

JUN 11 2003  
BUREAU OF RADIATION  
DIVISION OF SOLID &  
HAZARDOUS MATERIALS

June 9, 2003

Ms. Alicia Barraza  
Environmental Engineer  
Bureau of Radiation & Hazardous Site Management  
Division of Solid & Hazardous Materials  
625 Broadway  
Albany, NY 12233-7252

Re: Final Environmental Monitoring and Site Analytical Plan (EMSAP)  
Former AL Tech Landfill – Landfill Closure  
Town of Colonie, New York


Dear Ms. Barraza:

Enclosed, please find one copy of the final Environmental Monitoring and Site Analytical Plan (EMSAP) for the above-referenced site.

If you have any questions or require additional information, please feel free to call me at (518) 786-7349.

Very truly yours,

MALCOLM PIRNIE, INC.

  
Daniel C. Lang  
Project Hydrogeologist

jcf

Enclosures

F:\PROJECT\3938013\DOC\EMSAP\FINAL\RV2\barraza EMSAP.doc

c: Jin Park, RealCo, Inc. (with enclosures)

July 24, 2003

Ms. Denise M. Radtke  
Engineering Geologist  
Bureau of Radiation & Hazardous Site Management  
Division of Solid & Hazardous Materials  
625 Broadway, 8<sup>th</sup> Floor  
Albany, NY 12233-7252

**RECEIVED**

JUL 28 2003

BUREAU OF SOLID WASTE  
& LAND MANAGEMENT  
DIVISION OF SOLID &  
HAZARDOUS MATERIALS

Re: RealCo, Inc. Landfill Closure

Dear Ms. Radtke:

To summarize our telephone discussion on July 15, 2003, bedrock core samples will be collected at three locations where bedrock wells will be installed at the above-referenced site. The wells selected for coring (new monitoring well locations WW-23B, WW-24B, and WW-27B) are shown on the enclosed figure. After coring is completed, these boreholes will be reamed using air-rotary methods to install the monitoring wells in accordance with the original ESC Work Plan. The remaining bedrock wells will be reamed without coring, which will provide a better evaluation of groundwater levels to facilitate positioning of well screens for groundwater monitoring.

If you have any comments regarding this approach, please respond by Wednesday, July 30, 2003 as we have tentatively scheduled drilling activities to begin the week of August 11, 2003. You can call me at (518) 786-7349, or e-mail me at [dlang@pirnie.com](mailto:dlang@pirnie.com).

Very truly yours,

MALCOLM PIRNIE, INC.



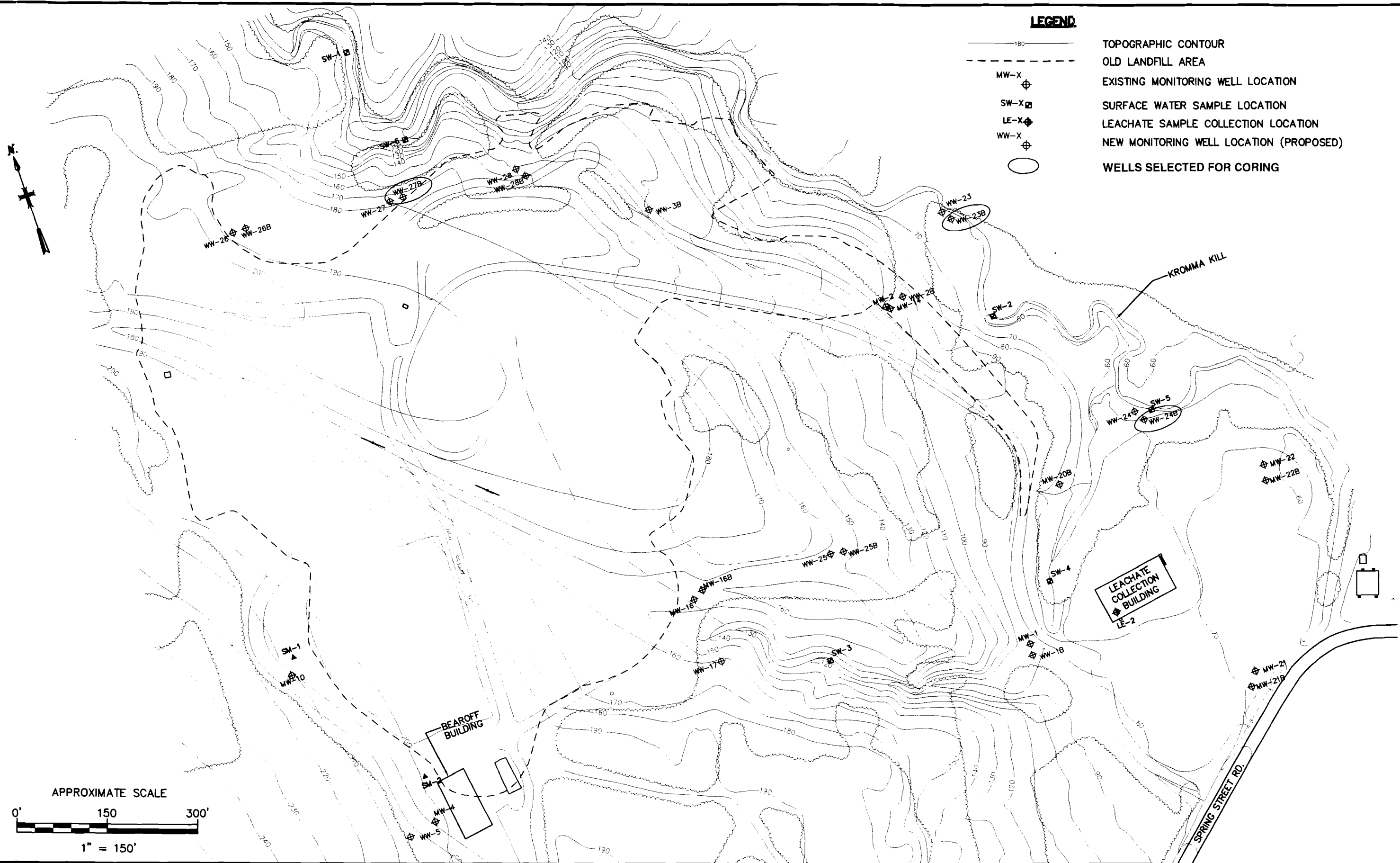
Daniel C. Lang  
Project Hydrogeologist

caw

Enclosure

F:\PROJECT\3938013\DOC\Radtke1.doc

c: Thomas Ragosta, RealCo, Inc. (w/ enclosure)  
Jin Park, RealCo, Inc. (w/ enclosure)



**From:** Denise Radtke  
**To:** DLang@PIRNIE.com; yjpark49@msn.com  
**Date:** 8/8/03 3:27PM  
**Subject:** Watervliet Field activities

Dan, Jin - I wanted to let you know that I had an opportunity to look over the revised EMSAP (June 2003). It looks like the portions of the plan related to well drilling and decommissioning have been revised in accordance with the Department comments. So it looks like everything is good for your field activities that will begin next week. So please consider this e-mail as an approval to go ahead with these activities. Once I have an opportunity to review the rest of the plan (schedule of analysis, etc.), I will provide written approval. I am also in agreement with the 7/24/03 letter concerning drilling techniques/equipment.

I will be in the ADKs until 9/2. If it is important to get a hold of me before then, I can be reached at (518)359-7887. Thanks. -Denise

**CC:** Alicia Barraza; William Wertz

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PIRNIE**

**FINAL**

**Former AL Tech Landfill**

**RECEIVED**  
NYSDEC  
JUN 11 2003

BUREAU OF RADIATION  
DIVISION OF ENVIRONMENTAL CONSERVATION  
HAZARDOUS MATERIALS

**ENVIRONMENTAL  
MONITORING AND  
SITE ANALYTICAL  
PLAN**

**RealCo, Inc.**  
**Watervliet, New York**

Prepared by:

**Malcolm Pirnie, Inc.**  
15 Cornell Road  
Latham, New York 12110

June 2003  
3938013

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<b>Appendix</b>	<b>Description</b>
A	Well Maintenance Plan
B	NYSDEC Letter Dated June 17, 2002 Regarding Data Reporting/Data Validation Requirements

## 1.0 INTRODUCTION

### 1.1 BACKGROUND

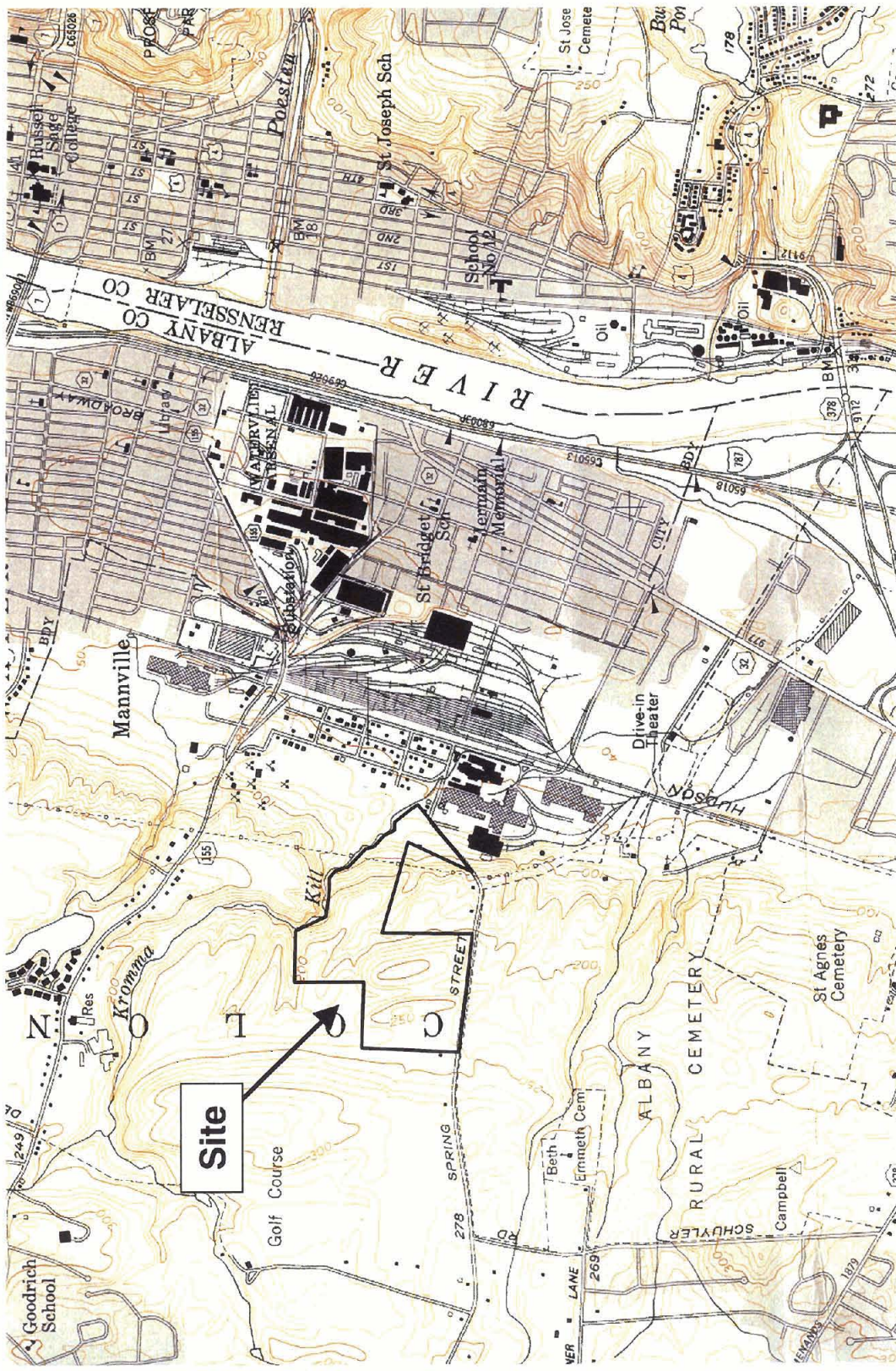
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The RealCo, Inc. landfill (RealCo) is located in the Town of Colonie, Albany County, New York. The landfill is located in a former ravine. The site is generally bordered by industry along Spring Street Road to the south, and mixed wooded and residential areas to the north, east, and west of the site. The location of the landfill is shown on Figure 1-1.

This landfill occupies approximately 17 acres within the 30-acre waste management area (WMA) located on a 50-acre Spring Street parcel owned by RealCo. In approximately 1958, RealCo's predecessor (AL Tech Specialty Steel Corporation) disposed a variety of wastes, which included hazardous wastes, into the landfill. These wastes were primarily byproducts from steel manufacturing processes.

The RealCo landfill is currently listed on the New York State List of Inactive Hazardous Waste Sites (I.D. No. 401003). On February 4, 2000 the New York State Department of Environmental Conservation (NYSDEC) issued an Order on Consent selecting the remedy to be utilized for remediation of the site. Generally, it was decreed that all requirements specified in the *Landfill Reclamation and Remedial Design and Remedial Action Report (August 1996)*, the *Addendum to the Landfill Reclamation Remedial Design and Remedial Action Report (October 1996)*, the *Supporting Information to the Remedial Design and Remedial Action Report (September 1997)* and all subsequent addenda or updates approved by NYSDEC would be followed. RealCo has retained Malcolm Pirnie, Inc. (Malcolm Pirnie) to design and administer the construction work associated with closure of the landfill. Following closure of the landfill, work outlined in this Environmental Monitoring and Site Analytical Plan (EMSAP) will be implemented.





Ref: USGS Topographic Map 1986

**REALCO LANDFILL  
 WATERVLIET, NEW YORK  
 SITE LOCATION**

**MALCOLM  
 PIRNIE**

**FIGURE 1-1**

## 1.2 OBJECTIVES

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This EMSAP describes the environmental monitoring activities that will be performed following closure of the landfill, including:

- Location of sampling points.
- Rationale for selecting sampling points.
- Sampling protocol and frequency.
- Sample analysis.
- Record keeping.
- Reporting requirements.

The principal purposes of this EMSAP are to:

- Document changes in groundwater quality as a result of reduced leachate generation following closure of the landfill.
- Assess if groundwater and surface water quality is at acceptable levels, as established by the NYSDEC.
- Determine the need for contingency corrective measures.
- Assess if groundwater and surface water quality is at acceptable levels, as determined by the USEPA's Environmental Indicators (CA 725 – Current Human Exposures Under Control / CA 750 – Migration of Contaminated Groundwater Under Control).

RealCo will retain ownership of the property on which the site is located and will also be responsible for the post-closure activities performed for the landfill. These activities will be conducted over a maximum period of 30 years. The facility must seek approval from the NYSDEC to discontinue these activities prior to the end of this period. Since the environmental impacts of the reclamation project and landfill closure are still unknown; however, the EMSAP may be modified based on the groundwater, surface water, and leachate sampling results. The facility must seek approval from the NYSDEC to modify the EMSAP.

### 1.3 SUBSURFACE SITE CONDITIONS

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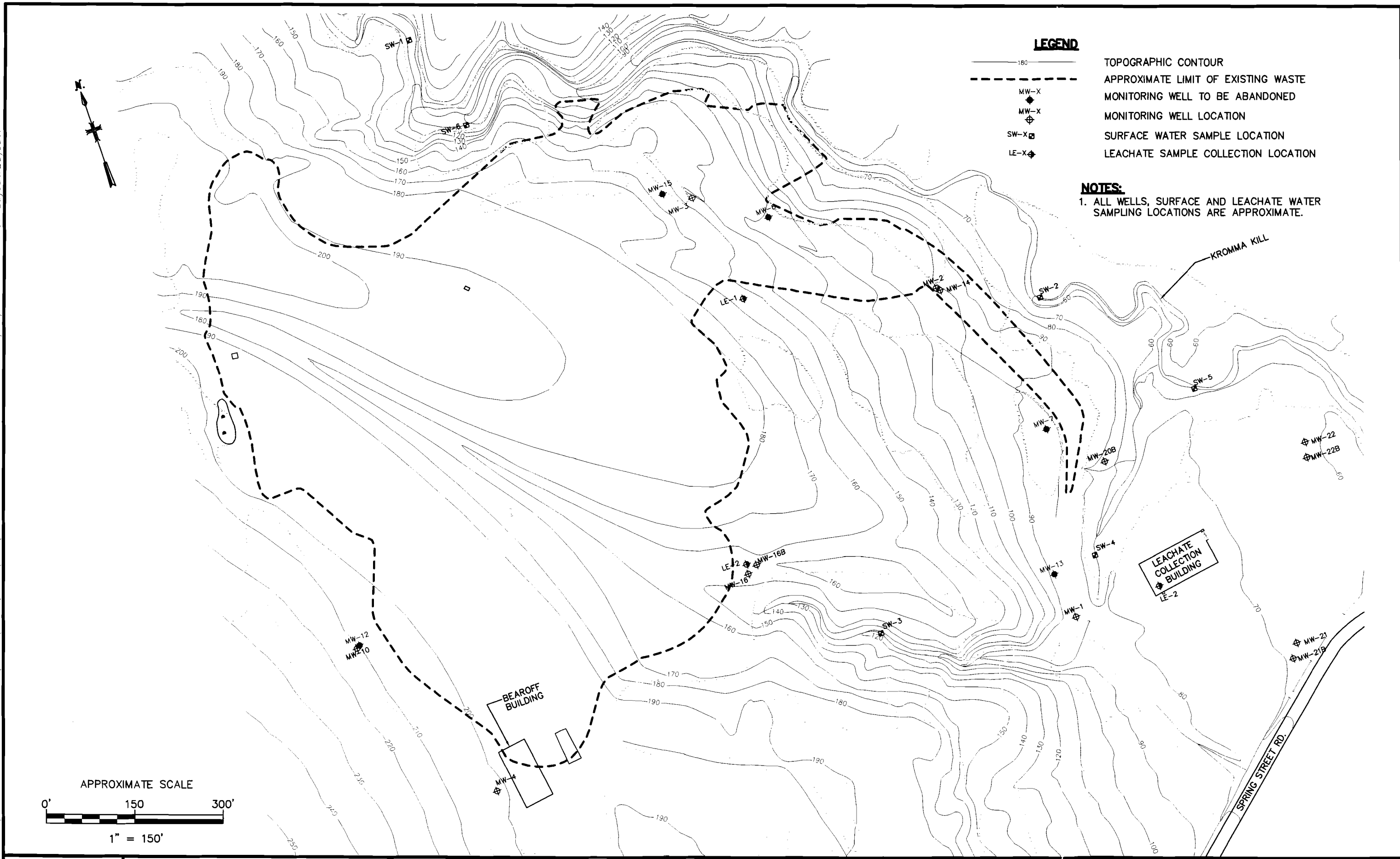
The unconsolidated deposits underlying the RealCo landfill generally consist of silt and clay underlain by Normanskill Shale. In some areas the silt and clay is underlain by till. Based on the stratigraphic information and hydrogeologic data collected during the original and previous site investigations of the RealCo landfill, the groundwater flow regime was divided into the following two water-bearing zones:

- An upper water-bearing zone where the water table is present.
- A lower water-bearing zone in the bedrock.

Existing monitoring wells within the landfill are shown on Figure 1-2. In general, groundwater flow in both water-bearing zones of the site is to the southeast towards the Kromma Kill. However, in the upper water-bearing unit some groundwater flow is towards the south to an unnamed tributary (ESC, 1997) that intermittently flows southward through the site.



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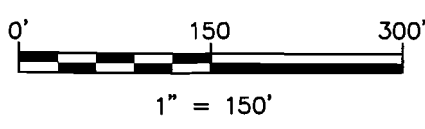
**LEGEND**

- TOPOGRAPHIC CONTOUR
- - - - APPROXIMATE LIMIT OF EXISTING WASTE
- MW-X (with diamond symbol) MONITORING WELL TO BE ABANDONED
- MW-X (with circle symbol) MONITORING WELL LOCATION
- SW-X (with square symbol) SURFACE WATER SAMPLE LOCATION
- LE-X (with diamond symbol) LEACHATE SAMPLE COLLECTION LOCATION

**NOTES:**

1. ALL WELLS, SURFACE AND LEACHATE WATER SAMPLING LOCATIONS ARE APPROXIMATE.

APPROXIMATE SCALE



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REALCO. INCORPORATED  
WATERVLIET, NEW YORK  
**EXISTING MONITORING WELL NETWORK**

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FIGURE 1-2

## 2.0 ENVIRONMENTAL MONITORING LOCATIONS

### 2.1 GENERAL

---

The following subsections describe the environmental monitoring locations for groundwater, surface water, and landfill leachate. All of the proposed monitoring locations are on RealCo property in areas adjacent to the landfill.

### 2.2 GROUNDWATER MONITORING

---

Monitoring wells that will be used to measure groundwater levels and collect samples for analysis are shown on Figure 2-1 and summarized in Table 2-1. The monitoring wells installed and proposed by ESC (ESC, 1997), along with the wells proposed by RealCo, will comprise the groundwater monitoring well network. This network will consist of 27 wells in the vicinity of the landfill:

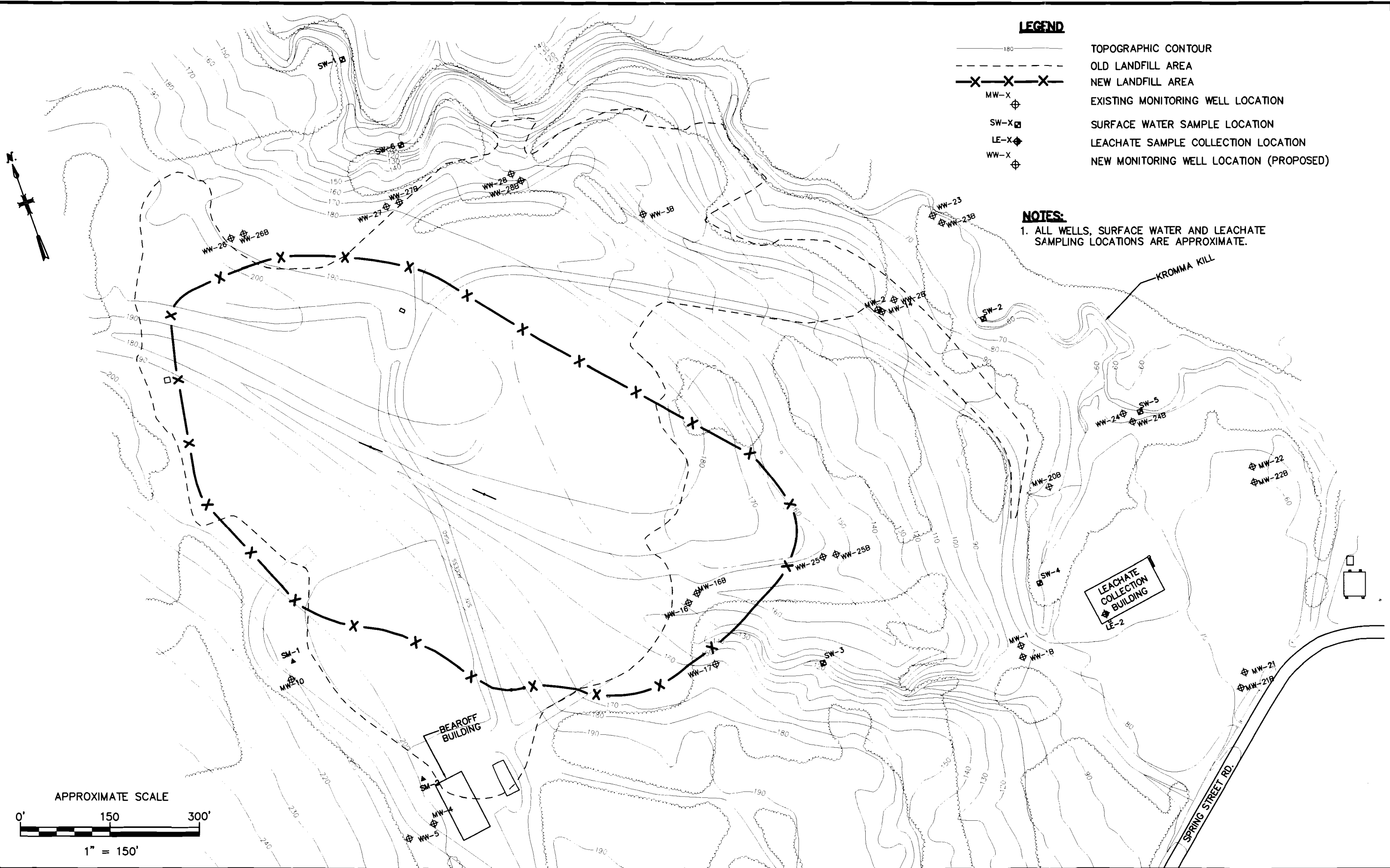
- 9 overburden wells
- 10 bedrock wells
- 8 monitoring wells in which the screen intervals will depend on groundwater depths as explained in Section 2.2.2

The following sections provide discussions of the monitoring wells that will comprise the network, which will include some existing wells and newly installed wells.

#### 2.2.1 Existing Monitoring Wells

There are 19 existing monitoring wells at the site. Of these wells, six overburden (MW-4, MW-8, MW-12, MW-14, MW-15, and MW-16) and seven bedrock (MW-1, MW-2, MW-3, MW-6, MW-7, MW-10, and MW-13) monitoring wells were included in the original monitoring network, as stated in the *Waste Management Area Groundwater Monitoring System Upgrade Work Plan* (ESC, 1997). During Phase I of their scheduled work, ESC installed six additional wells: two overburden (MW-21 and MW-22), and four bedrock wells (MW-16B, MW-20B, MW-21B, and MW-22B), which were added to the

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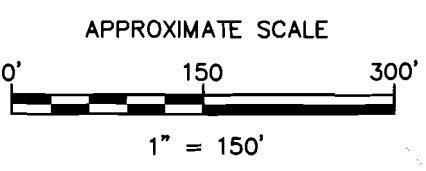


**LEGEND**

- 180 ——— TOPOGRAPHIC CONTOUR
- - - - - OLD LANDFILL AREA
- X — X — X — NEW LANDFILL AREA
- MW-X ⊕ EXISTING MONITORING WELL LOCATION
- SW-X ⊕ SURFACE WATER SAMPLE LOCATION
- LE-X ⊕ LEACHATE SAMPLE COLLECTION LOCATION
- WW-X ⊕ NEW MONITORING WELL LOCATION (PROPOSED)

**NOTES:**

1. ALL WELLS, SURFACE WATER AND LEACHATE SAMPLING LOCATIONS ARE APPROXIMATE.



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REALCO, INCORPORATED  
WATERLIET, NEW YORK  
**POST-CLOSURE MONITORING WELL NETWORK**

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FIGURE 2-1

**TABLE 2-1**  
**MONITORING WELL NETWORK**  
RealCo Landfill  
Colonie, New York Facility

New Well I.D.	Old Well I.D.	Year Installed	Material	Diameter (inches)	Screened Interval		Monitored Zone
					Feet bgs	Feet amsl	
WW-1B	New	2003	PVC	4	---	---	bedrock
WW-2B	New	2003	PVC	4	---	---	bedrock
WW-3B	New	2003	PVC	4	---	---	bedrock
WW-4	MW-4	1982	PVC	4	40-45	160.35 - 155.35	overburden
WW-5	New	2003	PVC	2	---	---	overburden
WW-10B	MW-10	1989	PVC	4	98-108	111.26 - 101.26	bedrock
WW-14	MW-14	1989	steel	4	13-23	89.55 - 79.55	overburden
WW-16	MW-16	1989	steel	4	13.5-23.5	144.35 - 134.45	overburden
WW-16B	MW-16B	1997	PVC	4	30-40	---	bedrock
WW-17	New	2003	PVC	2	---	---	overburden
WW-20B	MW-20B	1997	PVC	4	40-50	43.09 - 33.09	bedrock
WW-21	MW-21	1997	PVC	4	10-20	57.01 - 47.01	overburden
WW-21B	MW-21B	1997	PVC	4	50-60	16.99 - 6.99	bedrock
WW-22	MW-22	1997	PVC	4	7-17	52.95 - 42.95	overburden
WW-22B	MW-22B	1997	PVC	4	35-45	24.87 - 14.87	bedrock
WW-23	New	2003	PVC	2	---	---	overburden
WW-23B	New	2003	PVC	4	---	---	bedrock
WW-24	New	2003	PVC	2	---	---	overburden
WW-24B	New	2003	PVC	4	---	---	bedrock
WW-25	New	2003	PVC	2	---	---	overburden or interface
WW-25B	New	2003	PVC	4	---	---	interface or bedrock
WW-26	New	2003	PVC	2	---	---	overburden or interface
WW-26B	New	2003	PVC	4	---	---	interface or bedrock
WW-27	New	2003	PVC	2	---	---	overburden or interface
WW-27B	New	2003	PVC	4	---	---	interface or bedrock
WW-28	New	2003	PVC	2	---	---	overburden or interface
WW-28B	New	2003	PVC	4	---	---	interface or bedrock

original monitoring network. Upgradient monitoring well MW-11 had also been included in the original monitoring well network, but was reportedly abandoned during the development of the adjacent property (ESC, 2001).

#### **2.2.1.1 Wells to be Abandoned**

Of the 19 existing monitoring wells, up to nine of these wells (MW-1, MW-2, MW-3, MW-6, MW-7, MW-8, MW-12, MW-13, and MW-15) will be abandoned in accordance with the NYSDEC Groundwater Monitoring Well Decommissioning Procedures (Malcolm Pirnie, Inc., October 1996). As discussed in Section 2.2.2, below, bedrock wells MW-1 and MW-2 will be replaced with new wells and will either be abandoned or used as contingency monitoring wells, depending on analytical results from the replacement wells. Bedrock well MW-3 was damaged and buried during the reclamation project and will be abandoned, if found. The remaining six wells were selected for abandonment based on concurrence with ESC's recommendations for well abandonment at the site (ESC, 1997) and/or because they fall within the construction limits of the landfill cap. Monitoring wells MW-6, MW-8, and MW-15 were installed within, or at the edge of, the former waste management area and were damaged during the landfill reclamation. If these monitoring wells can be located, they will be abandoned.

#### **2.2.1.2 Wells to Remain in Monitoring Network**

Ten of the 19 existing monitoring wells will remain in the groundwater monitoring well network. Monitoring wells MW-4, MW-14, MW-21, MW-21B, MW-22, and MW-22B are all in good condition, while MW-10, MW-16, MW-16B, and MW-20B will need to be refurbished. Downgradient monitoring well MW-20B was buried under regrading material, and the casings and locking caps of MW-10, MW-16, and MW-16B were damaged during the landfill reclamation. As shown in Table 2-1, all of these wells will be re-labeled with a "WW" prefix for consistency, and to distinguish them from the Main Plant wells.



### **2.2.2 New Monitoring Wells**

There will be 17 new monitoring wells installed to complete the groundwater monitoring well network (Table 2-1). At least four overburden (WW-5, WW-17, WW-23, and WW-24) and five bedrock (WW-1B, WW-2B, WW-3B, WW-23B, and WW-24B) monitoring wells will be installed prior to completion of the landfill closure. All new wells will be installed according to the protocols outlined in an earlier work plan prepared by ESC (ESC, 1997).

As proposed by ESC (ESC, 1997), an overburden monitoring well (WW-17) will be drilled south of the unnamed tributary, downgradient of the waste management area (see Figure 2-1). Previous groundwater samples from overburden well MW-4 have contained concentrations of molybdenum and fluoride greater than NYSDEC Water Quality Standards. An overburden monitoring well (WW-5) will be installed approximately 50 feet south/southwest of MW-4 to assess the lateral extent of the higher concentrations of molybdenum and fluoride as observed in MW-4 samples.

Monitoring wells MW-1, MW-2, and MW-3 will be replaced, as it has been confirmed that their screened intervals are not appropriate for monitoring of groundwater in the shallow bedrock. Monitoring wells WW-1B and WW-2B will be installed adjacent to MW-1 and MW-2 and constructed based on the depth to water measurements collected in June 1996 (8.31 feet below ground surface (bgs) and 36.23 feet bgs, respectively) and the location of the contact between bedrock and weathered bedrock from MW-1 (5 to 6 feet bgs) and MW-2 (34 to 35 feet bgs), respectively. The screened interval for WW-1B will be 5 to 15 feet bgs and the sandpack used above the screened interval will be constructed in such a way as to not seal off the weathered bedrock interval located just above the screen. Monitoring well WW-2B will be screened approximately 32 to 42 feet bgs, which will include the weathered bedrock section within that interval. Monitoring well WW-3B will replace and be installed adjacent to MW-3 and will be screened in the upper portion of saturated bedrock. Because the topography of this area has been altered since MW-3 was installed, the screened interval for WW-3B will be approximately 50 to 60 feet below the original ground surface, an elevation of approximately 81.3 feet to 91.3 feet above mean sea level (amsl). As discussed with Ms. Denise Radtke of the NYSDEC on April 2, 2003, MW-1, MW-2, and MW-3 will be

omitted from the groundwater-monitoring network. Monitoring wells MW-1 and MW-2 can be abandoned once data from the replacement wells is sufficient, or can be used as contingency monitoring wells. MW-3 will be abandoned, if found, since it has been damaged and buried.

Elevated levels of chromium and molybdenum have been detected in previous groundwater samples from overburden wells MW-14 and MW-22. To characterize the potential vertical and lateral migration of these metals further downgradient of the waste management area, two sets of cluster wells (WW-23/23B and WW-24/24B) will be drilled downgradient of MW-14 (see Figure 2-1). Each cluster will include an overburden and bedrock well and will be installed on the RealCo property, just west of the Kromma Kill.

Although previous groundwater samples from overburden monitoring well MW-22 have contained arsenic, chromium, hexavalent chromium, iron, manganese, and molybdenum concentrations greater than the NYSDEC Water Quality Standards, additional wells will not be installed downgradient of this well. The MW-22/22B cluster is located within approximately 50 feet of the Kromma Kill, which allows little area downgradient of the cluster to install more wells. In addition, none of the metals present in samples from MW-22 have been detected in samples from the adjacent bedrock well, MW-22B. These data indicate that groundwater containing metals is not flowing vertically downward into the bedrock in this area. Based on water levels and geologic data, the overburden in this area is thin, and shallow groundwater in the overburden discharges to the Kromma Kill. Since the Kromma Kill cuts into the majority of the saturated overburden in this area, and assuming the Kromma Kill is a gaining stream, there is no overburden pathway for dissolved-phase metals to migrate to the opposite side of the Kromma Kill. Given these conditions, the only potential pathway to the opposite side of the Kromma Kill is vertical flow into the bedrock, which is not supported by the groundwater analytical data from MW-22B. In addition, the vertical hydraulic gradient at the MW-22/MW22B cluster is upward, which is typical in the vicinity of a groundwater discharge feature (the Kromma Kill).

Four monitoring well clusters WW-25/25B, WW-26/26B, WW-27/27B, and WW-28/28B will also be installed at the northern extent of the landfill in lieu of the four

piezometers proposed by ESC (ESC, 1997). Each of these clusters will contain an overburden/bedrock interface monitoring well and either a bedrock or overburden monitoring well, depending on the depth at which groundwater is encountered while drilling.

### **2.3 SURFACE WATER MONITORING**

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If present, surface water samples will be collected from two locations within the unnamed tributary to the Kromma Kill and four locations within the Kromma Kill, located south-southeast of the RealCo landfill (see Figure 2-1). The approximate surface water sample locations (SW-1 through SW-6), which were retained from the ongoing monitoring, are described below:

- SW-1 is a natural pool in the Kromma Kill River located approximately 50 to 75 feet upstream of the north face waterfall and is the background sample location;
- SW-2 is a pool located downstream of a debris dam and alongside a “sand bar” in the Kromma Kill;
- SW-3 is located downstream of a debris dam near the landfill on the unnamed tributary to the Kromma Kill;
- SW-4 is located on the unnamed tributary near the Leachate Collection Building;
- SW-5 is a pool located downstream of a debris dam in the Kromma Kill; and
- SW-6 is an outfall from a drainage pipe to the Kromma Kill on the north face of the landfill.

### **2.4 LEACHATE COLLECTION SYSTEM MONITORING**

---

During the last nine years, leachate samples were collected from two manholes (LE-1 and LE-2) onsite. The LE-1 manhole was located on the north face of the landfill and the LE-2 manhole was located on the east face of the landfill (see Figure 1-2). During the landfill reclamation project, landfill materials were excavated and removed

from the north face in the area of the LE-1 manhole. Since then, no leachate flow has been observed at the LE-1 location; therefore, no samples have been collected from LE-1.

In addition, after December 1999, leachate samples could not be collected from the LE-2 location because the manhole was buried during the reclamation activities. In December 2001, RealCo began to sample the leachate from the intake pipe to the leachate collection tank 1. Since there is no leachate flow from LE-1, these samples represent the leachate flow from LE-2. Therefore, for post-closure monitoring, leachate samples will be collected from the intake pipe, which will be re-designated as LE-2 (see Figure 2-1).

## **3.0 ENVIRONMENTAL MONITORING PLAN**

### **3.1 GENERAL**

---

The following subsections describe the program for post-closure monitoring of the groundwater, surface water, and leachate at the RealCo landfill. Sample locations were discussed in Section 2.0. The implementation of these monitoring programs will be performed in accordance with the approved Work Plans (McLaren/Hart, 1994, ESC, 1996a and 1996b) and modifications (ESC, 1996C and RealCo, 2000) to the scope of work as approved by NYSDEC (NYSDEC, 2000).

Inspection and maintenance of wells in the monitoring network will be conducted in accordance with the Well Maintenance Plan, provided in Appendix A.

### **3.2 POST-CLOSURE MONITORING**

---

Following closure of the RealCo landfill, RealCo will undertake a long-term environmental monitoring program for groundwater, surface water, and leachate.

Groundwater will be monitored quarterly, and surface water and leachate will be monitored semi-annually for environmental quality for one year. If the data demonstrate stable or downward trends in detected analytes during the first year of post-closure monitoring, RealCo will submit a request to modify the sampling requirements to the NYSDEC. Sampling, as may be required by the NYSDEC, will continue for up to 29 additional years.

#### **3.2.1 Groundwater**

During post-closure monitoring of the landfill, groundwater samples will be collected from the monitoring well network, as summarized in Table 2-1 and shown on Figure 2-1. In the first year of post-closure monitoring, samples from newly installed monitoring wells will be collected on a quarterly basis (June, September, December,

March) and analyzed for the list of parameters in Table 3-1, with the exception of arsenic and lead. Groundwater samples from the remaining wells will be collected quarterly and analyzed according to the schedule provided in Table 3-1. For all subsequent years of monitoring, all wells will be sampled and analyzed according to this schedule unless modified otherwise. Groundwater elevations and field parameters such as pH, specific conductance, temperature and turbidity will be measured in each well.

### **3.2.2 Surface Water**

Surface water samples will be collected on a semi-annual basis from four locations in the Kromma Kill and two locations, if present, within the unnamed tributary to the Kromma Kill. The surface water samples will be analyzed for arsenic, total and hexavalent chromium, iron, lead, manganese, molybdenum, selenium, copper, sodium, chloride, fluoride, sulfate, total hardness and ammonia (Table 3-2). Field parameters will also be measured.

The surface water samples will be filtered because the surface water standards apply to the dissolved (filtered) form of each constituent.

### **3.2.3 Leachate**

As described in Section 2.4, leachate samples will be collected from the intake pipe to the leachate collection tank. Leachate samples will be collected on a semi-annual basis for the first year of post-closure monitoring, and annually thereafter. These samples will be analyzed for the same parameters as the surface water samples, with the exception of total hardness (Table 3-2).

## **3.3 EVALUATION OF ANALYTICAL DATA**

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### **3.3.1 General**

Analytical data from post-closure monitoring will be evaluated to identify changes in the quality of groundwater, surface water, and leachate in the vicinity of the landfill over time. The evaluation will assess whether the capping of the landfill

**TABLE 3-1**  
**SCHEDULE OF ANALYSES FOR GROUNDWATER SAMPLES\***  
 RealCo Landfill  
 Watervliet, New York Facility

Parameter	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Field Parameters	✓	✓	✓	✓
Conventional Chemistry Parameters				
Ammonia	✓		✓	
Chloride	✓		✓	
Fluoride	✓		✓	
Sulfate	✓		✓	
Metals				
Chromium	✓	✓	✓	✓
Chromium +6	✓	✓	✓	✓
Molybdenum	✓	✓	✓	✓
Nickel	✓		✓	
Iron	✓			
Manganese	✓			
Selenium	✓			
Arsenic**	✓		✓	
Lead**	✓		✓	

**Notes**

\*In the first year, samples from all newly installed monitoring wells will be analyzed for all parameters listed, except for arsenic and lead.

\*\*Analysis of arsenic and lead will only be required for samples from WW-21, WW-21B, WW-22 and WW-22B.

**TABLE 3-2**  
**ANALYSES FOR SURFACE WATER AND LEACHATE SAMPLES\***  
 RealCo Landfill  
 Watervliet, New York Facility

Parameter	Surface Water*	Leachate**
Field Parameters	✓	✓
Conventional Chemistry Parameters		
Ammonia	✓	✓
Chloride	✓	✓
Fluoride	✓	✓
Sulfate	✓	✓
Total Hardness	✓	
Metals		
Arsenic	✓	✓
Chromium	✓	✓
Chromium +6	✓	✓
Iron	✓	✓
Lead	✓	✓
Manganese	✓	✓
Molybdenum	✓	✓
Sodium	✓	✓
Copper	✓	✓
Selenium	✓	✓

Notes

\* Surface water samples will be collected semi-annually

\*\* Leachate samples will be collected twice during the first year, and annually thereafter



significantly changes contaminant concentrations at the downgradient monitoring points. Post-closure monitoring data will be compared to the appropriate standard as listed in the Technical Administrative Guidance Memorandum (TAGM) Division of Solid and Hazardous Materials (DHSM) 3028 ("Contained-In" Criteria for Environmental Media, NYSDEC, 1997). Surface water data will be compared to the New York State Class D Surface Water Standards while leachate data will be compared to previous leachate results collected during past sampling events. If concentrations exceed their corresponding standards, trend analyses will be conducted to assist in determining whether contingency monitoring or remedial action is necessary. For example, in an instance where an Action Level is exceeded but a significant downward trend in concentrations is documented, implementation of a contingency monitoring or remedial action plan may not be necessary or appropriate.

### **3.3.2 Contingency Monitoring**

If the on-going data evaluation identifies a significant increase in concentrations, or a condition that suggests the monitoring provisions in this plan are not adequate to achieve the objectives stated in Section 1.2, the NYSDEC will be notified and a contingency plan will be prepared and submitted to the NYSDEC within 90 days of the identification of the problem. The contingency plan will clearly describe the action(s) that will be required to correct the problem.

## **3.4 DATA REPORTING**

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Unless more rapid reporting is required to address an imminent environmental or public health concern, RealCo will report all water quality monitoring results semi-annually. The semi-annual reports will include the following information:

- A summary of field and analytical data collected during the previous six months.
- Supporting QA/QC documentation for environmental sampling and analytical results, in accordance with the NYSDEC's letter to RealCo, dated June 17, 2002 (Appendix B).

- Groundwater elevation data, expressed in tabulated form. Potentiometric contour maps, which also show groundwater flow direction, will be prepared for each monitoring event. If applicable, contour maps shall be prepared for specific flow zones (i.e. overburden, bedrock).
- An evaluation of contaminant migration. Include maps for all significant contaminants that show the concentration at each program monitoring well. Isoleth maps will be prepared for all significant contaminants.
- Well maintenance activities planned or performed.
- An evaluation of the progress of the Corrective Action and Monitoring Program, with respect to the work plan objectives.
- Trend line plots for molybdenum and fluoride concentrations at WW-14 and WW-16, SW-2, SW-4 and LE-2 as well as hexavalent chromium concentrations at SW-4 and LE-2. Trend line plots may be prepared for selected new wells after two years of data collection.
- Any other problems and activities planned.

## 4.0 REFERENCES

Environmental Strategies Corporation (ESC) 1996a. "Surface Water Monitoring Plan for the Waste Management Area, AL Tech Specialty Steel Corporation, Watervliet, New York," August 17, 1996.

Environmental Strategies Corporation (ESC) 1996b. "Leachate Monitoring Plan for the Waste Management Area, AL Tech Specialty Steel Corporation, Watervliet, New York," August 17, 1996.

Environmental Strategies Corporation (ESC) 1996c. "Confirmation of Modified Waste Management Area Monitoring Program, EPA I.D. No. NYD060545209, AL Tech Specialty Steel Corporation, Watervliet New York Facility," Correspondence to Scott M. Menrath, P.E. New York State Department of Environmental Conservation, August 26, 1996.

Environmental Strategies Corporation (ESC) 1997. "Waste Management Area Groundwater Monitoring System Upgrade Work Plan, Al Tech Specialty Steel Corporation, Watervliet, New York Facility," February 3, 1997.

Environmental Strategies Corporation (ESC) 2001. "Semi-Annual Report, Year 8, Rounds 1 and 2 Quarterly Groundwater Monitoring Program, Waste Management Area, Former Al Tech Specialty Steel Corporation Site, Watervliet, New York," February 23, 2001.

McLaren/Hart Environmental Engineering Corporation (McLaren/Hart) 1994. "Final Combined Groundwater Monitoring Plan for the Waste Management Area and Closed Surface Impoundment, AL Tech Specialty Steel Corporation, Watervliet, New York," March 24, 1994.

New York State Department of Environmental Conservation (NYSDEC) 1999. "NYSDEC Water Quality Regulations, Surface Water and Groundwater Classifications and Standards, New York State Codes, Rules and Regulations, Titles 6, Chapter X, Parts 700-706," Through March 1998, Amended April 1999.

New York State Department of Environmental Conservation (NYSDEC) 2000. "Waste Management Area Groundwater Monitoring," May 17, 2000.

RealCo, Inc. 2000. "Waste Management Area Monitoring Programs, EPA I.D. No. NYD060545209, Former AL Tech Specialty Steel Corporation Facility, Watervliet, New York," Correspondence to Alicia Barraza, New York State Department of Environmental Conservation, April 10, 2000.

**APPENDIX A**

**Well Maintenance Plan**

**ATTACHMENT A**

**WELL MAINTENANCE PLAN**

The monitoring wells will be inspected for corrosion, damage to the lock, well numbers and their legibility, positive drainage (damage to the concrete apron, if applicable) and general integrity each time samples are collected. Total well depths will be measured at least semi-annually to determine the need for well redevelopment due to a build-up of silt. Routine repairs and maintenance will be performed prior to the next scheduled sampling event. If after suitable investigation, any well is determined to be:

- severely damaged or;
- damaged beyond repair or;
- unusable for some other reason or;
- is not capable of providing a representative sample,

the Permittee shall respond in accordance with Permit Condition D.1. of Module V.

**APPENDIX B**

NYSDEC Letter Dated June 17, 2002 Regarding Data Reporting/Data Validation Requirements



June 17, 2002

Dr. Jin Park  
RealCo, Incorporated  
P.O. Box 9  
Lakeview, New York 14085

Dear Dr. Park:

Re: RealCo, Watervliet, NY; Data Reporting/Data Validation

You have recently requested that the New York State Department of Environmental Conservation (Department) clarify the data reporting requirements related to environmental monitoring programs at the former AL Tech Specialty Steel facility, located in Watervliet, New York. Data reporting should be in accordance with the following:

- For scheduled quarterly or semi-annual monitoring, reporting should include submission of a data summary table (sampling location, concentration result, detection limit, etc.). Raw laboratory data does not need to be submitted for these events, but should be available upon request, for a minimum of five years following the event. Data validation does not need to be performed for these events, unless there is a change in laboratory or other significant event.
- Data validation should be performed on program monitoring data once every five years and for certain milestone events, as requested by the Department. Data validation should also be performed when there is a change in laboratory. The raw data should be submitted in a Category B deliverable format, along with the data validation report.
- If monitoring data should indicate anomalous or unexpected results, RealCo should take the initiative to review the laboratory data with appropriate laboratory personnel, and if necessary, resampling should be performed. RealCo should keep Department staff informed of such events.
- Raw data may be submitted in hard copy and/or in electronic format. If possible, the Department prefers that the raw data be submitted on CD format in a "PDF" file type.

Dr. Jin Park

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Please note that the requirements presented above apply to the ongoing monitoring programs at the facility. Data collected for specific projects (such as the Landfill Reclamation Project) should be reported in accordance with the specific work plan approved for that project.

If you have questions concerning this letter, I may be contacted at (518) 402-8594.

Sincerely,

*Denise M Radtke*

Denise Radtke  
Senior Engineering Geologist

cc: E. Miles  
R. Murphy  
A. Barraza