



# State of Vermont

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Department of Environmental Conservation  
State Geologist  
Natural Resources Conservation Council  
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August 1, 1994

James Meagher  
Ruandaidh Realty Corp.  
Yonkers and Central Ave.  
Yonkers, N.Y. 10704

RE: Petroleum contamination at the Green Mountain Track in Pownal, VT  
(Site #93-1511)

Dear Mr. Meagher:

The Sites Management Section (SMS) has reviewed the report titled, "Contaminant Investigation Report" submitted by William Norland of Lincoln Applied Geology, Inc. dated July 20, 1994. Based on the information in this report, the SMS has concluded the following:

1. Potential environmental receptors from the dissolved contaminants in the area of the former underground storage tanks (USTs) include: the Green Mountain Race Track (GMRT) pond, the GMRT 750 GPM gravel well, and the Hoosic River. The SMS is most concerned with the GMRT well, since it is the sole water supply for the GMRT buildings and facility. Under pumping conditions the well may induce downward ground water flow from the upper area of the unconfined aquifer, as well as increase the rate of ground water (and contaminant) flow toward the pumping well.
2. Dissolved BTEX and MTBE ground water contaminant levels in April 1994 have decreased significantly since November 1993: TPW-1 decreased from 8,495 ppb BTEX and 3,570 ppb MTBE to 108 ppb BTEX and no detectable level of MTBE. Also contaminants have not appeared to have migrated significantly downgradient, since ground water sampled from all six recently installed monitoring wells contained almost no detectable contaminant levels (MW-1 and MW-2 contained 1 ppb each of MTBE which is well below the Vermont Ground Water Enforcement Standards).

Based on these findings, the SMS requests the following additional work completed:

1. Perform semi-annual ground water sampling for BTEX and MTBE on all onsite monitoring wells, as well as on the GMRT well after purging a minimum of three well volumes from the well. Please submit semi-annual reports to the SMS summarizing the data collected and providing recommendations and conclusions.



July 20, 1994

Mr. James Meagher  
Ruandaith Realty Corp.  
Yonkers and Central Ave.  
Yonkers, N.Y. 10704

RE: Contaminant Investigation Report - Green Mountain Race Track, Pownal,  
Vermont (VDEC Site #93-1511)

Dear Mr. Meagher:

Lincoln Applied Geology, Inc. (LAG) is pleased to submit the results of the contaminant investigation conducted at the Green Mountain Race Track (GMRT) in Pownal, Vermont. The GMRT is situated on the level valley bottom of the Hoosic River valley at an elevation of 580 feet above mean sea level (MSL). Mountains with elevations greater than 1,200 feet MSL flank the east and west walls of the valley. The site and former petroleum underground storage tanks (USTs) are shown on the General Location Map presented as **Figure 1**.

The contaminant investigation was performed in accordance with Mr. Chuck Schwer's letter dated December 27, 1993 and our work plan dated January 28, 1994. As Mr. Schwer requested by telephone, only six shallow wells and no deep ground water monitoring wells were installed during this initial phase of the investigation. The results indicate that there has only been a minimal impact to the surficial aquifer, and we do not believe that any remedial or corrective action is necessary. We are however, recommending an upgrade of the remaining USTs on-site, as well as, continued water quality monitoring on a semi-annual basis to satisfy the appropriate concerns of the VDEC.

Enclosed for your information and use are the following tables, figures, and appendices:

- Table 1,** Ground Water Elevation and Free Product Thickness;
- Table 2,** Photoionization Detector Assays;
- Table 3,** Ground Water Quality Results;
- Figure 1,** General Location Map;
- Figure 2,** Locations of Shallow Ground Water Monitoring Wells;
- Figure 3,** April 7, 1994 Ground Water Contour Map;
- Appendix A,** LAG Detailed Well Logs MW-1, 2, 3, 4, 5 and 6;
- Appendix B,** TSDB Well Logs MW-1, 2, 3, 4, 5 and 6;

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Mr. James Meagher  
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**Appendix C, April 7, 1994 Ground Water Quality Laboratory Reports;  
and  
Appendix D, Locations of Remaining USTs On-Site UST Removals.**

A subsurface contaminant investigation was performed at the GMRT in March 1994 in response to the discovery of petroleum product contamination of soils and ground water following the excavation of four former petroleum USTs. On November 10 and 11, 1993 the four USTs (3 gasoline and 1 diesel fuel) were pumped out, purged, cleaned, excavated and removed from the site by T. L. Boise Excavating of New Haven, Vermont.

Ground water in the excavation pit of a 20,000 gallon gasoline UST (UST #2A) located near the northern entrance gate was sampled on November 11, 1993 and found to contain 1,979 parts per billion (ppb) BTEX and <10 ppb MTBE. Soils from a depth of 10 to 13.5 feet contained up to 140 parts per million (ppm) volatile organic compounds (VOCs) as detected with a photoionization detector (PID).

Following excavation of a 2,000 gallon gasoline UST (UST #3B) near the shop building and dog kennels, gasoline contamination of soils ranging from 3 to 240 ppm was detected by PID from a depth of 1 to 12.5 feet. UST #3B was a leaky UST (LUST) containing three holes in the bottom and sides of the tank. Monitor well TPW-1 was installed in the test pit and a ground water sample collected from TPW-1 on November 11, 1993. Analysis showed TPW-1 contained 8,495 ppb BTEX and 3,570 ppb MTBE.

A 4,000 gallon diesel fuel UST (UST #3D) located immediately south of UST #3B contained a single hole in the tank side. Diesel fuel contamination of soils from 1 to 30 ppm was detected by PID in soils at a depth of 4.4 to 9 feet. The fourth tank, a 4,000 gallon gasoline UST (UST #3C) located west of USTs #3B and #3D, was competent and demonstrated no evidence of soil or ground water contamination.

The VDEC UST pull form, detailed descriptions, test pit logs, TPW-1 well log, photographs, and other related information are included in LAG's November 18, 1993 letter report to Ted Unkles of the VDEC. The water quality laboratory reports from TPW-1 and the 20K UST pit are included in LAG's January 6, 1994 letter to Chuck Schwer of the VDEC.



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## **Subsurface Investigation**

The subsurface contaminant investigation included: drilling and installation of six ground water monitor wells (MW-1, 2, 3, 4, 5 and 6); screening soil samples by PID and olfactory senses; descriptive logging of soils; collection of ground water samples for analysis of the petroleum contaminants BTEX and MTBE; a monitor well elevation and location survey; development of a ground water contour map; location of potential sensitive receptors; and preparation of a summary report with conclusions and recommendations for any additional investigative and/or remedial actions.

## **Monitor Well Installation**

Monitor wells MW-1, 2, 3, 4, 5, and 6 were drilled and installed on March 28, 29, and 30, 1994 by Tri State Drilling and Boring, Inc. (TSDB). The locations of test pit well TPW-1 and monitor wells MW-1, 2, 3, 4, 5, and 6 are shown on **Figure 2**. The actual direction of ground water flow in the vicinities of the former USTs and LUSTs was not known prior to installation of the monitor wells, so the wells were positioned between the LUSTs and the Hoosic River, the most likely ground water flow direction.

MW-1 is positioned approximately 100 feet NNE of gasoline LUST #3B, diesel LUST #3D, and TPW-1. MW-2, MW-3, and MW-4 are positioned approximately 200 feet W, 200 feet WSW, and 220 feet SW of the LUSTs, respectively. MW-5 is located approximately 25 feet W of the former 20K gallon gasoline UST pit, and MW-6 is approximately 270 feet WNW of the former UST.

Continuous soil samples were collected using a split-barrel sampler during drilling of MW-1, MW-3, and MW-5. This was done for detailed evaluation and description of the subsurface soils' stratigraphy. Soil samples were also screened for the presence of petroleum contaminants using the PID and olfactory senses. No petroleum odors (diesel or gasoline) were noted in any of the soil samples obtained during drilling, and no PID levels above background (BG) were detected by PID. This data indicates there was no evidence of soils or ground water petroleum contamination in the area of the borings at the time of drilling.

Soil samples from MW-1, 2, 3, and 4 consist of fluvial sands and gravels from grade to a depth of 13 to 19 feet, beneath which are layers of fine to medium sand with silt and lesser amounts of gravel to the bottom of the



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borings at 28 feet. Sands heaving into the auger presented drilling difficulties below 19 feet, resulting in the over-drilling of some borings without sampling prior to installation of the monitor well. The ground water surface was present at about 9 to 11 feet below grade.

Soil samples from MW-5 and 6 consist of finer grained silt, fine sand, and organic matter (roots and plant fragments) from 4 to 9 feet, beneath which are coarser fluvial sand and gravel deposits to approximately 17 feet. A low permeability fine grained silty clay deposit with alternating bands of fine sand was present from 17 feet to the bottom of the borings at 26 feet. Bedrock beneath the site is mapped as the Lower Ordovician age Canadian Limestone, consisting of gray, white calcite marble; gray calcitic dolomite; and black phyllite. This bedrock has more recently been classified as the Bascom formation. Bedrock was not encountered in any of the borings on-site, although it is expected to be present at depths greater than 70 feet.

A 25 foot long 2-inch diameter PVC monitor well was installed in each boring. The screened portion of the well (20 feet) was packed with clean sand, a bentonite seal placed above the sand, and either a flush mounted wellbox or stickup locking vandalgard securely cemented in place. The well was then developed by pumping until it was free of fines. The LAG detailed well logs with well construction details are included as **Appendix A**. The TSDB well logs are included as **Appendix B**.

### **Ground Water Conditions**

On April 7, 1994 a full PID and ground water level monitoring round was conducted prior to collection of ground water samples from monitor wells MW-1, 2, 3, 4, 5, 6, and TPW-1. A PID was used to determine the level of VOCs in the well headspace, and then the depth to ground water in each well was determined. Each well was properly purged prior to sampling, and then a ground water sample was collected for BTEX and MTBE analysis (modified Method 8260) at the MicroAssays of Vermont laboratory in Middlesex, Vermont.

Depth to ground water ranged from 9.02 to 11.35 feet below the well top of casing (TOC) in the monitor wells on April 7, 1994. No free phase petroleum product was detected in any of the monitor wells. The ground water elevation in the wells is presented as **Table 1**. Results of the monitor well headspace PID assays is presented as **Table 2**, indicating that very low levels of VOCs were detected in TPW-1 and MW-2, at 1.0 and 0.9 ppm, respectively.



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Ground water elevation data from all wells except TPW-1 were used to develop the ground water contour map presented as **Figure 3**. Test pit well 1 water level data was not used because the well is not vertical, resulting in abnormally low water level elevations in comparison to nearby wells MW-1 and MW-4. Review of **Figure 3** reveals a westward ground water flow direction toward the GMRT well (500 feet west of the LUSTs) and the Hoosic River, the ultimate zone of ground water discharge for the area. In the vicinity of the LUSTs, this westward ground water flow direction is oriented about 45 degrees due north of the estimated flow direction (southwestward) when the original well array was proposed. The slope or gradient of the ground water surface in the vicinity of the LUSTs is very low, at 0.0028 feet/foot. A ground water gradient of 0.0020 feet/foot was calculated in the vicinity of MW-5 and MW-6.

The very low ground water gradient within the permeable sand and gravel sediments of the Hoosic River valley bottom allow estimates to be made of ground water velocities and ground water residence times. Calculated ground water velocity rates range from 0.087 to 0.876 feet/day within the sand and gravel sediments. Under non-pumping conditions, such as were present during the ground water level survey and sampling on April 7, 1994, the estimated residence time for ground water to travel from the LUST area 500 feet to the GMRT gravel well is 570 to 5,708 days, or 1.56 to 15.6 years. It is anticipated that ground water velocities would greatly increase and residence times would greatly decrease when the GMRT well is pumping.

### Ground Water Quality

Laboratory reports of the April 7, 1994 ground water sampling event are included as **Appendix C**. These results have been summarized and are presented as **Table 3**. Review of **Table 3** indicates that well TPW-1, at the former location of gasoline LUST #3B, contains 108 ppb BTEX and <1 ppb MTBE. The majority of the dissolved contaminants are xylenes, at 103 ppb. Benzene was below the Maximum Contaminant Level (MCL) for drinking water at < 1 ppb. These contaminant levels represent a considerable concentration decrease from the 8,495 ppb BTEX and 3,570 ppb MTBE quantified from November 11, 1993 sampling event.

Ground water samples from wells MW-1 and MW-2 each contained 1 ppb MTBE and <6 ppb BTEX. MW-5, located downgradient immediately to the west of the former 20K gallon gasoline UST and former pit, contained no detectable levels of BTEX and MTBE. Since the former UST pit had been backfilled, a ground water sample at the same location as was sampled in



November 1993 could not be obtained. No well was installed in the former UST pit because the concrete and steel rebar that encased the former UST had been backfilled into the pit and would have presented significant drilling problems. Other wells with no detectable levels of dissolved BTEX and MTBE include MW-3, MW-4, and MW-6.

### **Potential Receptors**

Potential receptors from the petroleum contamination detected on-site are the GMRT 750 gallon per minute (GPM) well, located 500 feet west of LUSTs #3B and #3D, the GMRT pond, and the Hoosic River. The buildings located on-site have no subsurface basement areas into which petroleum vapors could migrate. As mentioned, the GMRT well was inoperable and not pumping in April 1994. As such, no representative ground water samples can be obtained until it is operational which may be sometime this summer depending upon the new owners' plans for the facility. In April, no obvious petroleum sheens were observed in the GMRT pond or the Hoosic River.

### **Conclusions**

The subsurface contaminant investigation allows the following conclusions to be made:

1. Subsurface unconsolidated sediments present beneath the site at MW-1, 2, 3 and 4 include sand and gravels from grade to 13 to 19 feet, below which are finer grained sands with silt to greater than 28 feet. At MW-5 and 6 silt, fine sand, and organic matter is present to a depth of 4 to 9 feet, below which are coarser sand and gravels to 17 feet. A low permeability silty clay deposit with thin layers of fine sand is present to depths greater than 26 feet.
2. During drilling and monitor well installation, soil and ground water contamination was not detected by PID, visual, or olfactory senses.
3. Ground water beneath the site is present at depths of 9 to 11 feet below grade, within the coarser sand and gravel deposits. The ground water flow direction on-site is westward toward the Hoosic River, the ultimate zone of ground water discharge for the area. The ground water gradient on-site is very low and ranges from 0.0020 to 0.0028 feet/foot.



4. Estimated calculated ground water velocities of 0.088 to 0.88 feet/day yield ground water residence times from the LUST area at TPW-1 to the GMRT well under non-pumping conditions of 1.56 to 15.6 years. Ground water velocities are expected to increase considerably and the residence times are expected to decrease when the GMRT well is pumping.
5. In November 1993 ground water contamination from dissolved BTEX and MTBE was detected initially in TPW-1 at former gasoline LUST #3B and in former 20K gallon UST #2A pit. At that time contaminant levels were: 8,495 ppb BTEX and 3,570 ppb MTBE in TPW-1; and 1,979 ppb BTEX and <10 ppb MTBE in the former 20K gallon UST pit.
6. Dissolved BTEX and MTBE ground water contaminant levels in April 1994 have decreased considerably since November 1993. TPW-1 contained 108 ppb BTEX and no detectable level (<1 ppb) MTBE, while MW-1 and MW-2 each contained only 1 ppb MTBE and no detectable levels (<6 ppb) of BTEX. MW-5, located downgradient of the former 20K gallon UST pit, contained no detectable levels of BTEX (<6 ppb) and MTBE (<1 ppb). Levels of dissolved BTEX and MTBE ground water contamination is limited to the area of the former LUSTs at TPW-1, with only very minor dissolved levels of MTBE (1 ppb) sidegradient and downgradient of the former LUSTs in MW-1 and MW-2, respectively.
7. Dissolved BTEX and MTBE ground water contamination detected in November 1993 in the former 20K gallon UST pit appears to be contained in this area, and has not migrated westward into MW-5 and MW-6 as evidenced by no detectable levels in the April 1994 sampling round. Since this UST was in good condition when excavated, the low level of contamination detected may have been from occasional minor spills during vehicle fillups and not from any large gasoline product releases or continual leakage during UST and pump operation.
8. Potential environmental receptors from the dissolved BTEX and MTBE in the area of the former LUSTs include the GMRT pond, the GMRT 750 GPM gravel well, and the Hoosic River. Of these, the GMRT well seems to be of the greatest concern since it is the



sole water supply for the GMRT buildings and facility. Under pumping conditions the well may induce downward ground water flow from upper portions of the unconfined aquifer, as well as increase the rate of ground water (and contaminant) flow toward the pumping well. It is unclear whether the GMRT well is separated vertically from the upper highly permeable unconfined sand and gravel aquifer by a low permeability confining unit which could help prevent the downward migration of contaminants into the well.

9. Presently four USTs remain on-site in the vicinity of the GMRT grandstand building as shown in **Appendix D**. The age of the USTs is believed to be greater than 30 years old as some of them may have been installed in 1963 when the GMRT was constructed. The construction of the USTs is probably single wall steel as were the four USTs previously excavated. In addition, at least two outdoor 275 gallon aboveground fuel oil tanks exist on-site for heating some out buildings. UST #1A, located on the south side of the building, is of 20,000 gallons capacity and contains fuel oil, probably for heating the building and water. USTs #1B and #1C are both located on the north side of the building. Each UST is of 10,000 gallons capacity and contains fuel oil. UST #3A, located on the south side of the building, is of 500 gallons capacity and contains gasoline for an backup emergency generator. The potential for serious soil and ground water contamination from these USTs is great.

## Recommendations

Based on the conclusions presented above, the following recommendations are made:

1. Pump all remaining fuel oil and gasoline from the four USTs and all outdoor petroleum above ground storage tanks (ASTs) remaining on-site. Excavate, clean, and remove from the site the remaining USTs and ASTs for proper disposal. Install replacement USTs or ASTs that meet current VDEC UST Program regulations. Petroleum product pumped from the former USTs can then be used in the new USTs or ASTs, sold, or disposed of properly by a licensed hazardous waste disposal company. ASTs for out buildings should be located indoors. The VDEC must be



Mr. James Meagher

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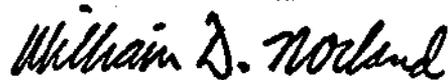
July 20, 1994

notified prior to the UST removals, and a qualified hydro-geological consultant should be present in order to evaluate the condition of the USTs as well as possible petroleum contamination of soils and ground water.

2. When the GMRT well is made operational, it should be pumped continuously at it's maximum yield for a period of one week while ground water levels are monitored continuously in all the on-site monitor wells. Ground water samples will then be collected from all monitor wells and the GMRT well and analyzed for the presence of BTEX and MTBE. All data gathered during the week long test will be summarized and presented along with all supporting data, conclusions, and recommendations to the VDEC. The purpose of the pump test is to determine the effects that the pumping GMRT well has on the shallow unconfined aquifer, and to determine whether shallow dissolved petroleum contamination is impacting the GMRT well, and at what levels.
3. Perform semi-annual ground water level, PID monitoring, and ground water sampling for BTEX and MTBE on all on-site monitor wells. At the same time, collect a sample of the GMRT well water for BTEX and MTBE analysis after purging a minimum of three well volumes from the well. Submit semi-annual reports summarizing the data collected, along with appropriate conclusions and recommendations to the VDEC.

If you have any questions or comments, please call me or John Amadon, Project Manager, at 802-453-4384.

Sincerely,



William D. Norland  
Hydrogeologist

Enclosures

cc: Chuck Schwer (VDEC)



Lincoln Applied Geology, Inc.  
Environmental Consultants

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Project: Green Mountain Race Track  
Location: Pownal, Vermont

Table I  
VDEC Site # 93-1511  
Sheet 1 of 1

**Ground Water Elevation/Product Level (feet)**

Data Point	TOC	4/7/94						
MW-1	100.00	89.19						
MW-2	99.93	88.58						
MW-3	98.43	88.80						
MW-4	98.29	89.08						
MW-5	95.52	85.76						
MW-6	94.27	85.25						
TPW-1	98.55	88.24						

Notes:

- 1 - Elevation datum assumed
- 2 - Reference elevation is elevation of top of PVC well casing
- Light Grey Cell = DRY
- Dark Grey Cell = Inaccessible

Project: Green Mountain Race Track  
Location: Pownal, Vermont

Table 2  
VDEC Site # 93-1511  
Sheet 1 of 1

**Photoionization Results (PID - ppm)**

Data Point	4-7-94							
MW-1	0.2							
MW-2	0.9							
MW-3	BG							
MW-4	0.2							
MW-5	BG							
MW-6	BG							
TPW-1	1.0							

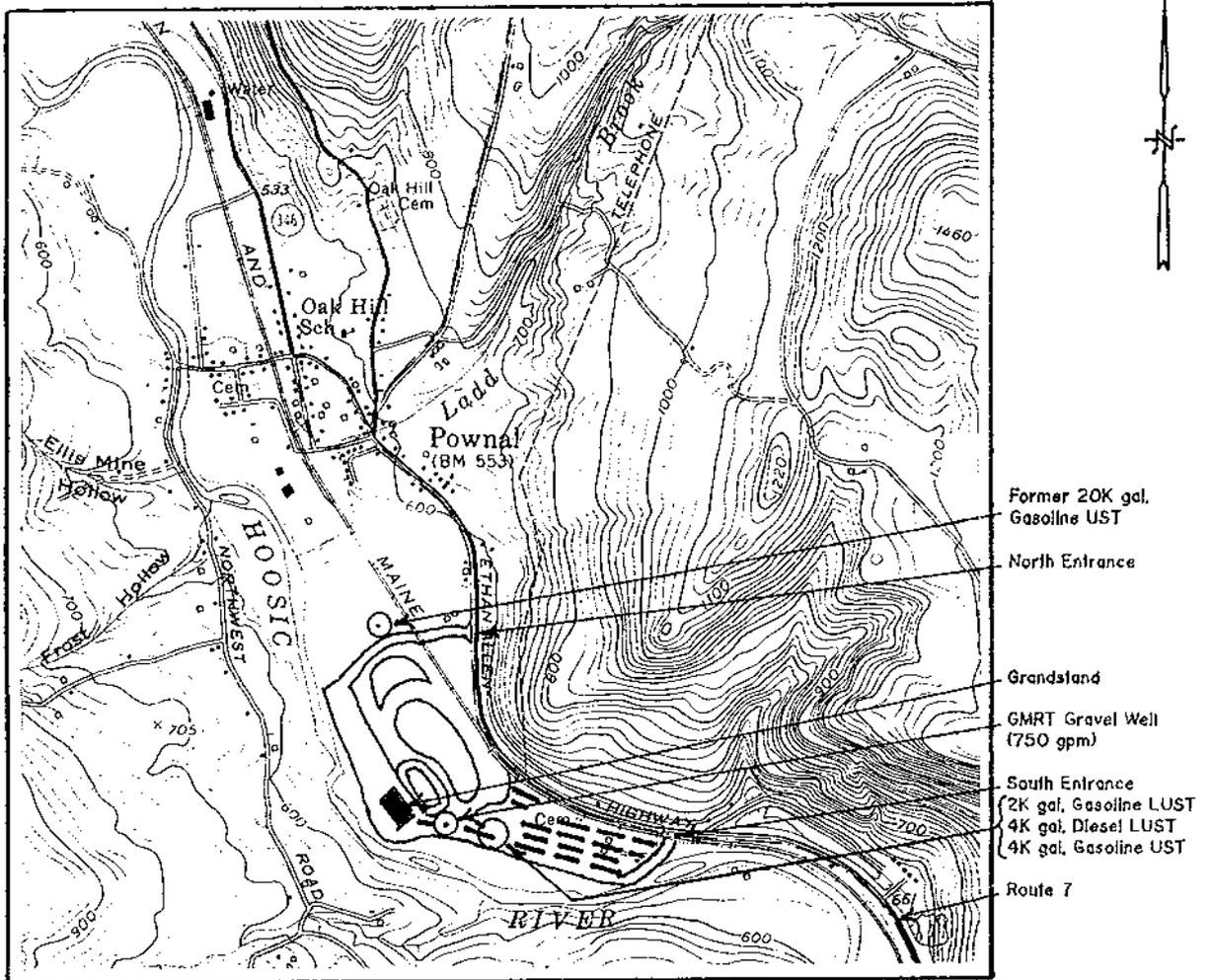
Notes:  
BG - Background  
SL - Saturated Lamp

**Ground Water Quality Results (ppb)**

Data Point	11-11-93	4-7-94					
MW-1		<6	1				
MW-2		<6	1				
MW-3		<6	<1				
MW-4		<6	<1				
MW-5		<6	<1				
MW-6		<6	<1				
TPW-1	8495	3570 108	<1				
20K UST Pit	1979	<10					

NOTES: -  
 MTBE in upper right corner of cell  
 BTEX in lower left corner of cell  
 < - Contaminant not detected at specified detection limit

### Green Mountain Race Track GENERAL LOCATION MAP



Source: U.S.G.S. 7.5 min.  
Topo Series  
Pownal, VT Quad.

Scale: 1" = 2000'



Project Name	Green Mountain Edge Project
Location	Green Mountain Edge
Client	Green Mountain Edge
Phase	Phase 1
Scale	1:1000
Date	July 2024
Author	Benjamin D. Williams





## Appendix A

LAG Detailed Well Logs:

MW-1 to MW-6

## WELL LOG

WELL: MW-1, Upgradient well near corner of track kitchen bldg.  
LOCATION: Green Mountain Race Track, Pownal, VT  
DRILLER: Tri-State Drilling and Boring, Inc.  
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.  
DATE: March 28, 1994

**Soils Description:** (BG = Background [0.3], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0 - 0.25'	Asphalt pavement 3"	
0.25' - 2'	Dry to moist, tan, <u>fine to medium sand</u> , some gravel.	BG
2' - 4'	8" moist, tan, <u>fine to medium sand</u> ; little gravel; 4" moist, tan <u>silt</u> ; some very fine sand; fine sand	BG
4' - 6'	12" moist, tan, <u>silt</u> and fine sand; little very fine sand; rust staining minor 2" moist, tan brown, <u>silt</u> and fine sand; little fine to medium gravel	BG
6' - 8'	Dry, tan and buff, <u>fine gravel</u> ; some fine to coarse sand; trace medium to coarse gravel. Very hard and 'boney'.	BG
8' - 9.5'	Dry, tan and brown, <u>fine to medium gravel</u> ; some fine to coarse sand; trace coarse gravel. Coarse gravels.	BG
9.5' - 11.5'	Dry to moist, tan, <u>fine to medium gravel</u> ; some fine to coarse sand; trace coarse gravel.	BG
11.5' - 13.5'	Wet, brown, <u>fine to medium sand</u> ; some fine to medium gravel; trace coarse sand. Not much recovery - in water, saturated @ 11.4' (inside augers)	BG
13.5' - 15.5'	Wet, brownish grey, <u>medium to coarse sand</u> ; some fine to medium gravel; little fine sand. No odors.	BG
15.5' - 17.5'	Wet, brownish grey, <u>medium to coarse sand</u> ; some fine to medium gravel; little fine sand.	BG
17.5' - 19.5'	3" wet, brownish grey, <u>medium to coarse sand</u> ; little fine sand; trace fine gravel. 9" wet, brown, <u>fine sand</u> ; little silt; trace medium sand.	BG
19.5' - 21.5'	Wet, brown, <u>fine to medium sand</u> ; some silt; trace coarse sand, fine gravel.	BG
21.5' - 23.5'	Wet, brown, <u>fine to medium sand</u> ; some silt; trace coarse sand, fine gravel	BG
23.5' - 25.5'	Wet, brown, <u>fine to medium sand</u> ; some coarse sand, little silt.	BG

**Well Construction:**

Bottom of Boring: 25.5'  
Bottom of Well: 25.5'  
Well Screen: (20') 5.5' - 25.5' - 2" PVC, sch 40, 0.020" slot  
Solid Riser: (5') 0.5' - 5.5' - 2" PVC, Sch 40  
Sand Pack: (21.5') 4' - 25.5' - #1 sand  
Bentonite Seal: (2') 2' - 4', holeplug and enviroplug  
Backfill: (1.5') 0.5' - 2'  
Well Box: Flush with grade

## WELL LOG

WELL: MW-2, between LUST source area and GMRT pumping well (house) - edge (corner) of dog kennels  
LOCATION: Green Mountain Race Track, Pownal, VT  
DRILLER: Tri-State Drilling and Boring, Inc.  
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.  
DATE: March 28, 1994

**Soils Description:** (BG = Background [0.3], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0 - 0.25'	Asphalt pavement.	
0.25' - 0.5'	Gravel/Sand subbase (fill)	
0.5' - 4'	Moist, brown, <u>fine to very fine sand and silt</u> ; trace fine gravel.	BG
4' - 6'	12" moist, brown to dark brown, <u>very fine sand and silt</u> ; trace fine gravel 6" moist, tan, <u>very fine sand and silt</u> ; trace roots	BG
9' - 11'	2" moist, brown, <u>very fine sand and silt</u> ; little fine sand and fine gravel. 4" moist to dry, brown, <u>medium to coarse sand</u> ; some fine to medium gravel; little fine sand	BG
14' - 15.5'	Wet, brown, <u>fine to medium gravel</u> ; some medium to coarse sand; trace coarse gravel. Water approx. 12' inside augers.	BG
19' - 21'	Wet, brown, <u>medium to coarse sand</u> ; little fine to medium gravel, fine sand. 3' of sands into augers, heaving.	BG
	Overdrill to 28' depth, install well.	

### Well Construction:

Bottom of Boring: 28'  
Bottom of Well: 25.5'  
Well Screen: (20') 5.5' - 25.5' - 2" PVC, sch 40, 0.020" slot.  
Solid Riser: (5') 0.5' - 5.5' - 2" PVC, Sch 40  
Sand Pack: (24') 4' - 28'  
Bentonite Seal: (2') 2' - 4'  
Backfill: (1.5') 0.5' - 2'  
Well Box: Cemented flush with grade.

## WELL LOG

WELL: MW-3  
LOCATION: Green Mountain Race Track, Pownal, VT  
DRILLER: Tri-State Drilling and Boring, Inc.  
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.  
DATE: March 29, 1994

**Soils Description:** (BG = Background [0.3], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0 - 0.25'	Asphalt pavement	
0.25' - 1.25'	Sand and gravel fill	BG
2' - 4'	3" moist, brown, <u>medium to coarse sand and fine to medium gravel</u> 11" moist, dark brown, <u>fine to very fine sand</u> ; some silt; trace roots 6" moist, tan, <u>fine to very fine sand</u> ; some silt	BG
4' - 6'	Moist, brown and tan, <u>silt and very fine sand</u> ; little fine sand 1" layer of fine sand; some very fine sand @ 8' depth; darker brown color	BG
6' - 8'	6" moist, brown, <u>silt and very fine sand</u> ; little fine sand. 3" <u>medium to coarse sand</u> ; some fine to medium gravel; little fine sand.	BG
8' - 10'	Moist, brown to olive, <u>fine to coarse gravel</u> ; some coarse sand; little to trace medium sand	BG
10' - 12'	Wet - in water, brown, <u>medium to coarse gravel</u> ; some coarse sand; little fine to medium sand. 'Boney' drilling.	BG
12' - 14'	6" wet, brown, <u>medium to coarse gravel</u> ; some medium to coarse sand; little fine sand. 4" wet, tan upper, grey lower, <u>silty clay</u> ; little fine gravel 1" <u>fine to very fine sand</u> ; little silt.	BG
14' - 16'	Wet, brown, <u>fine to medium sand</u> ; little silt; trace coarse sand. At 15" depth approx 1" thick tan, <u>silty clay</u> layer.	BG
16' - 18'	Wet, brown, <u>fine to medium sand</u> ; some coarse sand; little silt	BG
18' - 20'	15" wet, brown, <u>fine to medium sand</u> ; some coarse sand; little silt 9" wet, brown, <u>very fine sand and silt</u> ; some fine sand.	BG
20' - 20.5'	Wet, brown, <u>very fine sand and silt</u> ; little fine sand. Auger to 28', heaving sands.	BG
24' - 26'	Heaving sands of fine to medium sand; silt.	

**Well Construction:**

Bottom of Boring: 28'  
Bottom of Well: 25.5'  
Well Screen: (20') 5.5' - 25.5', 2" PVC, sch 40, 0.020" slot  
Solid Riser: (5') 0.5' - 5.5', 2" PVC, Sch 40  
Sand Pack: (26') 2' - 28'  
Bentonite Seal: (1') 1' - 2'  
Backfill: (0.5') 0.5' - 1'  
Well Box: Cemented flush with grade

## WELL LOG

---

WELL: MW-4, West of LUSTs beside GMRT roadway.  
LOCATION: Green Mountain Race Track, Pownal, VT  
DRILLER: Tri-State Drilling and Boring, Inc.  
HYDROGEOLOGIST: William Norland, Lincoln Applied Geology, Inc.  
DATE: March 29, 1994

**Soils Description:** (BG = Background [0.3], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0 - 0.25'	Asphalt pavement	
0.25' - 1.25'	Sand and gravel	BG
4' - 6'	3" moist, brown, <u>very fine sand and silt</u> 2" moist, tan, <u>fine to medium sand</u> ; little coarse sand 7" moist, tan, <u>very fine sand and silt</u> 4" moist, tan, <u>fine to medium sand</u> ; trace coarse sand At 6' depth - gravel and cobbles - very difficult drilling	BG
9' - 9.5'	No recovery - on boulder or cobble Drill to approx 10' - refusal on boulder. Remove augers, backup rig approx 6-7'. Drill to 5.5' depth - hit <u>gravel and cobbles</u> to 13'	
14' - 16'	Wet, brown, <u>fine to medium sand</u> ; some silt  Heaving sands into augers, drill to 28' and install well.	BG

### Well Construction:

Bottom of Boring: 28'  
Bottom of Well: 24.5'  
Well Screen: (20') 4.5' - 24.5', 2" PVC, sch 40, 0.020" slot  
Solid Riser: (4') 0.5' - 4.5', 2" PVC, Sch 40  
Sand Pack: (24.5') 3.5' - 28'  
Bentonite Seal: (2') 1.5' - 3.5'  
Backfill: (1') 0.5' - 1.5'  
Well Box: Cemented flush with grade

## WELL LOG

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WELL: MW-5, At W. end of former 20K gal UST  
LOCATION: Green Mountain Race Track, Pownal, VT  
DRILLER: Tri-State Drilling and Boring, Inc.  
HYDROGEOLOGIST: William Norland and Rick Vandenberg, Lincoln Applied Geology, Inc.  
DATE: March 29 and 30, 1994

**Soils Description:** (BG = Background [0.3], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0	Unpaved grass area	
2' - 4'	10" moist, tan, <u>very fine sand and silt</u> ; little fine sand; trace fine gravel 12" moist, grey, <u>silt and very fine sand</u> ; little fine sand	BG
4' - 6'	Moist, grey, <u>silt and very fine sand</u> ; trace fine sand (organics)	BG
6' - 8'	19" Moist, grey, <u>silt and very fine sand</u> ; little to trace fine sand; trace roots Bottom 2" is coarser; more fine sand and medium sand (organics odor)	BG
8' - 10'	3" wet, grey to olive green, <u>silt and fine sand</u> ; trace roots; clay 3" wet <u>fine to coarse gravel</u> ; some silt; fine sand; trace medium to coarse sand	BG
10' - 12'	Wet, grey to olive green, <u>fine to coarse gravel</u> ; some silt; fine sand; little medium to coarse sand	BG
12' - 14'	<u>Grey silt and medium to coarse sand</u> ; some coarse gravel, very fine sand	BG
14' - 16'	<u>Medium to fine sand</u> ; grey; some silt; trace coarse gravel, coarse sand. Very well sorted	BG
16' - 18'	Top 6" <u>fine to very fine sand</u> , grey; some silt, fine to medium gravel; bottom 9" <u>silty fine sand</u> ; olive	BG
18' - 20'	<u>Silty clay</u> with trace of very fine sand, olive	BG
20' - 22'	<u>Silty clay</u> with alternating bands of fine sand, tan	BG
22' - 24'	<u>Silty clay</u> with alternating bands of fine sand, tan	BG
24' - 26'	<u>Silty clay</u> with alternating bands of tan sand; fine to medium; grey also	BG

### Well Construction:

Bottom of Boring: 26'  
Bottom of Well: 25'  
Well Screen: (20') 5' - 25', 2" PVC, sch 40, 0.020" slot  
Solid Riser: (8') +3' - 5', 2" PVC, Sch 40.  
Sand Pack: (21') 4' - 25'  
Bentonite Seal: (2') 2' - 4'  
Backfill: (1.5') 0.5' - 2'  
Well Box: Stick up well guard

## WELL LOG

---

WELL: MW-6  
LOCATION: Green Mountain Race Track, Pownal, VT  
DRILLER: Tri-State Drilling and Boring, Inc.  
HYDROGEOLOGIST: Rick Vandenberg, Lincoln Applied Geology, Inc.  
DATE: March 30, 1994

**Soils Description:** (BG = Background [0.3], SL = Saturated Lamp [>500], ppm = Parts Per Million)

<u>Depth</u>	<u>Description</u>	<u>PID (ppm)</u>
0 - 4'	Tan to light brown; <u>fine to very coarse sand</u> , some fine to coarse gravel; trace cobble, silt.	BG
4' - 6'	Light brown; <u>fine to very coarse sand</u> ; some fine to coarse gravel; trace silt.	BG
8' - 10'	Light brown; <u>fine to very coarse sand</u> ; some fine to medium gravel; some cobble; some silt.	BG
14' - 16'	Light brown; sand, <u>coarse to very coarse</u> , some fine to medium sand; some gravel fine to medium; trace cobble	BG
16' - 18'	Grey; <u>silty clay</u> ; some interbeds of tan fine sand.	BG

**Well Construction:**

Bottom of Boring: 28'  
Bottom of Well: 25'  
Well Screen: (20') 5' - 25', 2" PVC, sch 40, 0.020" slot  
Solid Riser: (8') +3' - 5', 2" PVC, Sch 40.  
Sand Pack: (21') 4' - 25'  
Bentonite Seal: (2') 2' - 4'  
Backfill: (1.5') 0.5' - 2'  
Well Box: Stick up well guard

Appendix B  
TSDB Well Logs  
MW-1 to MW-6

SOIL PROBE LOG

TRI STATE  
DRILLING & BORING, INC.

RFD #2, Box 113 West Burke, VT 05871

(802) 467-3123

TYPE	HSA	SAMPLER	Continuous	SOIL	Saturated
SIZE	2"		SS		Wet
HAMMER	140#				Moist
FALL	30"				Damp
					Slightly Damp

DATE STARTED: 03/28/94

DATE COMPLETED: 03/28/94

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

0-2.5'	6	12	18	24	0-2.5' Brown damp sand and gravel fill.
2.5-4'	23	111	61	4	2.5-5' Brown damp fine sandy silt.
4-6'	31	21	31	6	6' Fine gravel, trace of clay.
6-8'	29	29	40	35	6-11.4' Brown damp fine medium coarse sand, fine gravel.
8-9.5'	37	24	28	10	11.4-18' Brown wet fine medium coarse sand, fine gravel.
9.5-11.5'	11	6	6	5	18-25.5' Brown wet fine medium sand.
11.5-13.5'	4	5	5	3	Note: Had to over drill to 29' to set well, heavy sands.
13.5-15.5'	7	7	9	19	Well development - 2 hours.
15.5-17.5'	10	8	5	5	
17.5-19.5'	6	4	5	7	
19.5-21.5'	10	25	17	10	
21.5-23.5'	11	2	11	2	
23.5-25.5'	11	1	2	3	

Screen 25' to 5' below GS. Riser 5' to GS. Sand 25' to 4' below GS.  
Hole plug 4' to 2' below GS. Backfill 2' to 1' below GS. Sakrete 1' to GS.

Client: Green Mountain Race Track  
Job Location: Pownal, VT  
Engineer: Lincoln Applied Geology  
Bristol, VT  
Inspector: Bill Norland

Driller: Ray Gilfillan  
Helper: Hank Dawson  
Materials: 20' screen, 5' riser,  
1 cap, 1 locking plug, 3 sand,  
1/2 bentonite, 1/4 hole plug,  
1 road box.

SOIL PROBE LOG

Green Mountain Race Track  
Pownal, VT

TRI STATE  
DRILLING & BORING, INC.  
RFD #2, Box 113 West Burke, VT 05871  
(802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 03/28/94

DATE COMPLETED: 03/28/94

FOOTAGE  
DEPTH BLOW COUNTS REC DRILLER'S NOTES & COMMENTS

AKR

APPLIED GEOLOGY

6 12 18 24

0-2'						0-2' Brown damp fine medium coarse sand, fine gravel fill.
2-9.2'						2-9.2' Brown damp fine sand and silt.
4-6'	6	8	9	12	1.3'	
9-11'	6	7	7	5	0.5'	
9.2-12'						9.2-12' Brown damp fine medium coarse sand, fine gravel.
12-29'						12-29' Brown wet coarse medium fine sand, fine gravel.
14-15.5'	9	14	24		0.6'	
19-21'	1	0	1	2	0.4'	
						Note: Had to overdrill to 29' to set well, heavy sands.
						Well development - 2 hours.

Screen 25' to 5' below GS. Riser 5' to GS. Sand 25' to 4' below GS.  
Hole plug 4' to 2' below GS. Backfill 2' to 1' below GS. Sakrete 1' to GS.

Client: Green Mountain Race Track  
Job Location: Pownal, VT  
Engineer: Lincoln Applied Geology  
Bristol, VT  
Inspector: Bill Norland

Driller: Ray Gilfillan  
Helper: Hank Dawson  
Materials: 20' screen, 5' riser,  
1 cap, 1 locking plug, 3 sand,  
1 hole plug, 1 road box.

SOIL PROBE LOG

TRI STATE  
DRILLING & BORING, INC.  
RFD #2, Box 113 West Burke, VT 05871  
(802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 03/29/94

DATE COMPLETED: 03/29/94

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

0-2.2'				0-2.2' Brown damp sand and <del>gravel</del> fill.		
2-4'	14	12	10	1.2	1.8'	2.2-6.5' Brown damp fine medium coarse sand and silt.
4-6'	3	4	4	5	1.3'	
6-8'	2	4	8	9	0.7'	6.5-10' Brown damp coarse medium fine sand, fine gravel.
8-10'	6	11	12	9	0.4'	
10-12'	5	13	17	55	0.5'	10-12.5' Brown wet fine gravel, coarse medium fine sand, trace of silt.
12-14'	4	18	6	6	0.9'	12.5-14' Brown moist silty clay.
14-16'	1	2	4	9	1.6'	14-29' Brown wet medium fine sand.
16-18'	5	12	14	27	1.5'	Bottom of hole - 29.0'.
18-20'	7	10	12	12	1.6'	Note: In order to set well had to pull augers back to 20' to get sands loose. Heavy sands from 16' down.
20-20.5'	12					Note: Had some ground water flow @ 1.0'.

Well development - 2 hours. Screen 25' to 5' below GS. Riser 5' to GS.  
Sand 25' to 2' below GS. Hole plug 2' to 1' below GS. Sakrete 1' to GS.

Client: Green Mountain Race Track  
Job Location: Pownal, VT  
Engineer: Lincoln Applied Geology  
Bristol, VT  
Inspector: Bill Norland

Driller: Ray Gilfillan  
Helper: Hank Dawson  
Materials: 20' screen, 5' riser,  
1 cap, 1 locking plug, 4 sand,  
1/2 hole plug, 1 road box.

SOIL PROBE LOG

TRI STATE  
DRILLING & BORINGS, INC.  
RFD #2, Box 113 West Burke, VT 05871  
(802) 467-3123

		SAMPLER	SOIL
TYPE	HSA	Continuous	Saturated
SIZE	2"	SS	Wet
HAMMER	140#		Moist
FALL	30"		Damp
			Slightly Damp

DATE STARTED: 03/29/94

DATE COMPLETED: 03/29/94

FOOTAGE  
DEPTH BLOW COUNTS REC DRILLER'S NOTES & COMMENTS

6 12 18 24

0-0.1'					0-0.1' Asphalt.
0.1-6'					0.1-6' Brown moist fine/medium sand, silty.
4-6'	3	3	3	5	1.3'
6-9'					6-9' Brown damp medium/fine grave, coarse medium/fine sand.
9-10'					9-10' Boulder. Auger refusal at 10.0' moved hole 5' South.
9-9.5'	41				10.0'
9-13'					9-13' Gravel, cobbles, boulder.
13-29'					13-29' Brown wet medium/fine sand.
14-16'	9	10	13	22	1.8'
					Bottom 29.0'.
					Heavy sands from 15' down, no samples below 16'.
					Well development - 3 hours.

Screen 24.4' to 4.4' below GS. Riser 4.4' to GS. Sand 24.4' to 3.5' below GS.  
Hole plug 3.5' to 1.5' below GS. Backfill 1.5' to 1' below GS. Sakrete 1' to GS.

Client: Green Mountain Race Track  
Job Location: Pownal, VT  
Engineer: Lincoln Applied Geology  
Bristol, VT  
Inspector: Bill Norland

Driller: Ray Gilfillan  
Helper: Hank Dawson  
Materials: 20' screen, 4.3' riser,  
1 cap, 1 locking plug, 4 sand,  
1 1/4 hole plug, 1 road box.

SOIL PROBE LOG

TRI STATE  
DRILLING & BORING, INC.  
RFD #2, Box 113 West Burke, VT 05871  
(802) 467-3123

		SAMPLER	SOIL
TYPE	HSA	Continuous	Saturated
SIZE	2"	SS	Wet
HAMMER	140#		Moist
FALL	30"		Damp
			Slightly Damp

DATE STARTED: 03/29/94

DATE COMPLETED: 03/29/94

FOOTAGE

DEPTH BLOW COUNTS REC DRILLER'S NOTES & COMMENTS A-

6 12 18 24

0-3'					0-3' Brown damp silty fine/medium coarse sand, fine gravel.
3-7.8'					3-7.8' Gray damp silt and fine sand.
7.8-12'					7.8-12' Gray wet coarse medium/fine sand, little silty clay.
12-14'5"					12-14'5" Gray wet coarse medium/fine sand, fine gravel.
14-16.5'					14-16.5' Gray wet fine gravel, layers of medium sand.
16.5-26.0'					16.5-26.0' Gray wet silty clay, little fine sand.
20-22'					Augered to 25.0' sampled to 26'.
24-26'					Well development - 2 hours.

Screen 25' to 5' below GS. Riser 5' to 2' above GS. Sand 25' to 4' below GS.  
Hole plug 4' to 2' below GS. Sand 2' to 1' below GS. Sakrete 1' to GS.

Client: Green Mountain Race Track  
Job Location: Pownal, VT  
Engineer: Lincoln Applied Geology  
Bristol, VT  
Inspector: Bill Norland  
Rick Vandenburg

Driller: Ray Gilfillan  
Helper: Hank Dawson  
Materials: 20' screen, 7' riser,  
1 cap, 1 locking plug, 4.5 sand,  
1 hole plug, 1 well guard.

SOIL PROBE LOG

TRI STATE  
DRILLING & BORING, INC.  
RFD #2, Box 113 West Burke, VT 05871  
(802) 467-6123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 03/30/94

DATE COMPLETED: 03/30/94

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 16 24

0-0.1'					
0-4.5'					
4-6'	3	4	7	9	1.0'
6-8'					
8-11'	7	12	8	12	0.7'
11-14'					
14-16'	8	7	6	6	0.9'
16-19'					
19-21'	9	10	8	12	1.5'
21-25'					
25-29'					
29-30'					

0-0.1' Asphalt.  
 0-4.5' Brown damp silty ~~fine~~/medium/  
 coarse sand, fine gravel.  
 4.5-8' Brown damp fine/medium/coarse sand  
 8-17' Brown wet fine/medium/coarse sand,  
 fine/medium gravel.  
 17-29' Gray wet silt and clay.  
 Bottom 29.0'.  
 Heavy sand to 17.0'.  
 Well development - 30 minutes.  
 Screen 25' to 5' below GS.  
 Riser 5' to 2' above GS.  
 Sand 25' to 4' below GS.  
 Hole plug 4' to 2' below GS.  
 Backfill 2' to 1' below GS.  
 Sakrete 1' to GS.

Client: Green Mountain Race Track  
 Job Location: Pownal, VT  
 Engineer: Lincoln Applied Geology  
 Bristol, VT  
 Inspector: Rick Vandenburg

Driller: Ray Gilfillan  
 Helper: Hank Dawson  
 Materials: 20' screen, 7' riser,  
 1 cap, 1 locking plug, 4.5 sand,  
 1 1/2 hole plug, 1 well guard.

Appendix C

April 7, 1994

Ground Water Quality Reports



## LABORATORY ANALYSIS

21  
LINCOLN APPLIED GEOLOGY, INC.

CLIENT NAME:	Lincoln Applied Geology	REF #:	8635
ADDRESS:	RD#1 Box 710 Bristol, VT 05443	PROJECT NO.:	not given
SAMPLE LOCATION:	Green Mountain Race Track	DATE OF SAMPLE:	4/7/94
SAMPLER:	Jim Holman	DATE OF RECEIPT:	4/8/94
		DATE OF ANALYSIS:	4/18,4/20,4/21/94
ATTENTION:	John Amadon/Bill Norland	DATE OF REPORT:	4/21/94

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCL.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing calibration standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The inferred efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analytes to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Brendan McMahon, Ph.D.  
Director, Chemical Services



## LABORATORY REPORT

### GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	MW-1
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	10:16
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 18, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	1

Surrogate % Recovery: 99%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

### GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	MW-2
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	10:52
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 18, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	1

Surrogate % Recovery: 98%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

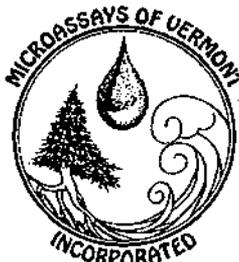
GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	MW-3
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	11:25
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 21, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 98%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	MW-4
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	11:53
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 21, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 98%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

### GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	MW-5
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	12:55
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 21, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 98%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	MW-6
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	12:30
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 21, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 98%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

### GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	TPW-1
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	13:40
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 21, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	3
Ethylbenzene	1	1
Xylenes	3	103
MTBE	1	BPQL

Surrogate % Recovery: 97%

BPQL = Below Practical Quantitation Limit (PQL).



## LABORATORY REPORT

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Green Mountain Race Track	REF.#:	8,635
REPORT DATE:	April 21, 1994	STATION:	Trip Blank
DATE SAMPLED:	April 7, 1994	TIME SAMPLED:	07:00
DATE RECEIVED:	April 8, 1994	SAMPLER:	Jim Holman
ANALYSIS DATE:	April 20, 1994	SAMPLE TYPE:	Water

PARAMETER	PQL ( $\mu\text{g/L}$ )	Conc. ( $\mu\text{g/L}$ )
Benzene	1	BPQL
Toluene	1	BPQL
Ethylbenzene	1	BPQL
Xylenes	3	BPQL
MTBE	1	BPQL

Surrogate % Recovery: 97%

BPQL = Below Practical Quantitation Limit (PQL).

CHAIN OF CUSTODY RECORD



MicroAssays of Vermont

RR# Box 5210 P.O. Box 189  
 Montpelier, VT 05602  
 Ph. (802)223-1468 Fax (802)223-8688

ANALYSIS REQUESTED

Page  
 of

MAV #

8635

CLIENT NAME LAC  
 ADDRESS RD. 1 Box 710 BRISTOL VT.  
 OBJECT NAME GMRT (GREEN MTN. RACE TRACK)  
 OBJECT NUMBER             
 OBJECT MANAGER BILL NORLAND  
 SAMPLELER J. HOLMAN

BTEX  
MTBE

Sample Location	Date	Time	# of cont.	pres ervd	Sample Type														REMARKS:
✓ ✓ <del>IRIP</del>	4-7-94	7:00	2	HCL	40 mL H <sub>2</sub> O	X													
✓ ✓ MW1		10:16																	
✓ ✓ MW2		1052																	
✓ MW3		1125																	
✓ MW4		1153																	
✓ MW6		1230																	
✓ MW5		1255																	
1:50 TPW1		140																	

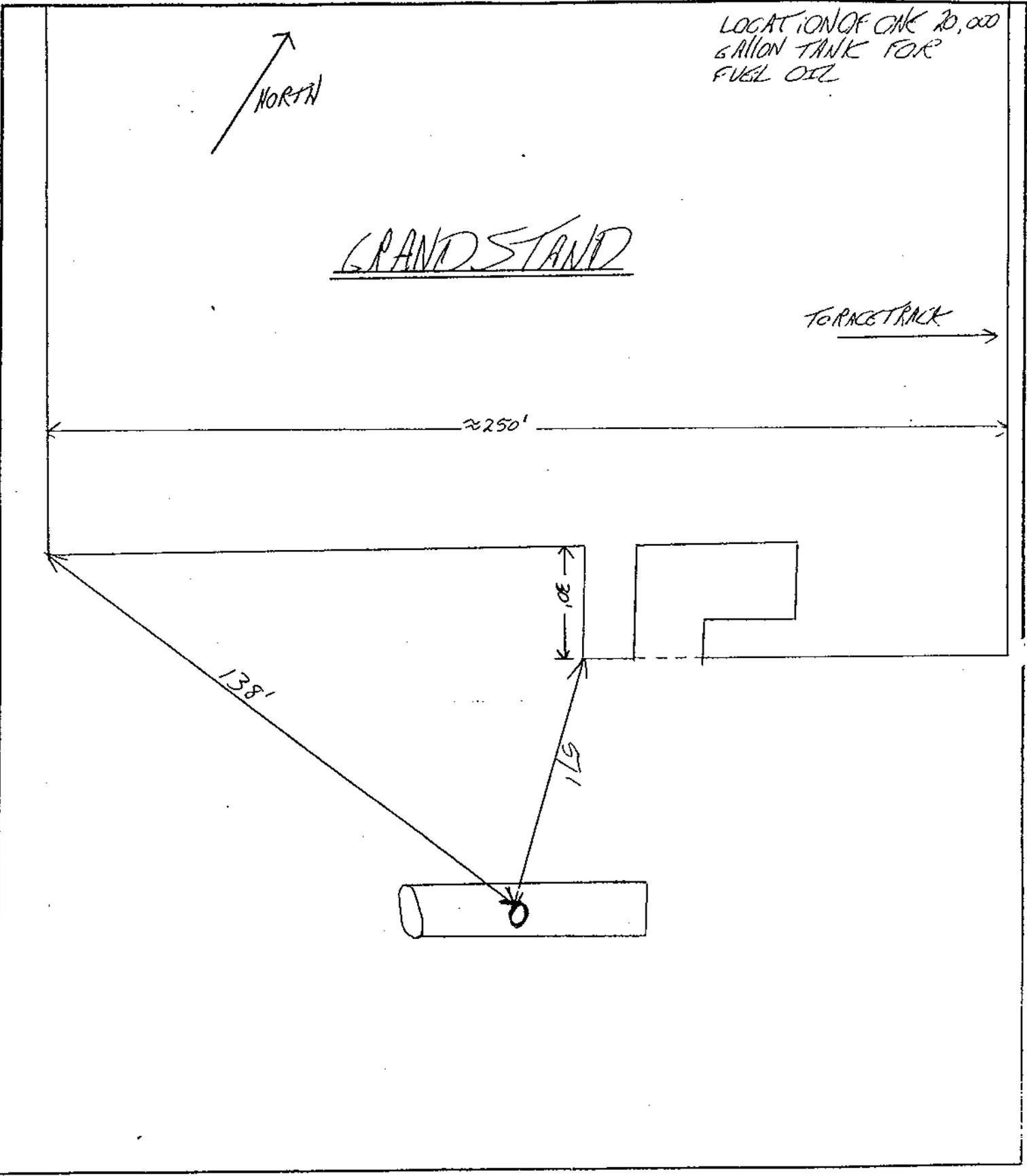
Relinquished by:	Received by:	Date/Time	Relinquished by:	Received by:	Date/Time
<i>[Signature]</i>	L. Jodoin	4/8/94-10:45			

Appendix D  
Locations of Remaining  
USTs on-site

# Sketch of Tank Facility

ID # UST 1A

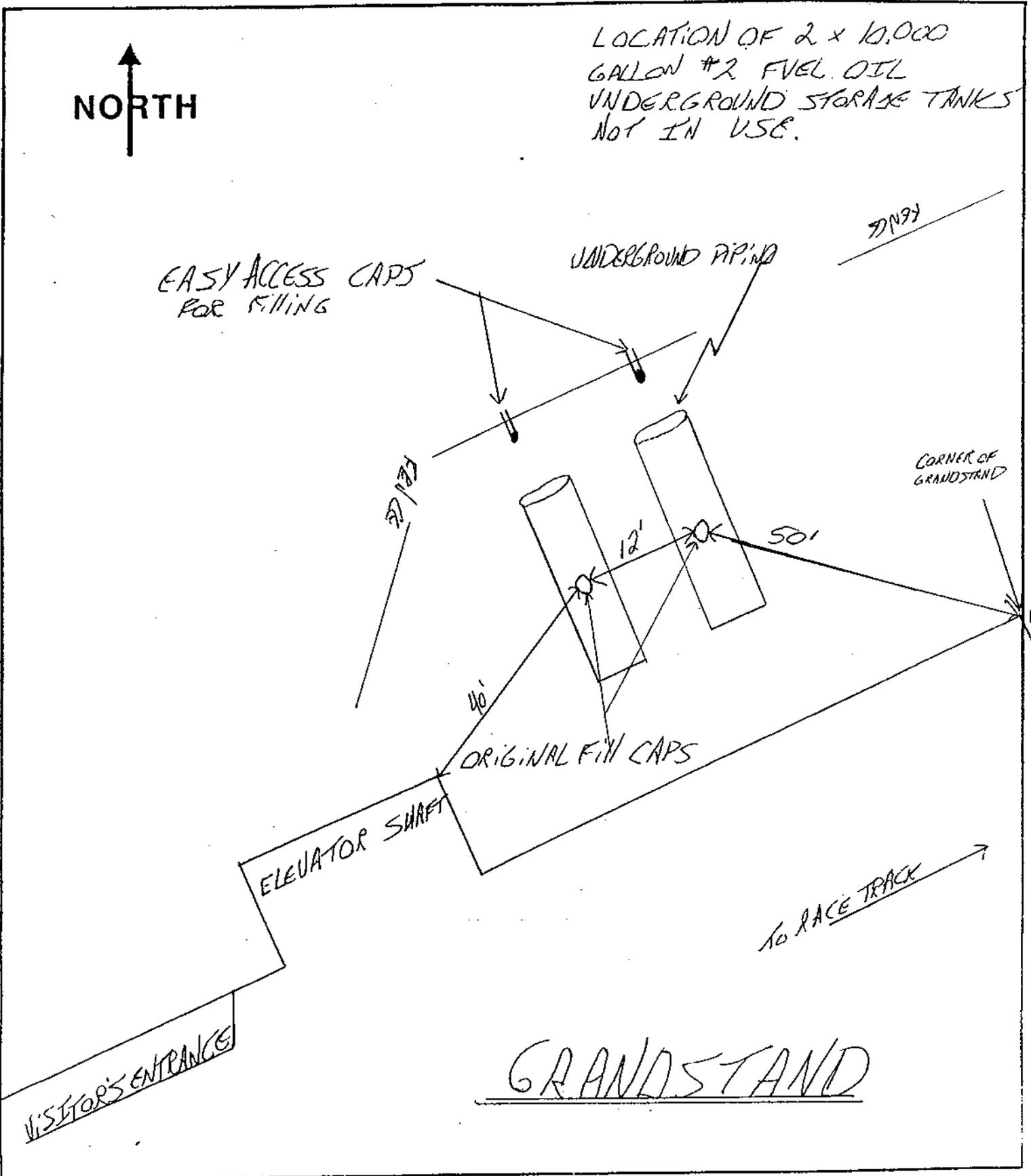
Please sketch below the location of the underground storage tanks and associated piping. Include the building, islands, surface water, groundwater or vapor monitoring wells, roads or any other pertinent landmark at the facility. Show distances to nearest building and property lines.



# Sketch of Tank Facility

ID # UST 1B & 1C

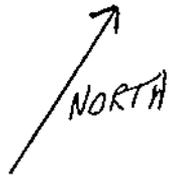
Please sketch below the location of the underground storage tanks and associated piping. Include the building, islands, surface water, groundwater or vapor monitoring wells, roads or any other pertinent landmark at the facility. Show distances to nearest building and property lines.



# Sketch of Tank Facility

ID # U5T 3A

Please sketch below the location of the underground storage tanks and associated piping. Include the building, islands, surface water, groundwater or vapor monitoring wells, roads or any other pertinent landmark at the facility. Show distances to nearest building and property lines.



LOCATION OF 1 x 500  
GALLON GASOLINE TANK  
~~NOT IN USE~~

⊕ Being used for backup  
Generator

GRANDSTAND

TO RACE TRACK  
→

