NYSDEC Site ID# 36003

Final
Supplemental Remedial Investigation/Feasibility Study
Work Plan Addendum

For the
Magna Metals Site
Lightron Corporation

Town of Cortlandt
Westchester County, New York

Prepared by:

Foster Wheeler Environmental Corporation

March 2003

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1.0 INTRODUCTION

The purpose of this supplemental RI/FS Work Plan Addendum is to present a scope of work to conduct Supplemental Phase 2 RI sampling, which will be implemented at the Magna Metals site located in the Town of Cortlandt, New York. The existing RI/FS Work Plan documents prepared by Foster Wheeler and approved by DEC will be used to execute field investigation activities. This additional phase of work addresses data gaps presented in the Draft RI/FS report, dated November 1998, and New York Department of Environmental Conservation (NYSDEC) comments. This revised Work Plan addendum is based on comments provided by NYSDEC (Attachment A) and additional historical documentation provided by NYSDEC (Attachment B).

2.0 ADDITIONAL PIT LOCATION SURVEY

A more comprehensive pit location survey will be performed, extending further west than previously performed, based on additional historical NYSDEC documentation.

The documentation, contained in NYSDEC files, shows two septic tanks and nine drainage structures, various drawings show pipes connecting some of those structures, and a potential refuse area. Figure 1 in Appendix A of the draft RI report (November 1998) shows possible pipe sections but not to the extent shown in NYSDEC documentation. The geophysical work performed in 1996 covered a smaller geographic area based on then existing available information. As a result, the 1996 survey may not have covered the area where other structures might be located.

A more complete effort to determine the location and condition of these underground structures, including piping at Magna Metals will be made during this second phase of the RI. Several pipes shown on the above-mentioned RI Report, Figure 1 extend west towards the hill above the creek. Also, documents in NYSDEC files show pipes extending northward. A final attempt to identify the location and terminuses of these pipes will be made. Clearing of trees and brush will be required prior to initiating this task.

The search for additional pits and potential refuse area shall extend further to the west than previously investigated and the approximate area for additional geophysical investigation is denoted on Figure 1 (oversize drawing). Based on the NYSDEC maps (Attachment B), the geophysical search will extend approximately 165 feet west of the building. According to NYSDEC figures, the furthest pit is approximately 155 feet from the building. The potential refuse area was shown to be 100 feet west of the building. The geophysical work and associated vegetative clearing will be done in two steps to potentially minimize the amount of trees and small vegetation to be removed. The two step process is shown on Figure 1. Following vegetation removal in Step 1, real time hand-held geophysics will be performed on the cleared area. If the pits and refuse areas are not visually identifiable or detectable using real time, hand-held geophysics, additional vegetative clearance will be performed in Step 2 to widen the investigation area.

Ground penetrating radar (GPR) data will be collected along lines parallel to the former Magna Metals building (roughly east-west) will be spaced 10 feet apart. Multiple GPR

lines will be collected over locations of subsurface pits shown on NYSDEC documents to identify the characteristic GPR signature of these features.

The technique of GPR provides an effective non-invasive method of detecting and mapping small-scale variations in the very high frequency (VHF) electromagnetic (EM) properties of subsurface materials, which are often associated with geologic boundaries and/or man-made artifacts.

The processed digital files will be analyzed for characteristic signatures that may be associated with potential subsurface tanks and appurtenant piping. A characteristic signature of a subsurface tank will be determined by collecting a number of scans over the known location of a subsurface tank and comparing this signature to subsequent data collected.

2.1 LEACH PIT AND REFUSE AREA SAMPLING

An attempt will be made to sample the bottom material in each of the pits (existing and any newly located pits). A manual hand auger device will be used from grade level. There will not be any worker entry into the pits. If there is a concrete/or solid bottom, no sampling will be conducted. If the pits do not have a bottom, a sample will be collected.

Should sampling not be possible, in order to address quantification of the Remedial Action costs the Feasibility Study (FS), the Final FS will be modified so that a high-end range of excavation could be included in the Feasibility Study. The depth of bedrock would bound the high-end depth of excavation estimate, information that was previously collected during the RI.

In the event that the potential refuse area is located, samples will be collected using either a hand auger/or drilling rig, depending upon the amount of any potential metallic debris identified. One location will be sampled, with samples from within the debris (if any) and below the debris (natural overburden).

The pit and refuse samples will be analyzed for TCL VOCs, TCL SVOCs, TCL pesticides and PCBs, TAL metals, cyanide and total organic carbon (TOC).

3.0 HOMEOWER SURVEY

The existence of private (domestic and production) wells and/or municipal wells will be researched. The evaluation will include a review of NYSDEC records to determine if any wells are present. In addition, state and local well records will be reviewed to obtain available information. Any existing well logs will be used in conjunction with site data to assist in planning of final bedrock well locations. Any domestic wells identified will be sampled to better delineate the plume. Sampling permission will be required from the owners for access. If there are any domestic wells, a door-to-door survey will also be conducted to evaluate access to these wells for sampling. Any wells identified will be sampled for TCL Volatile Organics, Cyanide, TAL Metals using procedures for Groundwater Sampling. It should be noted that during analysis of the data in preparation of the 1998 RI/FS Report, the Department of Health and local government were contacted via telephone. According to their records, nearby residences were on a municipal water supply and that there were no records of any private production wells.

4.0 GROUNDWATER CONTAMINATION DELINEATION

The groundwater contamination at the site has not been fully delineated in the overburden aquifer. In addition, the vertical extent of groundwater contamination has not been fully delineated to determine if the underlying bedrock aquifer has been impacted. The proposed additional activities outlined below will address the horizontal and vertical delineation of groundwater contamination at the site. Figure 1 shows the tentative locations of overburden and bedrock monitoring wells. Prior to final location selection, NYSDEC shall be included in the decision making.

4.1 OVERBURDEN AQUIFER MONITORING WELLS

Additional monitoring wells will be installed in the overburden aquifer to attempt to complete the horizontal delineation of the groundwater contamination. Overburden monitoring wells will be installed and sampled as outlined in the Remedial Investigation/Feasibility Study Work Plan (RI/FS Work Plan) and the Quality Assurance Project Plan (QAPP) previously submitted and approved by NYSDEC. Figure 1 illustrates the proposed location of the four (4) additional overburden monitoring wells.

Monitoring well MW-05 will be installed approximately 300 feet east of monitoring well MW-04. Monitoring well MW-05 is approximately 250 feet up-gradient of the Leach Pit area that is suspected to be the source of groundwater contamination. This monitoring well will be used to determine the background chemistry of the groundwater prior to flowing through the Leach Pit source area. Up to three subsurface soil samples will be collected at this location to supplement subsurface background soils collected during the Phase 1 RI. Monitoring well MW-06 will be installed approximately 100 feet north of monitoring well MW-04. This monitoring well will be used to assist in defining the northerly extent of the plume. Since the groundwater is moving in a westerly direction it is anticipated that there will be minimal contaminant movement in this direction.

Monitoring well MW-07 will be installed approximately 600 feet in the general downgradient direction of MW-04 along Rosalind Drive. This monitoring well will be used to assist in determining the downgradient edge of the plume. If there are elevated levels of TCE in this monitoring well, additional monitoring well(s) may be required further downgradient at a later date. This step-wise approach will minimize the number of monitoring wells needed to complete the horizontal delineation of the plume.

Monitoring well MW-08 will be installed approximately 700 feet in the general downgradient direction of MW4 along Cross Road Ave. These two downgradient monitoring wells, (MW-07 and MW-08) will assist in delineating the horizontal extent of contamination, and also, provide water level data to better define the local groundwater regime.

4.2 BEDROCK AQUIFER MONITORING WELLS

One bedrock monitoring well, MW-04D will be installed in the immediate area of MW-04. The bedrock monitoring well will be installed as outlined in Attachment C. The bedrock monitoring well will be installed and sampled to determine if the contamination in the overburden aquifer has migrated into the underlying bedrock aquifer. The bedrock

monitoring well will be installed next to monitoring well MW-04 because the highest levels of contamination in the overburden aquifer were found in this area.

4.3 GROUNDWATER SAMPLING AND ANALYTICAL REQUIREMENTS

The five newly installed monitoring wells and the four previously installed monitoring wells will be sampled in accordance with procedures outlined in the RI/FS Work Plan and the QAPP. The groundwater samples will be analyzed for TCL Volatile Organics, Cyanide and TAL metals. The samples will not be analyzed for SVOCs or Pesticides/Herbicides because these compounds were not detected at significant levels in the previous sampling events that warrant further investigation.

4.4 TOPOGRAPHIC WELL ELEVATION SURVEY

A land surveyor will obtain the horizontal and vertical locations of the existing and newly installed monitoring wells and up to 5 surface water locations in order to develop a site groundwater elevation contour map. Semi-permanent type surveying markers will be installed at surface water locations prior to surveying. Surface water level measurements will be collected at the time of topographic surveying, along with groundwater elevations in monitoring wells for a synoptic water level measurement event.

5.0 BUILDING INTERIOR SAMPLING

Elevated levels of contamination are present at the leach pits outside of the Former Magna Metals Building (see building denoted as such on Figure 1). Previous site visits had evaluated entrance to the building for building interior sampling. However, due to poor building conditions (it has not been maintained by the current owner for many years), significant Health and Safety concerns preclude any sampling.

In discussion with NYSDEC, there has been an understanding on the part of FWENC that the current owner is considering demolition of the building. If such an action occurs, building access restrictions will no longer prevent the collection of data below the slab. Assuming the building is demolished by the current owner, conditions below the building slab will be investigated for potential drains or some other low point, which could allow infiltration of waste into the subsurface. Should a potential drain or infiltration gallery be identified, soil samples will be collected at intervals below the slab until the water table, or until bedrock is encountered, whichever occurs first. Soil sampling will be conducted using a drill rig and will be consistent with subsurface soil sampling protocols presented in the RI/FS Work Plan. Soil samples will be analyzed for TCL Volatile Organics, Cyanide, and TAL Metals. Location SB-8 has been denoted on Figure 1, however, location within the building is approximate.

6.0 SURFACE SOIL SAMPLING

Surface soil samples will be collected on the slope and down slope from the former Magna Metals property, and also, adjacent to the building, to better delineate the extent of residual surface contamination that may persist from potential former operations which may pose a human health risk. All Surface Soil samples collected will be analyzed for TCL Volatile Organics, Cyanide, and TAL Metals.

Surface soil samples will be collected at seven locations (3 on slope, 2 at base of slope, 2 adjacent to the former Magna Metals building - locations SS-6 to SS-12) for TCL Volatile Organic, Cyanide, TAL Metals. Locations SS-13, SS-14, and SS-15 shall be collected to provide data on background surface soil conditions. Samples will be obtained at a 0-2" interval.

7.0 SURFACE WATER AND SEDIMENT SAMPLING

7.1 RI/FS FINDINGS

Results of the previous investigation conducted by Foster Wheeler indicated the following: (1) the presence of ecological receptors in the aquatic habitats adjacent to the Magna Metals property, (2) the presence of potential site related contaminants in these habitats, (3) complete exposure pathways for receptors to be exposed to the contaminants and (4) the observed concentrations of PAHs and metals exceed pertinent eco-screening level values. These findings indicate that a toxic effect based assessment (Step IIC of the FWIA) is warranted to collect site-specific data for assessing risk to ecological receptors.

Concentrations of metals and polycyclic aromatic hydrocarbons (PAHs) were found to exceed sediment-screening level benchmarks in the creek and pond basin areas downstream from the site. Surface water samples collected from three locations proximal to former leach pits exceed background levels and the NYSDEC water quality criterion for Class D waters. This exceedance suggests that survival of aquatic life may be impacted by local sources or discharges from the site.

As required by NYSDEC regulations, further investigations will be conducted to determine what effects are being manifested in these habitats. A site specific biological/chemical study will be performed to reduce inherent uncertainties applied in Step IIB (previously conducted at the site during the RI.) The Step IIC will include:

- Community Level Analysis using benthic macroinvertebrate surveys;
- Organism Level Analysis using surface water and sediment toxicity testing and;
- Supplemental sediment and surface water sampling.

This three-study method approach will be used in the Step II C to supplement the existing Step II A-B analysis (performed during the RI.) The data obtained will supply a site specific basis for identifying risks to fish and wildlife resources and will assist in the identification and selection of specific remedial action alternatives for the site and will be incorporated into the revised RI/FS (see section 7.0). Table 1 provides station identification and rationale for sampling for the Step II C field program.

7.2 BENTHIC MACROINVERTEBRATE SURVEY

Benthic macroinvertebrate surveys will be used as study methods for aquatic community level analyses (Bode et.al., 2002, 1990) in the two small streams receiving drainage from the Magna Metals site. Samples shall be collected from the two streams and two background locations (one from each stream, SW/SD- 13 and SW/SD-17 locations) for

Table 1

FWIA Step II C Sampling Station Identification and Rationale

Sampling Station Identification	**Sampling Rationale**
SW/SD 13, SW/SD17	Site specific background locations for Step II C chemical and biological assessments.
SW/SD 14, SW/SD15, SW/SD 16, SW/SD18, SW/SD 19, SW/SD20	Site specific sediment and surface water samples to be used to evaluate extent and nature of chemical distribution from Step II B analysis and in support of biological assessments in the adjacent streams.
SW 21, SW 22	Sampling locations having surface waters with high potential for biological effects (metals) as determined from Step II B.
SD21, SD22, SD23, SD24	Sediment sampling locations to determine extent and nature of potential site related contaminants and biological assessment in the pond.
SD25, SD26	Sediment sampling locations to evaluate extent and nature of potential site related contaminants below the pond.

community level analysis. Replicate samples of the benthic macroinvertebrate community will be collected at individual sampling locations (SW/SD-14, SW/SD-15, SW/SD-16, SW/SD-19, SW/SD-20) using a benthic kick net, surber sampler or benthic grab device with the final selection being based on field conditions encountered. Final selection of the sampling device will also be based upon universal application at each of the sampling stations and sampling methods will follow guidance from Bode et. al., (1990, 2002) and USEPA (1999).

Proposed sampling locations are identified on Figure 1.0. Collected samples shall be sieved via a 500 um sieve, the contents of which will be preserved with 70% ethanol for laboratory identification. A sample of sediments from the macroinvertebrate surveys conducted at each survey location will be collected for chemical analysis in support of the benthic community analysis. Analytical and invertebrate data will be used in conjunction with co-located surface water and sediment data to identify changes in benthic community structure and function with increasing distance from the site.

7.3 TOXICITY TESTING

Surface Water Toxicity Testing will be used as an organism level analysis for assessing if the elevated concentrations of metals (especially copper) observed in surface waters near the site have the potential to impact aquatic life. Bulk water samples will be collected for use in 96 hour, *Ceriodaphina* toxicity testing from five locations and a background station. Proposed sampling locations (SW/SD-14, SW/SD-15, SW/SD-17, SW/SD-19, SW-21, SW-22) are identified on Figure 1.0. Methods for conducting the tests shall follow EPA (2002) or similar methods. Results of the toxicity test shall be used in conjunction with co-located surface water samples to determine if existing metal concentrations in the stream near the site have the potential to impact aquatic life.

In addition to the proposed surface water toxicological evaluation, Whole Sediment Toxicity Testing shall be performed at each proposed benthic sampling station (SW/SD-13, SW/SD-14, SW/SD-15, SW/SD-17, SW/SD-19, SD21, and SD23). Test species shall include the amphipod *Hyalella azteca* and the midge, *Chironomus tentans*. Ten-day acute test methods shall follow guidance set forth in USEPA (1994) for EPA method 100.1 for *Hyalella azteca* and method 100.2 for *Chironomus tentans*. The primary endpoint for the tests shall be survival and the secondary endpoint shall be growth for both test species.

7.4 SUPPLEMENTAL SURFACE WATER AND SEDIMENT SAMPLING

A bimodal assessment approach will be employed for the surface water and sediment IIC assessment. Sediment samples will be collected at sample stations (SW/SD-13, SW/SD-14, SW/SD-15, SW/SD-16, SW/SD-17, SW/SD-18, SW/SD-19, SW/SD-20, SD21, SD22, SD23, SD24, and SD25) for the benthic macroinvertebrate community survey. Collected sediment samples will be analyzed for TAL metals, polycyclic aromatic hydrocarbons (PAHs), total organic carbon (TOC) and acid volatile sulfide and soluble extractable metals (AVS/SEM). Additional sediment samples will be collected in support of better defining the nature and extent of metals and PAHs in the streams and pond receiving runoff from the site.

Surface water samples (SW/SD-13, SW/SD14, SW/SD-15, SW/SD-16, SW/SD-17, SW/SD-18, SW/SD-19, SW/SD-20, SW21, SW22) collected shall be analyzed for TAL metals. Proposed sampling locations are identified on Figure 1.0. Surface water and sediment data shall be used to correlate trends in observed community structure and potential for acute toxicity to aquatic life.

Data generated from the above site specific investigations will be used to confirm or reject the findings of the Step IIB Criteria specific analysis and revisions to the RI/FS, as necessary will be made. A focused Step IIC findings section shall be incorporated into the revised RI/FS, which will describe the results of the biological and chemical testing and interpretation of the results to better define risks to ecological receptors.

8.0 RI/FS REPORT

Following collection, laboratory analysis, and validation, the data collected in the sections above will be analyzed and evaluated. The existing RI/FS Report previously submitted in November 1998 will incorporate the findings of the supplemental investigation and shall be submitted to NYSDEC for review and comment. The revised RI/FS report will incorporate NYSDEC comments, dated April 11, 2002, received on the November 1998 RI/FS report. The supplemental data will be used to refine previous conclusions, recommendations, and subsequent evaluation of remedial alternatives.

9.0 SUPPLEMENTAL RI/FS SCHEDULE

Task	Approximate Anticipated Maximum Duration	Approximate Schedule Dates
NYDEC Work Plan Approval	----	April 7, 2003
On Site/Off Site Access Agreements	*20 Days	*April 7, 2003 – May 5, 2003
Homeowner Well Survey	30 Days	April 7, 2003 – May 16, 2003
Subcontractor Procurement	30 Days	April 7, 2003 – May 16, 2003
Site Mobilization	10 Days	April 28, 2003 – May 9, 2003
Step 1 Vegetation Clearance	3 Days	May 12, 2003 – May 14, 2003
Step 1 Geophysical Data Collection	3 Days	May 14, 2003 – May 16, 2003
Step 1 Geophysical Data Interpretation	2 Days	May 15, 2003 – May 16, 2003
Step 2 Vegetative Clearance	3 Days	May 19, 2003 – May 21, 2003
Step 2 Geophysical Data Collection	2 Days	May 21, 2003 – May 23, 2003
Step 2 Geophysical Data Interpretation	2 Days	May 22, 2003 – May 23, 2003
Leach Pit/Refuse Area Sampling	10 Days	May 27, 2003 – June 6, 2003
Surface Soil Sampling	5 Days	June 9, 2003 – June 13, 2003
Building Interior Sampling	5 Days	June 9, 2003 – June 13, 2003
Overburden Monitoring Well Installation	10 Days	June 16, 2003 – June 27, 2003
Bedrock Monitoring Well Installation	5 Days	June 23, 2003 – June 27, 2003

Task	Approximate Anticipated Maximum Duration	Approximate Schedule Dates
Surface Water & Sediment Sampling	10 Days	June 30, 2003 – July 11, 2003
Groundwater Sampling	5 Days	July 14, 2003 – July 18, 2003
Benthic Survey	15 Days	June 30, 2003 – July 18, 2003
Laboratory Analysis	60 Days	May 28, 2003 – August 22, 2003
Data Validation	60 Days	June 30,2 003 – Sept. 19, 2003
Revised RI Report	45 Days	September 22, 2003 – November 21, 2003

*If access agreements cannot be negotiated the project schedule will be extended accordingly.

10.0 REFERENCES

Bode, R.W., M.A. Novak, L.E. Abele, D.L. Heitzman and A.J. Smith. 2002. Quality Assurance Work Plan for Biological Stream Monitoring in New York State. NYSDEC Division of Water, Albany, N.Y.

Bode, R.W., M.A. Novak, and L.E. Abele. 1990. Biological Impairment Criteria for Flowing Waters in New York State. NYSDEC Division of Water, Albany, N.Y.

Foster Wheeler Environmental Corporation. November 1998. Remedial Investigation/Feasibility Study Report for the Magna Metals Site, Town of Cortlandt, Westchester County, New York.

Foster Wheeler Environmental Corporation. August 1995. Remedial Investigation/Feasibility Study Work Plan for the Magna Metals site, Town of Cortlandt, Westchester County, New York.

USEPA 1994. Methods for Measuring the Toxicity of Sediment Associated Contaminants with Freshwater Invertebrates. U.S. Environmental Protection Agency, Office of Research and Development, Duluth, MN. EPA 600/R-94/024

USEPA 1999. Rapid Bioassessment Protocols for Use in Wadable Streams and Rivers. United States Environmental Protection Agency. Office of Water, Washington, D.C. EPA 841-B-99-002.

USEPA 2002. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. United States Environmental Protection Agency. Office of Research and Development, 4th Edition, Washington, D.C. EPA 821-R-02-013.

NYSDEC 1994. Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA). New York State Department of Environmental Conservation. Division of Fish and Wildlife. Albany, N.Y.

ATTACHMENT A

NYSDEC Comments
and
Mutually Agreeable Responses

Bedrock Drilling Specification

Monitoring wells to be installed as open holes in bedrock will be installed according to the following specifications:

- Advance each boring to the top of the bedrock surface. Borehole advancement will be conducted using 6¼-inch inner diameter (ID) continuous flight hollow-stem augers in 2-foot intervals, to permit the continuous collection of subsurface soil samples with carbon steel split-spoon samplers. Confirmation of the bedrock surface depth will be based upon split-spoon refusal.
- Overbore the borehole to a 12-inch diameter borehole, in which to install a temporary 10-inch carbon steel overburden casing to bedrock, utilizing an appropriately sized tri-cone roller bit.
- Subsequent to temporary casing installation, continue borehole advancement into the bedrock to a depth of 5 feet below the bedrock surface with a 9-inch outer diameter (OD) tri-cone roller bit via the water rotary method.
- Set a permanent 6-inch carbon steel casing 5-feet into the competent bedrock by the spin casing method.
- Backfill the annular space around the well casing with bentonite/cement slurry to the surface. The ratio of cement to bentonite for grouting will be approximately 30 gallons of water to three 94 pound bags of cement to every 25 pounds of granular bentonite.
- Remove the 10-inch temporary casing during pressure grouting. Allow grout to cure for at least 24 hours.
- Continue coring and then drilling in the borehole to the maximum anticipated total depth (i.e. 10 feet below the point where groundwater was encountered) and/or the depth where fracture zones indicate sufficient yield, first using the rock coring method and then overboring utilizing the water rotary method and a 5-inch OD tri-cone roller bit.
- Complete the open hole monitoring well with a protective locking stick-up or flushmount box installed in a concrete pad.
- If the borehole extends to a depth greater than 25 feet below the bottom of the surface casing (due to depth and/or yield of groundwater), construct the monitoring well using 10 feet of 2-inch diameter Schedule 40 PVC or Schedule 5 stainless steel wire wound screen (0.010-inch slot or a slot size appropriate to the formation) and 2-inch diameter Schedule 40 PVC or Schedule 5 stainless steel riser pipe. For non-flushmounted wells, at least 2 to 3 feet of riser pipe must extend above the ground surface. Flushmounted wells will only be installed in high traffic areas, such as roadways, sidewalks, etc.
- Backfill the annular space to a minimum height of 2 feet above the top of screen with a sand pack. The sand pack shall be Morie #1 silica sand

(based on Site-specific geologic conditions and screen slot size). The remaining annular space will be filled with bentonite/cement grout up to the ground surface. The ratio of cement to bentonite for grouting will be approximately 30 gallons of water to three 94 pound bags of cement to every 25 pounds of granular bentonite.

- Complete the constructed monitoring well with a protective locking stickup or flushmount box installed in a concrete pad.

ATTACHMENT A

NYSDEC Comments
and
Mutually Agreeable Responses

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Eastern Remedial Action, 11th Floor
625 Broadway, Albany, New York 12233-7015
Phone: (518) 402-9622 • **FAX:** (518) 402-9627
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Erin M. Crotty
Commissioner

April 11, 2002

Mark Sielski
Project Manager
Foster Wheeler Environmental Corporation
1000 The American Road
Morris Plains, NJ 07950

RE: Magna Metals, Site No. 360003
Remedial Investigation/Feasibility Study Work Plan Addendum

Dear Mr. Sielski:

The Department has received and reviewed the abovementioned document and has the following comments:

1. A major issue of concern is our knowledge of the underground structures at the site. Several older documents contained in Department files refer to two septic tanks and nine drainage structures and various drawings show pipes connecting some of those structures. Figure 1 in Appendix A of the draft RI report (November 1998) shows possible pipe sections but is by no means complete. The geophysical work done in 1996 does not cover a very large area and may not cover the area where other structures could be.

   A more complete effort to determine the location and condition of all the underground structures, including piping, at Magna Metals must be made during the second phase of the RI. Several pipes shown on the abovementioned Figure 1 show pipes extending west towards the hill above the creek. Also, documents in Department files show pipes extending northward. The location and terminuses of these pipes must be located.

2. The work plan suggests the installation of three shallow wells and a deep well. Perhaps another tactic that could be used is to use a geoprobe to sample groundwater at various depths and locations prior to the installation of monitoring wells. The depth of bedrock could be determined, piezometers could be installed to determine the direction of groundwater flow, groundwater samples could be collected, and a small geoprobe unit may be more palatable to the neighbors. After this preliminary data has been collected, then monitoring wells could be installed.

3. Only two drainage structures were sampled during the remedial investigation. All of the pits should be sampled. The sludge material at the bottom (if any remains) should be sampled as well as the soil below the rings. The soil below the rings should be sampled at regular intervals until bedrock is encountered.

4. Although surface soil samples have been taken at the site, they have been focused on a small area near the pits. Surface soil samples have not been taken immediately adjacent to the building nor in other areas around the building. Surface soil samples should be taken around the entire building and should establish the boundaries of surface soil contamination.

5. Sediment toxicity testing should be conducted on stream and wetland sediments due to the existing high levels of contaminants. The proposed benthic community analysis is useful but difficult to interpret quantitatively and must be supplemented by toxicity tests. AVS/SEM analysis is also useful in predicting non-bioavailability of metals in sediments but is not a substitute for actual toxicity testing since in cannot predict toxicity or predict the level of toxicity.

   Toxicity testing should be conducted on sediments from locations SD-13 (reference location), SD-14, SD-15, SD-16, SD-18, SD-19, SD-20, and SD-25. Location SD-19 should be moved approximately 100 feet upstream. A sediment sample should be collected at location SW-22 and tested. In addition, sediments should be collected and tested from at least two pond locations in the main depositional area. These may not be the locations currently proposed as SD-21 through -24 which seem to be most distant from the pond inlet and outlet. SD-21 and SD-24 should be moved to the southern area of the pond to locations suitable for toxicity testing.

The work plan states that significant revisions to the November 1998 draft Remedial Investigation (RI) Report (Foster Wheeler) will not be required when the revised report is resubmitted to the Department. The Department does have several comments about the existing report that need to be addressed in the revised report:

6. Some of the values shown in Table C-3 (Semi-volatile Compounds in the Septic Tank/Leach Pit) of the 1998 report are not shown on Figure 4-1. For example, 1,2 dichlorobenzene is present in sludge sample SP-SL at 4,200 ppb but is not shown in the figure. 2-Methyl naphthalene is not shown at 1,500 ppb. Please correct.

7. Some of the dates in the tables in the 1998 RI report are incorrect. For example, some of the dates for the soil boring samples are listed as 1996 but the soil borings were done in 1997. Please correct.

8. The 1998 RI report contains data generated in the 1980s and 1990s which is very helpful (Tables 1-1 through 1-12). However it is not always clear where the samples were taken even though there is a written description of sample locations on most of the tables. It is

particularly difficult to determine which pits were sampled. Please include figures that show the exact locations of the previous sampling events in the revised RI.

9. The topographical lines on some of the figures in the 1998 RI report are incorrect. Please correct.

10. When revising the RI report for submittal, please include logs generated during sampling and other field events (e.g., well development) in an appendix.

11. The 1998 RI report doesn't contain any watertable information. In order to determine groundwater flow direction the wells/piezometers must be surveyed and water levels measured. In the revised RI report include monitoring well elevations, water table elevations, and drawings with water table contours.

12. The 1998 report did not include any QA/QC information. Attached is guidance on how to complete a data usability summary report (DUSR). This must be included in the revised RI.

13. Please include the geophysical report(s) in the revised RI report in its entirety.

14. Ultimately the complete and approved remedial investigation and feasibility study reports must be submitted in electronic format to the Department. In the interim however, please submit the complete analytical data to the Department in spreadsheet format (excel preferably).

Please revise the work plan and resubmit it to the Department by April 30, 2002. If you have any questions, please call me at 518-402-9622.

Sincerely,

Sally W.W. Dewes, P.E.
Environmental Engineer 2
Bureau of Eastern Remedial Action
Division of Environmental Remediation

cc: R. Cozzy/File
P. Carella
S. Melvin, NYSDOH

ec: C. Manfredi, Reg. 3

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Erin M. Crotty
Commissioner

September 6, 2002

Mark Sielski
Senior Project Manager
Foster Wheeler Environmental Corporation
1000 The American Road
Morris Plains, NJ 07950

RE: Magna Metals, Site No. 360003

Dear Mr. Sielski:

As we discussed in our phone conversation today, attached are three hand drawn figures showing septic tanks and pits at the Magna Metals site. If you have any questions, please call me at 518-402-9622.

Sincerely,

Sally W.W. Dewes, P.E.
Environmental Engineer 2
Bureau of Eastern Remedial Action
Division of Environmental Remediation

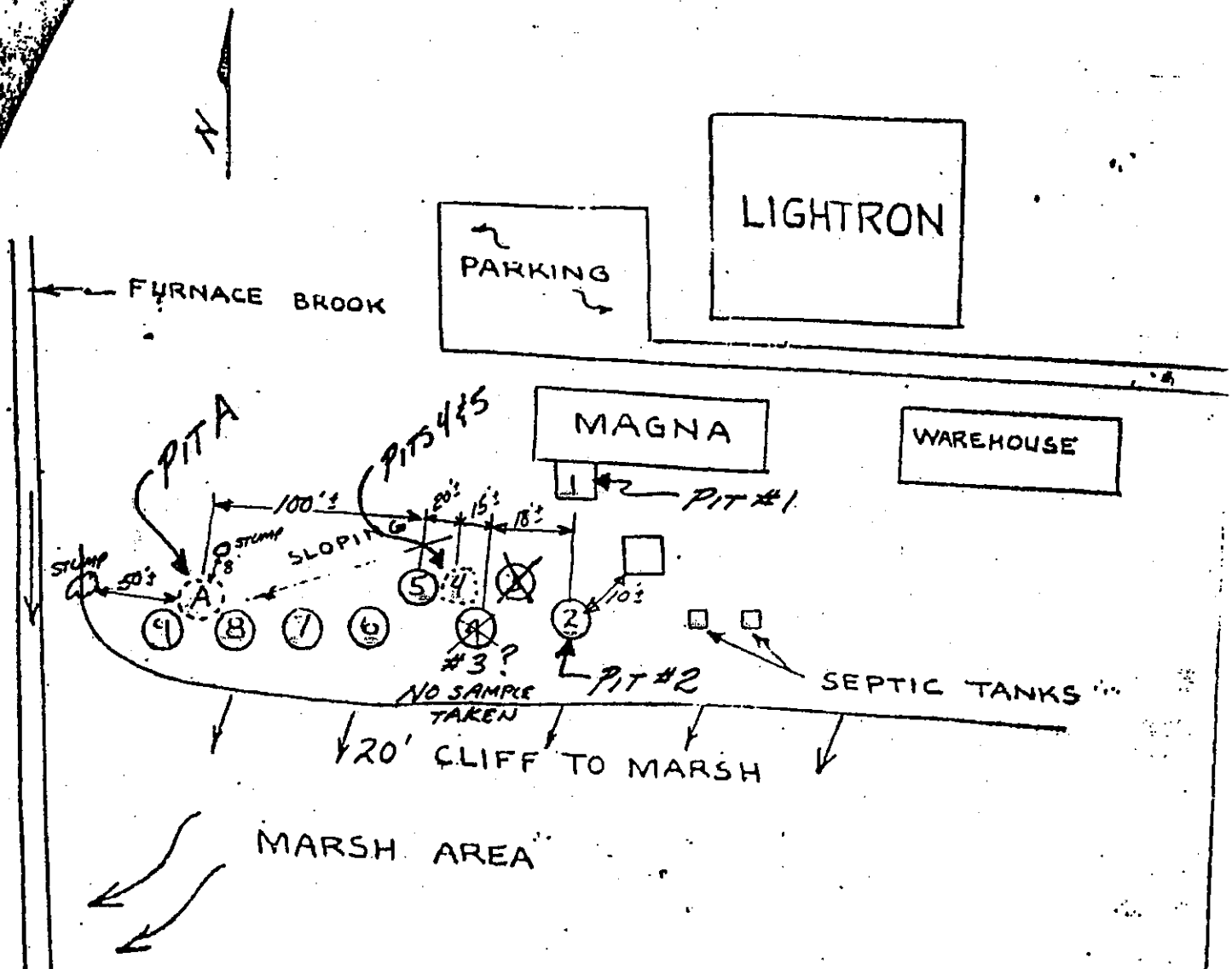
/File

mm09.wpd/1

APPENDIX "A"

from Sept. 23, 19
letter

EXHIBIT A - APPROXIMATE LOCATION FROM WHICH SAMPLES WERE TAKEN ON 8/19/82

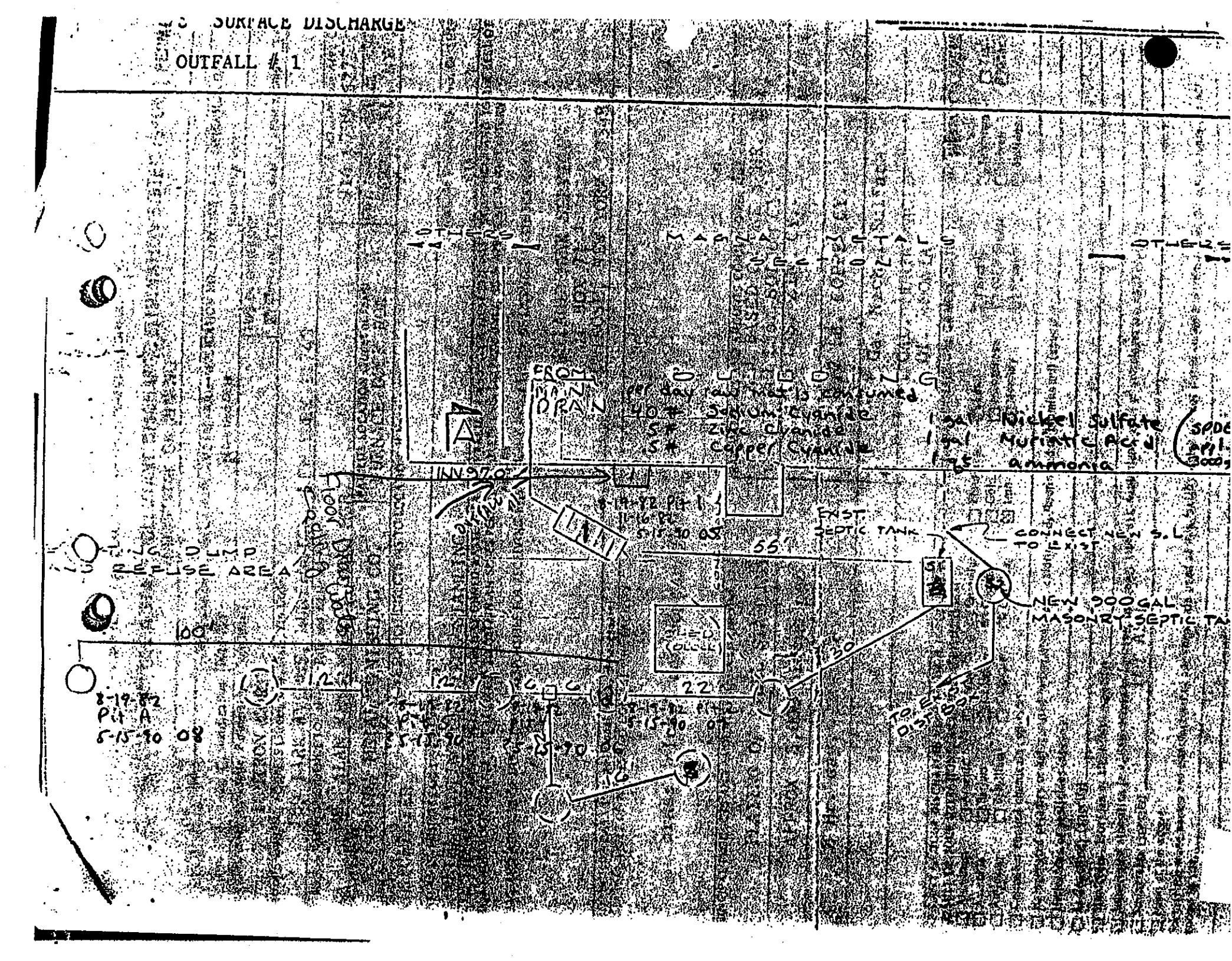


MAGNA METALS SITE SKETCH

WESTCHESTER CO., CORTLANDT, N.Y.
7-7-81, NO SCALE, R.E.T.
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAZARDOUS WASTE COMPLIANCE TEAM

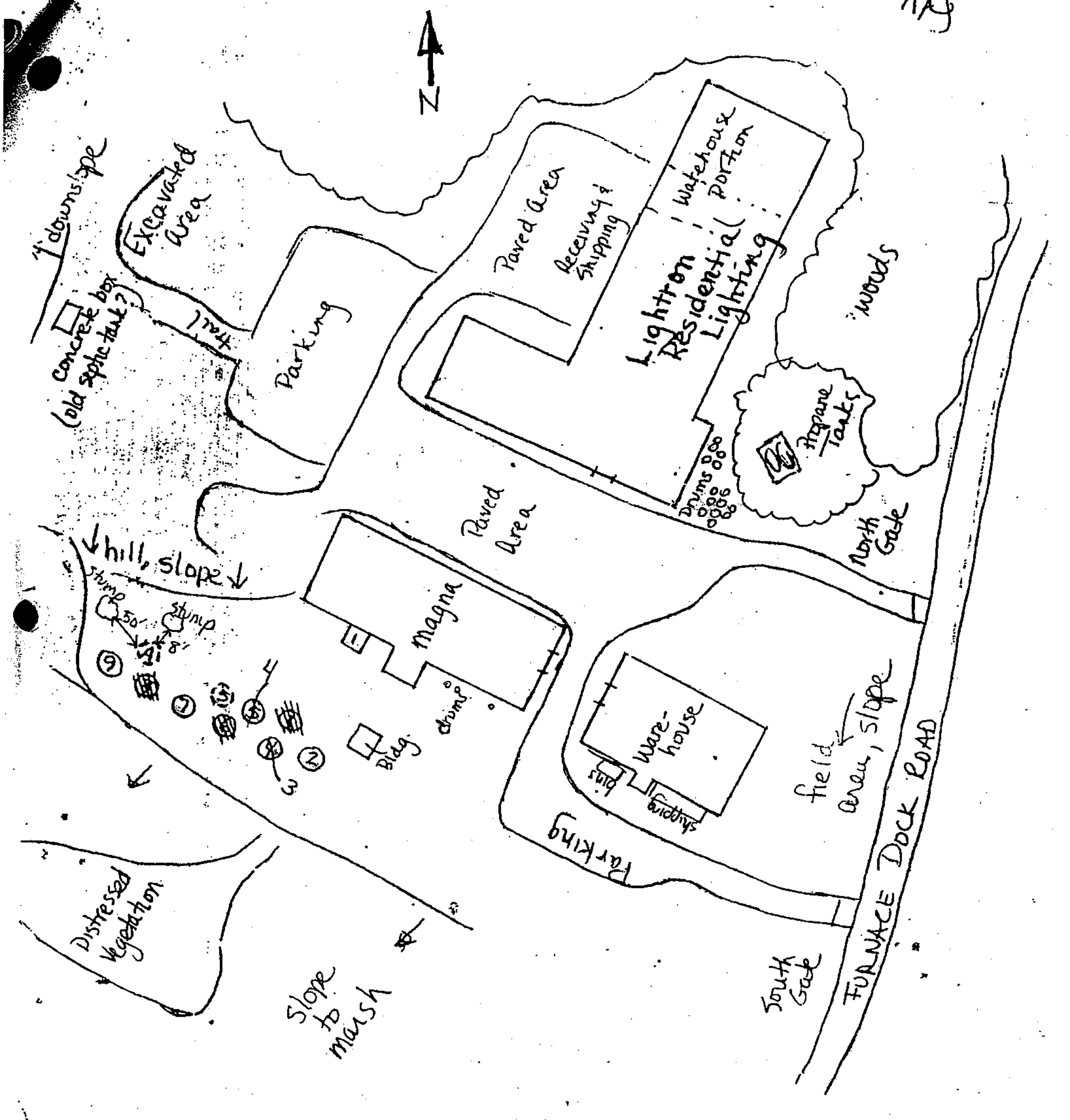
SURFACE DISCHARGE

OUTFALL # 1



LIGHTRON / [illegible] / MAGNA

Site Sketch
8/19/82



NOTE:
(5) revised location
pit not found
(4) 3 new number

Distances

(A) to (5)	100'
(5) to (4)	20'
(4) to (3)	15'
(3) to (2)	18'
(2) to Bldg	10'

O #
Erin M. Crotty Commissioner

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Eastern Remedial Action, 11th Floor
625 Broadway, Albany, New York 12233-7015
Phone: (518) 402-9622 • **FAX:** (518) 402-9627
Website: www.dec.state.ny.us

December 11, 2002

Mark Sielski
Project Manager
Foster Wheeler Environmental Corporation
1000 The American Road
Morris Plains, NJ 07950

RE: Magna Metals, Site No. 360003
Revised Remedial Investigation/Feasibility Study Work Plan Addendum dated November 1, 2002

Dear Mr. Sielski:

The Department has received and reviewed the above-mentioned document and has the following comments:

1. The area shown on Figure 1 depicting where geophysical work is to be done is not large enough. One of the figures contained in my letter to you dated September 6, 2002 shows a pit 155 feet to the west of the building. The area shown on Figure 1 does not extend that far. Another figure in the September letter shows a pit northwest of the building. These areas need to be investigated. The refuse area 100 feet west of the building shown in one of the figures in the September letter also needs to be investigated.

2. Page 1-3 states that if no TCE is found in the deep monitoring well MW-04D that is to be installed then no further investigation of bedrock will be necessary. Because of the tightness of the till, the groundwater contamination in MW-04 may flow laterally before sinking and not intersect MW-04D. Whether or not further investigation of bedrock is necessary will be based on the results of the entire investigation, not the analytical results for one compound in one well. Please remove that comment.

3. The location of MW-06 should be chosen after the geophysical work is done so that if any more pits are found that can be factored into the decision. The location will be selected after consultation with and approval of the Department.

4. It is not clear that the locations and depths of the monitoring wells placed on Rosalind Drive and Cross Road Avenue are chosen to our best advantage. A profile of the bedrock in that area would be very useful. Are there local well logs that could be examined to better understand the bedrock contours before choosing well locations and depths?

5. The proposed surface water toxicity testing and the proposed benthic community analysis essentially measure the same thing - surface water quality. Sediment toxicity testing is needed to assess potential impacts from contaminants in sediment. Given the size and nature of the site, it will not be necessary to conduct both acute and chronic testing, only the acute. Testing should follow the 10-day acute test for Hyallella which is EPA method 100.1, and the 10-day acute test for Chironomus which is EPA method 100.2. These methods can be found at the following EPA website: http://www.epa.gov/cgi-bin/claritgw?op-Display&document=clserv:ORD:0945;&rank=4&template=epa

6. The benthic community analysis should follow the NYSDEC guidance listed below. These can be obtained from the NYSDEC Division of Water Stream Biomonitoring Unit by calling Robert Bode at 518-402-8253.

   Bode, R.W, M.A. Novak, L.E. Abele, D.L. Heitzman and A.J. Smith. 2002. Quality Assurance Work Plan for Biological Stream Monitoring in New York State. NYSDEC Division of Water, Albany, NY.

   Bode, R.W., M.A. Novak, and L.E. Abele. 1990. Biological Impairment Criteria for Flowing Waters in New York State. NYSDEC Division of Water. Albany, NY.

7. The methods for the proposed surface water testing have been updated and can be found at http://www.epa.gov/OST/WET/disk3/ctf.pdf

8. There are no figures in Attachment B. Please include.

9. Please include a schedule for the implementation of the additional field work and the completion of the RI/FS.

Please revise the addendum in accordance with the Department's comments and resubmit to the Department by January 10, 2003.

Below are two comments related to the draft RI/FS Report dated November 1998. Please address these comments when the revised RI is ultimately submitted.

10. With the exception of cadmium, hardness dependent ambient water quality criteria in

Table 4-2 of the RI/FS report are incorrectly calculated.

11. The classification for the tributary to Furnace Brook should be Class C. Using an average hardness of 155 mg/L, the Class C standards for hardness dependent metals are 3 for cadmium, 106 for chromium, 13 for copper, 6 for lead, 75.5 for nickel and 120 for zinc.

If you have any questions, please call me at 518-402-9622.

Sincerely,

/signed/

Sally W.W. Dewes, P.E.
Environmental Engineer 2
Bureau of Eastern Remedial Action
Division of Environmental Remediation

cc: S. Selmer, NYSDOH

ec: R. Cozzy/File
C. Dowd
C. Manfredi, Reg. 3

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Eastern Remedial Action, 11th Floor
625 Broadway, Albany, New York 12233-7015
Phone: (518) 402-9622 • **FAX:** (518) 402-9627
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

February 24, 2003

Mark Sielski
Project Manager
Foster Wheeler Environmental Corporation
1000 The American Road
Morris Plains, NJ 07950

Dear Mr. Sielski:

RE: Magna Metals, Site No. 360003
Supplemental Remedial Investigation /Feasibility Study Work Plan Addendum for the Magna Metal Site Lightron Corporation dated January 2003

The Department has received and reviewed the above-mentioned document and has the following comments:

1. The Department's April 2002 letter requests the testing of pond sediments. You have included the named sediment locations requested, but not the pond locations. Please add two pond locations or rather than adding locations, the Department suggests that you exchange two of the stream and tributary toxicity stations for two in the pond. You could eliminate sediment toxicity testing at SD-19 or SD-20 in the stream and at SD-15 or SD-16 in the tributary. Then, take sediments from two depositional areas in the pond for toxicity testing. All samples with toxicity testing should be analyzed for chemical constituents. Pond benthics won't be comparable to stream benthics so benthic sampling in the pond is not required.

2. Section 6.0. Surface soil samples must be collected from a depth of 0"-2" for the purpose of assessing potential exposures, as opposed to 0"-6" as stated in the work plan.

3. Locations SS-11 though SS-13 must be tested for the same parameters as SS-6 to SS-10. Also, the text is unclear whether these locations are being collected as representative of background conditions. They should not be used for this purpose

4. The background sampling is inadequate. The Department's draft technical guidance (Technical Guidance for Site Investigation and Remediation, December 2002) calls for five background samples at a site such as Magna Metals.

   a. A minimum of five background samples should be collected from unimpacted areas on the site or in the vicinity of the site. The sample should be collected from a depth which conforms to the same depths sampled during the soil investigation.
   b. Background samples should be collected at locations unaffected by current and historic site operations as documented by the records search including aerial photographs. Wherever possible, background samples should be collected from locations which are topographically upgradient and upwind of contaminant sources;

c. Background samples should **not** be collected from the following areas: (1) Parking lots, roads, or roadside areas; (2) Areas where materials or wastes were loaded, handled, or stored; (3) Waste disposal areas; (4) Areas near railroad tracks; (5) Areas of historic fill material; (6) Areas receiving runoff from areas described immediately above or adjacent sites; (7) Storm drains or ditches receiving runoff from the site or adjacent sites; (8) Depositional areas from point sources; or (9) Any other area of concern.

d. Background samples should be collected and analyzed using the same methods as were used for area of concern samples;

e. Background samples should be collected from soil types similar to the area of concern samples. Similar soil types should be identified using standard classification systems.

5. Please include original figures in color in all distributed copies of the work plan. The gray text is very difficult to read on the original copy and impossible to read on the photocopies.

Please revise the work plan in accordance with these comments and resubmit it to the Department by March 10, 2003. If you have any questions, please call me at 518-402-9622.

Sincerely,

Sally W.W. Dewes, P.E.
Environmental Engineer 2
Bureau of Eastern Remedial Action
Division of Environmental Remediation

cc: S. Selmer, NYSDOH

ec: R. Cozzy/File
C. Dowd
C. Manfredi, Reg. 3
R. Rusinko, Esq., Tarrytown

October 30, 2002
Responses

FOSTER WHEELER ENVIRONMENTAL CORPORATION

October 30, 2002

Ms. Sally Dewes, P.E.
Bureau of Eastern Remediation
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7015

RE: Magna Metals, Site No. 360003
Remedial Investigation/Feasibility Study Work Plan Addendum

Dear Ms. Dewes:

Thank you for providing the requested additional documentation in your letter dated September 6, 2002, which provided clarification to DEC's comment letter of April 11, 2002. Our review of this information was necessary to respond to comments, and accordingly, revise the Work Plan.

Below are the NYSDEC comments to the Work Plan addendum, provided in the April 11 submittal (in italics) followed by the responses:

1. *A major issue of concern is our knowledge of the underground structures at the site. Several older documents contained in Department files refer to two septic tanks and nine drainage structures and various drawings show pipes connecting some of those structures. Figure 1 in Appendix A of the draft RI report (November 1998) shows possible pipe sections but is by no means complete. The geophysical work done in 1996 does not cover a very large area and may not cover the area where other structures could be.*

   A more complete effort to determine the location and condition of all the underground structures, including piping, at Magna Metals must be made during the second phase of the RI. Several pipes shown on the abovementioned Figure 1 show pipes extending west towards the hill above the creek. Also, documents in Department files show pipes extending northward. The location and terminuses of these pipes must be located.

   Upon receipt and review of the documentation provided in the September 6, 2002 letter, taking an additional effort to fully define the source area is regarded as a reasonable technical approach. The search for additional pits shall extend further to the west than previously investigated. From the maps provided, it is estimated that the search will approximately extend an additional 75 feet to the west.

1000 THE AMERICAN ROAD, MORRIS PLAINS, NJ 07050
TEL: 973-630-8000 FAX: 973-630-8025

2. *The Work Plan suggests the installation of three shallow wells and a deep well. Perhaps another tactic that could be used is to use a geoprobe to sample groundwater at various depths and locations prior to the installation of monitoring wells. The depth of bedrock could be determined, piezometers could be installed to determine the direction of groundwater flow, groundwater samples could be collected, and a small geoprobe unit may be more palatable to the neighbors. After this preliminary data has been collected, then monitoring wells could be installed.*

   Use of the geoprobe, will also not address DEC's goal (in the comment) to determine groundwater flow at the site. Installation of monitoring wells (as proposed in the Work Plan addendum) are the most feasible way to meet this requirement. However, as discussed during telephone conversation, the Work Plan addendum will make an adjustment to the proposed monitoring well layout, by placing the monitoring wells in the town right of ways along Rosalind Drive and Cross Road Ave. These would address the issue of off site contaminant migration, as well as provide adequate number of well locations to determine the local groundwater flow regime. In addition, access to the individual properties would not have to occur.

3. *Only two drainage structures were sampled during the remedial investigation. All of the pits should be sampled. The sludge material at the bottom (if any remains) should be sampled as well as the soil below the rings. The soil below the rings should be sampled at regular intervals until bedrock is encountered.*

   Use of a hollow stem auger or other type of mechanical drilling device, may result in releasing or providing a potential vertical pathway for any residual contamination in the pits/immediately below the pits and allow further downward migration. Foster Wheeler does not recommend manual entry into the pits to obtain bottom material (confined space entry), nor does Foster Wheeler recommend that a drilling rig, be driven over the pits to "punch a sample" through. Foster Wheeler's concern is that construction of these pits may not provide a suitable subsurface structure, and as a result, there could be collapse of drilling equipment into the pit.

   However, as per our telephone discussions, the Work Plan addendum will be modified to use a manual hand auger device from grade level. There will not be any worker entry into the pits. If there is a concrete/or solid bottom, no sampling will be conducted. If the pits do not have a bottom, a sample will be collected.

   Should sampling not be possible, in order to address quantification of the Remedial Action costs in the Feasibility Study (FS), Foster Wheeler will modify the Final FS so that a high-end range of excavation could be included in the Feasibility Study. The high-end depth of excavation estimate would be bounded by the depth of bedrock, information that was previously collected during the RI.

4. *Although surface soil samples have been taken at the site, they have been focused on a small area near the pits. Surface soil samples have not been taken immediately adjacent to the building or in other areas around the building. Surface soil samples*

should be taken around the entire building and should establish the boundaries of surface soil contamination.

Upon receipt of this new information in DEC's September 6, 2002 letter, additional surface soil sampling is warranted. Additional soil samples will be collected in the area where drums were shown adjacent to the Magna Building and adjacent to any new pits discovered.

5. *Sediment toxicity testing should be conducted on stream and wetland sediments due to the existing high levels of contaminants. The proposed benthic community analysis is useful but difficult to interpret quantitatively and must be supplemented by toxicity tests. AVS/SEM analysis is also useful in predicting non-bioavailability of metals in sediments but is not a substitute for actual toxicity testing since in cannot predict toxicity or predict the level of toxicity.*

   Toxicity testing should be conducted on sediments from locations SD-13 (reference location), SD-14, SD-15, SD-16, SD-18, SD-19, SD-20, and SD-25. Location SD-19 should be moved approximately 100 feet upstream. A sediment sample should be collected at location SW-22 and tested. In addition, sediments should be collected and tested from at least two pond locations in the main depositional area. These may not be the locations currently proposed as SD-21 through -24 which seem to be most distant from the pond inlet and outlet. *SD-21 and SD-24 should be moved to the southern area of the pond to locations suitable for toxicity testing.*

   It is our understanding that DEC no longer requires the sampling discussed in the above comment. Toxicity testing proposed in 6.3 of the Work Plan addendum is sufficient at this phase of the project.

If you have any questions, or need further information, please do not hesitate to contact me at 973-630-8544.

Sincerely,

Mark Sielski, P.G.
Project Manager

cc: E. Wactlar, Esq. (Griffon/Lightron)
N. Ward-Willis (Keane and Beane)

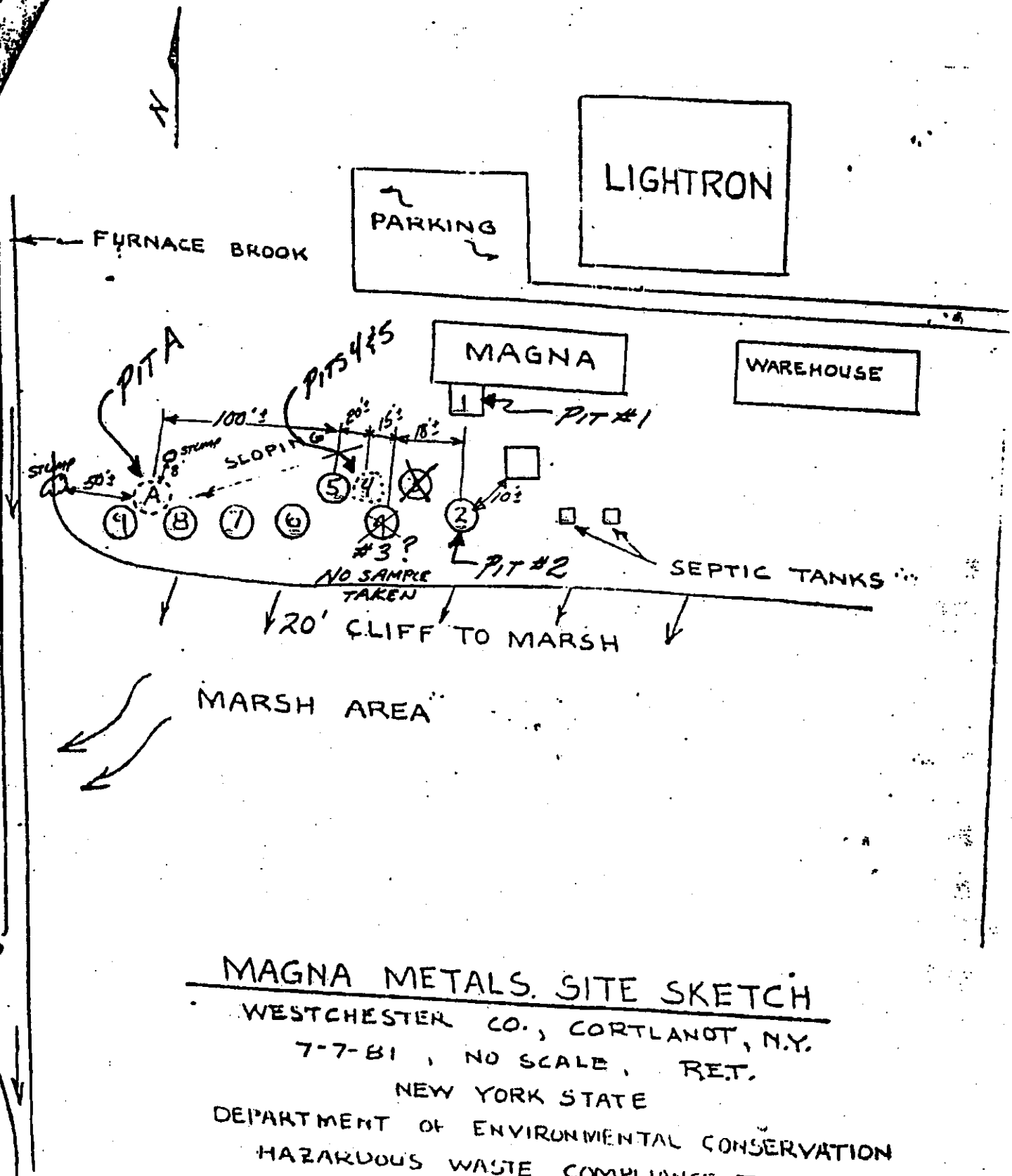
ATTACHMENT B

NYSDEC Additional Historical Documentation

APPENDIX "A"

from Sept. 23, 1 letter

EXHIBIT A - APPROXIMATE LOCATION FROM WHICH SAMPLES WERE TAKEN ON 8/19/82



MAGNA METALS. SITE SKETCH

WESTCHESTER CO., CORTLANDT, N.Y.

7-7-81, NO SCALE, RET.

NEW YORK STATE

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

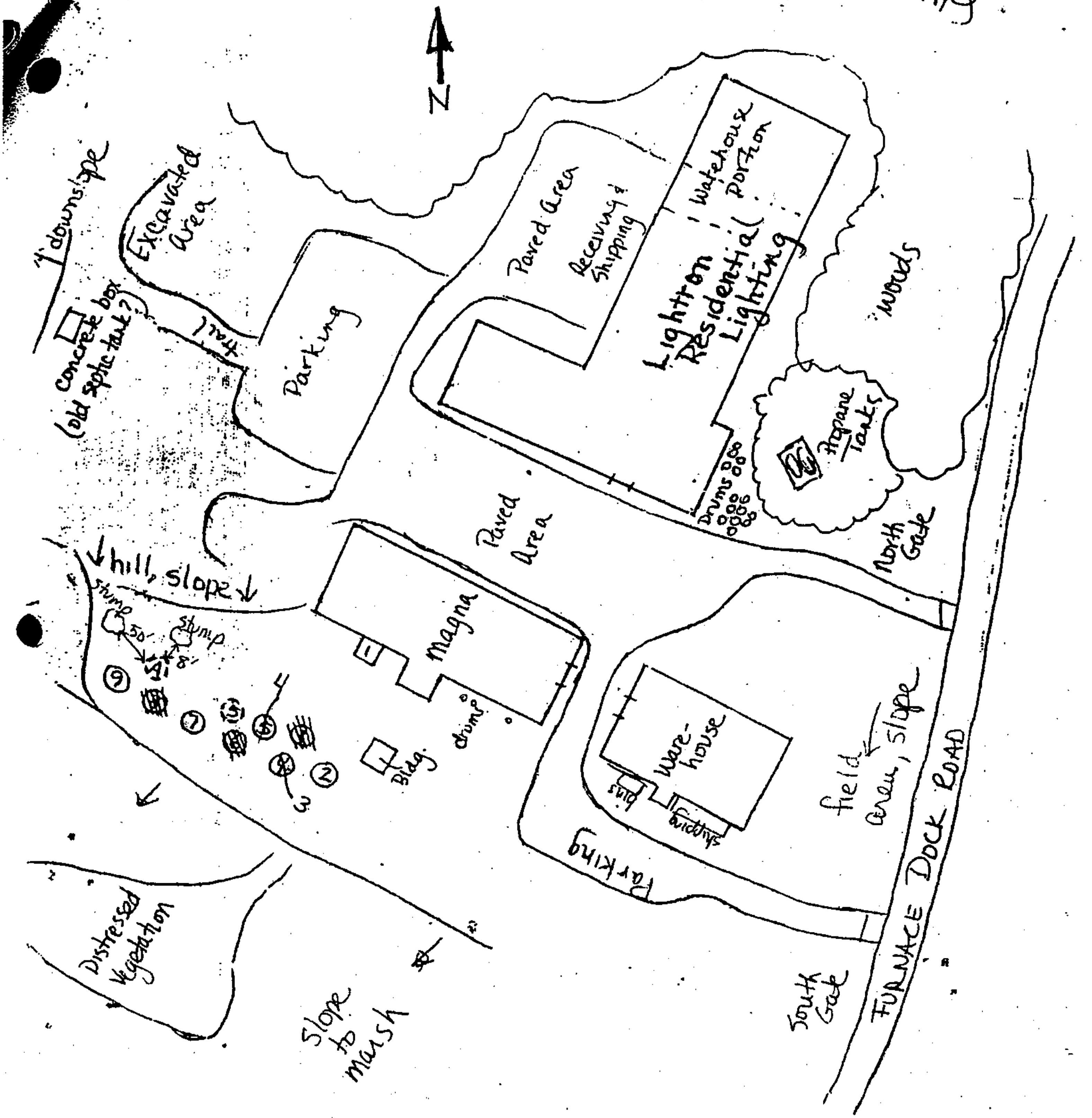
HAZARDOUS WASTE COMPLIANCE TEAM

OUTFALL # 1


OTHERS
MAGNA METALS SECTION
OTHERS
BUILDING
FROM MAIN DRAIN
per day raw mat'l is consumed
40# Sodium cyanide
5# Zinc cyanide
5# Copper cyanide
1 gal Nickel sulfate
1 gal Muriatic Acid
1 gal ammonia
INV 97.0
8-19-82 Pit 1
11-16-82
5-15-90 05
EXST. SEPTIC TANK
CONNECT NEW S.L TO EXIST.
55'
NEW 900 GAL MASONRY SEPTIC TA
TING DUMP
REFUSE AREA
100'
12
12
22
30
16'
8-19-82
Pit A
5-15-90 08
8-19-82 Pit 2
5-15-90 07
5-15-90 06
TO EXIST. DIST BOX

LIGHTRON ... SC / MAGNA

8/19/82



NOTE:
(5) revised location
pit not found
(4) 3 new number

Distances	
(A) to (5)	100'
(5) to (4)	20'
(4) to (3)	15'
(3) to (2)	18'
(2) to Bldg	10'

ATTACHMENT C

Bedrock Drilling Specification

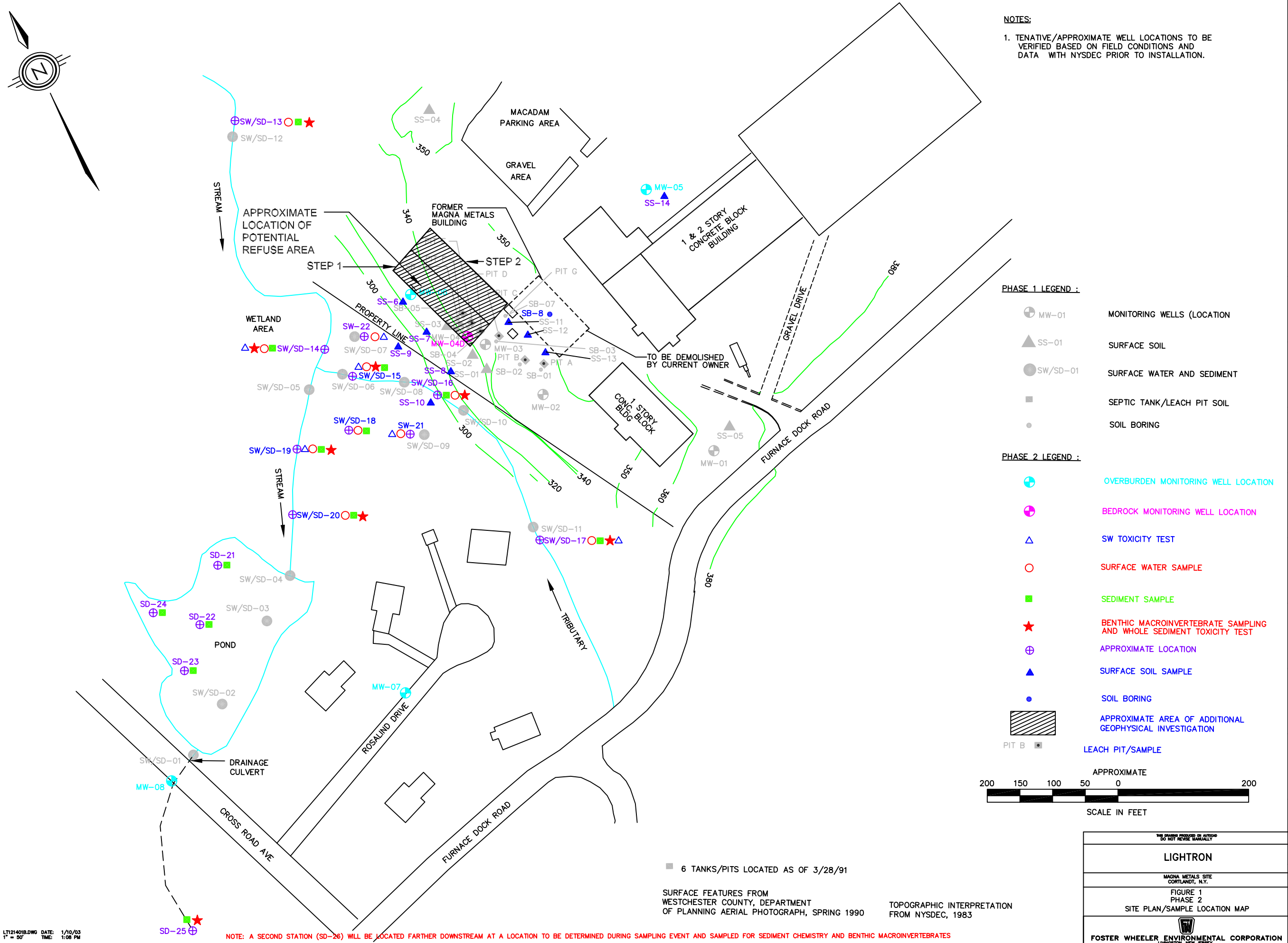
Bedrock Drilling Specification

Monitoring wells to be installed as open holes in bedrock will be installed according to the following specifications:

- Advance each boring to the top of the bedrock surface. Borehole advancement will be conducted using 6¼-inch inner diameter (ID) continuous flight hollow-stem augers in 2-foot intervals, to permit the continuous collection of subsurface soil samples with carbon steel split-spoon samplers. Confirmation of the bedrock surface depth will be based upon split-spoon refusal.
- Overbore the borehole to a 12-inch diameter borehole, in which to install a temporary 10-inch carbon steel overburden casing to bedrock, utilizing an appropriately sized tri-cone roller bit.
- Subsequent to temporary casing installation, continue borehole advancement into the bedrock to a depth of 5 feet below the bedrock surface with a 9-inch outer diameter (OD) tri-cone roller bit via the water rotary method.
- Set a permanent 6-inch carbon steel casing 5-feet into the competent bedrock by the spin casing method.
- Backfill the annular space around the well casing with bentonite/cement slurry to the surface. The ratio of cement to bentonite for grouting will be approximately 30 gallons of water to three 94 pound bags of cement to every 25 pounds of granular bentonite.
- Remove the 10-inch temporary casing during pressure grouting. Allow grout to cure for at least 24 hours.
- Continue coring and then drilling in the borehole to the maximum anticipated total depth (i.e. 10 feet below the point where groundwater was encountered) and/or the depth where fracture zones indicate sufficient yield, first using the rock coring method and then overboring utilizing the water rotary method and a 5-inch OD tri-cone roller bit.
- Complete the open hole monitoring well with a protective locking stick-up or flushmount box installed in a concrete pad.
- If the borehole extends to a depth greater than 25 feet below the bottom of the surface casing (due to depth and/or yield of groundwater), construct the monitoring well using 10 feet of 2-inch diameter Schedule 40 PVC or Schedule 5 stainless steel wire wound screen (0.010-inch slot or a slot size appropriate to the formation) and 2-inch diameter Schedule 40 PVC or Schedule 5 stainless steel riser pipe. For non-flushmounted wells, at least 2 to 3 feet of riser pipe must extend above the ground surface. Flushmounted wells will only be installed in high traffic areas, such as roadways, sidewalks, etc.
- Backfill the annular space to a minimum height of 2 feet above the top of screen with a sand pack. The sand pack shall be Morie #1 silica sand

(based on Site-specific geologic conditions and screen slot size). The remaining annular space will be filled with bentonite/cement grout up to the ground surface. The ratio of cement to bentonite for grouting will be approximately 30 gallons of water to three 94 pound bags of cement to every 25 pounds of granular bentonite.

- Complete the constructed monitoring well with a protective locking stickup or flushmount box installed in a concrete pad.


NOTES:
1. TENATIVE/APPROXIMATE WELL LOCATIONS TO BE VERIFIED BASED ON FIELD CONDITIONS AND DATA WITH NYSDEC PRIOR TO INSTALLATION.
MACADAM PARKING AREA
GRAVEL AREA
FORMER MAGNA METALS BUILDING
1 & 2 STORY CONCRETE BLOCK BUILDING
1 STORY CONC. BLDG
APPROXIMATE LOCATION OF POTENTIAL REFUSE AREA
STEP 1
STEP 2
PROPERTY LINE
WETLAND AREA
STREAM
TRIBUTARY
POND
ROSALIND DRIVE
CROSS ROAD AVE
FURNACE DOCK ROAD
GRAVEL DRIVE
TO BE DEMOLISHED BY CURRENT OWNER
DRAINAGE CULVERT
PIT A
PIT B
PIT C
PIT D
PIT G
MW-01
MW-02
MW-03
MW-04S
MW-04D
MW-05
MW-07
MW-08
SB-01
SB-02
SB-03
SB-04
SB-05
SB-07
SB-8
SS-01
SS-02
SS-03
SS-04
SS-05
SS-6
SS-7
SS-8
SS-9
SS-10
SS-11
SS-12
SS-13
SS-14
SW/SD-01
SW/SD-02
SW/SD-03
SW/SD-04
SW/SD-05
SW/SD-06
SW/SD-07
SW/SD-08
SW/SD-09
SW/SD-10
SW/SD-11
SW/SD-12
SW/SD-13
SW/SD-14
SW/SD-15
SW/SD-16
SW/SD-17
SW/SD-18
SW/SD-19
SW/SD-20
SW-21
SW-22
SD-21
SD-22
SD-23
SD-24
SD-25
300
320
340
350
360
380
PHASE 1 LEGEND :
MW-01 MONITORING WELLS (LOCATION
SS-01 SURFACE SOIL
SW/SD-01 SURFACE WATER AND SEDIMENT
SEPTIC TANK/LEACH PIT SOIL
SOIL BORING
PHASE 2 LEGEND :
OVERBURDEN MONITORING WELL LOCATION
BEDROCK MONITORING WELL LOCATION
SW TOXICITY TEST
SURFACE WATER SAMPLE
SEDIMENT SAMPLE
BENTHIC MACROINVERTEBRATE SAMPLING AND WHOLE SEDIMENT TOXICITY TEST
APPROXIMATE LOCATION
SURFACE SOIL SAMPLE
SOIL BORING
APPROXIMATE AREA OF ADDITIONAL GEOPHYSICAL INVESTIGATION
PIT B LEACH PIT/SAMPLE
APPROXIMATE
200 150 100 50 0 200
SCALE IN FEET
6 TANKS/PITS LOCATED AS OF 3/28/91
SURFACE FEATURES FROM WESTCHESTER COUNTY, DEPARTMENT OF PLANNING AERIAL PHOTOGRAPH, SPRING 1990
TOPOGRAPHIC INTERPRETATION FROM NYSDEC, 1983
NOTE: A SECOND STATION (SD-26) WILL BE LOCATED FARTHER DOWNSTREAM AT A LOCATION TO BE DETERMINED DURING SAMPLING EVENT AND SAMPLED FOR SEDIMENT CHEMISTRY AND BENTHIC MACROINVERTEBRATES
CAD FILE NAME: LT121401B.DWG DATE: 1/10/03
PLOT SCALE: 1" = 50' TIME: 1:08 PM
THIS DRAWING PRODUCED ON AUTOCAD DO NOT REVISE MANUALLY
LIGHTRON
MAGNA METALS SITE CORTLANDT, N.Y.
FIGURE 1
PHASE 2
SITE PLAN/SAMPLE LOCATION MAP
FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY
FWG3R12.DWG