

STATE OF MICHIGAN



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DEPARTMENT OF ENVIRONMENTAL QUALITY

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DATE: 11/13/97

Number of pages including cover sheet: 5

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Subject: Linden Road Landfill/ Linden Road Frontage Information

I have enclosed some pages from the July 1997 report. Two pages are text outlining how the consultant determined the volume of soil needed to be removed in order to satisfy the MDEQ and get a Commercial Closure. I have also enclosed a map (reduced so the scale is not correct) showing the areas that need to be addressed.

NOTE: Commercial subcategory 1 is the MOST restrictive, i.e. the LEAST amount of contamination can be left after the cleanup of all Commercial subcategories.

Offices, stores, restaurants, etc.: where the majority of the time people are indoors, are considered (by the MDEQ) a Commercial Subcategory 4.

The zoning authority is only responsible to assure properties are developed within the guidelines for a particular land use distinction. Any liability for environmental contamination is the responsibility of the owner and/or operator of the facility, and in some cases the purchaser.

GM must have the frontage rezoned, or show proof the development is a Legally non-conforming use of the property in order to be granted a land use based closure.

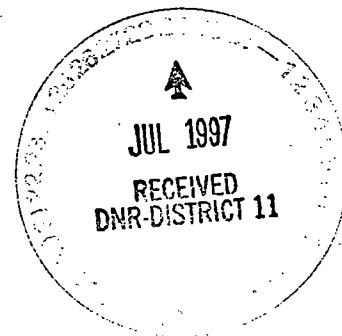
**FINDINGS OF THE SUBSURFACE
SOIL SAMPLING INVESTIGATION
FOR FRONTAGE DEVELOPMENT
LINDEN ROAD SITE
GENESEE COUNTY, MICHIGAN**

Prepared for

GENERAL MOTORS CORPORATION
Environmental and Energy Staff
Remediation Group

Prepared by

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July 1997

Work Order No. 01138-079-002

Delineation of Removal Areas and Volume Estimates

Figure 5-1 shows the areas requiring removal within the proposed frontage zone to clean up to or meet the Commercial Sub-Category II criteria for direct contact. The final volume of removed will depend on confirmation sampling after the initial volume is removed.

The sample locations where exceedances of Commercial Sub-Category II Criteria direct contact values for lead and/or benzo(a)pyrene were found were at sample locations B-6, D-6, C-7, E-7, D-8, and E-8. Based upon field screening and observations, contamination may be present at locations C-6, E-6, D-6, and C-8.

Assuming an average fill thickness of 7 feet, and splitting the distance between contaminated fill and noncontaminated fill (i.e., 50 feet) locations, the preliminary estimated volume of soil requiring removal at the central portion is approximately 16,500 cubic yards.

The industrial fill in the northern portion of the study area where the benzo(a)pyrene exceedance was found (C-13) is assumed to be approximately 100 feet by 100 feet long and 3 feet in depth. The estimated volume of soil requiring removal in this area is 1,100 cubic yards.

Based on the concentrations of arsenic detected at location A/B-1 in excess of the Commercial Sub-Category II Criteria of 100 mg/kg, it is assumed that soil within an area of approximately 50 feet by 25 feet and a depth of 3 feet will require removal. The estimated volume of soil requiring removal in this area is approximately 140 cubic yards. The total volume of soils requiring management in all areas identified in Figure 5-1 is approximately 17,740 cubic yards.

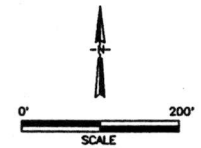
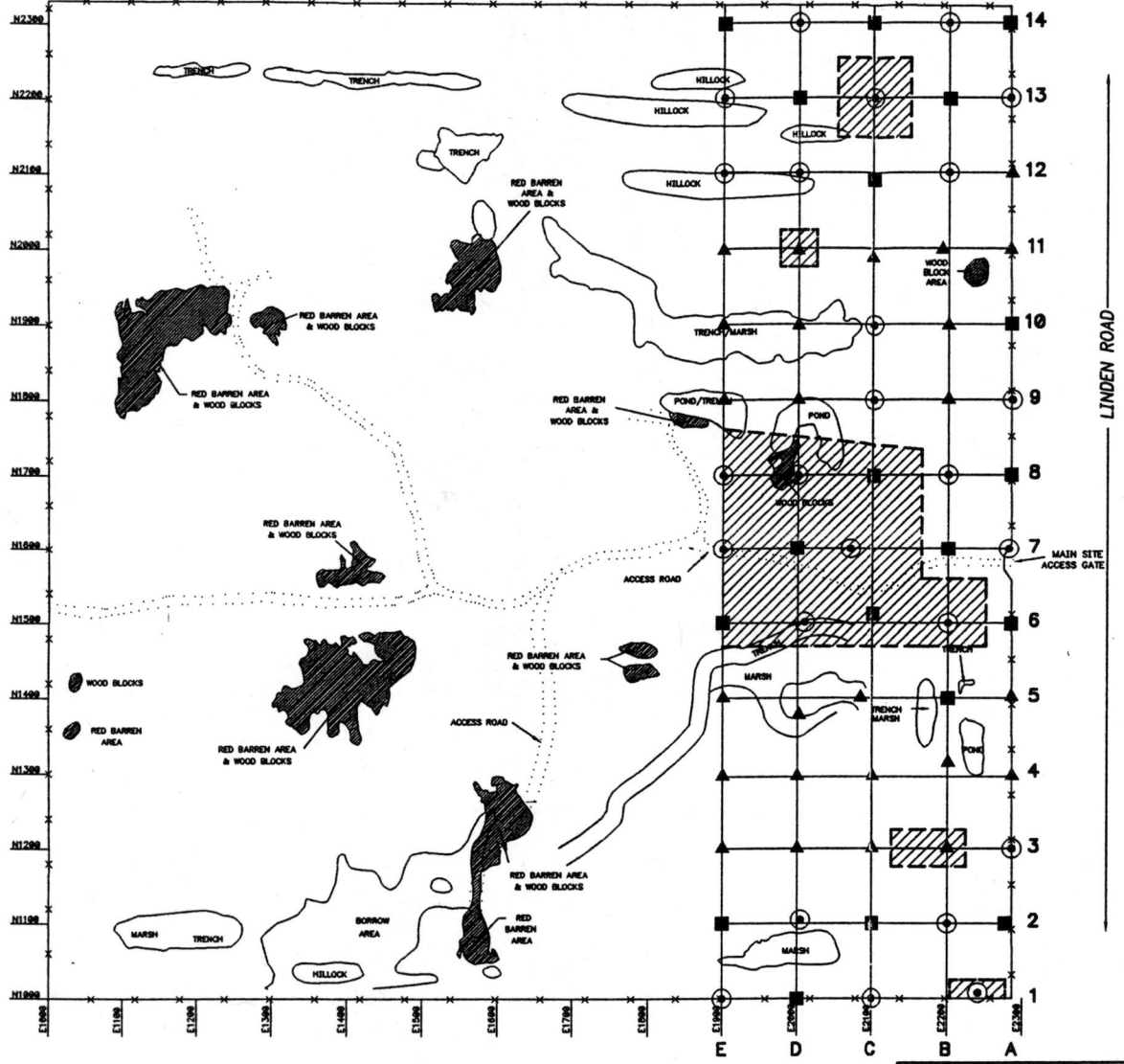
Figure 5-2 shows the areas within the frontage zone that require remediation to meet the Commercial Sub-Category I criteria for direct contact. As indicated before, the volume of soil removed will depend on confirmation sampling after the initial removal. The areas shown in Figure 5-2 include those areas identified in Figure 5-1 and two additional areas. The additional areas were based on arsenic exceedances at locations B-3, D-11, and Mound B-3/C-3. In evaluating areas for cleanup to meet the Commercial Sub-Category I criteria for direct contact

values, 95 percent upper confidence limits (UCL) were calculated for all the data except those from the areas delineated for cleanup under the Commercial Sub-Category II criteria, as well as those from locations B-3, D-11, and Mound B-3/C-3. The UCL (95 percent) was calculated to be 5.98 for arsenic. The UCL (95 percent) for PCB, benzo(a)pyrene, lead, and indeno(1,2,3-cd)pyrene were 0.28, 0.35, 42.58, and 0.22 mg/kg, respectively. It is estimated that the total volume of soil requiring removal for the areas shown in Figure 5-2 is 18,580 cubic yards.

Proposed Actions

Based on the findings of the recent investigation, GM intends to clean up the proposed 400-foot-wide frontage zone to meet the MDEQ Commercial Sub-Category I or II Criteria for direct contact, for Generic Soil Inhalation Criteria for ambient air, and the C_{SAT} screening criteria. This will be accomplished by excavating previously identified volumes of soil/fill material from areas identified in Figures 5-1 and 5-2. The specific sub-category will be determined at a later time, upon consultation with MDEQ. The excavated material will be consolidated with the material within the remainder of the Linden Road site which will be remediated as proposed in the Remedial Action Plan. Verification of the removal of contaminated material will be conducted through confirmation sampling at the end of excavation and removal. A plan presenting the details of the proposed excavation and removal activities will be submitted to MDEQ prior to any activities at the site.

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LEGEND

- SOIL BORING LOCATION
- AUGER PROBE LOCATION
- ▲ HAND AUGER LOCATION
- ▨ APPROXIMATE AREAS REQUIRING CLEANUP TO MEET COMMERCIAL SUB-CATEGORY I CRITERIA

FIGURE 5-2

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**ESTIMATED AREAS REQUIRING SOIL MANAGEMENT
COMMERCIAL SUB-CATEGORY I**
LINDEN ROAD LANDFILL SITE
Flint, Michigan