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NWS EARLE
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4-10-1990

WESTON

RESPONSE TO COMMENTS
FOR THE REMEDIAL INVESTIGATION WORK PLAN
FOR NAVAL WEAPONS STATION EARLE
COLTS NECK, NEW JERSEY

Comments from USEPA Region 2

Reference Attachment 1, Paragraph 2

As noted the RI will focus on the evaluation of possible releases of contamination and migration of contamination in the water table aquifer. It is our opinion that the presence of significant contamination in the upper aquifer has not been demonstrated to date. In most cases, an investigation of the deeper aquifer near the source areas would only be justified if contamination is found in shallow groundwater zones.

Attachment 1, Paragraph 3

Lithologic logs, groundwater elevations and slug tests of the existing and new monitor wells will enable an analysis of lateral groundwater flow velocities and directions in the shallow aquifer. In response to EPA's comment, prior to groundwater sampling WESTON will perform slug tests on at least two wells at each site. Groundwater recovery will be measured with an electronic transducer system and analysis will be completed to obtain hydraulic conductivity. We are not familiar with any simple method of measuring in-situ porosities in sands, and of course, any disturbance of the sand changes porosity. Porosity is used to calculate seepage velocity based on Darcy flow when hydraulic conductivity and flow gradient are known. Porosity in the natural sediments generally falls within a narrow range between .2 and .4 and can be estimated without undue loss and precision since a much wider range of uncertainty exists in calculating hydraulic conductivity.

Attachment 1, Paragraph 4

Suspected contaminant sources at the sites of this RI are not the result of catastrophic releases or slugs of contaminants entering the groundwater. Therefore, the working model for contaminant distribution assumes higher concentrations of

contaminants near the source area with diffusion away from th source area. Although this model may not be totally accurate, we do feel that if contamination is to be found it will be found adjacent to the source areas. Tracking some transient plume that may have occurred at some undetermined time in the past appears to be a highly speculative activity.

Attachment 1, Paragraph 4

Seasonal variability in groundwater or surface water levels has not been directly addressed in the RI. The primary objective of this remedial investigation is to determine whether or not any contaminated releases have occurred to groundwater and surface water. It would take several years of periodic sampling to reasonably determine statistical or seasonal variations in water quality. We feel this is only necessary if contaminant releases of concern are observed, and this issue should be addressed on a site by site basis after the results of the initial remedial investigation are known. As to the time interval for measuring water levels, we agree that measurements should be taken within a reasonable time period. Normally at any one site water levels will be taken at most over a period of several hours. A synoptic round of water level measurements are planned prior to the groundwater sampling for all sites. They will be completed within a period of approximately 30 hours during dry weather. We feel that weather conditions, particularly rainfall, will have more of an effect on varying water levels than the actual time elapsed.

Paragraph 6

As noted above, detailed hydrologic analysis is not planned for the initial RI work because it has yet to be determined whether significant releases to groundwater or surface water have occurred. Need for such data will be determined on a site by site basis as the results of the groundwater sampling are analyzed.

This comment also applies to paragraph 7. As required in the safety plan a field screening device, such as an OVA, will be onsite during the soil samplings. This will be used for direct measurements of vapor releases from the soil samples. Samples will be scanned in the spoon and jar head spaces will be scanned, also.

EPA has indicated that they feel that test pits may be advisable in lieu of soil borings; however, they do not indicate in what cases they feel this will be appropriate. WESTON has not chosen to do test pits because of th particular sampling needs at the sites and the need for careful control of the depth interval of the sample.

Paragraph 9

All samples will be logged in the field according to the USCS classification system field identification procedures. We intend to retain representative samples for a short period of time for the purpose of quality control checks in cross correlation with field logs. However, we do not understand the need for retaining all samples for a period of 5 years. Since the laboratory holding times are relatively brief, analytical samples are of no use for confirmation analyses.

Paragraph 10

We are not clear on the meaning of this paragraph.

Paragraph 11

Nitrate-nitrogen can be added to the list of analytes where explosive contaminants are an issue. The only air sampling plan during the remedial investigation is monitoring for organic vapors during sampling activities using portable non-specific instruments such as an HNu or OVA.

Paragraph 15, Page 3

This comment appears to relate to the Feasibility Study and will not be specifically addressed at this time. The same is true for paragraph 16.

Paragraph 17

Comment noted. Several of the sites border wetlands. Special permits may be required and will be obtained in areas where wetland sampling is planned. If the results of the initial investigation indicate potential risk of contaminant releases to wetlands, the delineation of wetland boundaries may be required as part of the risk assessment.

Paragraph 18

No response is required.

Paragraph 19

Comment noted. This comment refers to the risk assessment.

Paragraph 20

Comment noted. No response is required.

Paragraph 21

This comment relates to the risk assessment. Page 5 and attachment 1 and most of page 6 contains the general discussion of water-based biological life in the area and does not seem to be requesting any response. The second to last paragraph in page 6, is in agreement with the general approach to the remedial investigation to identify possible contamination in source areas and potential migration pathways from these sites.

Last paragraph page 6: the major pathways from landfill sites, groundwater and surface water and sediments, are b ing sampled and analyzed for the full list of EPA Target Compound List Organic and Inorganic chemicals. Soils are being sampled and analyzed for target compounds in areas where limited known activities occurred such as paint chip disposal or explosives disposal.

We feel that soil sampling is useful where the nature of the contamination is more or less uniform throughout the site and only concentrations and quantity of contamination is in question. In general at landfills the distribution of contaminants is unknown and expected to be random in nature. Therefore, practically speaking, direct sampling of the inhomogeneous landfill mass is of very little use in characterizing any source. For the purpose of developing alternatives and closure of these landfills it is important to know what contaminants are migrating in surface water sediments or groundwater. Therefore, the remedial investigation focusses on these pathways.

We also request that EPA be more specific in regard to their statement that "many persistent substances are difficult to detect in water samples even when present at toxic concentrations."

Page 7, Paragraph 1

This is similar comment to page 1, paragraph 4. Please refer to that response.

Page 7, Paragraph 2

This comment is not clear to us. EPA needs to be more specific about additional stream sampling. Contamination presently exists in the media.

Page 7, Paragraph 3

Surface water sampling done at Site 2 was performed in a ponded water area. Pine Brook is not adjacent to either site. More samples of the wet area at Site 2 are proposed.

Page 7, Paragraph 4

Relating to stream samples adjacent to site 10. Mercury was found in only 1 of 2 water samples at a location that is clearly upstream of the site. Silver was also found at 4 microgram per liter at 1 of the 2 downstream samples. No sediment samples had been taken. Three stream samples are proposed for this site.

Page 7, Paragraph 5

No response is required.

Page 7, Paragraph 6

No response is required.

Page 8, Paragraph 1

Sites 20 and 22 both contain material from sandblasting and paint chip disposal operation which is visible on the surface. Field reconnaissance and air photos will be used to confirm the amount and distribution of the material and further

characterization for full metals concentrations will be added to the work plan in response to a comments by New Jersey DEP.

Page 8, Paragraph 2

The RI scope of work clarifies the sampling protocol for each site.

Page 8, Paragraph 3

Comments noted. These comments refer to a risk assessment and no response is appropriate at this time.

Page 9, Paragraph 2

No on-site production wells are presently in use. Inventory and deposition of out-of-service production wells is not part of the scope of this work. None of the sites is located near the out of service production wells. The same comment applies to paragraph 3.

PVC has been selected as an adequate and cost effective material for groundwater monitoring where low concentrations of organics are present. As far as we are aware there is no scientific evidence that sampling results can be improved by using more costly material such as stainless steel. During the last several years New Jersey DEP has routinely approved the use of PVC well construction materials at sites similar to NWS Earl.

Page 9, Last Paragraph

All wells will be developed in a similar manner by purging 3 to 5 volumes and until pH and conductance have stabilized and the water is reasonably free from turbidity. Because monitoring wells are not necessarily placed in optimal production zones, obtaining flow that is totally free of turbidity is sometimes not possible.

Page 10, Specific Comments to the RI Work Plan

Site 2

We do not see the need here to justify or explain confirmation study sampling except to the extent it is being used to

justify the phase 3 scope. The scope of this phase 3 sampling stands on its own.

Site 2, Paragraph 3

The sampling plan will be modified to indicate discret sampling intervals. Soil sampling is targeted to those compounds known to have been generally distributed in the area. Groundwater will be sampled for the full range of target compound list constituents. We feel that collecting, soil samples for VOC or semi-volatile analyses would be v ry inconclusive. If these compounds were a problem at the site they would have reached groundwater. Q/C field rinse blanks will be taken during the soil sampling; however we routinely do not take duplicates of soil samples because it is our experience that the results only indicate how variable concentrations of contaminants can be in supposedly duplicate soil samples.

Site 3, Comment 1

The boundary of the 5-acre landfill site 3 is based on aerial photographs available at the base. Any new information will be included on the remedial investigation report. This applies to all the sites.

Site 4, Comment 1

The label "at divide" on Figure 5-3 does not belong in the drawing and will be removed.

Comment 2

Soil samples will be taken with a hand trowel to a depth of less than 6 inches. The sample will be taken at the spring discharge area.

Comment 3

Surface water and groundwater samples will be distinguished in Tables in the revised report. This will apply to all of the sites.

Site 5

The size and location of Site 5 is very poorly known and will be addressed in the remedial investigation from existing GPR data and review of historical aerial photographs.

Comment 2

As discussed earlier it is our strong opinion that direct sampling of landfill areas in order to characterize site contamination is not effective because of the inhomogeneity of the site material. Therefore at this site and other landfill sites the emphasis will be on characterization of transport pathways including surface water sediments and groundwater.

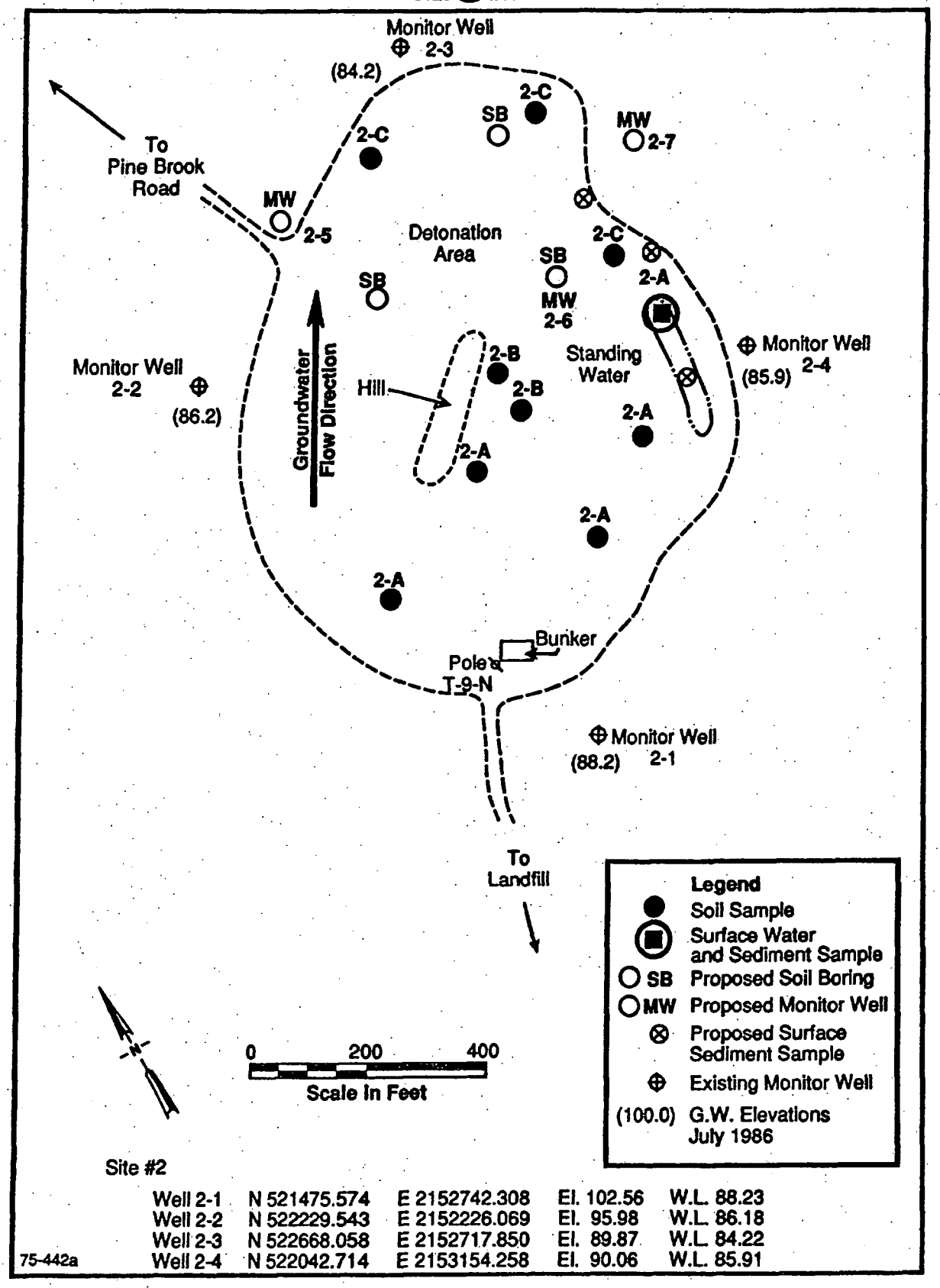

FIGURE 5-1 SITE 2 - ORDNANCE DEMILITARIZATION SITE MONITOR WELL AND SAMPLING LOCATIONS

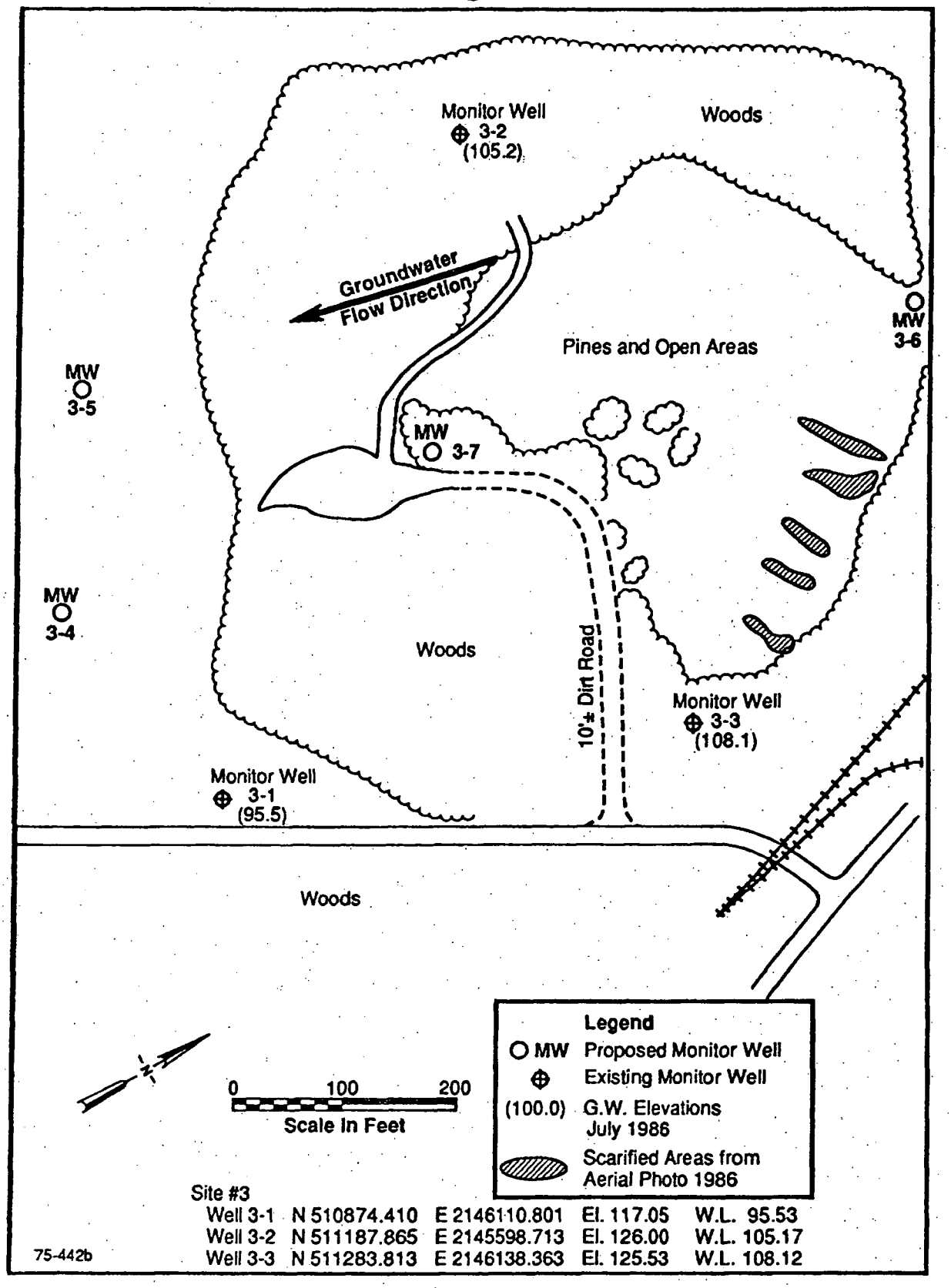

FIGURE 5-2 SITE 3 - LANDFILL SOUTHWEST OF "F" GROUP MONITOR WELL LOCATIONS

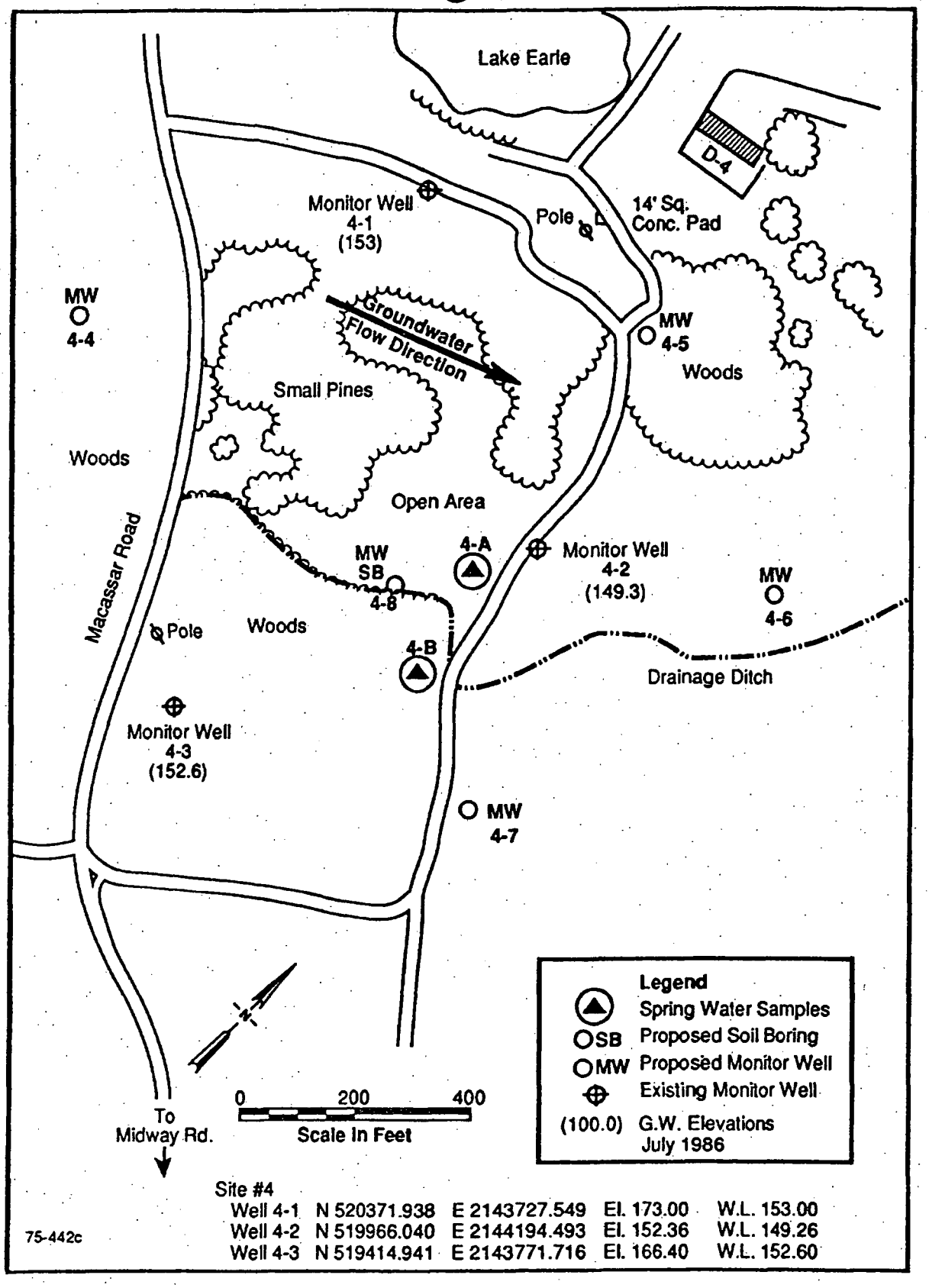

FIGURE 5-3 SITE 4 - LANDFILL WEST OF "D" GROUP
MONITOR WELL AND SAMPLING LOCATIONS

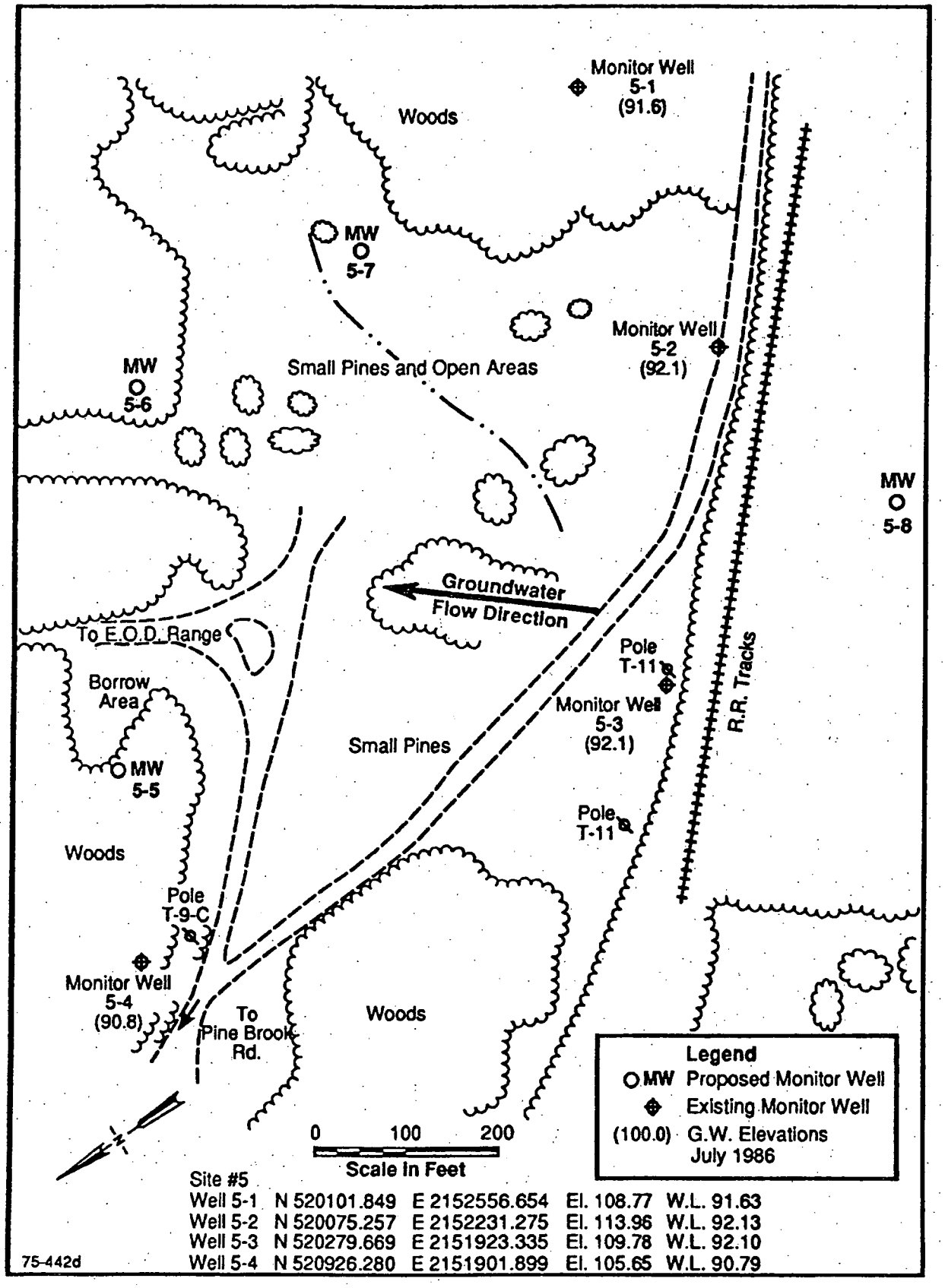

FIGURE 5-4 SITE 5 - LANDFILL WEST OF ARMY BARRICADES MONITOR WELL LOCATIONS

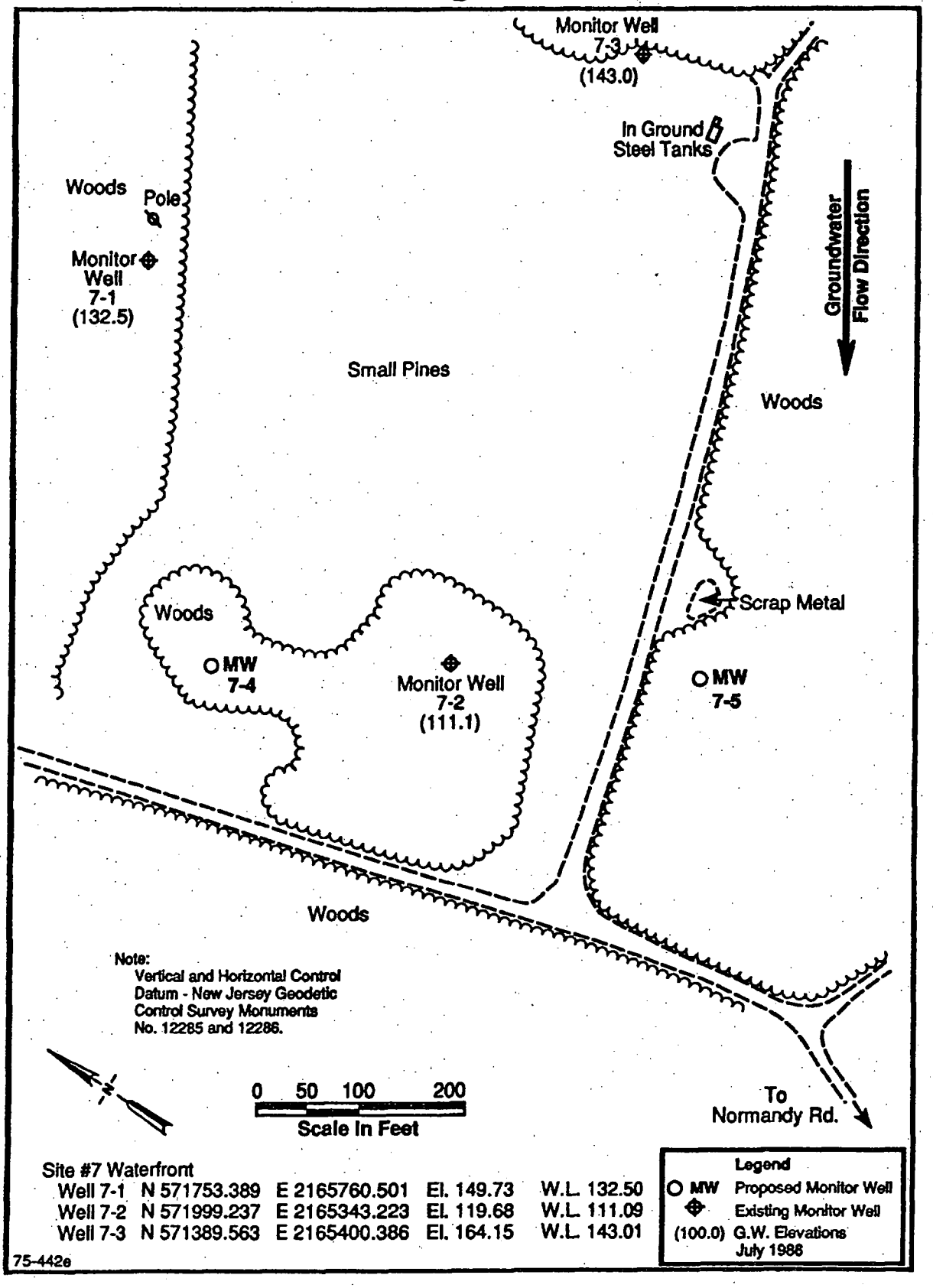

FIGURE 5-5 SITE 7 - LANDFILL SOUTH OF "P" BARRICADES MONITOR WELL LOCATIONS

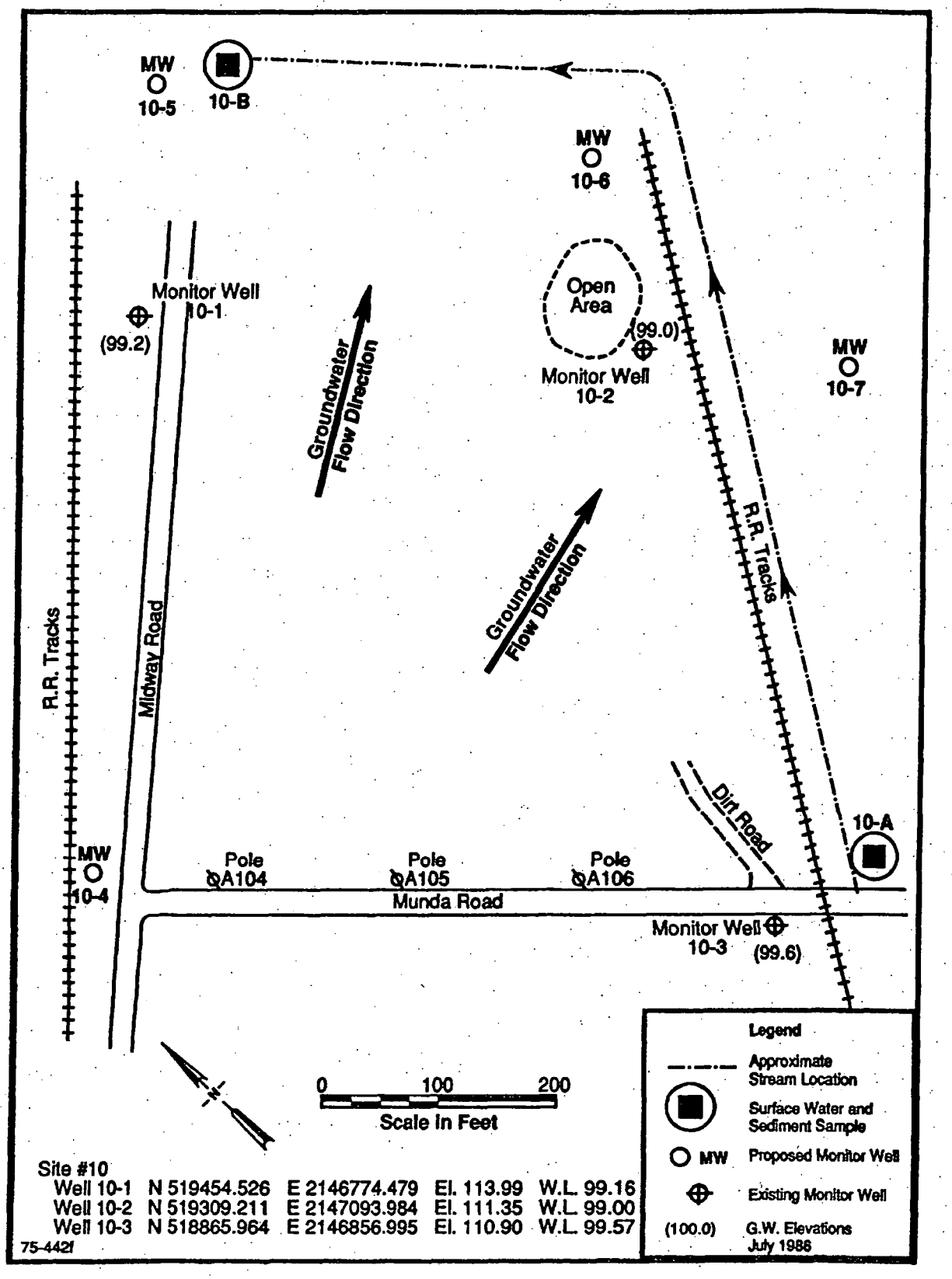

FIGURE 5-6 SITE 10 - SCRAP METAL LANDFILL MONITOR WELL AND SAMPLING LOCATIONS

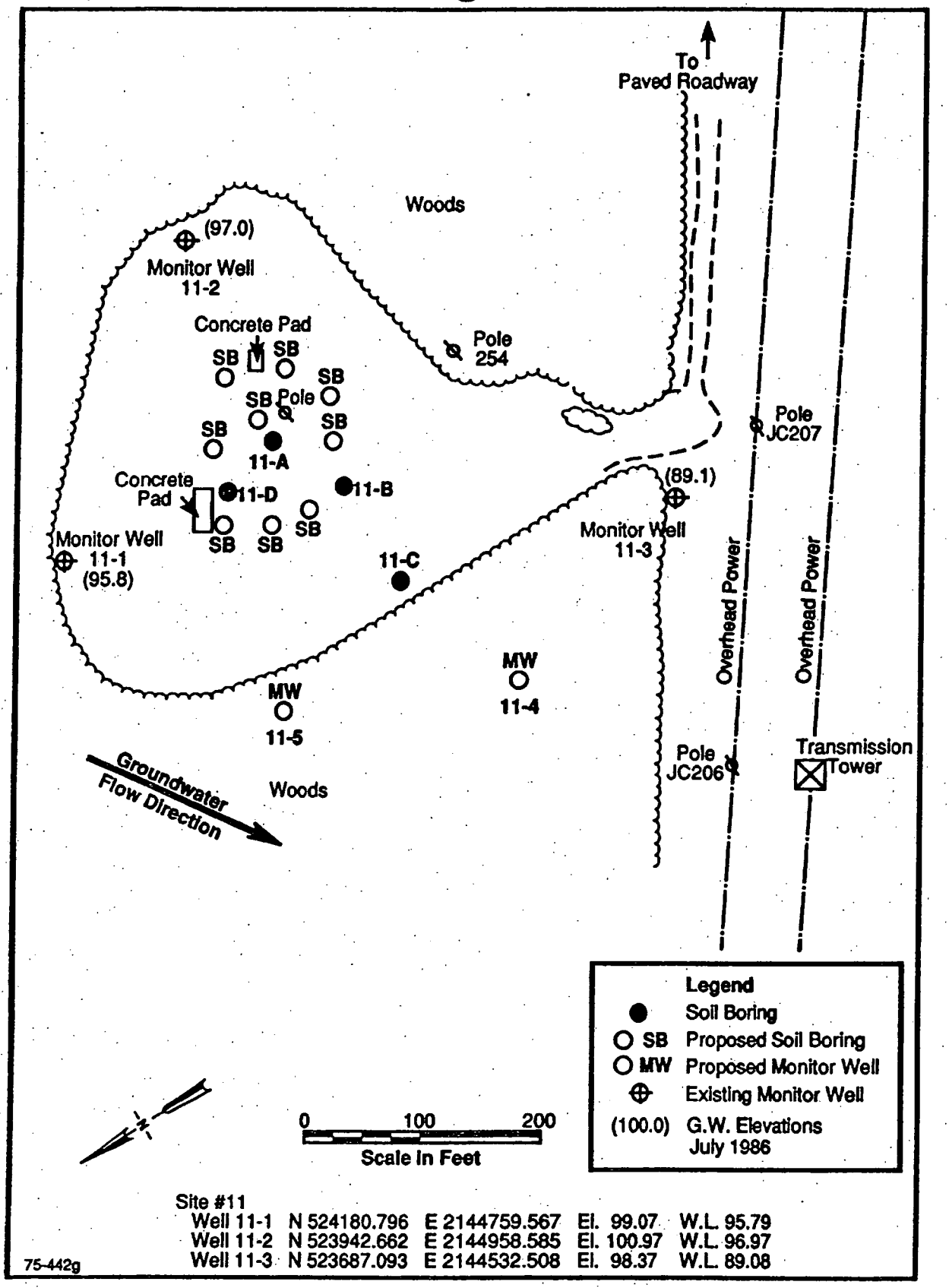

FIGURE 5-7 SITE 11 - CONTRACT ORDNANCE DISPOSAL AREA MONITOR WELL AND SAMPLING LOCATIONS

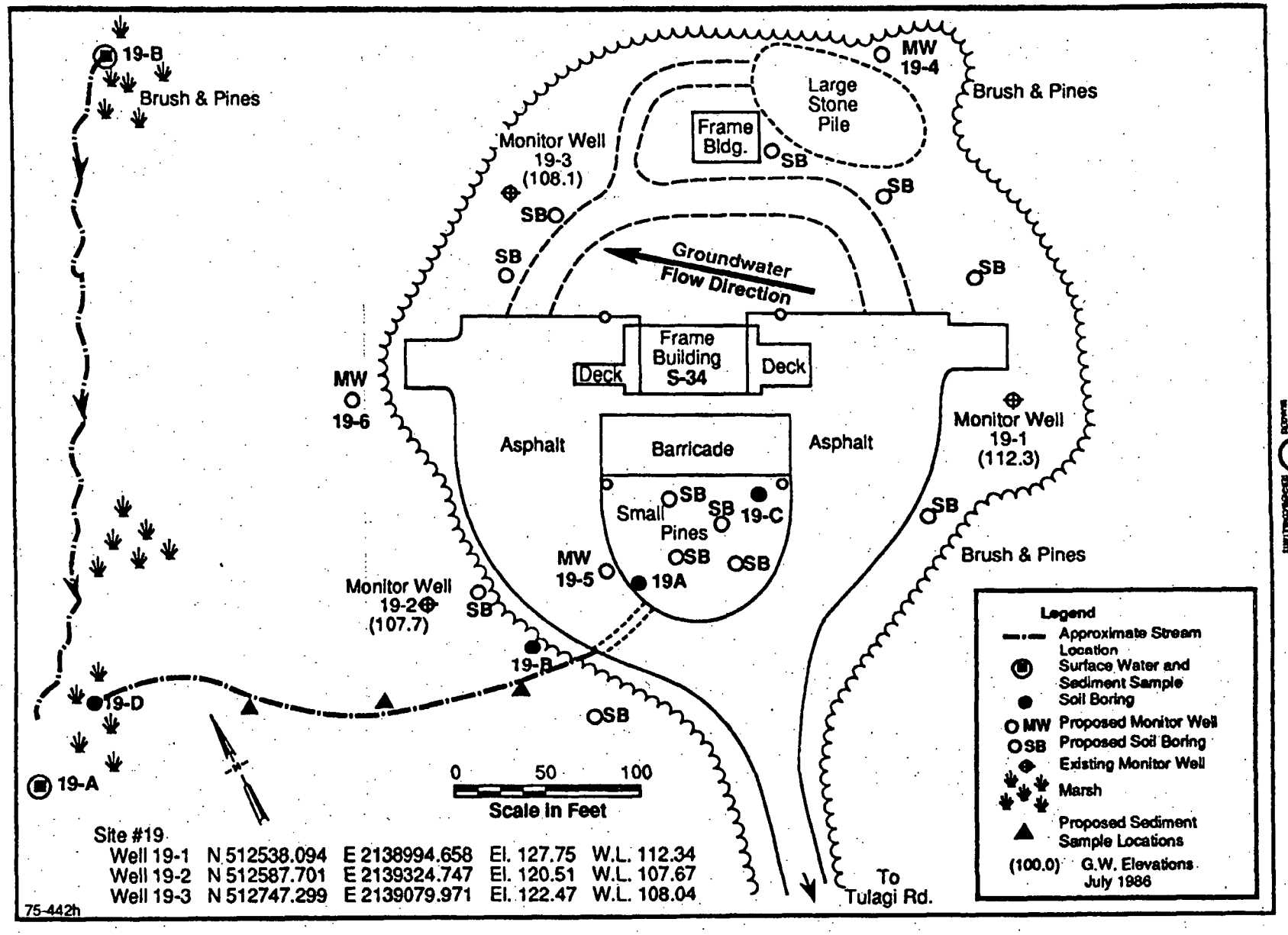

FIGURE 5-8 SITE 19 - PAINT CHIP AND SLUDGE DISPOSAL AREA MONITOR WELL AND SAMPLE LOCATIONS

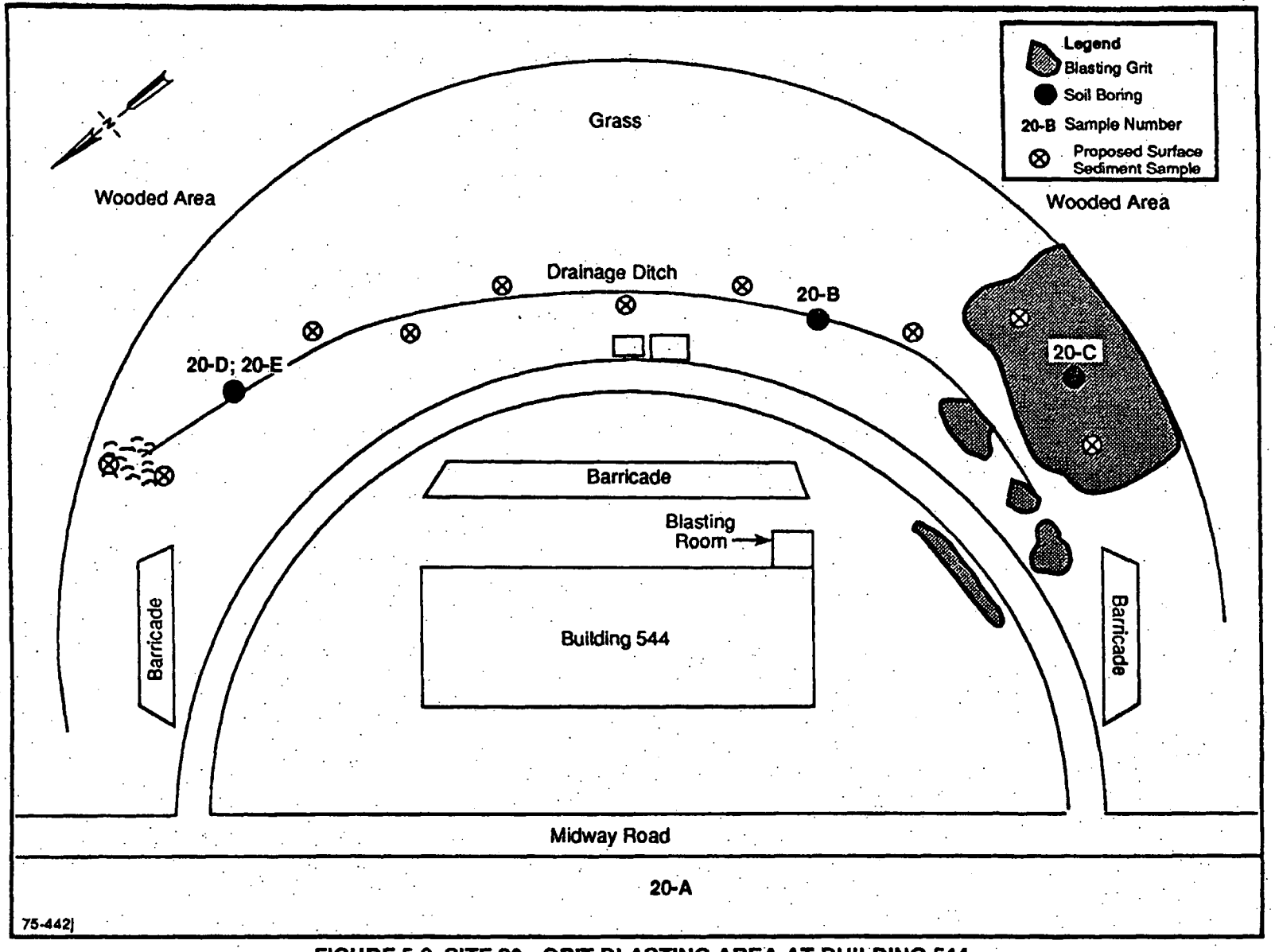

FIGURE 5-9 SITE 20 - GRIT BLASTING AREA AT BUILDING 544

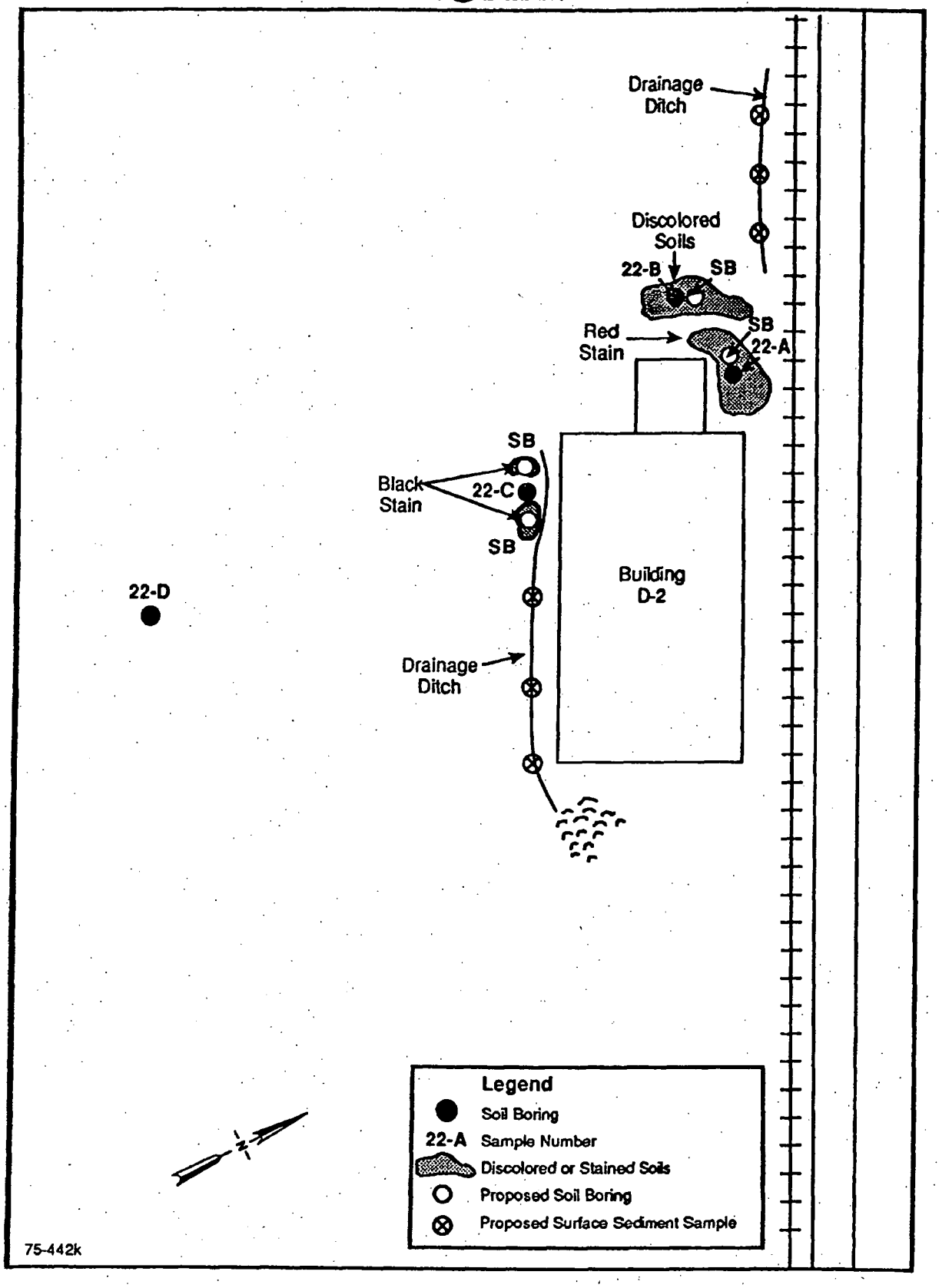

FIGURE 5-10 SITE 22 - PAINT CHIP DISPOSAL AREA

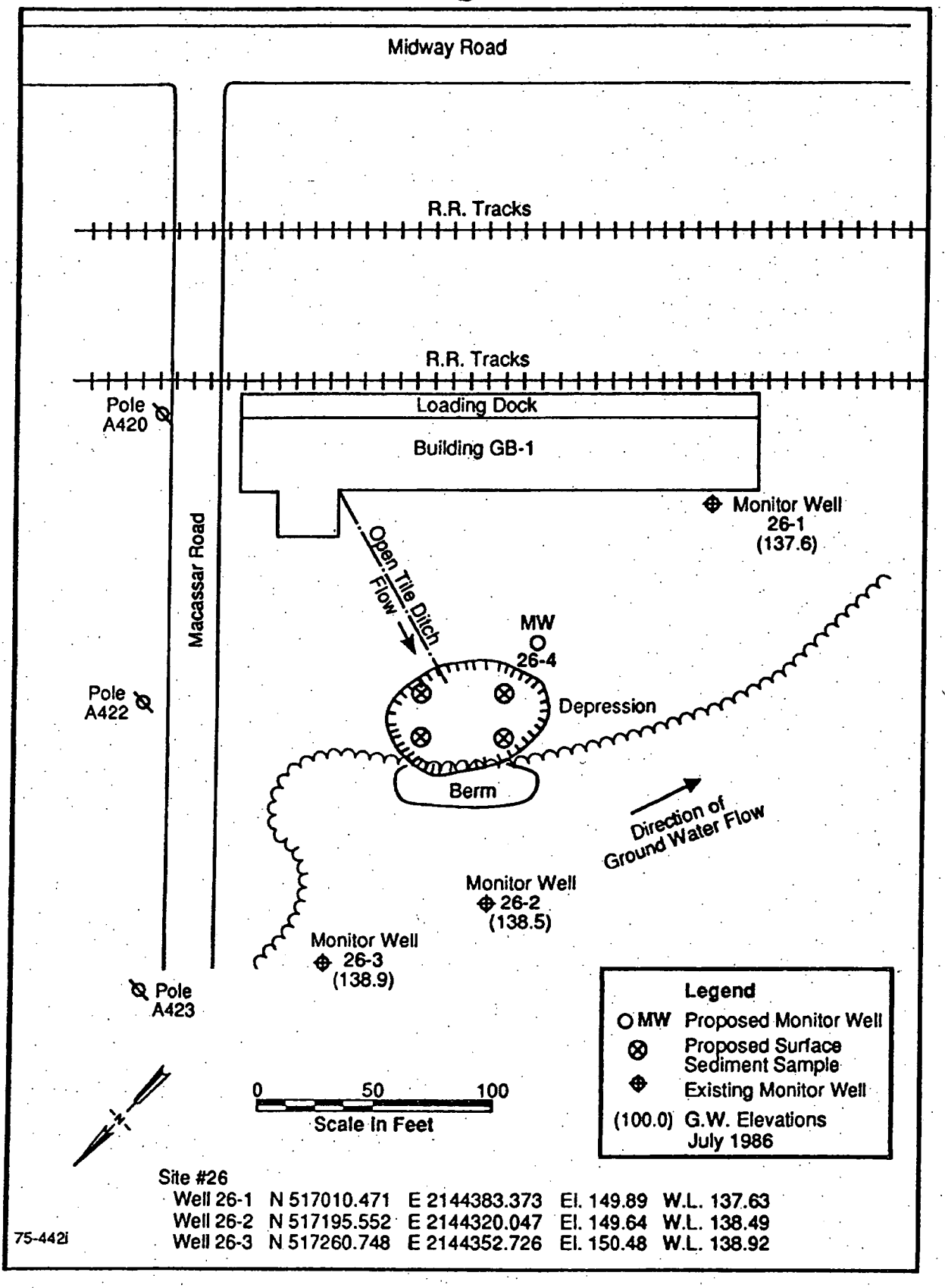

FIGURE 5-11 SITE 26 - EXPLOSIVE "D" WASHOUT AREA MONITOR WELL LOCATIONS

Phase III Remedial Investigation Sampling Plan
Naval Weapons Station Earle

Site Number	Site Name	Number of Existing Wells	Number of Proposed Wells	Groundwater Analytes	Surface Water Samples	Surface Water Analytes
2	Ordnance Demiliterization	4	3	TCL Organics TAL Metals+CN Explosives*	0	None
3	Landfill SW of F Group	3	4	TLC Organics TAL Metals+CN	0	None
4	Landfill West of D Group	3	4	TLC Organics TAL Metals+CN	4	TPH VOCs
5	Landfill West of Army Barricades	3	4	TCL Organics TAL Metals+CN	0	None
7	Landfill South of P Barricades	3	2	TCL Organics TAL Metals+CN	0	None
10	Scrap Metal Landfill Near Building 589	3	4	TCL Organics TAL Metals+CN	3	TPH VOCs
11	Contract Ordnance Disposal Area (Adj. Bldg. S-34)	3	2	TCL Organics TAL Metals+CN Explosives*	0	None
19	Paint Chip and Sludge Disposal Area	3	3	TCL Organics TAL Metals+CN	0	None
20	Blasting Grit Disposal Area (Near Bldg. 589)	0	0	None	0	None
22	Paint Chip Disposal Area (Adj. Bldg. D-2)	0	0	None	0	None
26	Explosive D Washout Area (Adj. Bldg. GB-1)	3	1	TCL Organics TAL Metals+CN Explosives*	0	None

* Explosives compounds include: picric acid, nitrocellulose, nitroglycerin, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, tetryl, 1,3,5-trinitrobenzene, 1,3-dinitrobenzene, HMX, and RDX.

GWT = Groundwater table

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Phase III Remedial Inv stigation Sampling Plan
Naval W apons Station Earle
(continued)

Site Number	Site Name	Sediment Samples	Sediment Analytes	Subsurface Soil Sampling Locations	Depth Interval (feet)	Soil Analytes
2	Ordnance Demiliterization	3	TAL Metals Explosives*	6	1-2 GWT (4-5)	TAL Metals+CN Explosives*
3	Landfill SW of F Group	0	None	0	0	None
4	Landfill West of D Group	4	TCL Organics TAL Metals+CN	0	0	None
5	Landfill West of Army Barricades	0	None	0	0	None
7	Landfill South of P Barricades	0	None	0	0	None
10	Scrap Metal Landfill Near Building 589	3	TCL Organics TAL Metals+CN	0	0	None
11	Contract Ordnance Disposal Area (Adj. Bldg. S-34)	9	Explosives* TPH	0	0	None
19	Paint Chip and Sludge Disposal Area	5	TAL Metals+CN	10 Borings 3 Hand Augers	2-4 GWT (8-10) 0-2 2-4	TAL Metals+CN VOCs will be taken at 2-4 feet
20	Blasting Grit Disposal Area (Near Bldg. 589)	10	TAL Metals+CN TPH	0	0	None
22	Paint Chip Disposal Area (Adj. Bldg. D-2)	6	TAL Metals+CN TPH	4	0-0.5 1-2	TAL Metals+CN
26	Explosive D Washout Area (Adj. Bldg. GB-1)	4	Explosives* TPH	4	3-4	Explosives* TPH

* Explosives compounds include: picric acid, nitrocellulose, nitroglycerin, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, tetryl, 1,3,5-trinitrobenzene, 1,3-dinitrobenzene, HMX, and RDX.

GWT = Groundwater table

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