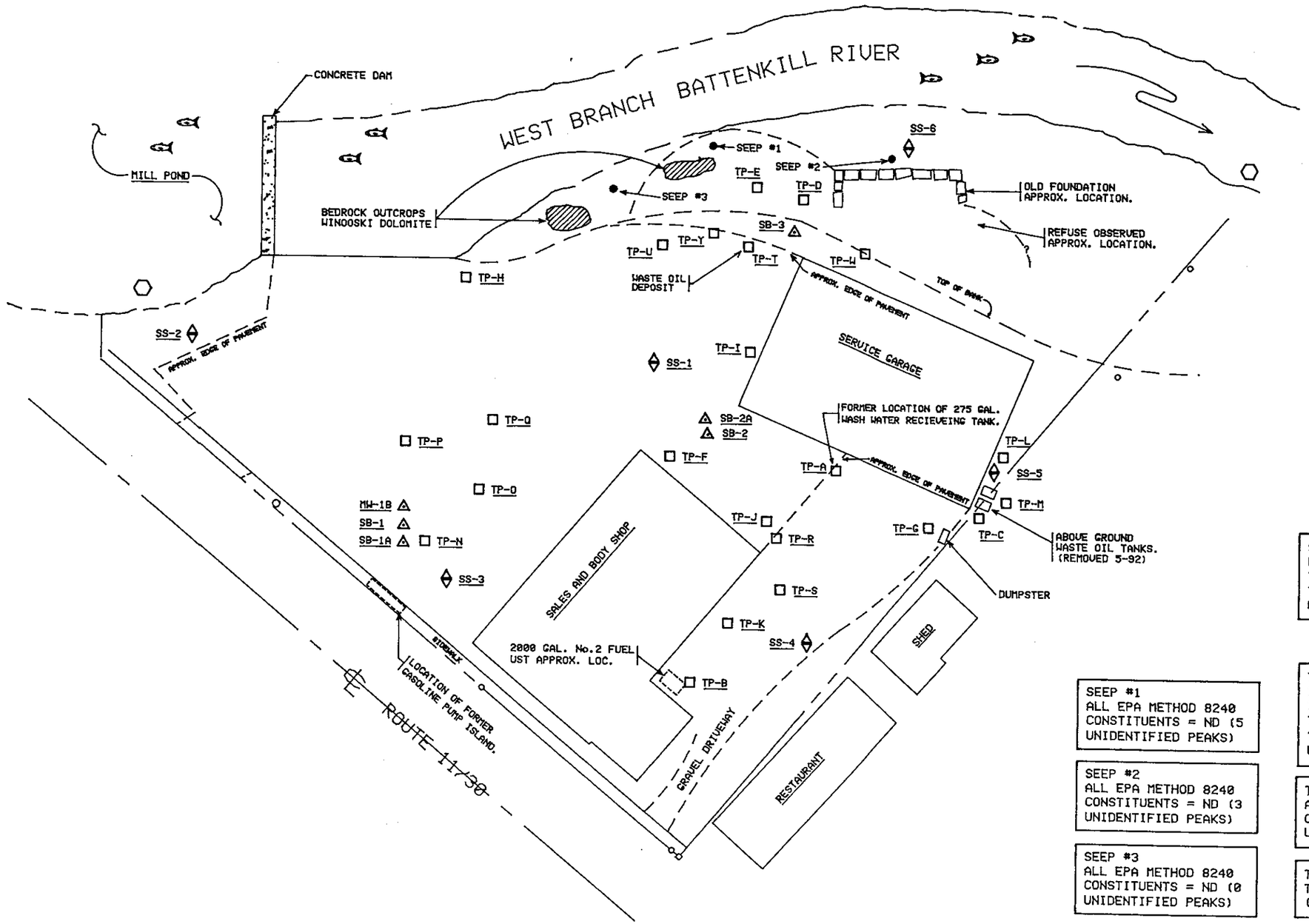
MANCHESTER MOTORS Manchester Center, Vermon

PHASE II ENVIRONMENTAL SITE ASSESSMENT

TOTAL METALS CONCENTRATION IN SOILS (PPM)

DATE: 6/23/92	SCALE: 1" = 40'	DRN. - SJB	APP. - DAG



LEGEND

TP-0	TEST PIT LOCATION
SB-1	SOIL BORING/MONITOR WELL LOCATION
	SURFACE WATER SAMPLING LOCATION
SS-3	LOCATION OF SHALLOW SOIL SAMPLE FOR As & Cr ANALYSIS TO DETERMINE IMPACTS FROM FORMER TANNERY.
ND	NONE DETECTED
BGS	BELOW GROUND SURFACE
TBQ	TRACE BELOW QUANTITATION LIMIT
PID	PHOTO-IONIZATION DETECTOR PHOTOVAC MICROTIP EQUIPPED W/10.6 eV LAMP CALIBRATED 1/6/92 @ 9:30 AM TO BENZENE EQUIVALENTS USING 100 ppm ISO - BUTLYENE GAS.

NOTES:

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SEE INDIVIDUAL REPORTS FOR SAMPLING DATES

SB-1: 4-6 FT. BGS
ETHYL BENZENE 57.0
TOLUENE TBQ
TOTAL XYLENES 347 (10 UNIDENTIFIED PEAKS)

SB-3: 5-7 FT. BGS
TOTAL XYLENES 62.0 (0 UNIDENTIFIED PEAKS)

SEEP #1
ALL EPA METHOD 8240 CONSTITUENTS = ND (5 UNIDENTIFIED PEAKS)

TP-F
1,2 DICHLOROBENZENE TBQ
1,4 DICHLOROBENZENE TBQ
TOLUENE 87.7
TOTAL XYLENES 194 (9 UNIDENTIFIED PEAKS)

TP-M: 0.6 FT. BGS
1,2 DICHLOROBENZENE 180
ETHYL BENZENE 33.3
TOLUENE 45.4
TOTAL XYLENES 1,560
TETRACHLOROETHENE 177
1,1,1- TRICHLOROETHANE TBQ
(20 UNIDENTIFIED PEAKS)

SEEP #2
ALL EPA METHOD 8240 CONSTITUENTS = ND (3 UNIDENTIFIED PEAKS)

TP-H
ALL EPA METHOD 8240 CONSTITUENTS = ND (0 UNIDENTIFIED PEAKS)

TP-T: 3-4 FT. BGS
BENZENE TBQ
1,2 DICHLOROBENZENE 552
ETHYL BENZENE 2,650
TOLUENE 856
TOTAL XYLENES 68,900 (20 UNIDENTIFIED PEAKS)

SEEP #3
ALL EPA METHOD 8240 CONSTITUENTS = ND (0 UNIDENTIFIED PEAKS)

TP-K
TOTAL XYLENES 97.4
(6 UNIDENTIFIED PEAKS)

REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES; EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

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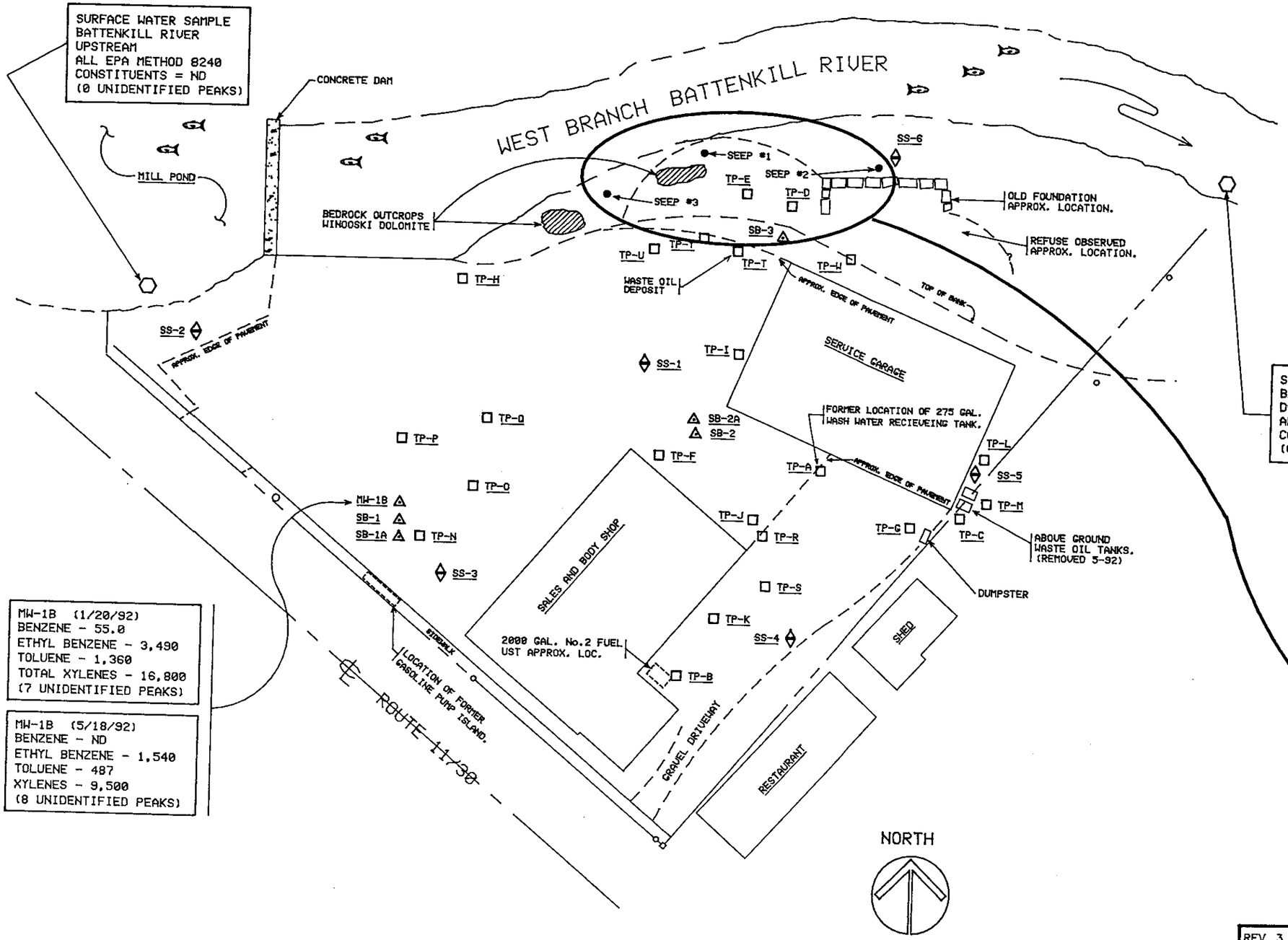
• Environmental Engineering •
BURLINGTON, VERMONT

MANCHESTER MOTORS Manchester Center, Vermont

PHASE II ENVIRONMENTAL SITE ASSESSMENT

VOLATILE ORGANIC ANALYSES OF SOILS (PPb)

DATE: 6/23/92	SCALE: 1" = 40'	DRN. - SJB	APP. - DAG



LEGEND

TP-0	TEST PIT LOCATION
SB-1	SOIL BORING/MONITOR WELL LOCATION
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PID	PHOTO-IONIZATION DETECTOR PHOTOVAC MICROTIP EQUIPPED W/10.6 eV LAMP CALIBRATED 1/6/92 @ 9:30 AM TO BENZENE EQUIVALENTS USING 100 ppm ISO - BUTLYENE GAS.

NOTES:

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SEE INDIVIDUAL REPORTS FOR SAMPLING DATES

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REV.	DATE	
REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES; EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

PLATE NO.

Wagner, Heindel, and Noyes
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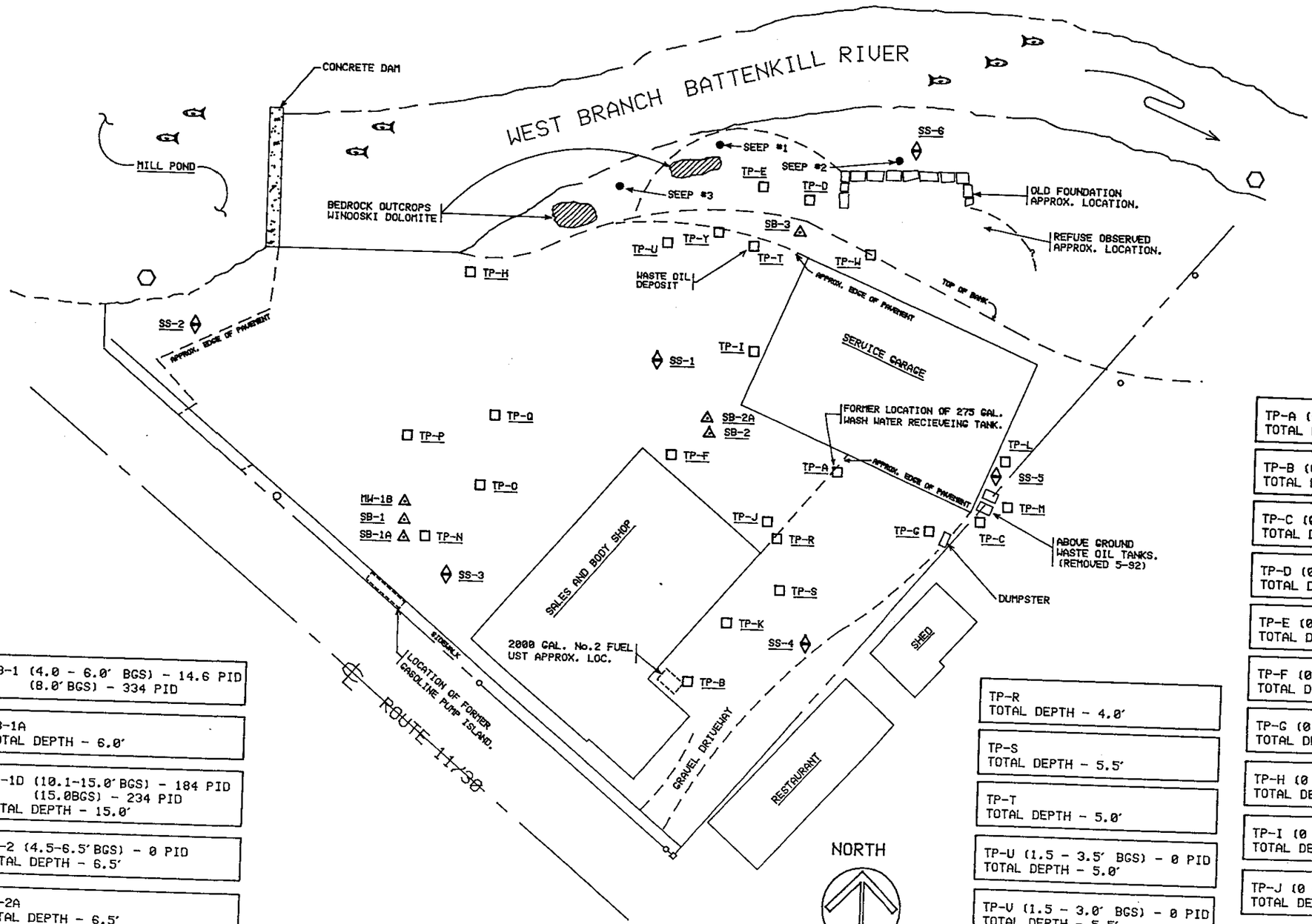
BURLINGTON, VERMONT

MANCHESTER MOTORS Manchester Center, Vermont

PHASE II ENVIRONMENTAL SITE ASSESSMENT

VOLATILE ORGANIC ANALYSES OF GROUNDWATER (PPb)

DATE: 6/23/92	SCALE: 1" = 40'	DRN. - SJB	APP. - DAG



LEGEND

TP-0	TEST PIT LOCATION
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	SURFACE WATER SAMPLING LOCATION
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TP-A (0 - 7.0' BGS) - 0 PID
TOTAL DEPTH - 7.0'

TP-B (0 - 6.5' BGS) - 0 PID
TOTAL DEPTH - 6.5'

TP-C (0 - 4.0' BGS) - 0 PID
TOTAL DEPTH - 4.0'

TP-D (0 - 8.0' BGS) - 0 PID
TOTAL DEPTH - 8.0'

TP-E (0 - 6.0' BGS) - 0 PID
TOTAL DEPTH - 6.0'

TP-F (0 - 2.0' BGS) - 7.8 PID
TOTAL DEPTH - 6.0'

TP-G (0 - 7.5' BGS) - 0 PID
TOTAL DEPTH - 7.5'

TP-H (0 - 2.0' BGS) - 64 PID
TOTAL DEPTH - 2.0'

TP-I (0 - 2.0' BGS) - 0 PID
TOTAL DEPTH - 2.0'

TP-J (0 - 2.0' BGS) - 0 PID
TOTAL DEPTH - 2.0'

TP-K (0 - 2.0' BGS) - 0 PID
TOTAL DEPTH - 2.0'

TP-L (0 - 1.8' BGS) - 1.2 PID
TOTAL DEPTH - 1.8'

TP-M (0 - 0.6' BGS) - 25.1 PID
(0.6' - 2.0' BGS) - 25.1 PID
(3.3' BGS) - 0.7 PID
TOTAL DEPTH - 3.5'

TP-N (4.0' BGS) - 3.4 PID
TOTAL DEPTH - 6.3'

TP-O (3.8' BGS) - 3.7 PID
TOTAL DEPTH - 3.8'

SB-1 (4.0 - 6.0' BGS) - 14.6 PID
(8.0' BGS) - 334 PID

SB-1A
TOTAL DEPTH - 6.0'

SB-1D (10.1-15.0' BGS) - 184 PID
(15.0BGS) - 234 PID
TOTAL DEPTH - 15.0'

SB-2 (4.5-6.5' BGS) - 0 PID
TOTAL DEPTH - 6.5'

SB-2A
TOTAL DEPTH - 6.5'

SB-3 (5.0-7.0' BGS) - 211 PID
(10.0-12.0' BGS) - 5.2 PID
(15.0-17.0' BGS) - 0 PID
TOTAL DEPTH - 17.0'

THIS MAP PREPARED FROM 20-SCALE MAP BY W. BYRD LAPRADE CONSULTING ENGINEERS, PLANNERS AND LAND SURVEYORS DRAWING B NO. 1610 ENTITLED "THE LANDS OF BROOK NELSON, MANCHESTER MOTORS INC." DATED 10-24-91.

TP-Q (2.4' BGS) - 0 PID
(4.6' BGS) - 0 PID
TOTAL DEPTH - 4.6'

TP-P (0 - 2.8' BGS) - 0 PID
(2.8' - 4.4' BGS) - 0 PID
TOTAL DEPTH - 4.4'

TP-R
TOTAL DEPTH - 4.0'

TP-S
TOTAL DEPTH - 5.5'

TP-T
TOTAL DEPTH - 5.0'

TP-U (1.5 - 3.5' BGS) - 0 PID
TOTAL DEPTH - 5.0'

TP-V (1.5 - 3.0' BGS) - 0 PID
TOTAL DEPTH - 5.5'

TP-W (5.0 - 8.5' BGS) - 0 PID
TOTAL DEPTH - 8.5'

REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES; EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

PLATE NO.

H W N

Wagner, Heindel, and Noyes

CONSULTING SCIENTISTS AND ENGINEERS

• Hydrogeology • Ecology •
• Environmental Engineering •

BURLINGTON

MANCHESTER MOTORS Manchester Center, Vermont

PHASE II ENVIRONMENTAL SITE ASSESSMENT

SAMPLING INTERVALS, PIDS, AND TOTAL DEPTHS

WEST BRANCH BATTENKILL RIVER

SEEP #1

SEEP #2

SEEP #3

BEDROCK OUTCROP
WINOOSKI DOLOMITE

WASTE OIL
DEPOSIT

OLD FOUNDATION
APPROX. LOCATION.

REFUSE OBSERVED
APPROX. LOCATION.

APPROX. EDGE OF PAVEMENT

TOP OF BANK
APPROX.

SERVICE GARAGE

TP-CC
5.59

TP-E

TP-D

TP-U

TP-X
1.10

TP-Y
0.39

TP-I
8.87*

TP-Z
3.52

TP-AA

TP-BB
7.04

TP-W

SB-3

SS-1

SS-2

NORTH

LEGEND

□ TP-0	TEST PIT LOCATION
△ SB-1	SOIL BORING/MONITOR WELL LOCATION
◇ SS-3	LOCATION OF SHALLOW SOIL SAMPLE FOR As & Cr ANALYSIS TO DETERMINE IMPACTS FROM FORMER TANNERY.
ND	NONE DETECTED
BGS	BELOW GROUND SURFACE
TBQ	TRACE BELOW QUANTITATION LIMIT
PID	PHOTO-IONIZATION DETECTOR PHOTOVAC MICROTIP EQUIPPED W/10.6 eV LAMP CALIBRATED 1/6/92 @ 9:30 AM TO BENZENE EQUIVALENTS USING 100 ppm ISO - BUTLYENE GAS.

* PREVIOUS RESULT FROM 5/18/92 : TCLP LEAD= 20.0 ppm.

THIS MAP PREPARED FROM 20-SCALE MAP BY RD LAPRADE CONSULTING ENGINEERS, ERS AND LAND SURVEYORS P NG B NO. 1610 ENTITLED "THE LANDS OF OOK NELSON, MANCHESTER MOTORS INC." TED 10-24-91.

REV.	DATE	
REV. 4	7-17-92	ADDED TEST PITS X, Y, Z, AA, BB, CC
REV. 3	6-23-92	TRANSFERED DRAWINGS AND DATA TO CAD SYSTEM
REV. 2	4-27-92	PROPOSED SAMPLES: EDGE PAVE.; PUMP ISLAND
REV. 1	3-10-92	ADDED TCLP DATA

PLATE NO.

Wagner, Heindel, and Noyes
CONSULTING SCIENTISTS AND ENGINEERS
• Hydrogeology • Ecology •
• Environmental Engineering •
BURLINGTON, VERMONT

MANCHESTER MOTORS Manchester Center, Vermont
PHASE II ENVIRONMENTAL SITE ASSESSMENT
TCLP LEAD CONCENTRATIONS IN SOILS (PPM)
SAMPLING DATE: JULY 17, 1992

DATE: 6/23/92 | SCALE: 1" = 10' | DRN. - SJB | APP. - DAG

MANCHESTER MOTORS
Manchester, Vermont

Results of total metals analyses of soils, and comparison with Vermont State Standards and Policy Action Levels, and natural concentrations in soils in the Eastern U.S.

Sampling Location	Sampling Date	Chemical Parameter	Result (ppm)	Enforcement Standard[1] (ppm)	20 x ES (ppm)	Geometric mean concentration in Eastern U.S. soil (ppm)[2]
TP-D	1/6/92	As	8.06	0.050	1.0	4.8
		Cd	55.9	0.005	0.10	--
		Cr	33.0	0.050	1.0	33
		Cu	212	*	--	13
		Pb	882	0.020	0.40	14
		Hg	1.05	0.002	0.04	0.001
		Ni	26.4	0.350	7.0	--
		Se	<2.28	*	--	0.30
		Ag	<0.667	0.050	1.0	--
		Zn	1,206	5.0	100.0	40
		Sb	<5.34	*	--	0.52
		Be	0.124	*	--	0.55
		Tl	<0.240	*	--	--
TP-H	1/6/92	As	2.60	0.050	1.0	4.8
		Cr	4.43	0.050	1.0	3.3
SB-2 (4½-6½ ft. bgs**)d	1/8/92	As	6.74	0.050	1.0	4.8
		Cr	13.5	0.050	1.0	3.3
SB-3 (5-7 ft. bags)	1/8/92	As	4.72	0.050	1.0	4.8
		Cr	7.75	0.050	1.0	3.3
SS-1***	5/18/92	As	7.63	0.050	1.0	4.8
		Cr	3.65	0.050	1.0	3.3
SS-2	5/18/92	As	5.66	0.050	1.0	4.8
		Cr	3.75	0.050	1.0	3.3
SS-2 Duplicate	5/18/92	As	5.70	0.050	1.0	4.8
		Cr	2.83	0.050	1.0	3.3
SS-3	5/18/92	As	10.3	0.050	1.0	4.8
		Cr	2.95	0.050	1.0	3.3
SS-4	5/18/92	As	7.00	0.050	1.0	4.8
		Cr	12.0	0.050	1.0	3.3

MANCHESTER MOTORS
Manchester, Vermont

Results of total metals analyses of soils, and comparison with Vermont State Standards and Policy Action Levels, and natural concentrations in soils in the Eastern U.S.

Sampling Location	Sampling Date	Chemical Parameter	Result (ppm)	Enforcement Standard[1] (ppm)	20 x ES (ppm)	Geometric mean concentration in Eastern U.S. soil (ppm)[2]
SS-5	5/18/92	As	2.76	0.050	1.0	4.8
		Cr	1.33	0.050	1.0	33
SS-6	5/18/92	As	7.77	0.050	1.0	4.8
		Cr	9.86	0.050	1.0	33
TP-M (0.6 ft. bgs)	5/18/92	Sb	<3.79	*	--	0.52
		Be	<0.379	*	--	0.55
		Tl	<0.151	*	--	--
		As	8.42	0.050	1.0	4.8
		Cd	2.61	0.005	0.10	--
		Cr	5.14	0.050	1.0	33
		Cu	18.9	*	--	13
		Pb	590	0.020	0.40	14
		Hg	0.172	0.002	0.04	0.081
		Ni	8.84	0.350	7.0	--
		Se	<1.89	*	--	0.30
		Ag	<0.758	0.050	1.0	--
		Zn	259	5.0	100.0	40
TP-T (3-4 ft. bgs)	5/18/92	Sb	<5.69	*	--	0.52
		Be	<0.569	*	--	0.55
		Tl	<0.228	*	--	--
		As	10.0	0.050	1.0	4.8
		Cd	13.7	0.005	0.10	--
		Cr	11.5	0.050	1.0	33
		Cu	170	*	--	13
		Pb	8,826	0.020	0.40	14
		Hg	0.290	0.002	0.04	0.081
		Ni	9.90	0.350	7.0	--
		Se	<2.85	*	--	0.30
		Ag	<1.14	0.050	1.0	--
		Zn	559	5.0	100.0	40

MANCHESTER MOTORS
Manchester, Vermont

Results of total metals analyses of soils, and comparison with Vermont State Standards and Policy Action Levels, and natural concentrations in soils in the Eastern U.S.

Sampling Location	Sampling Date	Chemical Parameter	Result (ppm)	Enforcement Standard[1] (ppm)	20 x ES (ppm)	Geometric mean concentration in Eastern U.S. soil (ppm)[2]
Seep #1-Soil	5/18/92	Sb	<4.37	*	--	0.52
		Be	<0.437	*	--	0.55
		Tl	<0.173	*	--	--
		As	7.70	0.050	1.0	4.8
		Cd	2.45	0.005	0.10	--
		Cr	6.02	0.050	1.0	33
		Cu	25.8	*	--	13
		Pb	482	0.020	0.40	14
		Hg	0.247	0.002	0.04	0.081
		Ni	8.63	0.350	7.0	--
		Se	<2.16	*	--	0.30
		Ag	<0.874	0.050	1.0	--
		Zn	122	5.0	100.0	40
Seep #1-Soil-Duplicate	5/18/92	Sb	<4.38	*	--	0.52
		Be	<0.541	*	--	0.55
		Tl	<0.216	*	--	--
		As	8.23	0.050	1.0	4.8
		Cd	2.80	0.005	0.10	--
		Cr	6.76	0.050	1.0	33
		Cu	19.4	*	--	13
		Pb	607	0.020	0.40	14
		Hg	<0.133	0.002	0.04	0.081
		Ni	11.3	0.350	7.0	--
		Se	<2.71	*	--	0.30
		Ag	<1.08	0.050	1.0	--
		Zn	181	5.0	100.0	40

MANCHESTER MOTORS
Manchester, Vermont

Results of total metals analyses of soils, and comparison with Vermont State Standards and Policy Action Levels, and natural concentrations in soils in the Eastern U.S.

Sampling Location	Sampling Date	Chemical Parameter	Result (ppm)	Enforcement Standard[1] (ppm)	20 x ES (ppm)	Geometric mean concentration in Eastern U.S. soil (ppm)[2]
Seep #2-Soil	5/18/92	Sb	<6.29	*	--	0.52
		Be	<0.629	*	--	0.55
		Tl	<0.252	*	--	--
		As	10.6	0.050	1.0	4.8
		Cd	9.80	0.005	0.10	--
		Cr	17.7	0.050	1.0	33
		Cu	122	*	--	13
		Pb	697	0.020	0.40	14
		Hg	1.04	0.002	0.04	0.081
		Ni	15.7	0.350	7.0	--
		Se	<3.14	*	--	0.30
		Ag	<1.26	0.050	1.0	--
		Zn	350	5.0	100.0	40
Seep #3-Soil	5/18/92	Sb	<5.85	*	--	0.52
		Be	<0.585	*	--	0.55
		Tl	<0.234	*	--	--
		As	11.7	0.050	1.0	4.8
		Cd	1.60	0.005	0.10	--
		Cr	3.63	0.050	1.0	33
		Cu	19.5	*	--	13
		Pb	82.8	0.020	0.40	14
		Hg	0.282	0.002	0.04	0.081
		Ni	8.03	0.350	7.0	--
		Se	<2.93	*	--	0.30
		Ag	<1.17	0.050	1.0	--
		Zn	64.7	5.0	100.0	40

[1] Enforcement Standard (ES), from Groundwater Protection Rule and Strategy, Table 1, page 27.
[2] Element Concentrations in Soils and Other Materials of the Continuous United States, U.S.G.S. Professional Paper 1270, 1984.
* Preventive Action Limit not listed
** bgs = below ground surface

[TB2-MANCHESTER/DAG 6/25/92]

MANCHESTER MOTORS
Manchester, Vermont

Results of volatile organic analyses of soils and comparison with Vermont State standards and ANR Policy Action Levels. All analyses performed using EPA Method 8240.

Sampling Location	Sampling Date	Chemical Parameters[1]	Result (ppb)	Enforcement Standard[2] (ppb)	20 x ES (ppb)	20 x 100 x ES (ppb)
TP-F	1/6/92	1,2-Dichlorobenzene	TBQ[3]	620	12,400	6,200,000
		1,4-Dichlorobenzene	TBQ	75	1,500	150,000
		Toluene	87.7	2,420	48,400	4,840,000
		Total Xylenes	194	400	8,000	800,000
TP-H	1/6/92	All Method 8240 parameters	ND[4]	--	--	--
TP-K	1/6/92	Total Xylenes	97.4	400	8,000	800,000
SB-1: 4-6 ft. bgs	1/8/92	Ethyl Benzene	57.0	680	13,600	1,360,000
		Toluene	TBQ	2,420	48,400	4,840,000
		Total Xylenes	347	400	8,000	800,000
SB-3: 5-7 ft. bgs	1/8/92	Total Xylenes	62.0	400	8,000	800,000
TP-M: 0.6 ft. bgs	5/18/92	Ethyl Benzene	33.3	680	13,600	1,360,000
		Toluene	45.4	2,420	48,400	4,840,000
		Total Xylenes	1,560	400	8,000	800,000
		Tetrachloroethene	177	0.7	14	1,400
		1,1,1-Trichloroethane	TBQ	200	4,000	400,000
TP-T: 3-4 ft. bgs	5/18/92	Benzene	TBQ	5	100	10,000
		1,2-Dichlorobenzene	552	620	12,400	6,200,000
		Ethyl Benzene	2,650	680	13,600	1,360,000
		Toluene	856	2,420	48,400	4,840,000
		Total Xylenes	68,900	400	8,000	800,000
Seep #1 - Soil	5/18/92	All Method 8240 parameters	ND (5 unidentified peaks)	--	--	--

MANCHESTER MOTORS
Manchester, Vermont

Results of volatile organic analyses of soils and comparison with Vermont State standards and ANR Policy Action Levels. All analyses performed using EPA Method 8240.

Sampling Location	Sampling Date	Chemical Parameters[1]	Result (ppb)	Enforcement Standard[2] (ppb)	20 x ES (ppb)	20 x 100 x ES (ppb)
Seep #1 - Soil Duplicate	5/18/92	All Method 8240 parameters	ND (0 unidentified peaks)	--	--	--
Seep #2 - Soil	5/18/92	All Method 8240 parameters	ND (3 unidentified peaks)	--	--	--
Seep #3 - Soil	5/18/92	All Method 8240 parameters	ND (0 unidentified peaks)	--	--	--
Soil Trip Blank	5/18/92	All Method 8240 parameters	ND (0 unidentified peaks)	--	--	--

[1] All chemical parameters analyzed by EPA Method 8240 and not listed above, were not detected.
[2] Enforcement Standard (ES), from Groundwater Protection Rule and Strategy, Table 1, page 27.
[3] TBQ = Trace Below Quantitation Limits
[4] ND = None Detected

[TB2-MANCHESTER/DAG 6/25/92]

MANCHESTER MOTORS
Manchester, Vermont

Results of volatile organic analyses of groundwater beneath the subject parcel, and surface water on the West Branch of the Battenkill River, and comparison with Groundwater Enforcement Standard. All analyses performed using EPA Method 8240.

Sampling Location	Sampling Date	Sampling Medium	Chemical Parameter[1]	Result (ppb)	Enforcement Standard[2] (ppb)
MW-1B	1/20/92	Groundwater	Benzene Ethyl Benzene Toluene Total Xylenes	55.0 3,490 1,360 16,800	5.0 680 2,420 400
MW-1B	5/18/92	Groundwater	Benzene Ethyl Benzene Toluene Xylenes	ND 1,540 487 9,500	5.0 680 2,420 400
Battenkill River - Upstream	1/20/92	Surface Water	All Method 8240 parameters	None Detected	--
Battenkill River - Downstream	1/20/92	Surface Water	All Method 8240 parameters	None Detected	--
Seep #1	5/18/92	Groundwater	All Method 8240 parameters	None Detected	--
Seep #2	5/18/92	Groundwater	1,2-Dichlorobenzene	<5	620
Seep #3	5/18/92	Groundwater	All Method 8240 parameters	ND	--

[1] All chemical parameters analyzed with EPA Method 8240, and not listed, were not detected.
[2] Enforcement Standard, from Groundwater Protection Rule and Strategy, Table 1, page 27.

[TB2-MANCHESTER/DAG 6/25/92]

WH&N

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

DATE: January 29, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM6681
COLLECTED BY: Dean Grover/WH&N
DATE SAMPLED: January 6-8, 1992
DATE RECEIVED: January 9, 1992

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight.

Parameter	Reference Number			
	27,465	27,466	27,467	27,468
Total Arsenic	8.06	2.60	6.74	4.72
Total Cadmium	55.9	NR	NR	NR
Total Chromium	33.0	4.43	13.5	7.75
Total Copper	212.	NR[1]	NR	NR
Total Lead	882.	NR	NR	NR
Total Mercury	1.05	NR	NR	NR
Total Nickel	26.4	NR	NR	NR
Total Selenium	<2.28	NR	NR	NR
Total Silver	<0.667	NR	NR	NR
Total Zinc	1,206.	NR	NR	NR
Total Antimony	<5.34	NR	NR	NR
Total Beryllium	0.124	NR	NR	NR
Total Thallium	<0.240	NR	NR	NR

Sample ID:

27,465: TP-D; 1:30 p.m.
27,466: TP-H; 2:40 p.m.
27,467: SB-2 4.5-6.5 FT. BGS; 1:45 p.m.
27,468: SB-3 5-7 FT. BGS; 4:15 p.m.

Notes:

1 Not requested by client

Reviewed by Suzanne Thrasher

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

DATE: February 18, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM6860
COLLECTED BY: Dean Grover
DATE SAMPLED: January 6 & 8, 1992
DATE RECEIVED: January 8, 1992

Tested parameters are reported in milligrams per liter (ppm). Extraction performed by TCLP test procedure.

Parameter	Reference Number	
	28,134	28,135
Arsenic	0.006	<0.004
Cadmium	0.647	NR[1]
Chromium	<0.004	<0.004
Copper	0.010	NR
Lead	0.093	NR
Mercury	<0.001	NR
Nickel	0.119	NR
Zinc	3.03	NR
Barium	0.840	NR

Sample ID:

28,134: TP-D
28,135: SB-2 4.5 - 6.5 ft. BGS

Notes:

1 Not requested by client

Reviewed by: Suzanne Glendale

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

DATE: June 11, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM3002
COLLECTED BY: DAG/CA
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight.

Parameter	Reference Number	
	30,896	30,897
Antimony	<3.79	<5.69
Beryllium	<0.379	<0.569
Thallium	<0.151	<0.228
Arsenic	8.42	10.0
Cadmium	2.61	13.7
Chromium	5.14	11.5
Copper	18.9	170.
Lead	590.	8,826.
Mercury	0.172	0.290
Nickel	8.84	9.90
Selenium	<1.89	<2.85
Silver	<0.758	<1.14
Zinc	259.	559.

Sample ID:

30,896: TP-M 0.6 FT BGS; 9:20 a.m. (BENEATH WASTE OIL TANKS)
30,897: TP-T 3-4 FT BGS; 11:57 a.m. (WASTE OIL DEPOSIT)

Reviewed by

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
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LABORATORY REPORT

DATE: June 17, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM3005
COLLECTED BY: DAG/CA
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight.

Parameter	Reference Number			
	30,906	30,907	30,908	30,909
Antimony	<4.37	<4.38	<6.29	<5.85
Beryllium	<0.437	<0.541	<0.629	<0.585
Thallium	<0.173	<0.216	<0.252	<0.234
Arsenic	7.70	8.23	10.6	11.7
Cadmium	2.45	2.80	9.80	1.60
Chromium	6.02	6.76	17.7	3.63
Copper	25.8	19.4	122.	19.5
Lead	482.	607.	697.	82.8
Mercury	0.247	<0.133	1.04	0.282
Nickel	8.63	11.3	15.7	8.03
Selenium	<2.16	<2.71	<3.14	<2.93
Silver	<0.874	<1.08	<1.26	<1.17
Zinc	122.	181.	350.	64.7

Sample ID:

30,906: Seep #1-Soil; 9:45 a.m.
30,907: Seep #1-Soil-Duplicate; 9:45 a.m.
30,908: Seep #2-Soil; 10:55 a.m.
30,909: Seep #3-Soil; 10:30 a.m.

Reviewed by

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

DATE: June 15, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM3003
COLLECTED BY: DAG/CA
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

Tested parameters are reported in milligrams per kilogram (mg/kg), dry weight.

Reference #	Station ID	Time	Total Arsenic	Total Chromium
30,898	SS-1	12:00 p.m.	7.63	3.65
30,899	SS-2	1:20 p.m.	5.66	3.75
30,900	SS-2 Duplicate	1:20 p.m.	5.70	2.83
30,901	SS-3	1:15 p.m.	10.3	2.95
30,902	SS-4	11:50 p.m.	7.00	12.0
30,903	SS-5	8:50 p.m.	2.76	1.33
30,904	SS-6	11:15 p.m.	7.77	9.86

Reviewed by

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
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LABORATORY REPORT

DATE: June 15, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM3004
COLLECTED BY: DAG/CA
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

Tested parameters are reported in milligrams per liter (ppm).

Parameter	Reference Number
	30,905
Dissolved Antimony	<0.050
Dissolved Beryllium	<0.005
Dissolved Thallium	<0.002
Dissolved Arsenic	0.010
Dissolved Cadmium	<0.005
Dissolved Chromium	<0.010
Dissolved Copper	<0.010
Dissolved Lead	0.008
Dissolved Mercury	0.003
Dissolved Nickel	<0.020
Dissolved Selenium	<0.005
Dissolved Silver	<0.010
Dissolved Zinc	<0.010

Sample ID:

30,905: GW-Seep #2; 10:50 a.m.

Reviewed by Suzanne Hindel

ENDYNE, INC.

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LABORATORY REPORT

EPA METHOD 8240 -- SOIL EXTRACTION VOLATILES

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: Seep #1 Soil
REF.#: 30,910
TIME SAMPLED: 9:45

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	ND
1,4 Dichlorobenzene	5	ND

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EPA METHOD 8240 (continued) Ref.#: 30,910

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 5

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 8240 -- SOIL EXTRACTION VOLATILES

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: Seep #1 Soil Duplicate
REF.#: 30,913
TIME SAMPLED: 9:45

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	ND
1,4 Dichlorobenzene	5	ND

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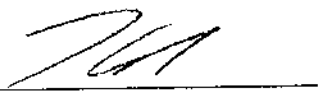
EPA METHOD 8240 (continued) Ref.#: 30,913

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by 

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LABORATORY REPORT

EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992
REVISED REPORT: June 17, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: GW Seep #1
REF.#: 30,915
TIME SAMPLED: 9:40

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	ND
1,4 Dichlorobenzene	5	ND

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EPA METHOD 8240 (continued) Ref.#: 30,915

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 8240 -- SOIL EXTRACTION VOLATILES

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: Seep #2 Soil
REF.#: 30,911
TIME SAMPLED: 10:55

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	ND
1,4 Dichlorobenzene	5	ND

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EPA METHOD 8240 (continued) Ref.#: 30,911

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 3

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992
REVISED REPORT: June 17, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: GW Seep #2
REF.#: 30,916
TIME SAMPLED: 10:50

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	TBQ[2]
1,4 Dichlorobenzene	5	ND

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EPA METHOD 8240 (continued) Ref.#: 30,916

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected
2 Trace below quantitation limit

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LABORATORY REPORT

EPA METHOD 8240 -- SOIL EXTRACTION VOLATILES

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: Seep #3 Soil
REF.#: 30,912
TIME SAMPLED: 10:30

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	ND
1,4 Dichlorobenzene	5	ND

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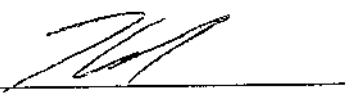
EPA METHOD 8240 (continued) Ref.#: 30,912

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by 

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LABORATORY REPORT

EPA METHOD 8240

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992
REVISED REPORT: June 17, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: GW Seep #3
REF.#: 30,917
TIME SAMPLED: 10:25

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	ND
1,4 Dichlorobenzene	5	ND

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EPA METHOD 8240 (continued) Ref.#: 30,917

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 8240 -- SOIL EXTRACTION VOLATILES

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: Soil Trip Blank
REF.#: 30,914
TIME SAMPLED: 6:00

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	ND
1,4 Dichlorobenzene	5	ND

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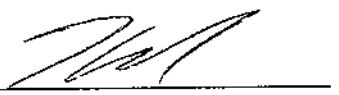
EPA METHOD 8240 (continued) Ref.#: 30,914

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	ND
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by 

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1007
ANALYSIS DATE: May 28, 1992
STATION: MW 1B
REF.#: 30,920
TIME SAMPLED: 8:55

Parameter	Minimum Detection Limit	Concentration (ug/L)
Benzene	1.	ND[1]
Chlorobenzene	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	1,540.
Toluene	1.	487.
Xylenes	1.	9,500.
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 8

NOTES:

1 None detected

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Laboratory Services

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LABORATORY REPORT

EPA METHOD 8240 -- SOIL EXTRACTION VOLATILES

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: TP-M 0.6 FT BGS BENEATH WASTE OIL TANKS
REF.#: 30,918
TIME SAMPLED: 9:20

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Acetone	100	ND[1]
Benzene	5	ND
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	180.
1,4 Dichlorobenzene	5	ND

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EPA METHOD 8240 (continued) Ref.#: 30,918

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	33.3
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	177.
Toluene	5	45.4
1,1,1-Trichloroethane	5	TBQ[2]
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	1,560.
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 20

NOTES:

1 None detected
2 Trace below quantitation limit

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 8240 -- SOIL EXTRACTION VOLATILES

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: June 3, 1992
SAMPLER: D. Grover/C. Aldrich
DATE SAMPLED: May 18, 1992
DATE RECEIVED: May 19, 1992

PROJECT CODE: HNMM1006
ANALYSIS DATE: May 29, 1992
STATION: TP-T 3-4 FT BGS WASTE OIL DEPOSIT
REF.#: 30,919
TIME SAMPLED: 11:57

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Acetone	100	ND[1]
Benzene	5	TBQ[2]
Bromodichloromethane	5	ND
Bromoform	5	ND
Bromomethane	10	ND
2-Butanone	100	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	10	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	5	ND
Chloromethane	10	ND
Dibromochloromethane	5	ND
1,1-Dichloroethane	5	ND
1,2-Dichloroethane	5	ND
1,1-Dichloroethene	5	ND
trans-1,2-Dichloroethene	5	ND
1,2-Dichloropropane	5	ND
cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,3 Dichlorobenzene	5	ND
1,2 Dichlorobenzene	5	552.
1,4 Dichlorobenzene	5	ND

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 8240 (continued) Ref.#: 30,919

Parameter	Quantitation Limit (ug/kg)	Concentration (ug/kg dry wt.)
Ethyl Benzene	5	2,650.
2-Hexanone	50	ND
4-Methyl-2-Pentanone	50	ND
Methylene Chloride	5	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Tetrachloroethene	5	ND
Toluene	5	856.
1,1,1-Trichloroethane	5	ND
1,1,2-Trichloroethane	5	ND
Trichloroethene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Acetate	50	ND
Vinyl Chloride	10	ND
Total Xylenes	5	68,900.
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 20

NOTES:

1 None detected

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 8240--TCLP

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: July 6, 1992
SAMPLER: D. Grover
DATE SAMPLED: May 18, 1992
DATE RECEIVED: June 24, 1992

PROJECT CODE: HNMM1385
ANALYSIS DATE: July 1, 1992
STATION: TP-T 3-4' BGS
REF.#: 32,515
TIME SAMPLED: 11:57 a.m.

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	50	ND[1]
Benzene	2	ND
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 8240 (continued) Ref.#: 32,515

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Ethyl Benzene	3	ND
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	ND
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	243.
MTBE	5	ND
Trichloroflouromethane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 7

NOTES:

1 None detected

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 8270 -- GC/MS BASE/NEUTRALS AND ACIDS--TCLP

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Manchester Motors
REPORT DATE: July 10, 1992
SAMPLER: D. Grover
DATE SAMPLED: May 18, 1992
DATE RECEIVED: June 24, 1992

PROJECT CODE: HNMM1384
ANALYSIS DATE: July 8, 1992
STATION: TP-T 3-4' BGS
REF. #: 32,514
TIME SAMPLED: 11:57 a.m.

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
BASE/NEUTRAL EXTRACTABLES:		
Acenaphthene	1	ND[1]
Acenaphthylene	1	ND
Acetophenone	1	ND
Aldrin	1	ND
Anthracene	1	ND
4-Aminobiphenyl	1	ND
Benzidine	1	ND
Benzo(a)anthracene	1	ND
Benzo(b)fluoranthene	1	ND
Benzo(k)fluoranthene	1	ND
Benzo(a)pyrene	1	ND
Benzo(ghi)perylene	1	ND
Benzyl butyl phthalate	1	ND
alpha-BHC	1	ND
beta-BHC	1	ND
gamma-BHC	1	ND
y-BHC (Lindane)	1	ND
Bis(2-chloroethyl)ether	1	ND
Bis(2-chloroethoxy)methane	1	ND
Bis(2-ethylhexyl)phthalate	1	ND
Bis(2-chloroisopropyl)ether	1	ND
4-Bromophenyl phenyl ether	1	ND
Butyl benzyl phthalate	1	ND
4-Chloroaniline	1	ND
Chlordane	1	ND
1-Chloronaphthalene	1	ND
2-Chloronaphthalene	1	ND
4-Chlorophenyl phenyl ether	1	ND
Chrysene	1	ND
4,4'-DDD	1	ND
4,4'-DDE	1	ND
4,4'-DDT	1	ND
Dibenzofuran	1	ND

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
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EPA METHOD 8270 (continued) REF. #: 32,514

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Dibenz(a,j)acridine	1	ND
Dibenzo(a,h)anthracene	1	ND
Di-n-butylphthalate	1	ND
1,3-Dichlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
3,3'-Dichlorobenzidine	1	ND
Dieldrin	1	ND
Diethyl phthalate	1	ND
Dimethyl phthalate	1	ND
p-Dimethylaminoazobenzene	1	ND
7,12-Dimethylbenz(a)anthracene	1	ND
a-,a-Dimethylphenethylamine	1	ND
2,4-Dinitrotoluene	1	ND
2,6-Dinitrotoluene	1	ND
Diphenylamine	1	ND
1,2-Diphenylhydrazine	1	ND
Di-n-octylphthalate	1	ND
Endosulfan I	1	ND
Endosulfan II	1	ND
Endosulfan sulfate	1	ND
Endrin	1	ND
Endrin aldehyde	1	ND
Endrin Keytone	1	ND
Ethyl methanesulfonate	1	ND
Fluoranthene	1	ND
Fluorene	1	ND
Heptachlor	1	ND
Heptachlor epoxide	1	ND
Hexachlorobenzene	1	ND
Hexachlorobutadiene	1	ND
Hexachlorocyclopentadiene	1	ND
Hexachloroethane	1	ND
Indeno(1,2,3-cd)pyrene	1	ND
Isophorone	1	ND
Methoxychlor	1	ND
3-Methylcholanthrene	1	ND
Methyl methanesulfonate	1	ND
2-Methylnaphthalene	1	ND
Naphthalene	1	1.19
1-Naphthylamine	1	ND
2-Naphthylamine	1	ND
2-Nitroaniline	1	ND
3-Nitroaniline	1	ND
4-Nitroaniline	1	ND
Nitrobenzene	1	ND
N-Nitroso-di-n-butylamine	1	ND

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 8270 (continued) REF. #: 32,514

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
N-Nitrosodimethylamine		
N-Nitrosodiphenylamine	1	ND
N-Nitrosodipropylamine	1	ND
N-Nitrosopiperidine	1	ND
PCB-1016	1	ND
PCB-1221	1	ND
PCB-1232	1	ND
PCB-1242	1	ND
PCB-1248	1	ND
PCB-1254	1	ND
PCB-1260	1	ND
Phenacetin	1	ND
Phenanthrene	1	ND
2-Picoline	1	ND
Pronamide	1	ND
Pyrene	1	ND
Toxaphene	1	ND
1,2,4-Trichlorobenzene	1	ND
1,2,4,5,-Tetrachlorobenzene	1	ND
ACID EXTRACTABLES:		
Benzyl alcohol	1	ND
4-Chloro-3-methylphenol	1	ND
2-Chlorophenol	1	ND
2,4-Dichlorophenol	1	ND
2,6-Dichlorophenol	1	ND
2,4-Dimethylphenol	1	ND
2,4-Dinitrophenol	1	ND
4,6-Dinitro-2-methylphenol	1	ND
2-Methylphenol (o-cresol)	1	ND
4-Methylphenol (p-cresol)	1	ND
2-Nitrophenol	1	ND
4-Nitrophenol	1	ND
Pentachlorophenol	1	ND
Phenol	1	ND
2,3,4,6,-Tetrachlorophenol	1	ND
2,4,5-Trichlorophenol	1	ND
2,4,6-Trichlorophenol	1	ND
Pyridine	1	ND

NUMBER OF UNIDENTIFIED PEAKS: 5

NOTES:

1 None detected

Reviewed by: _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

DATE: July 9, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM3383
COLLECTED BY: D. Grover
DATE SAMPLED: May 18, 1992
DATE RECEIVED: June 24, 1992

Tested parameters are reported in milligrams per liter (ppm), extraction by TCLP test procedure.

Parameter	Reference Number
	32,513
Arsenic	<0.100
Cadmium	0.035
Chromium	<0.010
Copper	<0.010
Lead	20.0
Mercury	<0.001
Nickel	0.033
Zinc	3.29

Sample ID:

32,513: TP-T 3-4' BGS; 11:57 a.m.

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

DATE: July 28, 1992
CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT: Manchester Motors
PROJECT CODE: HNMM3707
COLLECTED BY: DAG
DATE SAMPLED: July 17, 1992
DATE RECEIVED: July 17, 1992

Tested parameters are reported in milligrams per liter (ppm), extraction performed by TCLP test procedure.

Reference #	Station ID	Lead
33,310	TP-T (Repeat); 9:30 a.m.	8.87
33,311	TP-X; 9:45 a.m.	1.10
33,312	TP-Y; 10:00 a.m.	0.390
33,313	TP-Z; 10:15 a.m.	3.52
33,314	TP-BB; 10:30 a.m.	7.04
33,315	TP-CC; 10:45 a.m.	5.59

Reviewed by Suzanne Fredette

Wagner, Heindel, and Noyes, Inc. consulting geologists
P.O. Box 1629 Burlington, Vermont 05402-1629 802-658-0820

MANCHESTER MOTORS
Manchester, Vermont
Test Pit Logs

June 18, 1992, revised August 12, 1992

The following soil logs were recorded by Dean Grover of Wagner, Heindel, and Noyes (WH&N) on May 18, 1992 during excavation of test pits TP-L through TP-W. Locations of all test pits are provided on the accompanying blueprint. Airborne volatile organic compounds were recorded on the sidewalls of each test pit (½" to 1" from the soil), using a Photovac Microtip equipped with a 10.6 eV ultraviolet lamp. (In some instances, as noted, PID levels were recorded in soils equilibrated in closed ziploc bags.) The Microtip was calibrated to 56.8 ppm benzene equivalents at 5:12 a.m., May 18, 1992. Background levels of VOCs recorded at the site at the start of the test pit activity (8:00 a.m.) were 1.3. TP-X through TP-CC were excavated July 17, 1992 to evaluate the extent of waste oil contamination, and to collect soil samples for TCLP lead analysis.

TP-L
[Location: East side of service garage, 18 feet north of southeast corner of this building.]

0 - 1.8'	Sandy gravels with 30-40% cobbles and boulders. Microtip (Tip) = 1.2; background = 1.2 No signs of oil staining. SS-5 collected in this test pit. Total depth (TD) = 1.8'.

TP-M
[Location: Beneath former location of above-ground waste oil tank. Some surface oil staining visible at this spot.]

0 - 0.6'	Black oily sandy gravel with boulders. Tip (in ziploc bag) = 25.1 Soil sample collected at 0.6' bgs.
0.6' - 2.0'	Same soils as described above, but color change from black to medium brown at 1.5' bgs. Tip at 2.0' bgs (in ziploc bag) = 25.1
2.0' - 3.5'	Oily-stained soils appear to extend to about 2.5-3.0' bgs. At 3.3', tip (in ziploc bag) = 0.7 Areal extent of contamination is approximately 5'x5'. However, contamination continues beneath asphalt onto residence to east of Manchester Motors property. TD = 3.5'.

TP-N
[Location: Just downgradient of former location of gasoline pump island.]

0 - 3.5'	Fill, with asphalt surfaces at 2.8' and at 3.5' bgs.

MANCHESTER MOTORS
Manchester, Vermont
Test Pit Logs

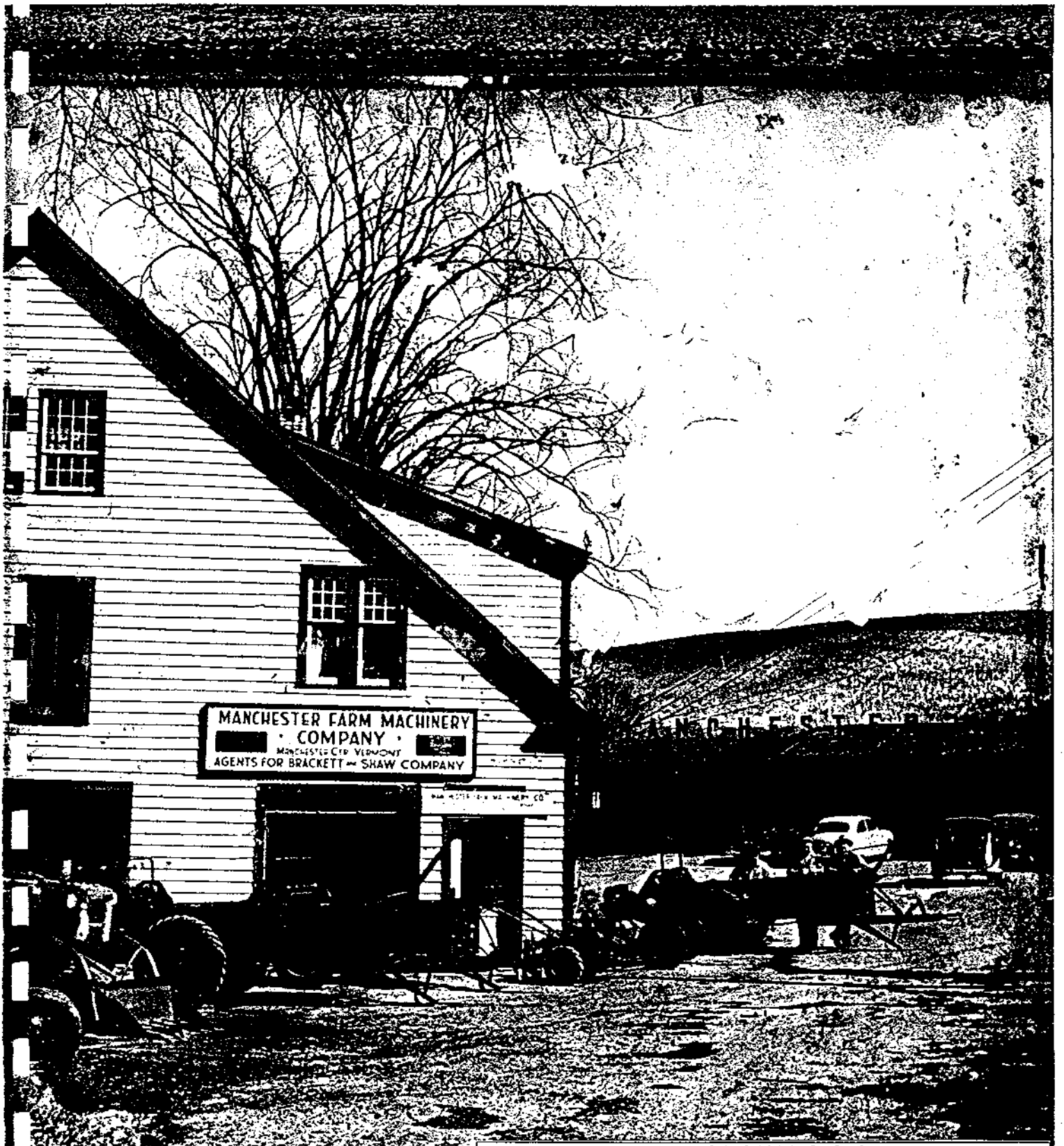
3.5' - 6.3'	Sandy gravels with cobbles. Occasional pockets of finer soils. Tip = 1.1 at 4' bgs. Petroleum odor. At 6.3' bgs, bedrock. Tip = 3.4. TD = 6.3'.
TP-O *[Location: Downgradient of former location of gasoline USTs.]*	
0 - 2.4'	Sandy gravel (no fill evident). Spotty petroleum products held in light brown silty medium sand lenses.
2.4' - 3.8'	Till with abundant cobbles and boulders, moist to wet. Tip = 3.7 at 3.8'. At 3.8', refusal on bedrock.
TP-P *[Location: Downgradient of former gasoline USTs:]*	
0 - 2.8'	Sandy gravel with light tan sand streaks. Tip = 0.
2.8' - 4.4'	Wet till. At 4.4', bedrock. Water entering south (uphill) side of hole along till-bedrock interface. Tip = 0.
TP-Q *[Location: Downgradient of former location of gasoline USTs.]*	
0 - 1.4'	Gravelly pebbles and asphalt.
1.4' - 4.6'	Till with cobbles. Tip = 0 at 2.4'. Tip = 0 at 4.6', refusal on bedrock.
TP-R and TP-S *[Location: Along north side of sales garage, looking for underground storage tank.]*	
	(No soils logged in these test pits.) Total depth of TP-R = 4.0'; total depth of TP-S = 5.5'.
TP-T (Reopened July 17, 1992) *[Location: Along top of bank beside Battenkill River.]*	
0 - 0.5'	Topsoil (thin, some roots).
0.5' - 4.3'	Sands and gravels with abundant rounded cobbles and boulders.

MANCHESTER MOTORS
Manchester, Vermont
Test Pit Logs

1.9' - 3.1'	Dark waste oil staining with distinctive waste oil smell. Soil sample collected from 1.9' - 3.1'. Tip (in pint plastic bottle) = 172.
TP-U *[Location: Along top of bank.]*	
0 - 1.5'	Clean fill.
1.5' - 3.5'	Trash (ash, cans, glass) Tip = 0.
3.5' - 5.0'	Old A & B horizons. At 5', refusal on bedrock.
TP-V *[Location: Along top of bank (between test pits T and U.]*	
0 - 1.5'	Clean fill.
1.5' - 3.0'	Black and rust-colored trash. Tip = 0.
3.0' - 5.0'	More trash, including steel cables. At 5.5', refusal on bedrock.
TP-W *[Location: Behind service garage.]*	
0 - 5.0'	Fill with large cobbles and concrete blocks.
5.0' - 8.5'	Trash. Appears to be old. Bottom of trash not encountered in this test pit. Tip = 0.
TP-X *[Location: Along top of bank.]*	
0 - 1.7'	Soils identical to TP-T.
1.7' - 2.9'	Wood ash, some waste oil in east side of pit from 1.0' - 1.3'. Soil sample taken at 1.0' - 3.0'. Tip (bottled) = 46.9'. Total depth = 4.5'.
TP-Y *[Location: Along top of bank.]*	
0 - 1.4'	Same soils as TP-T, with more sand.
1.4' - 3.7'	Waste oil, staining with some sweet solvent odors; wire cable oil filters and other debris.

MANCHESTER MOTORS
Manchester, Vermont
Test Pit Logs

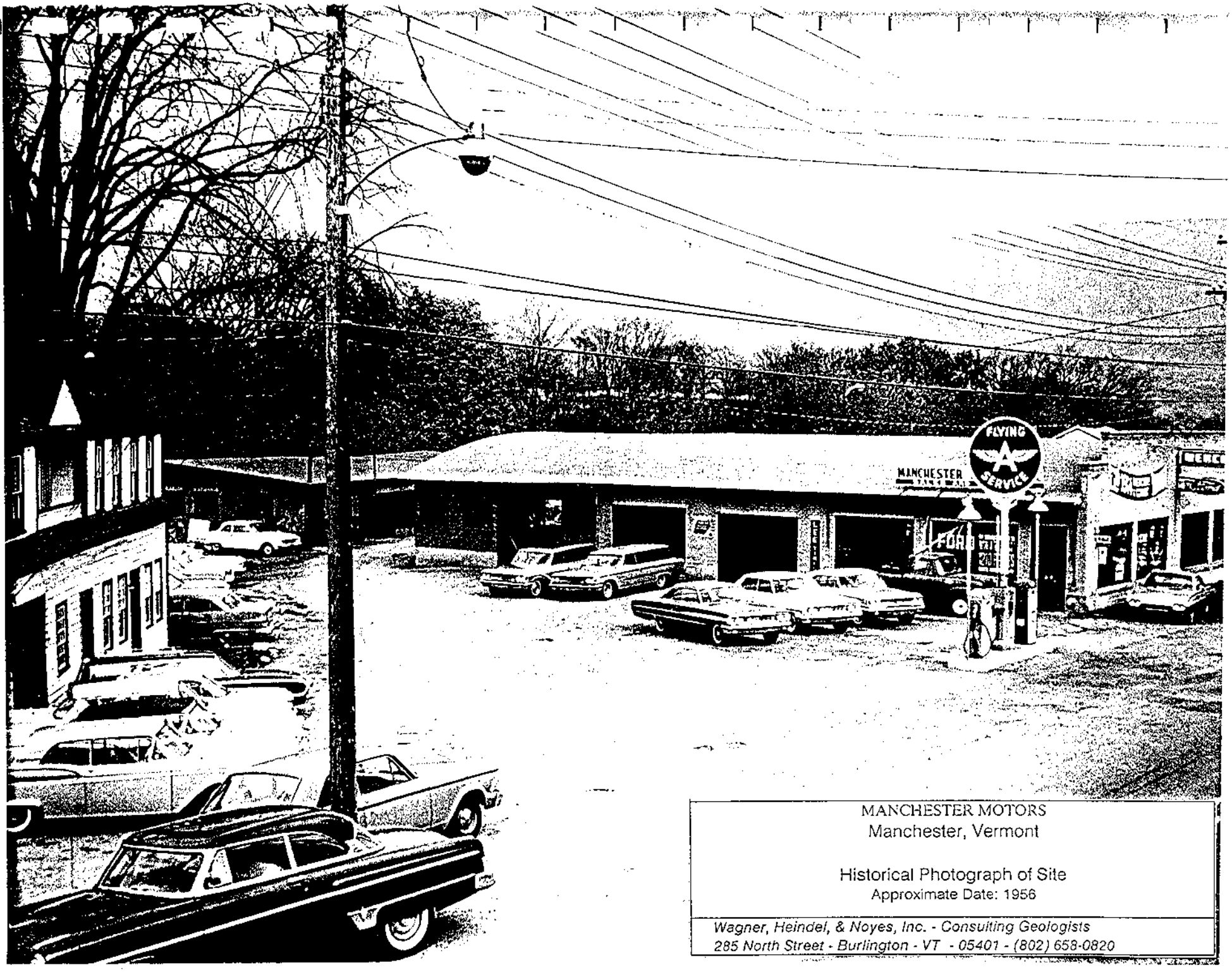
3.7' - 5.1'	Medium brown unstained gravels, cobbles and boulders. Total depth = 5.1'. Soil samples taken from 1.4' - 3.7'. Tip (bottled) = 1,216. Note: Oil stains ran upward towards surface of ground to south end of pit. Soil stains are near ground surface approximately 10 ft from the top of bank. Stains noted on both sides of this pit and are generally interfingered with fairly clean looking well sorted medium sands.
TP-Z *[Location: Along top of bank.]*	
0 - 4.8'	Fill material in discrete layers of cobbles, boulders, gravels and sands with thin (1" - 3") lenses of waste oil contaminated horizons (black). Waste oil noted from 2.0'- 3.5'. Total depth = 4.8'. Soil sample taken from 2.0' - 3.5'. Tip = 26.6.
TP-AA *[Location: Along top of bank.]*	
0 - 4.8'	Fill as previously noted. Black contaminated soils from 2.0' - 3.0' on all three sides of pit. Total depth = 4.8'. No soils samples.
TP-BB *[Location at northwest corner of service garage].*	
0 - 4.0'	Waste oil stains on west side of pit only, approximately 4' from building wall. Soil stains noted from 1.7'-2.1' below ground surface. Soil sample taken at 1.7' - 2.1'. Tip = 1.1. Total depth = 4.0'.
TP-CC *[Location over bank approximately 15' north of TP-T].*	
0 - 2.0'	Gravelly fill with refuse, very heavily stained with waste oil from surface to total depth at approximately 2' below ground surface. Sample taken over 0 - 2' depth. Tip (bottled = 199)



MANCHESTER MOTORS
Manchester, Vermont

Historical Photograph of Site
Approximate Date: 1950

Wagner, Heindel, & Noyes, Inc. - Consulting Geologists
285 North Street - Burlington - VT - 05401 - (802) 658-0820



MANCHESTER MOTORS
Manchester, Vermont

Historical Photograph of Site
Approximate Date: 1956

Wagner, Heindel, & Noyes, Inc. - Consulting Geologists
285 North Street - Burlington - VT - 05401 - (802) 658-0820

October 11, 1984

Mr. Brook Nelson
Manchester Motors, Inc.
Manchester Center, Vermont 05255

Reference: Concealed Conditions at
New Maintenance Building Site

Dear Nelson:

As you are aware, we have discovered and have to contend with an old foundation at the site of your new shop. This is a condition that we were unaware of and consequently we made no provisions for this work in our specifications and/or contract price.

Therefore, I have instructed Bruce Potekhen, our Project Manager, and his subcontractors to deal with the condition in the most efficient and cost effective manner possible.

Once that this work has been completed, I will assemble our actual costs, prepare an additional work order, and review same with you. We are confident that you will find our solution and the extra costs incurred to be very reasonable.

Within the next few days I will be contacting you with more infomation pertaining to the above matter.

Very truly yours,

THE RUTLAND GROUP, INC.
BUILDING SYSTEMS DIVISION

Erik H. Golubjatnikov
Vice President

EHG/mm

CHANGE ORDER

AIA DOCUMENT G701

Distribution to:
OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
FIELD ☐
OTHER ☐

PROJECT: M.M.
(name, address)

CHANGE ORDER NUMBER: 11093-03

INITIATION DATE:

TO (Contractor):

ARCHITECT'S PROJECT NO:

CONTRACT FOR:

CONTRACT DATE:

You are directed to make the following changes in this Contract:

EXCAVATE AND REMOVE CISTERN

$ 614

Not valid until signed by both the Owner and Architect.
Signature of the Contractor indicates his agreement herewith, including any adjustment in the Contract Sum or Contract Time.

The original (Contract Sum) (Guaranteed Maximum Cost) was	$
Net change by previously authorized Change Orders	$
The (Contract Sum) (Guaranteed Maximum Cost) prior to this Change Order was	$
The (Contract Sum) (Guaranteed Maximum Cost) will be (increased) (decreased) (unchanged) by this Change Order	$
The new (Contract Sum) (Guaranteed Maximum Cost) including this Change Order will be	$
The Contract Time will be (increased) (decreased) (unchanged) by	( ) Days.
The Date of Substantial Completion as of the date of this Change Order therefore is	

Authorized:

ARCHITECT	CONTRACTOR	OWNER
Address	Address	Address
BY	BY	BY
DATE	DATE	DATE

CHANGE ORDER

AIA DOCUMENT G701

Distribution to:
OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
FIELD ☐
OTHER ☐

PROJECT:
(name, address)

TO (Contractor):

CHANGE ORDER NUMBER: 11003-08

INITIATION DATE:

ARCHITECT'S PROJECT NO:

CONTRACT FOR:

CONTRACT DATE:

You are directed to make the following changes in this Contract:

REMOVE EXISTING SLAB AND HAUL TO SUITABLE SITE.

$1504

Not valid until signed by both the Owner and Architect.
Signature of the Contractor indicates his agreement herewith, including any adjustment in the Contract Sum or Contract Time.

The original (Contract Sum) (Guaranteed Maximum Cost) was	$
Net change by previously authorized Change Orders	$
The (Contract Sum) (Guaranteed Maximum Cost) prior to this Change Order was	$
The (Contract Sum) (Guaranteed Maximum Cost) will be (increased) (decreased) (unchanged) by this Change Order	$
The new (Contract Sum) (Guaranteed Maximum Cost) including this Change Order will be	$
The Contract Time will be (increased) (decreased) (unchanged) by	( ) Days.
The Date of Substantial Completion as of the date of this Change Order therefore is	

ARCHITECT	CONTRACTOR	Authorized: OWNER
Address	Address	Address
BY	BY	BY
DATE	DATE	DATE

CHANGE ORDER

AIA DOCUMENT G701

Distribution to:
OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
FIELD ☐
OTHER ☐

4

PROJECT:
(name, address)

CHANGE ORDER NUMBER: 11003-07

INITIATION DATE:

TO (Contractor):

ARCHITECT'S PROJECT NO:

CONTRACT FOR:

CONTRACT DATE:

You are directed to make the following changes in this Contract:

DUMP FEES TO COVER MATERIALS FROM BUILDING, CISTERN, AND SLAB REMOVED FROM SITE.

$968

Not valid until signed by both the Owner and Architect.
Signature of the Contractor indicates his agreement herewith, including any adjustment in the Contract Sum or Contract Time.

The original (Contract Sum) (Guaranteed Maximum Cost) was	$
Net change by previously authorized Change Orders	$
The (Contract Sum) (Guaranteed Maximum Cost) prior to this Change Order was	$
The (Contract Sum) (Guaranteed Maximum Cost) will be (increased) (decreased) (unchanged) by this Change Order	$
The new (Contract Sum) (Guaranteed Maximum Cost) including this Change Order will be	$
The Contract Time will be (increased) (decreased) (unchanged) by	( ) Days.
The Date of Substantial Completion as of the date of this Change Order therefore is	

Authorized:

ARCHITECT	CONTRACTOR	OWNER
Address	Address	Address
BY	BY	BY
DATE	DATE	DATE