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August 12, 1998

Ms. Pamela Mylotta
Environmental Remediation and Repair
Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin 53212

SUBJECT: Remedial Action Plan
Parcels B and C (Also known as Parcel 2)
Wisconsin Gas Company
North Service Center Site
5400 North Green Bay Road
Glendale, Wisconsin

Dear Pam:

Graef, Anhalt, Schloemer and Associates, Inc. is pleased to present this Remedial Action Plan (RAP) for Parcels B and C located at 5400 N. Green Bay Road, Glendale, Wisconsin on behalf of Continental 85 Fund LLC and Glendale Housing Limited Partnership (collectively "Continental"). A 100-unit senior housing development is planned for each parcel. Parcel C will be the second phase of the development and it is unknown at this time when the second phase of the development will be constructed. This RAP shows the continued commitment to a project design (senior housing facilities) that will be protective of human health and the environment and more cost-effective and protective than mass removal of soils.

This RAP is intended to support the WDNR's issuance of a comfort letter to Continental and as a condition of Act 453 certification for these parcels. We have incorporated the data and results from a recent geoprobe investigation of the off-site extent of contamination into this report for Parcel C. These investigations have confirmed that two of the three historic spill/releases on Parcel C originated on-site and do not extend off-site from Parcel C. The third area's actual release origin cannot be determined and it most likely falls on both Parcel C and Wisconsin Gas NSC at the property boundary. We will address DRO contamination on Continental's property with the project design itself. Wisconsin Gas will address the DRO contamination on their property in a separate report, as they may choose to remediate DRO that may have originated on their property differently than that proposed in this RAP. No further remedial activities, other than those already incorporated in the project design herein, are necessary for these off-site areas. This final RAP incorporates our remedial design elements, and follows the format for remedial action plans set forth in NR700; required for certification under Act 453.

Sincerely,

GRAEF, ANHALT, SCHLOEMER
& Associates, Inc.

Larry F. Boyer, PhD, PG

Brian J. Karczewski, CSTM

I. Executive Summary

Continental 85 Fund LLC and Glendale Housing Limited Partnership (collectively "Continental") are submitting this Remedial Action Plan (RAP) to the Wisconsin Department of Natural Resources (WDNR) as a condition of approval under Act 453 (Wisconsin statutes).

The purpose of this report is to document Continental's compliance with NR700 and to demonstrate that the selected remedial alternative – the two-phased senior housing facility developments and their associated engineering controls – will not only facilitate the economic development and reuse of the property, but will protect human health and the environment better than targeted soil removal. A 100-unit senior housing development is planned for both Parcels B and C, east of the Wisconsin Gas North Service Center (NSC). Parcel B will be constructed first. Parcel C will be the second phase of the development. It is unknown at this time when Parcel C will be constructed.

Parcels B and C are part of a fill site, formerly a sand and gravel quarry. Parcels B and C have been extensively examined over the past two years; over a dozen technical documents have been generated in the last six to nine months. Adverse geotechnical conditions and soil and groundwater contaminants have been observed on these two parcels. Fill soils in a portion of Parcel B are contaminated with TCE/PCE degradation products at a depth greater than six feet. Polynuclear aromatic hydrocarbons (PNA's) are present in composite samples taken from the interval below the sod to two feet extending to the groundwater table (8-10 feet bgs) across both Parcels. These levels of PNA's, although they may be a reflection of historic releases, still exceed published, albeit extremely conservative, site-specific "non-industrial" residual contamination levels (RCL's) for protection of human health (direct contact) and the environment (Table 1, p. 10, and Barden, 1997). Soil DRO concentration levels range from <5.4 ppm to 4,600 ppm. Finally, concentrations of arsenic are present at levels exceeding generic soil RCL's.

Groundwater beneath Parcels B and C is contaminated from a large plume of PCE/TCE compounds released from an off-site source to the north and northwest. Groundwater gradients and flow direction are northwest to southeast across the parcels. An Off-Site Source Determination letter has been issued by WDNR, relieving Continental of the responsibility and liability for clean-up of these contaminants. A remote possibility exists for continued volatilization of TCE/PCE from the groundwater table. Minor detects of PNA's

and some heavy metals are found in groundwater beneath the site; however, no enforcement standards (ES) or preventive action limit (PAL) exceedances have been observed in the continued sampling. There was a PAL exceedance for arsenic during the first round of groundwater sampling from monitoring well, MW-2B and for barium from monitoring well, MW-1C. However, there were no PAL exceedances during subsequent samplings. A PAL exceedance of arsenic was recorded from piezometer, PZ-1B, however, this sampling has not been replicated. Accordingly, groundwater treatment for metals is not warranted. Finally, three areas of potential off-site contamination were examined with twelve geoprobes to better define the extent of contamination. Except for one area along the boundary of Wisconsin Gas and Parcel C, where the precise source cannot be determined, the results indicate that no significant contamination extends off-site, no further investigation work is warranted and no additional remedial activities are planned.

The primary exposure pathways of general interest are direct contact, precipitation induced infiltration and potential leaching of contaminants to groundwater, and uncontrolled surface water runoff.

Currently, the site has 0-2 inches of grass cover with 4 to 12" of topsoil in some areas above the fill. Direct contact exposures might occur for a brief time during extensive site grading or soil removal. However, once the slabs, parking lots, detention ponds and housing structures are complete, no further exposure will be possible. This RAP's (as that of Parcel A) remedial action objectives (RAO's) are to eliminate the possibility of direct contact exposure and insure short- and long-term ground water protection.

We have identified four basic categories of remedial alternatives: 1) The "no action" alternative - dependent on continuing biodegradation and natural attenuation to reduce soil and groundwater contaminants to protective levels within a prescribed time; 2) Soil removal of DRO related degradation compounds at concentrations greater than or equal to 100 ppm - relying on removal of the long-term chronic source material to achieve remedial action objectives; 3) Active groundwater treatment - to remove PCE/TCE degradation compounds (not addressed in this RAP); and 4) using the design of the project as the site-specific remedial action - where the required remedy consists of engineering controls (capping 100% of the site with structures, asphalt and clean fill cover) which will achieve our stated remedial action objectives (RAO).

We have evaluated the four remedial alternatives and feel that alternative number 4, the project design with engineering controls, best achieves protection of human health and

the environment in an effective and efficient fashion, as it also facilitates development of a highly valuable brownfield site. The DRO and PNA compounds are very old, degraded, highly refractive, and virtually immobile; thereby justifying leaving levels of DRO up to 4,600 ppm in the undisturbed soil matrix of the fill site and capping them with the project. In addition, the immobile and degraded contaminants within disturbed or graded soils on-site will not present future potential problems for groundwater impacts once construction of the project is completed. This remedy successfully protects human health and the environment from both short- and long-term risks. A deed restriction will be placed on the title to the parcel to maintain permanency of the engineered solutions and ensure adequacy of controls.

Continental Properties Company, Inc.

August 18, 1998
VIA COURIER

Ms. Pam Mylotta
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
2300 North Martin Luther King Drive
Milwaukee, WI 53212

RE: Continental 85 Fund LLC
Senior Housing Facilities - Glendale, WI

Dear Pam:

Enclosed is the Remedial Action Plan for Parcels B and C (also known as Parcel 2) of the Wisconsin Gas Company North Service Center property for your review.

If you have any questions, please contact me at 502-5500.

Sincerely,
CONTINENTAL PROPERTIES COMPANY, INC.

Kimberly Grimm
Development Coordinator

Enclosure

cc: Art Covi - Wisconsin Gas Company
Bill Roush - Davis & Kuelthau
Greg Van Patten - Pacific Harbor Capital, Inc.
Larry Boyer - Graef, Anhalt, Schloemer & Associates

W133 N8569 EXECUTIVE PARKWAY, P.O. BOX 220, MENOMONEE FALLS, WISCONSIN 53052
TELEPHONE 414 502-5500 FACSIMILE 414 502-5522

REMEDIAL ACTION PLAN FOR PARCELS B AND C (ALSO KNOWN AS PARCEL 2)

Wisconsin Gas Company - North Service Center

5400 North Green Bay Road
Glendale, Wisconsin

Prepared for

Continental 85 Fund LLC / Glendale Housing Limited Partnership
W133 N8569 Executive Parkway
P.O. Box 220
Menomonee Falls, Wisconsin 53052

AUGUST 12, 1998

Prepared by

GRAEF, ANHALT, SCHLOEMER & ASSOCIATES, INC.
Consulting Engineers and Scientists
One Honey Creek Corporate Center
125 South 84th Street
Milwaukee, Wisconsin 53214-1470
(414) 259-1500

Project No. 977517.04

Remedial Action Plan for Parcels B and C

977517.04

Prepared for:

Continental 85 Fund LLC / Glendale Housing Limited Partnership
W133 N8569 Executive Parkway
P.O. Box 220
Menomonee Falls, Wisconsin 53052

Site Address:

Parcels B and C (Also known as Parcel 2)
Wisconsin Gas Company - North Service Center
5400 North Green Bay Road
Glendale, Wisconsin

Prepared By:

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Brian J. Karczewski, CSTM
Project Scientist

Geoffrey B. Parish, P.G.
Project Hydrogeologist

Larry F. Boyer, Ph.D., P.G.
Project Manager

II. Introduction

This Remedial Action Plan (RAP) meets NR700 criteria for identification, evaluation and selection of appropriate remedial activities on the Continental Glendale Project – Parcels B and C. Refer to Figures 1A and 1B for site location maps.

III. Purpose and Goals

The purpose of this report is to document Continental's compliance with NR700 and to demonstrate that the chosen remedial alternative will not only facilitate economic development of the property and the Silver Spring Corridor, but protect human health and the environment better than other, less cost-effective options.

IV. Background - Site Conditions

Parcels B and C have been extensively examined in the past two years. ARCADIS Geraghty & Miller (G & M) has performed Phase I, Phase II and geoprobe examination of spill/release areas at the request of Wisconsin Gas. Graef, Anhalt, Schloemer & Associates, Inc. (GAS) also performed Phase I, II and III investigations on Parcels B and C for Continental. Refer to Figures 2A and 2B for soil boring, monitoring well and test pit location map.

This data has been summarized in over a dozen environmental reports. These documents are as follows:

Document 1:	Phase I - Environmental Site Assessment of Parcel A: Vacant Land Adjacent to Wisconsin Gas Company North Service Center
Document 2:	Phase I - Environmental Site Assessment of Parcel B: Vacant Land Adjacent to Wisconsin Gas Company North Service Center
Document 3:	Phase I - Environmental Site Assessment of Parcel C: Vacant Land Adjacent to Wisconsin Gas Company North Service Center
Document 4:	Soil and Groundwater Investigation - Parcel A
Document 5:	Soil and Groundwater Investigation - Parcel B
Document 6:	Soil and Groundwater Investigation - Parcel C
Document 7:	Request for Exemption to Construct on an Abandoned Site Continental 85/87 Fund LLC/Wisconsin Gas Site Parcel A (Including Materials Handling Plan)

Document 8: Opinion Letter Regarding Historic Point Source Releases; January 30, 1998

Document 9: Additional Tasks and Associated Costs Including Those to Verify Voluntary Certification Under Act 453 (Scope of Work Letter Approved by WDNR)

Document 10: ARCADIS Geraghty & Miller Report: Soil Investigation and Groundwater Quality Monitoring: Parcels A, B, and C February/March 1998

Document 11: Opinion Letter - Application of Act 453; dated May 13, 1998

Document 12: Additional Geoprobes Required by WDNR to Define the Extent of Contamination of Historic Spill/Release Areas (Scope of Work letter approved by the WDNR)

Document 13: Letter Report to WDNR: Results of Off-Site Geoprobe Extent of Contamination Studies; June 19, 1998

Document 14: Remedial Action Plan - Parcel A; June 25, 1998

Geotechnical reports have also been prepared for each parcel, and are available from Continental.

The environmental conditions to be addressed are as follows:

1) Polynuclear Aromatic Hydrocarbons (PNA's) compounds were sporadically observed across all three parcels at levels which exceeded published, albeit extremely conservative site-specific "non industrial" residual contamination levels (RCL's) for protection of groundwater and chronic direct contact exposure (Table 1, p. 9) (Barden, 1997),
2) GAS geoprobe investigations documented spill/release areas of DRO contamination. The extent of on-site historic spills/releases has been documented through further investigations performed by G & M and GAS. Investigations that have delineated and defined the off-site extent of contamination were completed June 11, 1998.
3) The groundwater beneath the site is contaminated by PCE/TCE and degradation products from an off-site source to the north and northwest – flow is to the southeast across the three parcels. The Department has issued an off-site source liability exemption (under s.292.13, stats.) for these contaminants.

4) The remote potential exists for trapping toxic vapors under buildings and slabs, due to volatilization of PCE/TCE contamination in the groundwater beneath the site. Additionally, methane was initially observed in one test well located near the Parcel B and C boundary (MPB-003). However, methane levels within MPB-003 consistently decreased over time to a final reading of 2% of the lower explosive limit which suggests the possible "de-gasing" of a limited, discontinuous natural organic layer.

A. Summary of Conditions

The three parcels (A, B and C) are contiguous and co-located at 5400 North Green Bay Road, Glendale, Wisconsin. Once used as a quarry, a major portion of the site was filled with soils from nearby construction sites. Trace amounts of construction debris are present in the fill, overlying native well-sorted sands, which overlie clays. The groundwater table depth varies from 8-10 feet below ground surface. Groundwater flow direction is from northwest to southeast towards the Milwaukee River and eventually towards Lake Michigan.

Fill soils encountered on Parcel B were impacted with degradation products of PCE/TCE, such as cis 1, 2 dichloroethene (DCE). Maximum concentrations of 169 ppb cis 1, 2 DCE to a new low of 32 ppb cis 1, 2 DCE were detected in the central portions of Parcel B. These contaminants were detected at depths (below 6 feet deep) which indicate that these levels are associated with contaminants volatilizing from the groundwater and not with soil. Refer to Figure 3 for concentrations of these compounds as they occur across Parcel B. No soil levels of PCE/TCE or degradation products were detected in the soils on Parcel C.

Across Parcels B and C, various PNA's were discovered from the interval below the sod to two feet extending to the water table while DRO contamination was encountered sporadically across the two parcels. Refer to Figures 4A and 4B for PNA exceedances maps. However, as on Parcel A, the higher levels were commonly found from 6-8 feet and 8-10 feet bgs. On Parcel B, DRO levels were all below 10 ppm, except for one 265.0 ppm detection collected from MW-1B at a depth of 4-6 feet bgs. Parcel C contained three areas of elevated DRO. DRO was detected at a maximum concentration of 4,600 ppm on Parcel C at a depth of six to eight feet. (Refer to Figures 5A and 5B for DRO concentration maps.)

Through investigations performed by GAS, three historic spill/release areas were identified on Parcel C - one in the northwest corner of Parcel C near Parcel A, and two on the western portion of Parcel C bordering Wisconsin Gas. Continued investigations into the

extent of each of these historic spill/release areas were performed by GAS in June 1998. Maximum concentrations of DRO contamination observed at each boring are given on Figures 5A and 5B and Table 1 in the Appendices. For each geoprobe, the maximum DRO concentration encountered in the vertical soil profile was plotted and then contoured. Spatial depiction of the extent of the three release locations, as defined by results obtained by ARCADIS Geraghty & Miller and GAS, are shown on Figure 6 using 250 ppm isoconcentration contours.

Soils across Parcel B contain degradation compounds of PCE/TCE. Contaminant concentrations are above non-industrial chronic direct contact exposure limits, but do not exceed acute direct contact construction worker RCL's. Refer to Table 7 (Document 7) for direct contact exposure and acute direct contact construction worker RCL's. Concentrations of several PNA compounds, such as benzo(a) pyrene and benzo(b) fluoranthene, exceeded their respective non-industrial chronic direct contact exposure levels within some of the soil samples collected. Refer to Table 1 within Documents 4, 5 and 6 for a complete list of these exceedances.

An off-site source of soil and groundwater contamination has been identified. The plume from this source of contamination affects groundwater across Parcels A, B and, to a limited extent, Parcel C. Interpretation of results for VOC analyses performed on soil and groundwater samples collected across the three parcels indicate a trend of decreasing PCE and related degradation compound concentrations as one moves downgradient. This trend follows the observed pattern of groundwater flow. Relatively higher concentrations of PCE and related degradation compounds were encountered in both soil and groundwater samples collected in the northern portion of Parcel A. In the southern portion of Parcel A, significantly lower to no concentrations of PCE were detected within soil and groundwater samples. Further down-gradient, on Parcels B and C, only related degradation compounds were detected within soil and groundwater samples at relatively low to insignificant concentrations. The City of Glendale and their consultants (HNTB) will be initiating a remedial action to control these off-site contaminants. If necessary, the terms of an access agreement needed for active remediation of soil and groundwater on the parcels by Glendale will be negotiated at a later date.

V. Exposure Pathways

A. Direct Contact

There is a potential for ingestion/inhalation of PNA/DRO/Heavy Metals impacted soil on Parcels B and C under certain circumstances or during development activities. Therefore, PNA concentrations must be evaluated for human health risks as chronic direct contact exposures. As discussed in section IV.(A) of this document, significant PNA concentrations have been detected from soil samples collected on Parcels B and C at sampling intervals ranging from below the sod to two feet extending to 10-12 feet (Document 4). On Parcel B, soils at 4-6 feet (MW-1B), 6-8 feet (GP-2B) and 8-10 feet (GP-3B) all had PNA exceedances. As a conservative measure, PNA concentrations will be evaluated based upon residual contaminant levels (RCL's) for a non-industrial scenario which are based on a target risk of $1.0E^{-07}$ or a hazard quotient of 0.2, consistent with those in s. NR720.11, Wis. Admin. Code. This is more conservative than the $1.0E^{-06}$ required by NR720.19, Wis. Admin. Code. We have selected Barden's (1997) RCL's as our site-specific standard. The RCL's for PNA's under a non-industrial scenario (Barden, 1997) are as follows:

Table 1: Non-Industrial RCL's For PNA's

		Ingestion (ppm)	Inhalation (ppm)
acenaphthene		900.0	nd
acenaphthylene		18.0	51.0
anthracene		5,000.0	nd
benzo(a)anthracene*		0.088	11.0
benzo(a)pyrene*		0.0088	1.6
benzo(b)fluoranthene*		0.088	4.6
benzo(ghi)pepylene*		1.8	1000.0
benzo(k)fluoranthene*		0.88	380.0
chrysene*		8.8	270.0
dibenz(ab)anthracene*	(high)	0.0088	7.8
	(low)	0.0018	1.6
fluoranthene		600.0	nd
fluorene		600.0	nd
ideno(123-cd)pyrene*		0.088	54.0
1-methyl naphthalene		1100.0	nd
2-methyl naphthalene		600.0	nd
naphthalene		60.0	20.0
phenanthrene		18.0	160.0
pyrene		500.0	nd

*classified as "B2", probably human carcinogens, under U.S. EPA's weight of evidence classification system

Concentrations of PNA's from composite soil samples collected from below the sod to a depth of two feet on Parcels B and C exceed these non-industrial RCL's based upon results collected from GAS soil samples HA-1B, HA-2B, HA-3B, HA-1C, HA-2C and HA-3C. Specifically on Parcel B, RCL's for benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, and indeno(123-cd)pyrene were exceeded in samples collected from HA-1B, HA-2B and HA-3B. RCL's for benzo(k)fluoranthene, and benzo(ghi)perylene were exceeded in the composite soil sample collected from below the sod to a depth of two feet from HA-2B. Refer to Tables 2A and 2B for a summary of soil analytical results.

On Parcel C, RCL's for benzo(a)anthracene, benzo(b)fluoranthene, and benzo(k)fluoranthene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene were exceeded in composite samples collected from below the sod to a depth of two feet from HA-1C, HA-2C and HA-3C. RCL's for benzo(ghi)perylene, chrysene and phenanthrene were exceeded in the composite soil samples collected below the sod to a depth of two feet from HA-1C while the RCL for phenanthrene was exceeded in the composite soil sample collected below the sod to a depth of two feet from HA-3C.

Several other samples collected from greater depths on Parcels B and C had concentrations of PNA's which also exceeded the non-industrial RCL's noted above for individual or a combination of the compound(s) listed. Grading activities will be designed to not expose these contaminants at the newly graded surface, thereby eliminating the potential of any risk to direct contact exposure.

Health risk-based concentrations for DRO in soil were also evaluated based upon the reasonable maximum exposure (RME). Based upon the assumptions for a RME, a risk-based concentration for diesel fuel in soil was estimated at 1,166 ppm (Millner et. al., 1992). This concentration represents a combination of both ingestion and inhalation, chronic direct contact exposures.

The highest DRO value on Parcel B is a reading from 4-6 feet at MW-1B of 265 ppm. Only one detection (4,600 ppm) exceeded the risk-based concentration of DRO on Parcel C. This DRO concentration was detected within a soil sample collected from GMGP-18 located in the southwest corner of the parcel.

Grading activities will be designed so that none of these soils will be exposed to the newly graded surface, thereby, reducing or eliminating any potential of chronic direct contact exposure.

Concentrations of inorganics were evaluated based upon human health risk from direct contact related to land use as per s. NR720.11 Wis. Admin. Code. In a non-industrial scenario, concentrations in excess of 0.039 ppm for arsenic and 50.0 ppm for lead are considered a direct contact human health risk. On Parcel B, concentrations of arsenic were detected at 2-4 feet in GP-3B at 13.0 ppm. Refer to Tables 3A and 3B for RCRA metal/soil results for Parcels B and C, respectively. Concentrations of lead were detected at a level of <5.3 ppm within the soil sample collected from GP-3B (2-4 feet - GAS). On Parcel C, arsenic was detected at levels well above the non-industrial RCL's in the soil from GP-1C (8-10 feet) at 23 ppm, GP-2C (6-8 feet) at 16 ppm, and MW-1C (10-12 feet) at 17 ppm. At depth, these detections represent a potential human health risk for chronic direct contact exposure.

There is limited potential for an acute direct contact exposure to construction workers via ingestion/inhalation on Parcels B and C. This risk is reduced on Parcels B and C because no significant excavation of soils to depths (below 3 feet bgs) will occur, and no soil will be exported from the site. The construction worker RCL's for both PNA and PCE/TCE (35 ILL. Admin. Code part 742 Appendix A) are as follows:

Table 2: Construction Worker RCL's for PNA's and PCE/TCE

	Ingestion (ppm)	Inhalation (ppm)
acenaphthene	120,000.0	--
acenaphthylene	--	--
anthracene	610,000.0	--
benzo(a)anthracene*	170.0	--
benzo(a)pyrene*	17.0	--
benzo(b)fluoranthene*	170.0	--
benzo(k)fluoranthene*	1,700.0	--
chrysene*	17,000.0	--
dibenz(ah)anthracene*	17.0	--
fluoranthene	82,000.0	--
fluorene	82,000.0	--
ideno(123-cd)pyrene*	170.0	--
naphthalene	8,200.0	--
pyrene	61,000.0	--
tetrachlorethylene	2,400.0	28.0
trichlorethylene	1,200.0	12.0
cis-(1,2)dichlorethane	20,000.0	1,200.0
trans-1,2-dichloroethane	41,000.0	3,100.0
vinyl chloride	65.0	0.08

However, there is only one compound (benzo(a)pyrene) detected from only one soil sample collected from Parcel C (HA-1C), that exceeded the respective construction worker RCL's for benzo(a)pyrene (36 ppm). No benzo(a)pyrene exceedances were encountered on Parcel B.

This exceedance on Parcel C does not pose a threat to construction workers on-site because it occurs at a depth below that at which grading will occur.

B. Groundwater

Based upon results of soil samples collected by GAS and ARCADIS G & M, there is no potential for continuing groundwater impacts from compounds that compose the DRO fraction on Parcels B and C. Only one sample from Parcel C (HA-1C) contains PNA soil concentrations that would indicate potential for groundwater impacts though no impacts were observed in groundwater sampling. Soil RCL's that are considered protective of groundwater (Barden, 1997) are as follows:

Table 3: Soil RCL's For Protection Of Groundwater

Compound	RCL (ppm)
acenaphthene	38.0
acenaphthylene	0.7
anthracene	3000.0
benzo(a)anthracene*	17.0
benzo(a)pyrene*	48.0
benzo(b)fluoranthene*	360.0
benzo(ghi)pepylene*	6800.0
benzo(k)fluoranthene*	870.0
chrysene*	37.0
dibenz(ab)anthracene*	38.0
fluoranthene	500.0
fluorene	100.0
ideno(123-cd)pyrene*	680.0
1-methyl naphthalene	23.0
2-methyl naphthalene	20.0
naphthalene	0.4
phenanthrene	1.8
pyrene	8700.0

HA-1C contains concentration of benzo(a)anthracene (74.7 ppm), which exceeded its respective RCL of 17.0 ppm. Additionally, concentrations of

phenanthrene collected from HA-1C (95.6 ppm), HA-3C (2.29 ppm), MW-1C (3.7 ppm), and GP-4C (3.07 ppm) exceeded its respective RCL of 1.8 ppm. No exceedances of RCL's for the protection of groundwater were detected on Parcel B.

Groundwater at this site is not used as a water supply resource, as the City of Glendale is served by a municipal water system. The only potential receptors of groundwater contamination are Lincoln Creek, located at 1,000 feet to the south and the Milwaukee River located at 2,000 feet to the east of the site. The WDNR has already issued an off-site exemption letter regarding the PCE/TCE plume beneath Parcels B and C, therefore, PCE/TCE contaminants are not are considered in this RAP. The remediation of these contaminants will be the responsibility of the City of Glendale.

Initially, monitoring wells on-site were sampled for PNA's, DRO and RCRA metals. Some groundwater values (e.g. from MW-1C) exceeded ES's and PAL's for these compounds. However, when sampled for these same parameters using an extremely low-flow technique (to avoid colloidal resuspension and particulate bound components), the values were all below ES and PAL detection levels. Therefore, soil contamination from historic PNA's on-site is not impacting groundwater. Refer to Tables 4A, 4B, 5A and 5B for a summary of groundwater analytical results. No future PAL exceedances from PNA's are anticipated, and as such, no future ES exceedances are anticipated. Given that there are no current PAL exceedances, it is not necessary to address groundwater conditions beyond the scope of the proposed remedy.

C. Surface Water

Currently, there is a drainage ditch located along the eastern property boundary of Parcels B and C which parallels the railway. The final discharge point of water carried by this ditch goes to the storm sewer under Silver Spring Drive. There were no obvious signs of significant soil erosion, such as gullies on the site. Therefore, it is believed that this ditch has not been impacted by contaminated sediments eroded off the site. At present, there is no control of precipitation-induced infiltration on the site. Accordingly, surface water runoff could come in contact with fill soils. However, upon development, runoff will be controlled by the final pavement grades and storm sewers. Stormwater will be routed to the detention ponds and

from there to the current storm sewer under Silver Spring Drive. Areas that are not covered by pavement or structures will have at least one foot of clean soil covering contaminated soils. The detention ponds will be lined with either a geomembrane or low conductivity, compacted clay. Completion of the project will completely eliminate any potential for surface water to come into contact with contaminated soils.

VI. Justification For An Active Remedy

There are known exceedances of site-specific direct contact exposure RCL's for benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene and indeno(1,2,3-cd)pyrene at depths varying from the interval below the sod to two feet extending to six feet. Some of these compounds could potentially present a direct contact exposure risk under certain circumstances. Arsenic is found at levels exceeding the non-industrial RCL's on both Parcels B and C. Site grading activities will lower the surface grade by up to 2-3 feet in some areas. This could result in potential direct exposure to contaminants that may exist at depth until construction activities are complete. Also, levels of these compounds were detected in composite soil samples collected from the interval below the sod to a depth of two feet in areas where grading will not occur. There are also known exceedances of soil RCL's that are thought to be protective of groundwater (Part B, previous section, p. 12). Concentrations of benzo(a)anthracene and phenanthrene have been shown to exceed their respective groundwater protection RCL's (Barren, 1997).

Our remedial action objective will therefore be to chose a remedy providing enhanced protection to human health and the environment. The required remedy will also eliminate direct contact exposures, eliminate or reduce as much as possible infiltration to groundwater, and will minimize and divert surface water interaction with sensitive receptors and groundwater.

VII. Identifying Potential Remedial Options

A. No Action Alternative (Natural Attenuation)

Natural attenuation is the reduction in the concentration and mass of a substance and its degradation compounds in soil and groundwater due to naturally occurring physical, chemical and biological processes without direct intervention or enhancement. The effectiveness of natural attenuation is strongly influenced by the

degradability of contaminants, nearby potential receptors, land and aquifer use and potential changes.

Previous results of natural attenuation parameters of groundwater samples collected from monitoring wells MW-1B, MW-2B and MW-1C were inconclusive (Documents 5 and 6).

1. Soils

Natural attenuation, as a remedial process, is presumed to have been and is continuing to work on the light fraction of DRO contamination. This includes highly mobile compounds such as naphthalene. Natural attenuation, as a remedial process, works very slowly on immobile compounds that compose the heavier molecular weight PNA fraction of the DRO contamination.

2. Groundwater

Two groundwater sampling events have been performed on monitoring wells on Parcels B, while four sampling events have been performed on Parcel C. No exceedances of preventive action limits (PAL's) for PNA's were detected within any subsequent sampling events. Based upon the physical, chemical and biological processes of natural attenuation activity on the contaminants encountered on Parcels B and C for the past 40 to 50 years, the lighter weight constituents of DRO and PNA compounds have been attenuated to the point that there are no PAL or ES exceedances. What remains are primarily heavier weight PNA and DRO compounds which are immobile and in contact with groundwater but are not presently causing any PAL or ES exceedances and will not cause any future potential groundwater PAL or ES exceedances.

A PAL exceedance of arsenic (5.3 ppb from MW-2B) and of barium (540 ppb from MW-1C) was detected in the first round of groundwater samplings. Subsequent samplings indicated levels to be below the PAL for both compounds.

3. Surface Water Drainage

Natural attenuation, as a remedial option, is not expedient enough to prevent potential impacts to surface water drainage in the short term.

B. Treatment and/or Removal: Removal of Soils Above Standard NR700 RCL (100 ppm)

An aggressive active treatment option performed to generic standards is usually the most costly option, however, such an approach reduces the effort of evaluating alternate remedial actions and site specific conditions.

1. Soils

The volume of soils impacted at levels above the generic NR700 100 ppm DRO cleanup level probably ranges from 500 to 1,000 cubic yards on Parcel B and 7,500 to 8,500 cubic yards on Parcel C. Costs associated with such a removal could range between $280,000 to $330,000 to meet the 100 ppm objective, collectively. (Note: Even if the removal was associated with a planned development, these costs are in addition to site and building costs.) A rough estimate of 8,000 to 9,500 cubic yards from both Parcels B and C was calculated from only a cursory review of the spatial distribution of existing data. Assuming a removal rate of 1,000 yards per day, the removal would require 8 to 10 working days. The range of volumes and associated costs varies by a large margin due to uncertainty in the estimate.

C. Groundwater Treatment

Groundwater monitoring results from the site show no exceedances of PAL's for PNA compounds. PAL exceedances of arsenic (5.3 ppb) within monitoring well, MW-2B and barium (540 ppb) in monitoring well, MW-1C were detected within the first round of groundwater sampling. These PAL exceedances were not detected within any subsequent sampling event. A PAL exceedance of arsenic (30.0 ppb) was detected within the latest round of groundwater sampling from PZ-1B. This result has not been replicated. Accordingly, there is no justification for an active groundwater treatment system for DRO/PNA and heavy metal constituents. As mentioned throughout this report, groundwater treatment of PCE/TCE is not covered in this RAP.

D. Site Specific Engineering Controls: Remedial Actions Designed To Match Project Objectives - Capping to Minimize Infiltration and Direct Contact Exposures

A viable option for minimizing the direct contact exposure pathway and reducing precipitation induced infiltration is "capping" the site through soil cover, asphalt parking areas and buildings or some combination. The proposed development will cap approximately 27% of Parcel B and 17% of Parcel C with structures and lined detention ponds, and approximately 33% of Parcel B and 32% of Parcel C with asphalt parking surfaces. This results in approximately 57% of the entire site covered by impermeable surfaces. To meet the RAO, the required remedy will also have one foot of soil cover over all green space areas to further minimize direct contact exposures. This effectively caps 100% of the site. An appropriate deed restriction will protect the integrity of the soil cover and other engineered features.

This remedy represents a cost-effective means of minimizing the direct contact exposure route by isolating soils from future contact with humans and the environment. The structures, pavement and the one foot layer of clean soils will provide for separation between the contaminated material and potential contact.

Surface water drainage in the proposed development would be controlled, since clean water will be collected from all engineered surfaces. The green space cover and impermeable surfaces minimize contact of surface water and roof runoff with potentially contaminated soil. Discharges from stormwater outfalls should not be impacted by contaminants from the site.

The extent of the historic spill/release areas located on Parcel C were investigated to see whether or not off-site sources for DRO concentration found on Parcel C exist on the Wisconsin Gas Company NSC or under Custer Avenue. Soil investigations performed on June 8, and 11, 1998, indicate that two of the historic spill/release areas that were identified on Parcel C are not a result of off-site sources and do not extend significantly into off-site areas. In one area (VI), the source area could be on either NSC property or Parcel C. Remediation of DRO impacts will be separately proposed by Wisconsin Gas for their retained property. The remaining defined extents are not significant enough to require any other remedial activities other than the site development plans proposed for Parcels B and C.

VIII. Evaluation of Remedial Action Options

A. "No Action" Alternative

Natural attenuation is the reduction in the concentration and mass of a substance and its degradation compounds in soils or groundwater due to naturally occurring physical, chemical and biological processes without direct intervention or enhancement. The effectiveness of natural attenuation is strongly influenced by the degradability of contaminants, nearby potential receptors, land and aquifer use and potential changes.

Natural attenuation was initially considered as the favored remedial action option for Parcels B and C. The required parameters for natural attenuation were sampled from each monitoring well on Parcels B and C (Tables 4A and 4B). Results from these samples were inconclusive. Natural attenuation will continue to aid in the long term reduction of any residual concentration of naphthalene and the short chain DRO compounds. However, natural attenuation alone will not efficiently reduce the concentrations of long chain PNA compounds that are immobile, do not readily enter into the aqueous phase and do not pass through microbial membranes. However, the same factors that impede biodegradation of the long chain PNA compounds also serve to prevent them from further contaminating groundwater, as shown by the existing conditions at the site where we have long chain PNA compounds in contact with groundwater but do not have PAL or ES exceedances from these compounds. We will evaluate the "no action" option over many criteria.

1. Overall Protection of Human Health and the Environment

   a) Human Health:

   Potential chronic direct contact exposures exist for PNA/DRO compounds on Parcels B and C below the sod to the groundwater table. Natural attenuation in itself will not fully provide for an expedient remedy.

   b) Environmental Protection:

   There are no existing exceedances of NR140 groundwater preventive action limits for the contaminants of concern. The release of the contaminants on Parcels B and C most likely occurred 40 or 50 years ago. Therefore, it is believed that natural attenuation has been occurring for the

last 40 to 50 years. (This may have resulted in the lack of ES exceedances presently documented in groundwater.)

2. Compliance with NR700:

The natural attenuation or "no action" alternative does not meet the site-specific RAO's: 1) the potential for direct contact exposures below the sod depth are not minimized or eliminated; 2) the potential for future groundwater impacts are not addressed; and 3) the land cannot be developed and provide economic value to the community.

3. Long Term Effectiveness and Performance.

a) Magnitude of Residual Risk

Potential exposures to PNA/DRO compounds exist on Parcels B and C within the soil profile which present a potential risk to human health on a chronic direct contact exposure. It is presumed that natural attenuation has already been working on the site for the past 40 to 50 years as reflected by the lack of ES and PAL exceedances of these compounds within groundwater today.

b) Adequacy of Controls (i.e. engineering solutions)

Natural attenuation used alone as a remedial option for Parcels B and C, will not adequately address the chronic direct contact exposure risks that may exist on the site below the sod depth in a timely fashion. However, when used in combination with an engineering control, such as capping the parcels, both the chronic direct contact and the groundwater exposure routes of the soil contaminants of issue on Parcels B and C will be adequately controlled and minimized.

c) Reliability of Controls:

Natural attenuation, used alone as a remedial option for Parcels B and C will not provide an expedient control for the contaminants on site.

4. Reduction of Toxicity, Mobility and Volume Through Treatment

Considering that the contaminants of concern have been present on the site for the last 40 to 50 years, a reduction in toxicity of DRO compounds is

assumed to have already taken place via natural attenuation based on empirical data from groundwater samples collected to date. However, heavier molecular weight PNA compounds remain immobile and resist biodegradation. The toxicity presented by the heavier molecular weight PNA compounds will not be efficiently reduced for the short term.

Natural attenuation, as a remedial process, does not address the arsenic RCL exceedances encountered within soil at depth on Parcels B and C. It is unknown how much if any of the metals contaminant mass has been reduced in the past 40 to 50 years by the process of natural attenuation.

5. Short Term Effectiveness

Natural attenuation, used alone as a remedial option for Parcels B and C, will not fully address the short-term concerns of chronic direct contact exposure risks from PNA compounds found below the sod depth on the site. However, when combined with remedial options designed for immediate effectiveness, such as capping the site with the planned developments, natural attenuation remains a viable, supplemental, long-term remedial alternative for dealing with the organic contaminants on site.

6. Implementability

It can be argued that the processes of natural attenuation as a remedial option have already been implemented at Parcels B and C ever since the contaminants were released at the site.

7. Cost

There are no appreciable continuing costs associated with this remedial option.

B. Evaluation of DRO Impacted Soil Removal Greater Than 100 ppm

The volume of soil to be removed from Parcels B and C that exceeds 100 ppm may range from 8,000 to 9,500 cubic yards. The costs for removing this amount of soil may range from $280,000 to $320,000. The timeframe to remove this

volume of soil, assuming 1,000 cubic yards per day, will take approximately eight to ten working days.

1. Overall Protection of Human Health and the Environment

This alternative would eliminate the risk for direct exposure to soils with significant DRO impacts, especially on Parcel C. Once DRO-contaminated soil is removed and the site covered with clean fill, there would be no risk of exposure through inhalation or ingestion of soil contamination at the site. Similarly, once DRO-contaminated soils are removed, risk of leaching soil contaminants to the water table would be minimized. Soil removal also minimizes the potential for erosion and redeposition of contaminated soils and the possibility for contamination of surface water runoff through contact with contaminated soils. However, risks associated with direct contact exposure to contaminants encountered on-site will not be completely addressed as not all PNA impacted soil would be removed from the site.

2. Compliance with NR700

The site specific soil removal to the 100 ppm DRO concentration RCL does not completely satisfy the RAO or NR700 because: 1) the potential direct contact exposures to PNA's below the sod depth on undisturbed portions of the site are not removed and 2) without capping the backfill, future potential impacts to groundwater are not minimized or eliminated.

3. Long-term Effectiveness and Performance

In both the short- and long-term, a removal action will only be somewhat effective at eliminating future risk. Removal of soil to levels below 100 ppm DRO will not effectively eliminate the potential for direct contact exposure associated with PNA compounds encountered below the sod depth.

4. Reduction of Toxicity, Mobility, and Volume Through Treatment (Or Action)

The removal action reduces the potential on-site toxicity by eliminating those levels that represent unacceptable risks. Remaining contamination should have levels of compounds that do not constitute significant risks to

human health or the environment. The removal action does not change the mobility of the contaminants, only the remaining concentration. However, because of the reduction in volume and mass of contaminants, the potential for impacting other media (air or groundwater) is greatly reduced.

Once 8,000 to 9,500 cubic yards of soil is removed and disposed of, it would be obviously impossible to attempt alternative innovative remedies such as in situ treatment, etc. However, it would be possible to remove additional soils prior to any future development.

5. Short-term Effectiveness

The removal action has the potential to create dust, but standard practices could be used to suppress dust releases from the site. During the removal action, the air space could be monitored to alert and prevent workers from potential adverse exposures.

There should be no significant environmental impacts other than temporary increase in construction traffic related to removal of soils and backfilling. The railroad right-of-way and the rest of the site boundary would be protected by silt fencing to eliminate "construction site" erosion. It is estimated that removal of 8,000 to 9,500 cubic yards of soil would require eight to ten working days. Accordingly, traffic impacts would be expected to last up to two weeks.

6. Implementability

Removal of contaminated soils is a standard method performed by numerous environmental contractors. There are no construction or operational specialties needed once the removal is performed. As stated in our materials handling plan, excavated materials would need to be segregated. Construction debris and rubble would be stockpiled for separate removal, soils would go to a landfill, and any visually impacted soils would be segregated, sampled and evaluated before proper disposal. Any groundwater encountered would be stored, tested and disposed of properly. The reliability of the action is a function of the adequacy of defining the limits of exceedances and performing the removal to those limits.

To implement this removal action, it would be necessary, to coordinate with the WDNR and obtain permission for landfilling greater than 2,500 cubic yards of petroleum impacted soils.

Several solid waste landfills that are approved to accept petroleum impacted soils are available.

7. Cost

The cost to dispose 8,000 to 9,500 cubic yards of contaminated soils could be upwards of $280,000 to $320,000. However, due to the size of the action, costs could drop by 30-50%.

C. Active Groundwater Treatment

This alternative has been selected by the City of Glendale as the remedy for the off-site source of TCE/PCE that has migrated under Parcels A, B and C. This contamination is not the responsibility of Continental and is not addressed in this RAP. The WDNR has issued an off-site source liability exemption to Continental for these contaminants.

In addition, there are no groundwater ES exceedances for contaminants on-site that would require active groundwater treatment. (This does not include potential treatment for tetrachloroethene and related degradation compounds that could be performed on-site by the City of Glendale.)

D. Site Specific Engineering Controls

The senior facility proposed for this approximately 8 acre site (Parcels B and C) will be constructed in two phases. Parcel B will be constructed first. It is unknown at this time when Parcel C will be constructed. Approximately 10,300 cubic yards of fill will be required to match proposed grades on Parcel B, and approximately 9,700 cubic yards will be required for Parcel C. An approximate total of 9,300 and 8,700 cubic yards of clean fill will be imported onto Parcel B and C, respectively. (See Appendix B for detailed cut and fill locations, and precise grading plans). Parcels B and C grading is designed so that no soil is exported from the site.

Grading activities that will occur on-site are shown in a series of cut/fill diagrams given in Appendix B. Included in Appendix B is a site plan schematic

which show those areas that are to remain as green space for the proposed development. The cut/fill diagrams clearly indicate where soil from cut areas (red areas) will be reused as fill (blue areas). An approximate total of 18,000 cubic yards of clean fill will be imported onto Parcels B and C. Soil that is obtained from cut areas is expected to contain very low levels of DRO, and along with some PNA concentrations that exceed published, but extremely conservative, site specific RCL's for chronic direct contract exposures. These contaminants, based upon previous modeling experience and their properties, have been shown to be immobile. Additionally, the chemical characteristics of soil within areas that remain as green space will be unchanged. Therefore, future groundwater impacts are not expected. Additionally, when comparing the cut/fill schematics with the green space areas as depicted on the site plan, it is shown that the green space areas will be covered with a minimum of one foot of clean cover.

The total acres for Parcels B and C are 3.77 acres and 4.78 acres, respectively. For Parcel B, approximately 62% of the total surface area will be covered with impermeable surfaces which consist of asphalt paving, sidewalk paving, lined ponds and the structure itself. The remaining 38% will remain as green space. Likewise for Parcel C, approximately 53% of the total surface area will be covered with impermeable surfaces while the remaining 47% will be green space.

All infrastructure will be sealed against vapor intrusion, and a permeable, vented granular layer will be implaced under the slab. The RAO requires that the remaining 43% (total for Parcels B and C) of green space be covered with a minimum of one foot clean soil layer to minimize direct contact with any of the native soil or fill materials left exposed on the site after grading. This layer of clean soil will also further reduce the potential for contamination of surface water flowing off the site. Our evaluation of different factors and criteria for this alternative follows.

Capping Parcels B and C with the planned senior housing facilities effectively eliminates the potential for direct exposure. Compared to the soil removal option, the positive environmental benefits of this "remedial" alternative will not significantly add to the cost of the development. Additionally, it will minimize precipitation-induced infiltration, which all but eliminates leaching from residual soil impacts and minimizes future groundwater impacts.

The layer of clean soil in the green space areas for each parcel (approximately 20,000 cubic yards of clean fill) compliments a required element of the remedial action. A restriction will be placed with the site deed requiring maintenance of this minimum of one foot thick layer. Furthermore, the restriction will include maintenance of the other engineered controls such as the paved and developed areas. Future alterations of the site that would significantly change the utility and effectiveness of this "cap" would require notification of the WDNR.

In addition to eliminating the direct exposure pathway, the planned development protects groundwater by eliminating about 57% of the potential infiltration surface area of the site (both Parcels B and C). Empirical groundwater data collected at the site suggests that current PNA, heavy metals and DRO impacted soils do not impact groundwater above PAL's. Therefore, active remediation of groundwater is not necessary. Additionally, reduction of the infiltrative surface on both Parcels B and C by over 50% minimizes the potential of future groundwater impacts (in a system that already appears to be in equilibrium). Infiltration is the driving force that transports residual contamination through the soil column to groundwater. Thus, once infiltration is eliminated, the contaminants become even more immobile. This is true of both the organic and inorganic constituents.

For the purpose of evaluating the risk of current DRO concentrations to the environment at the site, DRO can be composed of various constituents. Of those compounds having significant risk to human health and the environment, PNA's are the most significant (in comparison to alkanes). Of those PNA compounds present in significant fractions, naphthalene is the most mobile. In comparison to benzo(a)pyrene (another PNA) which has a solubility of 0.0038 mg/l, the solubility of naphthalene is 9,000 times greater at 34.4 mg/l. Similarly, in comparison to benzo(a)pyrene which has a K_{oc} of 1,158,783 (Barden, 1997), the K_{oc} of naphthalene is 1.012. In other words, naphthalene is much more soluble and much less adsorptive than the other significant compounds in DRO. Accordingly, when considering the significance of the DRO impacts on the site, naphthalene is the principal contaminant used in modeling allowable RCL's.

Naphthalene half lives reported in Howard et. al. (1991) for naphthalene in soil ranged from a low of 16.6 days to a high of 48 days. The range reported for

groundwater had a low of one day and a high of 258 days. In Howard et. al. (1989), naphthalene half lives were "3 hours, 5 hours and greater than 2,000 hours in sediment with high, medium, and low PAH levels, respectively." Similarly, "Biodegradation half lives ranged from 2.4 weeks in sediments chronically exposed to petroleum hydrocarbons, to 4.4 weeks in sediments from a pristine environment."

Filling of this site occurred in the 1950's and early 1960's, 40 to 50 years ago. (Please refer to Document 1). Given the solubility and K_{oc} of naphthalene, any significant impacts from naphthalene have already occurred at the site. In addition, based on GAS' modeling of naphthalene behavior at other sites with similar contaminant characteristics in southeast Wisconsin, the naphthalene impacts were not significant if there was several feet of separation between the contamination and the water table. This separation allowed for biodegradation to reduce the naphthalene levels to such an extent that groundwater impacts did not occur at significant levels. When the naphthalene was modeled as occurring immediately above the water table, there were immediate (during the initial model year) significant groundwater impacts due to leaching. However, even these levels dropped to below PAL's in less than one year.

There currently are no detections of naphthalene in groundwater on Parcels B or C and none are anticipated in the future based on the age of the site and the degradability of naphthalene.

The above considerations justify not using an impermeable infiltration barrier in the green space areas.

- Evaluation of Site Specific Controls - Matched to Project Design

The two-phased senior housing facility design provides the required remedy for the site as it protects human health and the environment as it effectively caps the site surface (62% on Parcel B, 53% on Parcel C) with impermeable materials and as part of the grading plan and the required remedy, covers the remainder of the site (38% on Parcel B, 47% on Parcel C) with a minimum of one foot of clean soils. This construction design acts as a remedial action. The project design achieves the remedial action objective goals of eliminating potential direct contact exposures to PNA's and protection of groundwater. This design also protects sensitive components of the environment. Currently, there are no sensitive receptors (wildlife) in the area other than fauna and flora common to urban green space. In addition,

this remedy further protects Milwaukee River and Lincoln Creek by reducing surface water infiltration to groundwater from the site and will control surface flows off-site. As all surface waters will not be in contact with site soil or mixed with groundwater, only clean surface runoff will leave the site.

1. Compliance with NR700

For Parcel B, approximately 62% of the total surface area will be covered with impermeable surfaces which consist of asphalt paving, sidewalk paving, lined ponds and the structure itself. The remaining 38% will remain as green space. Likewise for Parcel C, approximately 53% of the total surface area will be covered with impermeable surfaces while the remaining 47% will be green space. The minimum one foot of clean soils cover in the green space areas further reduces or eliminates any potential for groundwater impacts and surface water interactions.

In the project location, no shoreland zoning, wetland or special environmental corridor concerns exist.

All permits required for the project will be/have been obtained such as an exemption request for construction on an abandoned fill site and a RAP designed to meet all NR700 criteria (WI statutes) for Act 453 certification (this document).

2. Long-term Effectiveness and Performance

As long as these facilities remain on Parcels B and C, capping permanently reduces the long-term risk to both the environment and human health because it removes approximately 62% of the surface area on Parcel B, and 53% on Parcel C, for infiltrational and eliminates direct contact exposure by covering the remaining 38% on Parcel B and 47% on Parcel C with a minimum of one foot of clean soil. Therefore, 100% of the surface area of the site has been adequately capped to prevent potential groundwater impacts and direct contact exposures. The deed restriction will assure that the minimum one foot of clean soil layer and all engineered controls will be maintained. Similarly, the deed restriction will require inspection and maintenance of the site pavement. The engineered site controls are quite adequate and these design controls have proven extremely reliable in the long term on many sites.

3. Reduction of Toxicity, Mobility, and Volume Through Treatment (Or Action)

In this engineered remedial alternative, no treatment is planned. The two-phased senior housing project design will not reduce the toxicity of any of the compounds. Potential direct contact exposures will be eliminated and groundwater infiltration will be minimized. The PNA's and metals in soil are not currently mobile. Engineering controls will further reduce any small possibility of migration. Once the site is graded and the detention ponds, structures, parking, and landscaping are completed, no other invasive treatment or removals will be necessary.

4. Short-term Effectiveness

The site will have restricted access during construction. Therefore, the public will not have access to or exposure to the site or soils. In addition, workers will wear appropriate PPE and safety equipment commonly used to afford a reasonable standard of care for the levels of potential exposure.

To minimize any environmental impacts to the surroundings during construction, erosion controls will be installed and dust control will be in place. We expect no environmental impacts during this project. We expect site work to begin on Parcel B in Spring 1999.

5. Implementability

The ability to construct and operate this technology (concrete slabs and asphalt) is common across all market areas. These technologies and construction practices are extremely reliable.

Undertaking additional remedial actions by invasive treatment or soil removals will not be practical after construction is completed. The remedy created by the project design will be more conservative than current conditions and will not require monitoring.

Continental and GAS have coordinated extensively with WDNR for permits. Off-site treatment, storage, disposal services, and landfills are readily available. Finally, Continental and their consultants have all the needed equipment and personnel to implement this option.

6. Cost

Total costs for the project are estimated at $8.2 million.

IX. Selection of Remedial Action: Site-Specific Engineering Controls and Limited Removal (Combined with Active In Situ Treatment by the City of Glendale).

It is our intent to select a remedial option or options that achieve restoration of the environment to the extent practicable and minimize any potential risks from contaminants found on site. In addition, these options must be cost effective and achieve the most benefit and protection for the economics involved.

A comparative analysis of these alternatives for the remediation of Parcels B and C is presented in Table 6. All three options were evaluated in detail in Section VIII of this document. A summary ranking score of low to high was assigned in Table 6 to each of the seven criteria used to evaluate each option.

Referring to Table 6, it is evident that the only alternative that is considered to completely comply with NR140 and NR700 of Wis. Admin. Code is the site specific engineering control. All alternatives provide long-term effectiveness for controlling and eliminating the potential for groundwater impacts associated with the contaminants encountered on Parcels B and C. However, the no action alternative (natural attenuation) does not efficiently address short-term effectiveness issues compared to soil removal or site specific engineering controls for the overall protection of human health and the environment.

When comparing soil removal of greater than 100 ppm DRO versus the use of site specific engineering controls, the main differences are implementation, cost and addressing potential exposure risk by eliminating direct exposure to PNA. Soil removal to 100 ppm will be hard to implement ("Low") and will cost a significant amount of funds as compared to the average implementability and the cost of using the planned development as the site specific engineering control. Both of these alternatives will address the reduction of toxicity and mobility of the DRO contaminants. However, using the planned development as a site specific engineering control will greatly reduce or eliminate infiltration into deeper impacted soils on Parcels B and C. This will increase the amount of time necessary for continued reduction of volume of the contaminants as compared to the soil removal option. Additionally, the removal of DRO impacted soils to a level of 100 ppm does not meet direct contact exposure protection requirements for all PNA's and metals.

We believe that the project design itself, involving capping by structures and parking areas, elimination of infiltration, control of surface water flows, no soil removal from the site required in grading activities and excavation of the detention pond and lining it with an impermeable geomembrane provides the maximum human health and environmental protection. This project also returns the land to beneficial, economically viable reuse in the community.

X. Risk Assessments

The risk assessment of the site was performed based on the site conditions known by GAS as of July 1998. The levels of detected compounds were considered in reference to promulgated or published values for protection of the environment (NR140, NR720 and Barden, 1997) and human health (NR720 and Barden, 1997). The assessment considered the type of compound, depth of occurrence in soils, current use and the future development of the site. For groundwater, potential groundwater use and sensitive receptors evaluated in previous sections of this text have presented the result of the assessment, but will also be summarized here.

There is some potential for ingestion/inhalation of PNA/DRO/Heavy Metals from subsurface impacted soils on Parcels B and C during development activities. Therefore, PNA concentrations were evaluated for human health risks based on chronic direct contact exposures. Significant PNA concentrations have been detected from soil samples collected throughout Parcels B and C at sampling intervals ranging from below the sod to a depth of 2 feet extending to 10-12 feet bgs. As a conservative measure, PNA concentrations were evaluated based upon published residual contaminant levels (RCL's) for a non-industrial scenario (Barden, 1997) which are based on a target risk of $1.0E^{-07}$ or a hazard quotient of 0.2, consistent with those in s. NR720.11, Wis. Admin. Code. Those RCL's are for PNA's under a non-industrial scenario (Barden, 1997). These levels are an order of magnitude more conservative than the standards stipulated under NR720.19, Wis. Admin. Code.

Health risk-based concentrations for DRO in soil were also evaluated based upon the reasonable maximum exposure (RME). Based upon the assumptions for a RME, a risk-based concentration for diesel fuel in soil was estimated at 1,166 ppm. This concentration represents a combination of both the ingestion and inhalation chronic, direct contact exposures.

Additionally, concentrations of inorganics were evaluated based upon human health risk from direct contact related to land use as per s. NR720.11 Wis. Admin. Code. In a non-industrial scenario, concentrations in excess of 0.039 ppm for arsenic and 50.0 ppm for lead are considered a direct contact human health risk.

XII. Implementation of Selected Remedial Option

A. Rationale

This remedy represents the most comprehensive protection of human health and the environment coupled with creative and economically viable reuse of "brownfield" lands.

B. Approximate Total Cost

The cost of site grading will be approximately $800,000. There will be no costs for excavation, transport, and disposal of contaminated soils. Building construction costs will be around $4.9 million. Total construction costs for Parcels B and C could reach $8.2 million.

C. Estimated Timeframe and Schedules

The pad is the first priority in site activities, but the site must be prepared first with fencing, truck access, perimeter and erosion controls. Site clearing may take about two weeks. Rough grading and excavation of the detention ponds may take up to four weeks. As on Parcel A, we plan on excavating soils from the detention pond areas and capping them under the main foundation slabs. The slab areas will be graded to allow for the granular venting layer to be placed under the slab and perimeter footings.

D. Performance Criteria

We will have construction oversight personnel on-site to make sure that remedial design features such as granular layers, vent piping, sealed infrastructure and completion of the required green space cover of a minimum one foot of soil cover are completed to specifications. These features will be protective of human health and the environment.

E. Treatment and Handling of Residuals

All construction debris (see MHP) will be separated and sent for appropriate disposal. Impacted groundwater is not expected to be encountered.

References

Barden, M.J., 1997, "Supplementary Information for Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs)", Interim Guidance: www.dnr.state.wi.us/org/aw/rr/errhw/pah_supl.exe.

Howard, P.H., Boethling, R.S., Iarvis, W.F., Meylan, W.M. and Michalenko, E.M., *Handbook of Environmental Degradation Rates*, Lewis Publishers: Chelsia, Michigan, 1991, p.260.

Howard, P.H., *Handbook of Environmental Fate and Exposure Data for Organic Chemcials*, Volume 1, Lewis Publishers: Chelsia, Michigan, 1989, p.408-420.

Illinois Pollution Control Board 1997. Tired Approach to Corrective Action Objectives: 35 Ill. Admin. Code Part 742, Appendix A.

Millner, G.C., James, R.C. and Nye, A.C., 1992. "Human Health Based Soil Cleanup Guidelines for Diesel Fuel No. 2", *Journal of Soil Contamination*, Volume 1, No. 2, Lewis Publishers: pp.103-157.

APPENDIX A
Arcadis Geraghty & Miller Data

Table 1. Summary of DRO Results from Soil Samples, Wisconsin Gas Company, North Service Center, Glendale, Wisconsin.

Depth Interval (feet)	Parcel C						
	GMGP-12 02/26/98	GMGP-13 02/26/98	GMGP-14 02/26/98	GMGP-15 02/26/98	GMGP-16 02/26/98	GMGP-17 02/26/98	GMGP-18 02/26/98
0-2	160	NA	45	110	93	91	530
2-4	<4.1	NA	73	140	150	290	1700
4-6	23	NA	420	110	48	95	47
6-8	8.8	NA	33	140	30	240	4600
8-10	<4.1	770	12	6.2	20	400	NS

All DRO concentrations are in milligram per kilogram (mg/kg).

NA Not analyzed.

NS Not sampled due to refusal.

Table 1. Summary of DRO Results from Soil Samples, Wisconsin Gas Company, North Service Center, Glendale, Wisconsin.

Depth Interval (feet)	Parcel A								
	GMGP-19 02/26/98	GMGP-20 02/26/98	GMGP-21 02/26/98	GMGP-22 02/26/98	GMGP-23 02/26/98	GMGP-24 02/26/98	GMGP-25 02/27/98	GMGP-26 02/27/98	GMGP-27 02/27/98
0-2	51	73	130	56	75	27	7.6	20	130
2-4	85	730	14	84	960	64	79	30	41
4-6	88	580	6.6	150	71	2400	240	27	4.9
6-8	8.1	190	5.2	6.9	100	NS	500	80	22
8-10	<5	430	7.7	270	26	NS	NS	190	620

All DRO concentrations are in milligram per kilogram (mg/kg).

NS Not sampled due to refusal.

Table 1. Summary of DRO Results from Soil Samples, Wisconsin Gas Company, North Service Center, Glendale, Wisconsin.

Depth Interval (feet)	Parcel A							
	GMGP-28 02/27/98	GMGP-29 02/27/98	GMGP-30 02/27/98	GMGP-31 02/27/98	GMGP-32 02/27/98	GMGP-33 02/27/98	GMGP-34 02/27/98	GMGP-35 02/27/98
0-2	50	170	210	4.4	12	1800	270	170
2-4	20	13	26	5.7	31	280	67	880
4-6	23	<4.2	63	160	220	610	54	39
6-8	43	<4.5	36	27	190	2200	73	27
8-10	<4.5	<4.2	NS	NS	NS	NS	NS	5.2

All DRO concentrations are in milligram per kilogram (mg/kg).

NS Not sampled due to refusal.

Table 3. Summary of DRO and VOC Results from Groundwater Samples, Wisconsin Gas Company, North Service Center, Glendale, Wisconsin.

	Parcel A					Parcel B				Parcel C
Well Name	MW-1A	MW-2A	MW-3A	MW-4A	PZ-1A	MW-1B	MW-99**	MW-2B	PZ-1B	MW-1C
Sample Date	3/3/98	3/3/98	3/3/98	3/4/98	3/4/98	3/3/98	3/3/98	3/4/98	3/3/98	3/4/98
DRO	100	<100	190	<100	<100	<100	<100	<100	<100	<100
VOCs*										
1,1-Dichloroethane	<0.41	<0.41	<0.41	<0.26	<0.26	<0.41	<0.41	<0.26	<0.41	0.39 Q
1,1-Dichloroethene	<0.56	<0.56	<0.56	<0.28	<0.28	<0.56	<0.56	0.46 Q	<0.56	<0.28
Chloroethane	<1.1	<1.1	<1.1	<0.25	<0.25	<1.1	<1.1	<0.25	<1.1	23
cis-1,2-Dichloroethene	1.3 Q	120	15	60	14	190	190	180	3.3	<0.28
Methyl-tert-butyl-ether	<0.5	<0.5	<0.5	<0.53	<0.53	<0.5	<0.5	<0.53	<0.5	7.7
Naphthalene	<0.44	<0.44	0.44 Q	<0.66	<0.66	<0.44	<0.44	<0.66	<0.44	<0.66
Tetrachloroethene	<0.44	150	11	<0.27	2.4	<0.44	<0.44	<0.27	<0.44	<0.27
trans-1,2-Dichloroethene	<0.55	2.4	10	2.7	0.50 Q	1.7 Q	1.6 Q	2.2	<0.55	<0.25
Trichloroethene	<0.38	11	3.5	<0.2	0.72	<0.38	<0.38	0.35 Q	<0.38	<0.2
Vinyl chloride	<0.63	0.93 Q	<0.63	7.5	0.23 Q	29	30	19	<0.63	<0.23

VOC Volatile Organic Compounds.

DRO Diesel Range Organics.

Only those VOCs which were detected in one or more wells/piezometers sampled are listed in this table.

All results are in µg/L.

Q The analyte has been detected between the Limit of Detection (LOD) and Limit of Quantification (LOQ). The results are qualified because of uncertainty of analyte concentration within this range.

* Duplicate of MW-1B.

Table 4. Summary of PAH Results in Groundwater Samples, Mobile Service Center of Wisconsin Gas Company in Glendale, Wisconsin.

	Parcel A					Parcel B				Parcel C
Well Name	MW-1A	MW-2A	MW-3A	MW-4A	PZ-1A	MW-1B	MW-99**	MW-2B	PZ-1B	MW-1C
Sample Date	3/3/98	3/3/98	3/3/98	3/4/98	3/4/98	3/3/98	3/3/98	3/4/98	3/3/98	3/4/98
PAH*										
1-Methylnaphthalene	<0.023	<0.023	0.18	<0.023	<0.025	0.034 Q	<0.023	<0.023	<0.023	0.049 Q
2-Methylnaphthalene	<0.023	<0.023	0.36	<0.023	<0.025	<0.023	<0.023	<0.023	<0.023	<0.023
Acenaphthene	<0.25	<0.25	0.45 Q	0.32 Q	<0.27	<0.25	<0.25	<0.25	<0.25	<0.25
Anthracene	<0.0015	<0.0015	0.024	0.03	<0.0016	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Chrysene	<0.0029	<0.0029	<0.0029	0.0073 Q	<0.0031	<0.0029	<0.0029	<0.0029	<0.0029	<0.0029
Fluoranthene	<0.021	<0.021	<0.021	0.27	<0.022	<0.021	<0.021	<0.021	<0.021	<0.021
Fluorene	<0.013	<0.013	0.2	0.2	<0.013	<0.013	<0.013	<0.013	<0.013	0.055
Naphthalene	0.029 Q	0.086	0.84	0.31	<0.028	0.054 Q	0.057 Q	0.053 Q	0.16	0.5
Phenanthrene	<0.014	<0.014	0.022 Q	<0.014	<0.015	<0.014	<0.014	0.016 Q	0.059	0.042 Q
Pyrene	<0.0078	<0.0078	<0.0078	0.17	<0.0084	<0.0079	<0.0078	<0.0078	<0.0078	<0.0079

PAH Polynuclear Aromatic Hydrocarbons.

* Only those PAHs which were detected in one or more wells/piezometers sampled are listed in this table.

All results are in µg/L.

Q The analyte has been detected between the Limit of Detection (LOD) and Limit of Quantification (LOQ). The results are quantifed because of uncertainty of analyte concentration within this range.

** Duplicate of MW-1B.

Table 5. Summary of Metals in Groundwater Samples, Wisconsin Gas Company, North Service Center, Glendale, Wisconsin

	Parcel A					Parcel B				Parcel C
Well Name	MW-1A	MW-2A	MW-3A	MW-4A	PZ-1A	MW-1B	MW-99**	MW-2B	PZ-1B	MW-1C
Sample Date	3/3/98	3/3/98	3/3/98	3/4/98	3/4/98	3/3/98	3/3/98	3/4/98	3/3/98	3/4/98
RCRA Metals										
Arsenic - Dissolved	1.4 Q	<0.53	1.0 Q	<0.53	1.3 Q	<0.53	<0.53	<0.53	30	<0.53
Barium - Dissolved	130	160	250	160	73	140	150	300	94	490
Chromium - Dissolved	<0.53	<0.53	<0.53	<0.53	0.67 Q	<0.53	1.5 Q	<0.53	<0.53	<0.53
Lead - Dissolved	<0.88	0.90 Q	<0.88	<0.88	<0.88	<0.88	0.90 Q	<0.88	0.90 Q	0.90 Q
Selenium - Dissolved	0.60 Q	5.1	2.3	1.0 Q	0.90 Q	<0.44	<0.44	<0.44	<0.44	0.70 Q
Silver - Dissolved	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	0.64 Q	<0.58	0.77 Q	<0.58

Only those RCRA metals which were detected in one or more wells/piezometers sampled are listed in this table.
All results are in µg/L.

Q The analyte has been detected between the Limit of Detection (LOD) and Limit of Quantification (LOQ). The results are quantified due to the uncertainty of analyte concentration within this range.

** Duplicate of MW-1B.

APPENDIX B

Soil Grading Plan - Parcels B and C

Senior Housing Project
Glendale, Wisconsin
Approximate Cut/Fill Quantities
7-31-98

	Strip Topsoil (c.y.)	Cut (c.y.)	Fill (Truck c.y.)	Import (Truck c.y.)
Parcel "B" (East)	1,400	1,000	10,300	9,300
Parcel "C" (West)	1,600	1,000	9,700	8,700
***Total**	3,000	2,000	20,000	18,000

Notes:

*Quantities are approximate

**Item 2 on the Sunnyslope Grading letter added a pond in the courtyard of the building on Parcel C. This is incorrect. There is no pond in the courtyard of the building on Parcel C.

Sunny Slope Grading, Inc.

May 29, 1998

Bob Dakovich
Continental Properties Company, Inc.

Ref: Glendale Senior Housing

Dear Bob:

We have reviewed the above referenced proposed project and offer the following comments.

1. The site was visited and it appears to be some type of former landfill. One hand test hole was dug to determine topsoil depth. The only hole we dug had 11.5 inches of topsoil over what appeared is a clay cap. We used 12 inches of topsoil stripping in our estimate.
2. The attached "Exhibit 1" indicates the cut and fill locations on site. The symmetrical design of the two phases led us to believe that a pond was erroneously omitted in the courtyard of the west building. As you can see from the exhibit, we added in another pond.
3. The attached "Exhibit 2" shows a three-dimensional view of the total sitework.
4. The next item, "Exhibit 3 shows the volumes for the total site. The total cut is 3,116 and fill with 15% shrinkage is 20,780. The total site is 17,664 cubic yards short.
5. The summary report by item is "Exhibit 4". This report shows the structural fill required by indicated item. For example, the west building requires 2,757 yards and the west parking requires 3,166 yards. The difference between exhibit 3 and exhibit 4 is the possible non-structural areas.
6. "Exhibit 5" indicates areas and volumes within the areas.
7. The last item, "Exhibit 6", is a site balance report. The site will balance at minus 1.21 feet, but this does not account for foundation and utility spoil. The proper balance point is closer to minus 12 inches.

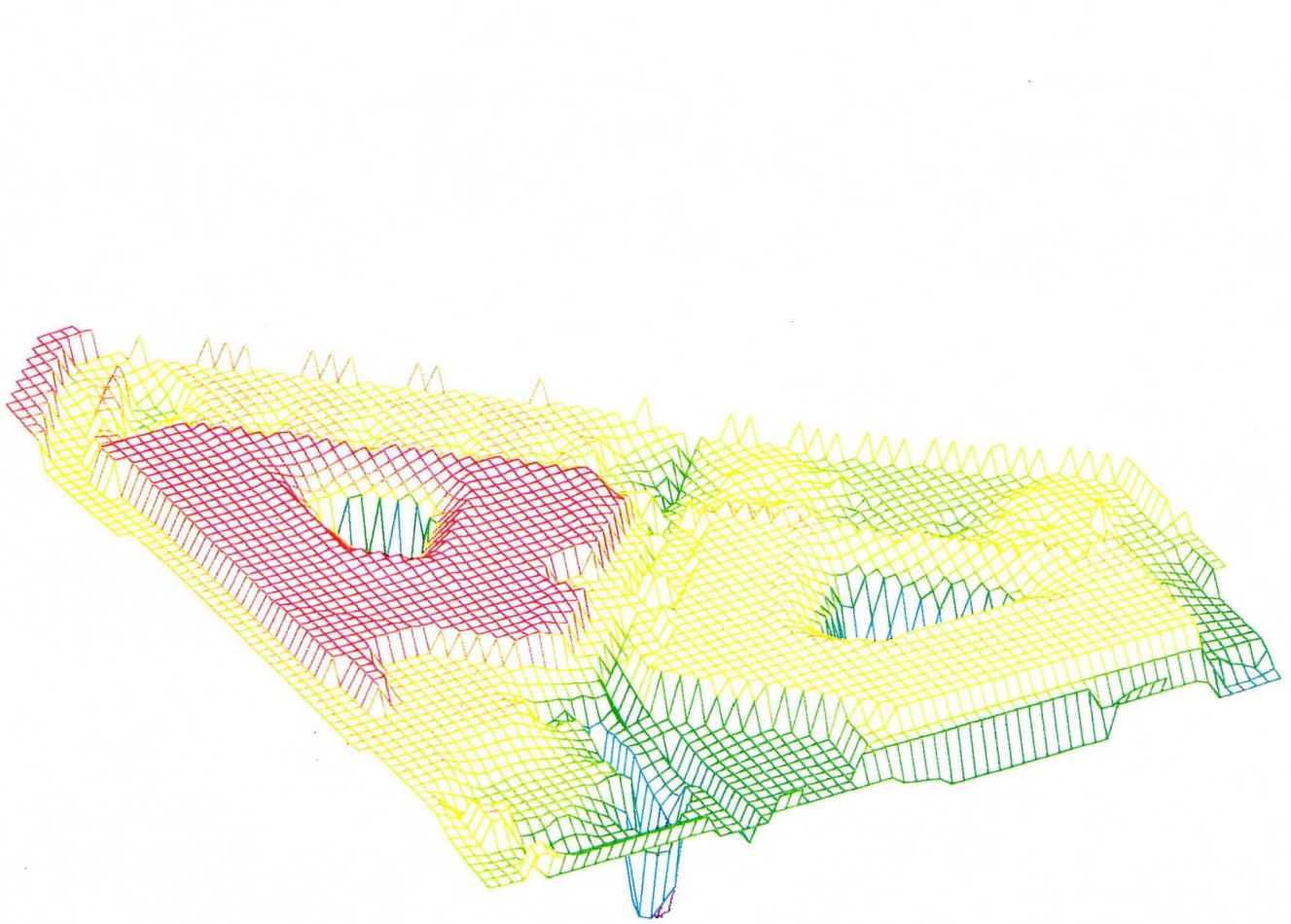
Please call if you have any questions.

Very truly yours;
Sunny Slope Grading, Inc.

John A. Christiansen
Vice President

2185 S. Danny Road • New Berlin, WI 53146
Phone (414) 544-0100 • Fax (414) 544-1219

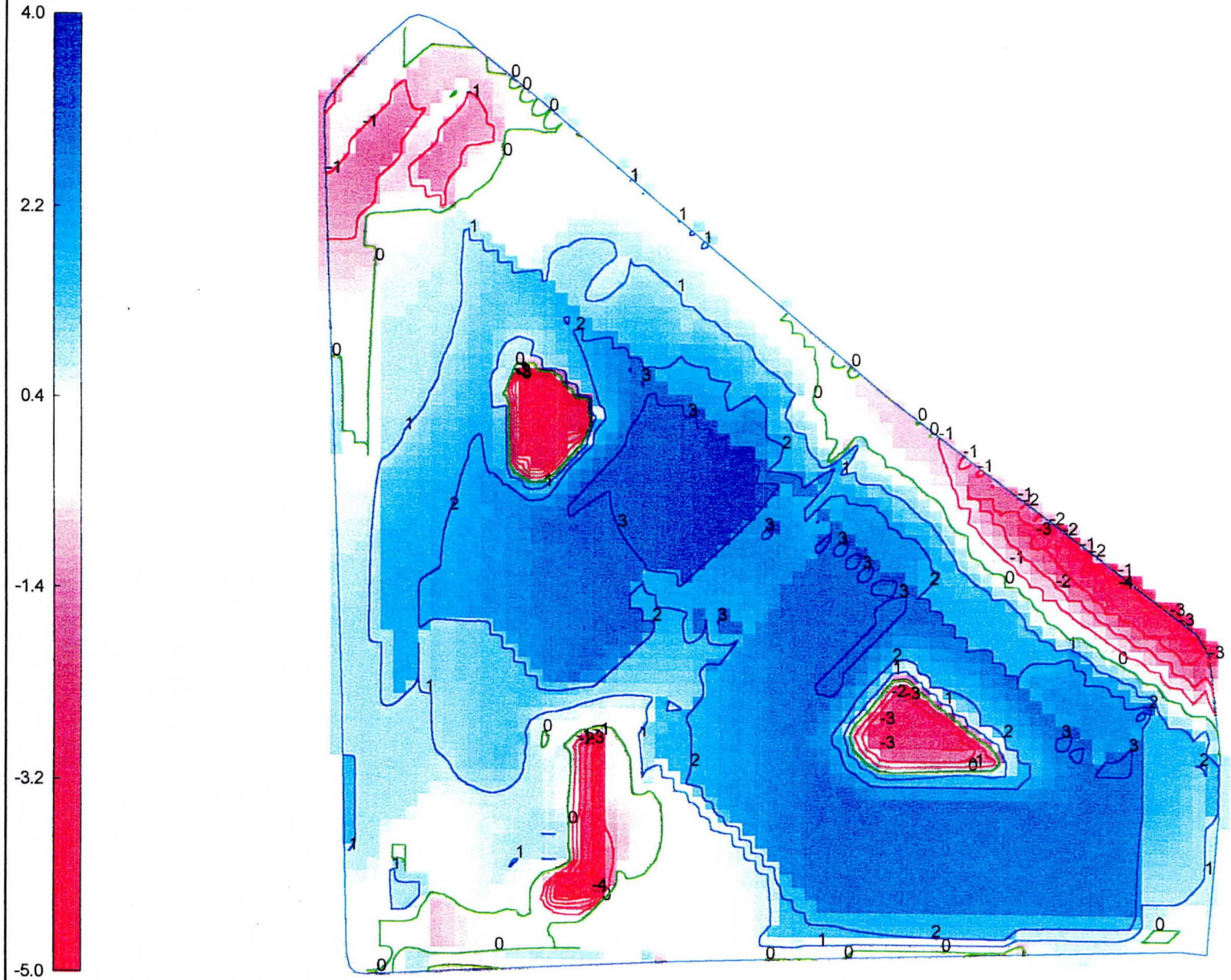
EXHIBIT 2



ROT: 29° INC: 33° EXG: 20.0

Sunny Slope Grading, Inc.
Sunny Slope Grading, Inc.
2185 S. Danny Rd.
New Berlin, WI 53146

3-D Views Report
GLENDALE: Glendale Senior Housing
5-12-98
Proposed
May 20, 1998 08:53 AM

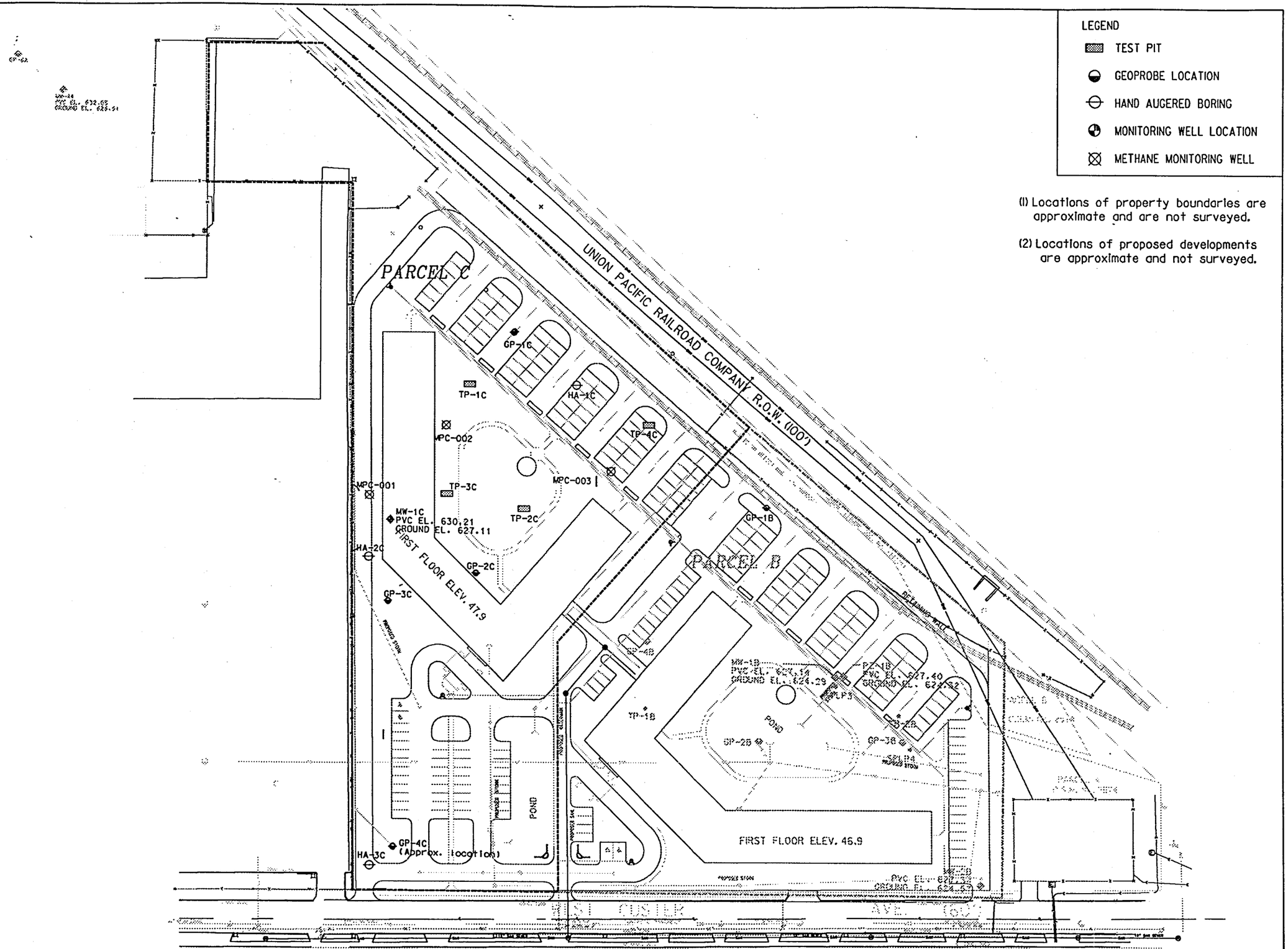


0 120 240

Sunny Slope Grading, Inc.
Sunny Slope Grading, Inc.
2185 S. Danny Rd.
New Berlin, WI 53146

Cut/Fill Locations Report
GLENDALE: Glendale Senior Housing
5-12-98
Existing vs. Proposed
May 20, 1998 - 08:56 AM

EXHIBIT 1



LEGEND

- TEST PIT
- GEOPROBE LOCATION
- HAND AUGERED BORING
- MONITORING WELL LOCATION
- METHANE MONITORING WELL

(1) Locations of property boundaries are approximate and are not surveyed.

(2) Locations of proposed developments are approximate and not surveyed.

GRAEF ANHALT SCHLOEMER and Associates Inc.
ENGINEERS & SCIENTISTS

ENVIRONMENTAL SERVICES DIVISION

OTHER OFFICES LOCATED AT:

GREEN BAY, WISCONSIN
MADISON, WISCONSIN
CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

GEOPROBE, MONITORING WELL AND TEST PIT LOCATION MAP PARCEL C

PHASE III
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

N

0 50 100

PROJECT NUMBER:	977517.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\FIG2B.DGN
SCALE:	1" = 100'
REVISED:	05-06-98

FIGURE 2B

Sunny Slope Grading, Inc.
Sunny Slope Grading, Inc.
2185 S. Danny Rd.
New Berlin, WI 53146

Project Material Totals by Group

	Boundary (ft)	Area (sq ft)	Volume (cu yd)	Conversion Factor	Converted Volume
Drawings: 5-12-98; Grade					
Subgrade	9382.52	227579.99	5998.09	1.00	5998.09
Topsoil	3500.35	347385.27	12866.12	1.00	12866.12

Project Excavation Totals for Selected Areas of Interest

	Tight Cut (cu yd)	Tight Fill (cu yd)	% Cut Swell (cu yd)	% Fill Shrink (cu yd)	Adjusted Cut (cu yd)	Adjusted Fill (cu yd)
5-12-98: Existing vs. Proposed						
Grade	3116.37	18069.97	0.00	15.00	3116.37	20780.46
Project Total:	**3116.37**	**18069.97**	**0.00**	**15.00**	**3116.37**	**20780.46**
Import:		14953.60				17664.09

EXHIBIT 3

Sunny Slope Grading, Inc.
Sunny Slope Grading, Inc.
2185 S. Danny Rd.
New Berlin, WI 53146

	Tight Cut (cu yd)	Tight Fill (cu yd)	% Cut Swell (cu yd)	% Fill Shrink (cu yd)	Adjusted Cut (cu yd)	Adjusted Fill (cu yd)
Drawings: 5-12-98						
Existing vs. Proposed						
Area of Interest: Grade	3116.37	18069.97	0.00	15.00	3116.37	20780.46
Topsoil						
Strip West	1569.60	8545.33	0.00	15.00	1569.60	9827.13
Strip East	1411.27	9444.34	0.00	15.00	1411.27	10860.99
Total: Topsoil	**2980.87**	**17989.66**	**0.00**	**15.00**	**2980.87**	**20688.11**
Subgrade						
West Parking	979.75	2753.44	0.00	15.00	979.75	3166.45
East Parking	863.70	2256.75	0.00	15.00	863.70	2595.26
West Building	0.00	2397.45	0.00	15.00	0.00	2757.07
East Building	0.00	3463.18	0.00	15.00	0.00	3982.66
Total: Subgrade	**1843.45**	**10870.82**	**0.00**	**15.00**	**1843.45**	**12501.44**

Selected AOIs Total

5-12-98: Existing vs. Proposed						
Grade	3116.37	18069.97	0.00	15.00	3116.37	20780.46
Project Total:	**3116.37**	**18069.97**	**0.00**	**15.00**	**3116.37**	**20780.46**
Import:		14953.60				17664.09

EXHIBIT 4

Sunny Slope Grading, Inc.
Sunny Slope Grading, Inc.
2185 S. Danny Rd.
New Berlin, WI 53146

	Data Type	Elevation (ft)	Thickness (ft)	Boundary (ft)	Area (sq ft)	Volume (cu yd)
Drawings: 5-12-98; Grade						
Topsoil						
Strip West	LYR		1.00	1992.85	201809.15	7474.41
Strip East	LYR		1.00	1507.50	145576.12	5391.71
TOTALS: Topsoil				**3500.35**	**347385.27**	**12866.12**
Subgrade						
West Parking	LYR		1.00	3959.55	104519.00	3871.07
East Parking	LYR		1.00	2974.98	57429.55	2127.02
West Building	STR	46.90	0.00	1217.45	32669.79	0.00
East Building	STR	45.90	0.00	1230.55	32961.66	0.00
TOTALS: Subgrade				**9382.52**	**227579.99**	**5998.09**

Project Totals for Material Groups			
Subgrade	9382.52	227579.99	5998.09
Topsoil	3500.35	347385.27	12866.12

EXHIBIT 5

Sunny Slope Grading, Inc.
Sunny Slope Grading, Inc.
2185 S. Danny Rd.
New Berlin, WI 53146

Drawing: 5-12-98
Area of Interest: Grade
Surfaces: Existing vs. Proposed

Cut Swell Percentage: 0%
Fill Shrink Percentage: 15%
Balance Site to 0.00 cu yd.

Raise/Lower Surface	Cut (cu yd)	Fill (cu yd)	Cut/Fill (cu yd)
0.00	3116.37	20780.46	-17664.09
-1.34	9479.22	7620.27	1858.95
-1.21	8592.61	8552.64	39.96
-1.21	8573.88	8573.52	0.36

Lower the Proposed Surface by 1.21 ft.

No Sloping Areas were Locked
No Structures were Locked

EXHIBIT 6

Table 1
Summary of DRO Results
Parcel C
Continental 87 Fund LLC
Wisconsin Gas Company
North Service Center
5400 North Green Bay Road
Glendale, Wisconsin

Sampling Interval (ft)	SBC-1	SBC-2	SBC-3	SBC-4	SBC-5	SBC-6	SBC-7	SBC-8	SBC-9
0-2	120.0	<10.0	<10.0	<10.0	<10.0	<10.0	11.0	<10.0	<10.0
2-4	460.0	<10.0	<10.0	20.0	16.0	<10.0	<10.0	92.0	<10.0
4-6	NS	<10.0	NS	29.0	<10.0	<10.0	<10.0	<10.0	<10.0
6-8	NS	31.0	NS	67.0	<10.0	NS	<10.0	<10.0	<10.0
8-10	NS	<10.0	NS	<10.0	NS	<10.0	<10.0	150	13

Note:
All detections are shaded.
All DRO concentrations are expressed in milligrams per kilogram (ppm).
NS Not sampled due to geoprobe^{tm} refusal.

TABLE 2A
Soil Analytical Results, Geoprobe, Hand Auger, and Monitoring Well
Parcel B
Continental 85 Fund LLC
Glendale, WI
September 30 - November 10, 1997

Analyte	Unit	Residual Contaminant Level*	GP-1B SS-4 6-8 ft.	GP-1B SS-6 10-12 ft.	GP-2B SS-4 6-8 ft.	GP-2B SS-6 10-12 ft.	GP-3B SS-5 8-10 ft.	GP-3B SS-6 10-12 ft.	GP-4B SS-4 6-8 ft.	GP-4B SS-6 10-12 ft.	MW-1B SS-3 4-6 ft.	MW-1B SS-6 10-12 ft.	MW-2B SS-5 8-10 ft.	MW-2B SS-6 10-12 ft.	HA-1B SS-1 ***	HA-2B SS-1 ***	HA-3B SS-1 ***
DRO (WI Modified DRO)	mg/kg	100 mg/kg	**5.9**	**6.5**	<7.4	<5.4	<5.6	**6.9**	<6.1	**9.3**	**265(H)**	<5.6	<5.7	<5.9	NT	NT	NT
VOCs (EPA 8260)																	
Cis-1,2 Dichloroethene	µg/kg	NL	<27.0	<31.0	**49.0**	**32.0**	**48.0**	**154.0**	<30.0	<31.0	<32.0	**169.0**	<28.0	**47.0**	NT	NT	NT
Napthalene	µg/kg	400/20,000	**46.0**	<31.0	<37.0	<27.0	<28.0	<27.0	<30.0	<31.0	<32.0	<28.0	<28.0	<29.0	NT	NT	NT
PNA's (EPA 8310)																	
Anthracene	mg/kg	3,000/5,000**	<0.0054	<0.0062	<0.0074	<0.0054	**0.0067**	<0.0055	<0.0061	<0.0063	**0.227**	<0.0056	<0.0057	<0.0059	**0.224**	**2.87**	**0.234**
Benzo(a)anthracene	mg/kg	17/0.088**	<0.0054	<0.0062	**0.024**	<0.0054	**0.033**	<0.0055	<0.0061	<0.0063	**0.265**	<0.0056	**0.0089**	<0.0059	**1.01**	**9.17**	**0.58**
Benzo(b)fluoranthene	mg/kg	360/0.088**	<0.0054	<0.0062	**0.013**	<0.0054	**0.017**	<0.0055	<0.0061	<0.0063	**0.093**	<0.0056	<0.0057	<0.0059	**0.471**	**0.331**	**0.234**
Benzo(k)fluoranthene	mg/kg	870/0.88**	<0.0054	<0.0062	**0.008**	<0.0054	**0.0068**	<0.0055	<0.0061	<0.0063	**0.1**	<0.0056	<0.0057	<0.0059	**0.572**	**1.66**	**0.284**
Benzo(a)pyrene	mg/kg	48/0.0088**	<0.0054	<0.0062	**0.024**	<0.0054	**0.034**	<0.0055	<0.0061	<0.0063	**0.202**	<0.0056	<0.0057	<0.0059	**1.09**	**0.939**	**0.481**
Benzo(g,h,i)perylene	mg/kg	6,800/1.8**	<0.0054	<0.0062	**0.027**	<0.0054	**0.031**	<0.0055	<0.0061	<0.0063	**0.164**	<0.0056	<0.0057	<0.0059	**1.02**	**5.97**	**0.419**
Chrysene	mg/kg	37/8.8**	<0.0054	**0.009**	**0.021**	<0.0054	**0.028**	<0.0055	<0.0061	<0.0063	**0.177**	<0.0056	**0.0062**	<0.0059	**0.774**	**6.74**	**0.444**
Fluoranthene	mg/kg	500/600**	<0.011	<0.012	**0.043**	<0.011	**0.054**	<0.011	<0.012	<0.012	**0.758**	<0.011	**0.014**	<0.012	**2.02**	**24.3**	**1.21**
Fluorene	mg/kg	100/600**	<0.011	<0.012	<0.015	<0.011	<0.001	<0.011	<0.012	<0.012	**0.189**	<0.011	<0.011	<0.012	**0.382**	**3.76**	**0.096**
Indeno(1,2,3-cd)pyrene	mg/kg	680/0.088**	<0.0054	<0.0062	**0.019**	<0.0054	**0.021**	<0.0055	<0.0061	<0.0063	**0.11**	<0.0056	<0.0057	<0.0059	**0.696**	**3.76**	**0.296**
2-Methylnaphthalene	mg/kg	20/600**	<0.027	<0.031	<0.037	<0.027	<0.028	<0.027	<0.03	<0.031	<0.032	<0.028	<0.028	<0.029	<0.042	<0.028	<0.046
Naphthalene	mg/kg	0.4/20**	<0.032	<0.038	<0.044	<0.033	<0.033	<0.033	<0.036	<0.038	<0.038	<0.034	<0.034	<0.035	<0.51	<0.033	<0.056
Phenanthrene	mg/kg	1.8/18**	<0.0054	<0.0062	**0.014**	<0.0054	<0.017	<0.0055	<0.0061	<0.0063	**0.455**	<0.0056	<0.0057	<0.0059	**0.831**	**8.51**	**0.641**
Pyrene	mg/kg	8,700/500**	<0.0054	**0.0074**	**0.046**	<0.0054	**0.053**	<0.0055	<0.0061	<0.0063	**0.467**	<0.0056	**0.01**	<0.0059	**1.80**	**18.80**	**0.912**

NOTES:
Only those compounds that exceeded detection limits are listed.
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
VOC = Volatile Organic Compounds
NL = No Residual Contaminant Level Listed in NR 720
PNA = Polynuclear Aromatic Hydrocarbons
Bold Text = Compound detected
Light Shaded Cell = Compound concentration exceeds the Residual Contaminant Level, or Interim Limit for PNAs
NT = Not Tested
(H) = Late eluding hydrocarbons

*Residual Contaminant Level assumes permeability >$1x10^{-6}$ cm/sec. and non-industrial land use.

**First value for protection of groundwater, second value for direct contact (non-industrial), interim standards for PNAs.

WDNR Interim Guidance Document (PAH Soils), WDNR Pub. RR-519-97, Apr. 1997
Samples analyzed by NET Laboratories, Watertown, WI

*** Composite hand auger samples were collected from below sod depth to a depth of two feet bgs.

TABLE 2B
Soil Analytical Results, Geoprobe, Hand Auger, and Monitoring Well
Parcel C
Continental 85 Fund LLC
Glendale, WI
September 30 - November 10, 1997

Analyte	Unit	Residual Contaminant Level*	GP-1C SS-4 6-8 ft.	GP-1C SS-6 10-12 ft.	GP-2C SS-5 8-10 ft.	GP-2C SS-6 10-12 ft.	GP-3C SS-4 6-8 ft.	GP-3C SS-6 10-12 ft.	GP-4C SS-3 4-6 ft.	GP-4C SS-6 10-12 ft.	MW-1C SS-5 8-10 ft.	MW-1C SS-6 10-12 ft.	HA-1C SS-1 ***	HA-2C SS-1 ***	HA-3C SS-1 ***
DRO (WI Modified DRO)	mg/kg	100 mg/kg	**8.7**	<6.0	<6.3	<6.0	**535(H)**	NT	**36.0(H)**	**10.0(H)**	**10.0**	<6.0	NT	NT	NT
VOCs (EPA 8260)															
Benzene	µg/kg	5.5	<30.0	<30.0	<31.0	<30.0	**31.0**	<30.0	<28.0	<30.0	<29.0	<30.0	NT	NT	NT
Ethylbenzene	µg/kg	2,900	<30.0	<30.0	<31.0	<30.0	<28.0	<31.0	<28.0	<30.0	<29.0	<30.0	NT	NT	NT
Methylene Chloride	µg/kg	NL	<59.0	<60.0	<63.0	<60.0	<57.0	<59.0	<56.0	<59.0	**208.0(L)**	<60.0	NT	NT	NT
Napthalene	µg/kg	NL	<30.0	<30.0	<31.0	<30.0	**194.0**	**34.0**	**74.0**	**34.0**	**936.0**	**52.0**	NT	NT	NT
PNA's (EPA 8310)															
Anthracene	mg/kg	3,000/5,000**	**0.058(M)**	<0.006	**0.014**	<0.006	**0.205**	NT	**0.225**	**1.12**	**1.62**	<0.006	**36.3**	**0.385**	**0.832**
Benzo(a)anthracene	mg/kg	17/0.088**	**0.097(M)**	<0.006	**0.026**	<0.006	**0.592**	NT	**0.371**	**1.7**	**2.08**	**0.0098**	**74.7**	**1.65**	**3.26**
Benzo(b)fluoranthene	mg/kg	360/0.088**	**0.04**	<0.006	**0.012**	<0.006	**0.296**	NT	**0.157**	**0.614**	**0.948**	**0.0064**	**15.4**	**0.835**	**0.35**
Benzo(k)fluoranthene	mg/kg	870/0.88**	**0.032(M)**	<0.006	<0.0063	<0.006	**0.125**	NT	**0.169**	**0.697**	**0.543**	<0.006	**18.7**	**0.945**	**1.10**
Benzo(a)pyrene	mg/kg	48/0.0088**	**0.068(M)**	<0.006	**0.021**	<0.006	**0.592**	NT	**0.337**	**1.3**	**1.97**	**0.01**	**36.3**	**1.65**	**2.05**
Benzo(g,h,i)perylene	mg/kg	6,800/1.8**	**0.063(M)**	<0.006	**0.019**	<0.006	**0.626**	NT	**0.303**	**1.03**	**1.85**	<0.006	**16.5**	**1.07**	**1.33**
Chrysene	mg/kg	37/8.8**	**0.042(M)**	<0.006	**0.02**	<0.006	**0.456**	NT	**0.303**	**1.3**	**1.62**	<0.006	**27.5**	**1.21**	**1.57**
Fluoranthene	mg/kg	500/600**	**0.039(M)**	<0.012	**0.064**	<0.012	**1.25**	NT	**1.0**	**4.6**	**4.62**	**0.032**	**35.2**	**3.19**	**1.21**
Fluorene	mg/kg	100/600**	**0.03**	<0.012	<0.012	<0.012	**0.1**	NT	<0.11	**0.638**	**0.682**	<0.012	**30.8**	**0.231**	**0.507**
Indeno(1,2,3-cd)pyrene	mg/kg	680/0.088**	**0.034(M)**	<0.006	**0.012**	<0.006	**0.308**	NT	**0.213**	**0.649**	**1.39**	<0.006	**15.4**	**1.07**	**1.18**
2-Methylnaphthalene	mg/kg	20/600**	<0.03	<0.03	<0.031	<0.03	<0.28	NT	<0.28	<0.6	<1.2	<0.03	<3.4	<0.04	<0.75
Naphthalene	mg/kg	0.4/20**	<0.035	<0.036	<0.038	<0.036	<0.34	NT	<0.34	<0.7	<1.4	<0.036	<4.1	<0.05	<0.9
Phenanthrene	mg/kg	1.8/18**	**0.154(M)**	<0.006	**0.048**	<0.006	**0.501**	NT	**0.607**	**3.07**	**3.7**	<0.006	**95.6**	**1.65**	**2.29**
Pyrene	mg/kg	8,700/500**	**0.201(M)**	<0.006	**0.054**	<0.006	**0.9**	NT	**0.865**	**3.07**	**4.16**	**0.02**	**126**	**1.98**	**6.03**

NOTES: Only those compounds that exceeded detection limits are listed.
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
VOC = Volatile Organic Compounds
NL = No Residual Contaminant Level Listed in NR 720
PNA = Polynuclear Aromatic Hydrocarbons
Bold Text = Compound detected
Light Shaded Cell = Compound concentration exceeds the Residual Contaminant Level, or Interim Limit for PNAs
NT = Not Tested

(H) = Late eluding hydrocarbons
(L) = Common lab solvent and contaminant
(M) = Matrix interference
*Residual Contaminant Level assumes permeability >1x10^{-6} cm/sec. and non-industrial land use.
**First value for protection of groundwater, second value for direct contact (non-industrial), interim standards for PNAs.
WDNR Interim Guidance Document (PAH Soils), WDNR Pub. RR-519-97, Apr. 1997
Samples analyzed by NET Laboratories, Watertown, WI

*** Composite hand auger samples were collected from below sod depth to a depth of two feet.

TABLE 3A
Soil Analytical Results, RCRA Metals
Parcel B
Continental 85 Fund LLC
Glendale, WI
September 30 - October 3, 1997

Analyte **RCRA Metals** **EPA Methods S-5030, S-6010, S-7471**	Unit	Residual Contaminant Level mg/kg	GP-3 SS-4 2-4 ft.
Solids (Total)	%	——	94.4
Arsenic, ICP	mg/kg	0.039	**13**
Barium, ICP	mg/kg	NL	**8.3**
Cadmium, ICP	mg/kg	8	<1.0
Chromium, ICP (Total)	mg/kg	16,000	**5.5**
Lead, ICP	mg/kg	50	<5.3
Mercury, CVAA	mg/kg	NL	<0.021
Selenium, ICP	mg/kg	NL	<7.9
Silver, ICP	mg/kg	NL	<1.0

Laboratory Analysis Performed by: National Environmental Testing, Inc. (NET)
Certification Number: 128053530
(M) = Matrix Interference
NL = No Level Listed, Non-Industrial, NR720
Bold Text = Compound Detected
Light Shaded Cell = Compound Concentration exceeds the Residual Contaminant Level

TABLE 3B
Soil Analytical Results, RCRA Metals
Parcel C
Continental 85 Fund LLC
Glendale, WI
September 30 - October 3, 1997

Analyte RCRA Metals EPA Methods S-5030, S-6010, S-7471	Unit	Residual Contaminant Level mg/kg	GP-1C SS-5 8-10 ft.	GP-2C SS-4 6-8 ft.	MW-1C SS-6 10-12 ft.
Solids (Total)	%	——	**81.8**	——	**83.4**
TOC	mg/kg	——	**1,830**	**89.8**	——
Arsenic, ICP	mg/kg	0.039	**23**	**16**	**17**
Barium, ICP	mg/kg	NL	**6.8**	**40**	**7.0**
Cadmium, ICP	mg/kg	8	**<3.7 (M)**	**<2.2 (M)**	**<1.2**
Chromium, ICP (Total)	mg/kg	16,000	**5.7**	**13**	**5.9**
Lead, ICP	mg/kg	50	**<18 (M)**	**11**	**<6.0**
Mercury, CVAA	mg/kg	NL	**<0.024**	**0.040**	**<0.024**
Selenium, ICP	mg/kg	NL	**<27 (M)**	**<17 (M)**	**<9.0**
Silver, ICP	mg/kg	NL	**<3.7 (M)**	**<2.2 (M)**	**<1.2**

Laboratory Analysis Performed by: National Environmental Testing, Inc. (NET)
Certification Number: 128053530
NT = Not Tested
(M) = Matrix Interference
NL = No Level Listed, Non-Industrial, NR720
Bold Text = Compound Detected
Light Shaded Cell = Compound Concentration exceeds the Residual Contaminant Level

TABLE 4A
Groundwater Analytical Results
Parcel B
Continental 85 Fund LLC
Glendale, WI
October 5-8, 1997

Analyte	Unit	NR 140 Groundwater Standards ES	NR 140 Groundwater Standards PAL	MW-1B 10/97 (NET)	MW-2B 10/97 (NET)	PZ-1B 10/97 (NET)
VOCs (EPA 8260)						
Cis-1,2-Dichloroethene	µg/L	70.0	7.0	**290**	**160**	**25**
Trans-1,2-Dichloroethene	µg/L	100.0	20.0	**2.4**	**1.6**	<0.39
Naphthalene	µg/L	40.0	8.0	<0.35	<0.35	<0.35
Tetrachloroethene	µg/L	5.0	0.5	<0.63	<0.63	<0.63
Toluene	µg/L	343	68.6	**2.0**	<0.39	<0.39
Trichloroethene	µg/L	5.0	0.5	<0.49	<0.49	<0.49
1,2,4-Trimethylbenzene	µg/L	NL	NL	<0.32	<0.32	<0.32
Vinyl Chloride	µg/L	0.2	0.02	**24**	**20**	<0.46
Chloromethane	µg/L	3	0.3	<0.38	<0.38	**0.59**
PNAs (EPA 8310)						
Anthracene	µg/L	NL	NL	<0.020	<0.020	NT
Benzo(a)anthracene	µg/L	NL	NL	<0.032	<0.032	NT
Benzo(b)fluoranthene	µg/L	NL	NL	<0.088	<0.088	NT
Benzo(k)fluoranthene	µg/L	NL	NL	<0.061	<0.061	NT
Benzo(a)pyrene	µg/L	0.2	0.02	<0.063	<0.063	NT
Benzo(g,h,i)perylene	µg/L	NL	NL	<0.11	<0.11	NT
Chrysene	µg/L	NL	NL	<0.021	<0.021	NT
Fluoranthene	µg/L	NL	NL	<0.060	<0.060	NT
Fluorene	µg/L	400	80	<0.075	<0.075	NT
Indeno(1,2,3-cd)pyrene	µg/L	NL	NL	0.057	0.057	NT
2-Methylnaphthalene	µg/L	NL	NL	<0.65	<0.65	NT
Naphthalene	µg/L	40	8	<0.31	<0.31	NT
Phenanthrene	µg/L	NL	NL	<0.025	<0.025	NT
Pyrene	µg/L	NL	NL	<0.064	<0.064	NT
BIOREMEDIATION PARAMETERS						
Methane (GC-FID, Methane in Water, V.1.0)	1.8 µg/L	NL	NL	**280**	**550**	NT
Nitrate & Nitrite	µg/L	10,000	2,000	<17.0	<17.0	NT
Sulfate, IC*	mg/L	250,000	125,000	**130,000**	**120,000**	NT

NOTES:
Bold text = Compound detected
Light Shaded Cell = Preventive Action Limit Exceedance
Dark Shaded cell = Enforcement Standard Exceedance

*Public welfare standard
NT = No tested

TABLE 4B
Groundwater Analytical Results
Parcel C
Continental 85 Fund LLC
Glendale, WI
October 5-8, 1997

Analyte	Unit	NR 140 Groundwater Standards ES	NR 140 Groundwater Standards PAL	MW-1C 10/97 (NET)	MW-1C 10/20/97 (NET)	MW-1C 11/13/97 (NET)
VOCs (EPA 8260)						
Cis-1,2-Dichloroethene	µg/L	70.0	7.0	<0.23	NT	NT
Trans-1,2-Dichloroethene	µg/L	100.0	20.0	<0.39	NT	NT
Naphthalene	µg/L	40.0	8.0	**1.2**	NT	NT
Tetrachloroethene	µg/L	5.0	0.5	<0.63	NT	NT
Toluene	µg/L	343	68.6	**0.40**	NT	NT
Trichloroethene	µg/L	5.0	0.5	<0.49	NT	NT
1,2,4-Trimethylbenzene	µg/L	NL	NL	<0.32	NT	NT
Vinyl Chloride	µg/L	0.2	0.02	<0.46	NT	NT
Chloromethane	µg/L	3	0.3	**0.78**	NT	NT
Chloroethane	µg/L	400	80	**33**	NT	NT
1,1-Dichloroethane	µg/L	850	85	**0.48**	NT	NT
Methyl-t-butyl ether (MTBE)	µg/L	60	12	**12**	NT	NT
PNAs (EPA 8310)						
Anthracene	µg/L	NL	NL	**0.088**	<0.020	<0.020
Benzo(a)anthracene	µg/L	NL	NL	**0.14**	<0.032	<0.032
Benzo(b)fluoranthene	µg/L	NL	NL	**0.071**	<0088	<0088
Benzo(k)fluoranthene	µg/L	NL	NL	<0.061	<0.061	<0.061
Benzo(a)pyrene	µg/L	0.2	0.02	**0.15**	<0.063	<0.063
Benzo(g,h,i)perylene	µg/L	NL	NL	<0.11	<0.11	<0.11
Chrysene	µg/L	NL	NL	**0.074**	<0.021	<0.021
Fluoranthene	µg/L	NL	NL	**0.26**	<0.060	<0.060
Fluorene	µg/L	400	80	**0.51**	**0.14**	**0.27**
Indeno(1,2,3-cd)pyrene	µg/L	NL	NL	<0.057	<0.057	<0.057
2-Methylnaphthalene	µg/L	NL	NL	<0.65	<0.65	<0.65
Naphthalene	µg/L	40	8	<0.31	**0.52**	<0.31
Phenanthrene	µg/L	NL	NL	**0.38**	**0.11**	**0.066**
Pyrene	µg/L	NL	NL	**0.24**	<0.064	<0.064
Bioremediation Parameters						
Methane (GC-FID, Methane in Water, V.1.0)	1.8 mg/L	NL	NL	**440**	NT	NT
Nitrate & Nitrite	mg/L	10,000	2,000	<17.0	NT	NT
Sulfate, IC*	mg/L	250,000	125,000	**110,000**	NT	NT

NOTES:
Bold text = Compound detected
Light Shaded Cell = Preventive Action Limit Exceedance
Dark Shaded cell = Enforcement Standard Exceedance
NT = Not tested
*Public welfare standard

TABLE 5A
Groundwater Analytical Results
Parcel B
Continental 85 Fund LLC
Glendale, WI
September 30-October 3, 1997

Analyte RCRA Metals EPA Methods	Unit	NR 140 Groundwater Standards ES	NR 140 Groundwater Standards PAL	MW-1B 10/97 (NET)	MW-2B 10/97 (NET)
Arsenic	µg/L	50	5	NT	**5.30**
Barium	µg/L	2,500	400	NT	**320**
Cadmium	µg/L	5	0.5	NT	<0.065
Chromium	µg/L	100	10	NT	<0.25
Iron*	µg/L	300	150	NT	**440**
Lead	µg/L	15	1.5	NT	<0.89
Mercury	µg/L	2	0.2	NT	**0.019**
Selenium	µg/L	50	10	NT	<1.6
Silver	µg/L	50	10	NT	<2.9

NOTES:
Bold text = Compound detected
Light Shaded Cell = Preventive Action Limit Exceedance
Dark Shaded cell = Enforcement Standard Exceedance
NT = No tested
* Public welfare standard

TABLE 5B
Groundwater Analytical Results
Parcel C
Continental 85 Fund LLC
Glendale, WI
September 30-October 3, 1997

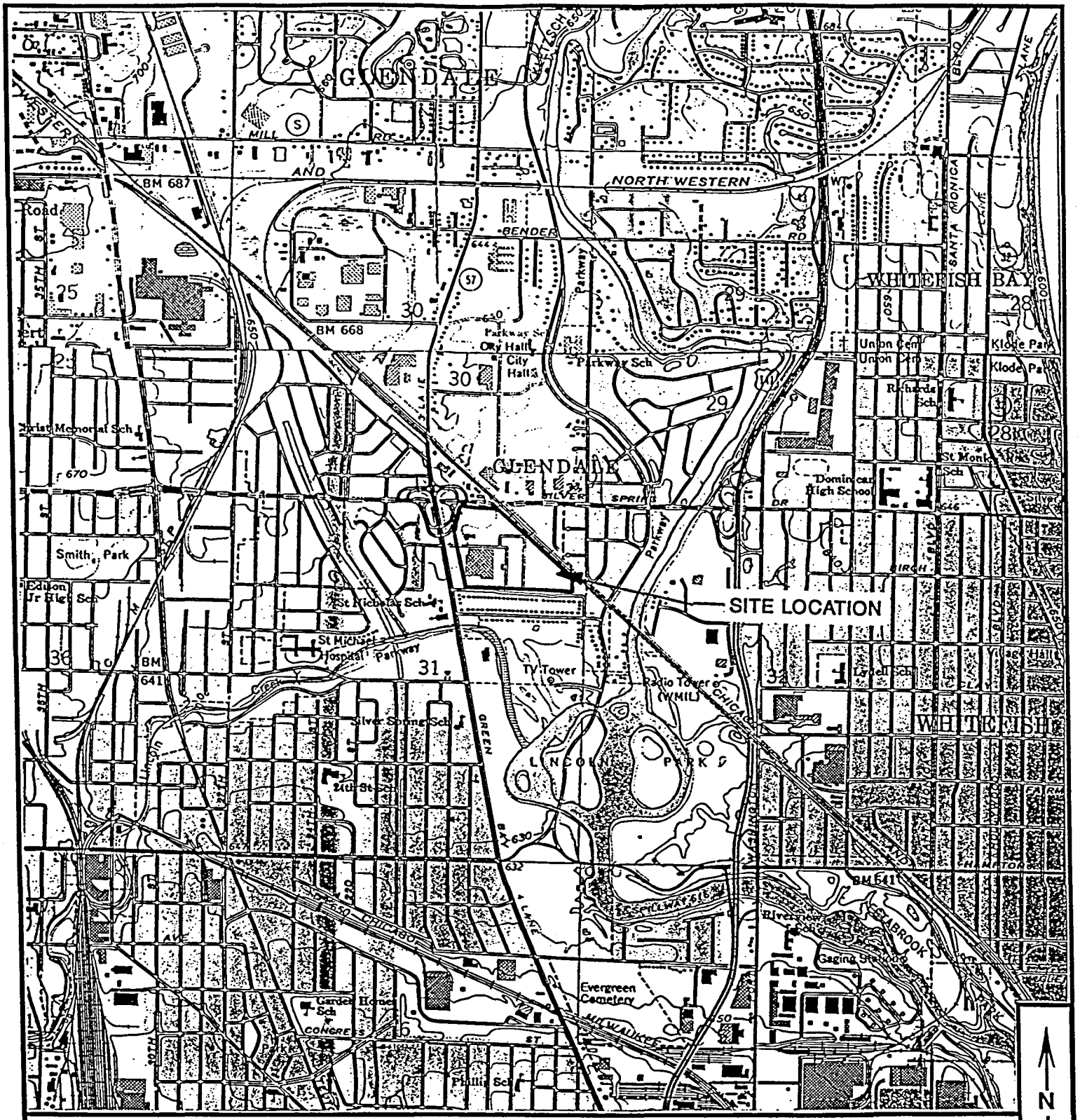
Analyte RCRA Metals EPA Methods	Unit	NR 140 Groundwater Standards		MW-1C 10/97 (NET)
		ES	PAL	
Arsenic	µg/L	50	5	**2.7**
Barium	µg/L	2,500	400	**540**
Cadmium	µg/L	5	0.5	<0.065
Chromium	µg/L	100	10	<0.25
Iron*	µg/L	300	150	**360**
Lead	µg/L	15	1.5	<0.89
Mercury	µg/L	2	0.2	**0.015**
Selenium	µg/L	50	10	<1.6
Silver	µg/L	50	10	<2.9

NOTES:
Bold text = Compound detected
Light Shaded Cell = Preventive Action Limit Exceedance
Dark Shaded cell = Enforcement Standard Exceedance
NT = Not tested
* Public Welfare Standard

Table 6
Comparative Analysis of Alternatives
Continental 85 Fund LLC
Parcel B and C
Glendale, Wisconsin

Evaluation Factor	Alternatives		
	1 No Action Alternative	2 Soil Removal to 100 ppm DRO	3 Site Specific Engineering Control Via Planned Development
Overall Protection of human health and the environment	Low	Medium	High
Compliance with NR 140 and NR700 Wis. Adm. Code	No	No	Yes
Long Term Effectivness and Performance	Low	Medium	High
Reduction of Toxicity, Mobility and Volume Through Treatment	Low	High	Medium
Short Term Effectivness	Low	High	High
Implementability	High	Low	Medium
Cost	Low	High	Medium

Note:Qualitative Score increases from "Low" to "High" in the first six criteria; however, for cost, the score increases (ie. High - Low)



SOURCE: MILWAUKEE AND THIENSVILLE QUADRANGLES

SITE LOCATION MAP

PARCELS B AND C
5400 NORTH GREEN BAY ROAD
GLENDALE, WISCONSIN

CONTINENTAL 85 FUND LLC

SCALE:	1" = 2,000'
DATE:	11-19-97
PROJECT MGR:	BJK
DRAWN BY:	JZ
JOB NUMBER:	977517.03
REVISION DATE:	

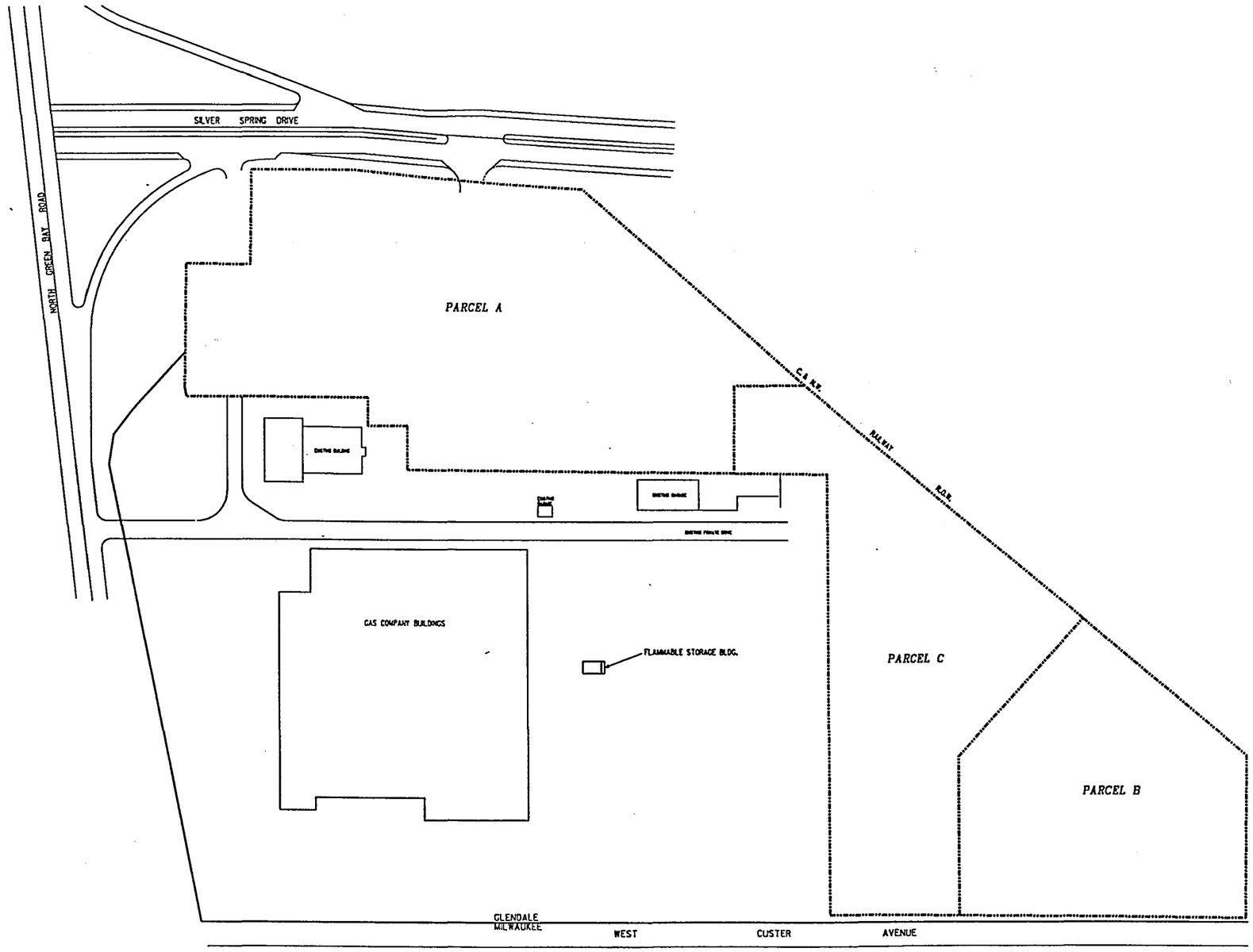
GRAEF ANHALT SCHLOEMER and Associates Inc.
ENGINEERS & SCIENTISTS

SITE_LOC.CVS

FIGURE 1A

LEGEND

PROPERTY BOUNDARIES



GRAEF
ANHALT
SCHLOEMER
and Associates Inc.
ENGINEERS & SCIENTISTS

ENVIRONMENTAL SERVICES
DIVISION

OTHER OFFICES LOCATED AT:

GREEN BAY, WISCONSIN
MADISON, WISCONSIN
CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

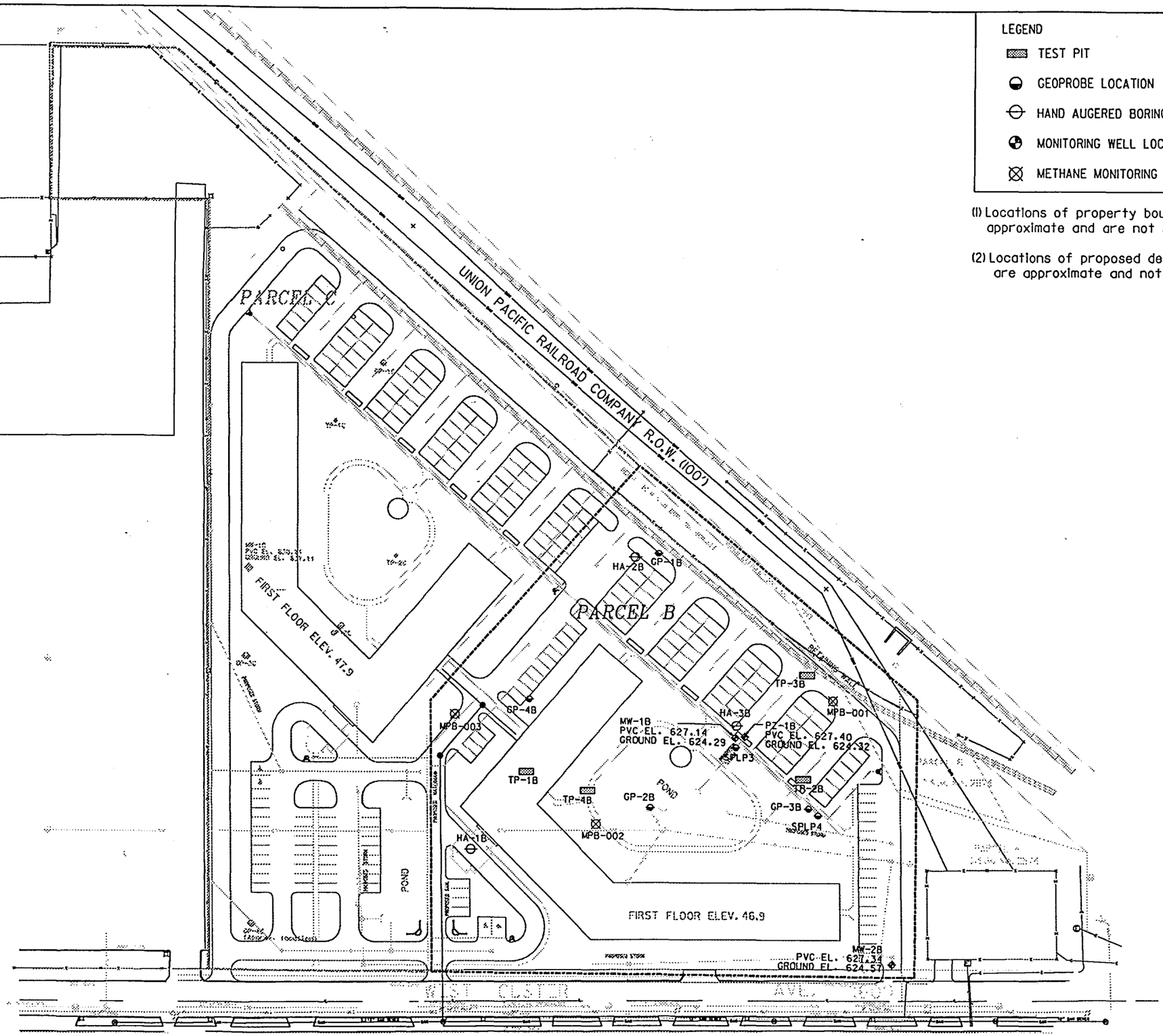
PARCEL A, B, AND C
LOCATION MAP

N

0 100 200

PROJECT NUMBER:	977517.03
DATE:	11-21-97
PROJECT MGR:	LFB
DRAWN BY:	JZ
FILE NAME:	SITE.DGN
SCALE:	1" = 200'
REVISED:	7-7-98

FIGURE 1B



LEGEND

- TEST PIT
- GEOPROBE LOCATION
- HAND AUGERED BORING
- MONITORING WELL LOCATION
- METHANE MONITORING WELL

(1) Locations of property boundaries are approximate and are not surveyed

(2) Locations of proposed developments are approximate and not surveyed.

GRAEF ANHALT SCHLOEMER
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GREEN BAY, WISCONSIN
MADISON, WISCONSIN
CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

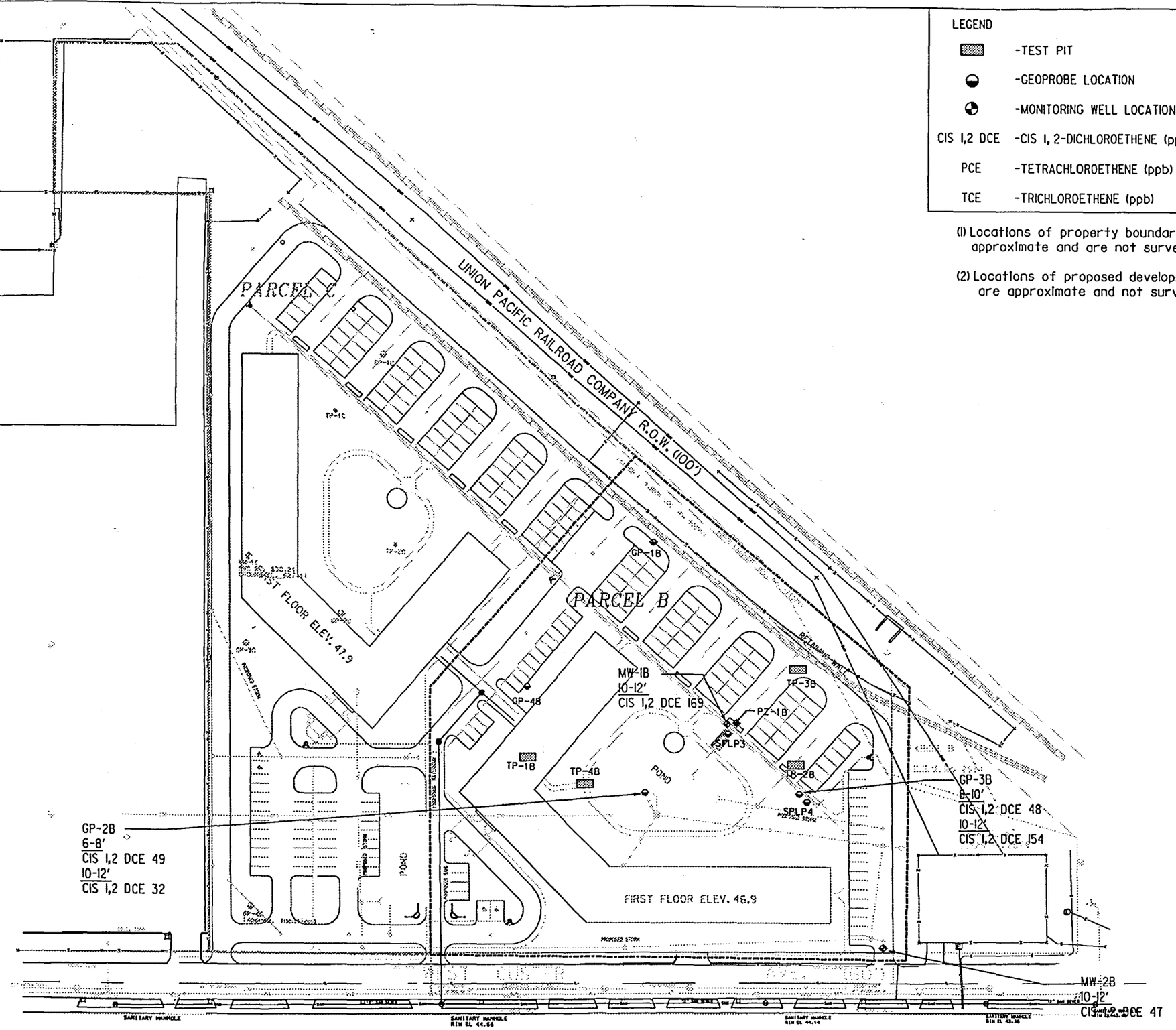
GEOPROBE,
MONITORING WELL AND
TEST PIT LOCATION MAP
PARCEL B

PHASE III
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

0 50 100

PROJECT NUMBER:	977517.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\SURV-B.DGN
SCALE:	1" = 100'
REVISED:	7-7-98

FIGURE 2A



LEGEND

	-TEST PIT
	-GEOPROBE LOCATION
	-MONITORING WELL LOCATION
CIS 1,2 DCE	-CIS 1, 2-DICHLOROETHENE (ppb)
PCE	-TETRACHLOROETHENE (ppb)
TCE	-TRICHLOROETHENE (ppb)

(1) Locations of property boundaries are approximate and are not surveyed.

(2) Locations of proposed developments are approximate and not surveyed.

GRAEF ANHALT SCHLOEMER
and Associates Inc.
ENGINEERS & SCIENTISTS

ENVIRONMENTAL SERVICES DIVISION

OTHER OFFICES LOCATED AT:

GREEN BAY, WISCONSIN
MADISON, WISCONSIN
CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

SOIL PCE AND RELATED DETECTED COMPOUNDS CONCENTRATION MAP
PARCEL B

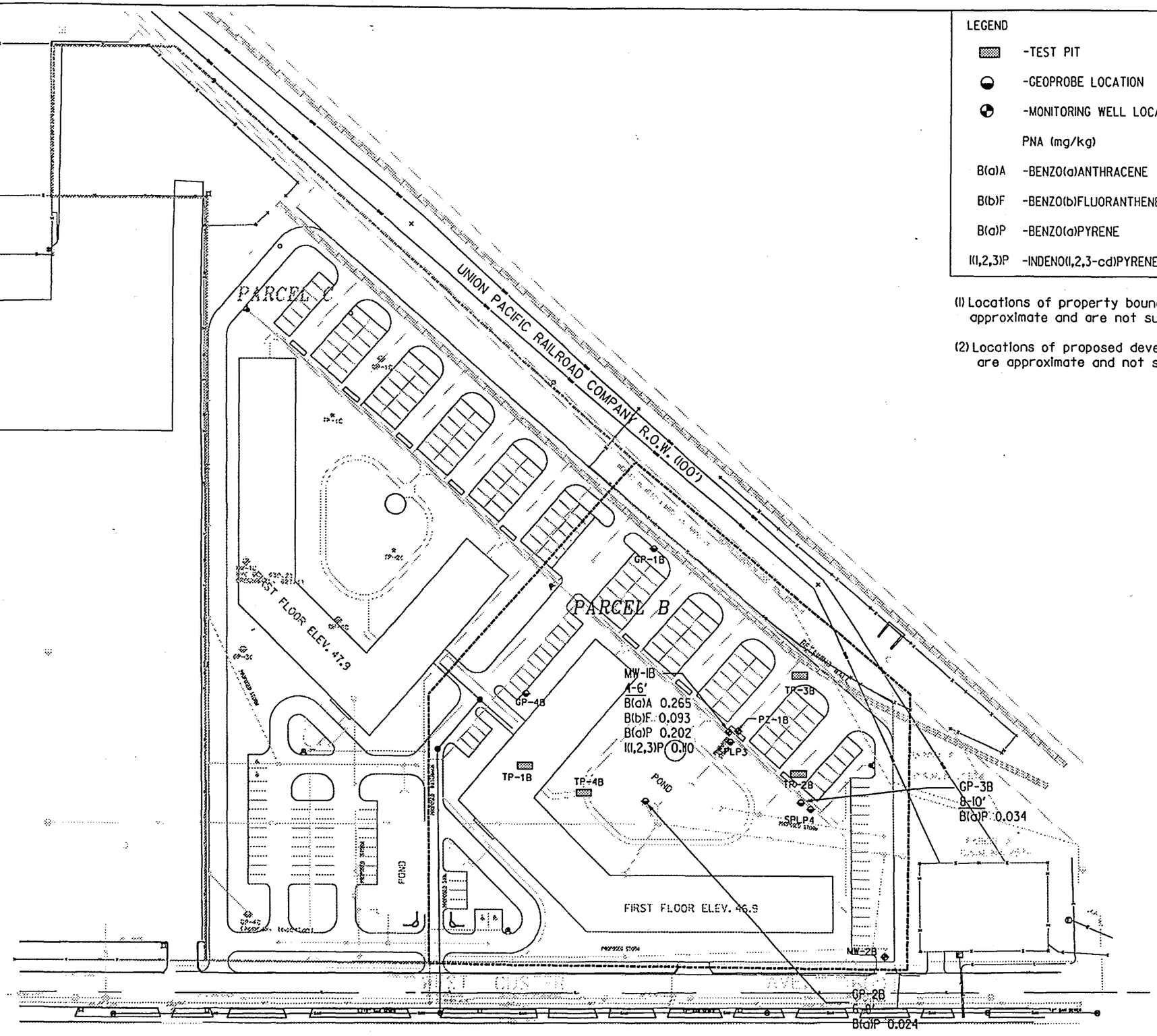
PHASE II
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

N

0 50 100

PROJECT NUMBER:	977517.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\PCE-B.DGN
SCALE:	1" = 100'
REVISED:	05-06-98

FIGURE 3



LEGEND

	-TEST PIT
	-GEOPROBE LOCATION
	-MONITORING WELL LOCATION
	PNA (mg/kg)
B(a)A	-BENZO(a)ANTHRACENE
B(b)F	-BENZO(b)FLUORANTHENE
B(a)P	-BENZO(a)PYRENE
I(1,2,3)P	-INDENO(1,2,3-cd)PYRENE

(1) Locations of property boundaries are approximate and are not surveyed.

(2) Locations of proposed developments are approximate and not surveyed.

GRAEF ANHALT SCHLOEMER and Associates Inc.
ENGINEERS & SCIENTISTS

ENVIRONMENTAL SERVICES DIVISION

OTHER OFFICES LOCATED AT:

GREEN BAY, WISCONSIN
MADISON, WISCONSIN
CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

SOIL PNA EXCEEDANCES
CONCENTRATION MAP
PARCEL B

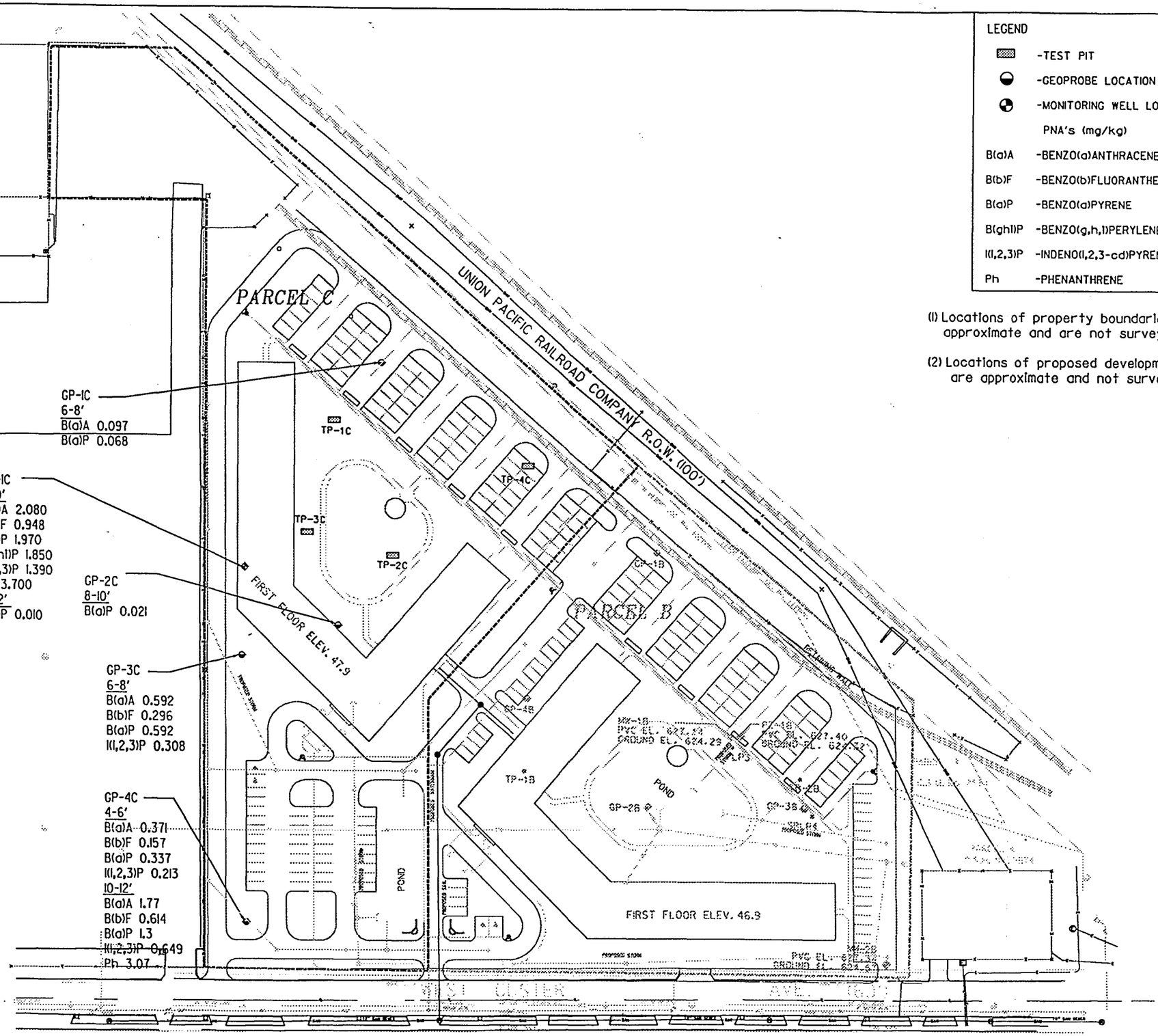
PHASE II
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

N

0 50 100

PROJECT NUMBER:	977517.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\PNA-B.DGN
SCALE:	1" = 100'
REVISED:	07-06-98

FIGURE 4A



LEGEND

- -TEST PIT
- -GEOPROBE LOCATION
- -MONITORING WELL LOCATION

PNA's (mg/kg)

B(a)A	-BENZO(a)ANTHRACENE
B(b)F	-BENZO(b)FLUORANTHENE
B(a)P	-BENZO(a)PYRENE
B(ghi)P	-BENZO(g,h,i)PERYLENE
I(1,2,3)P	-INDENO(1,2,3-cd)PYRENE
Ph	-PHENANTHRENE

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CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

SOIL PNA EXCEEDANCES
CONCENTRATION MAP
PARCEL C

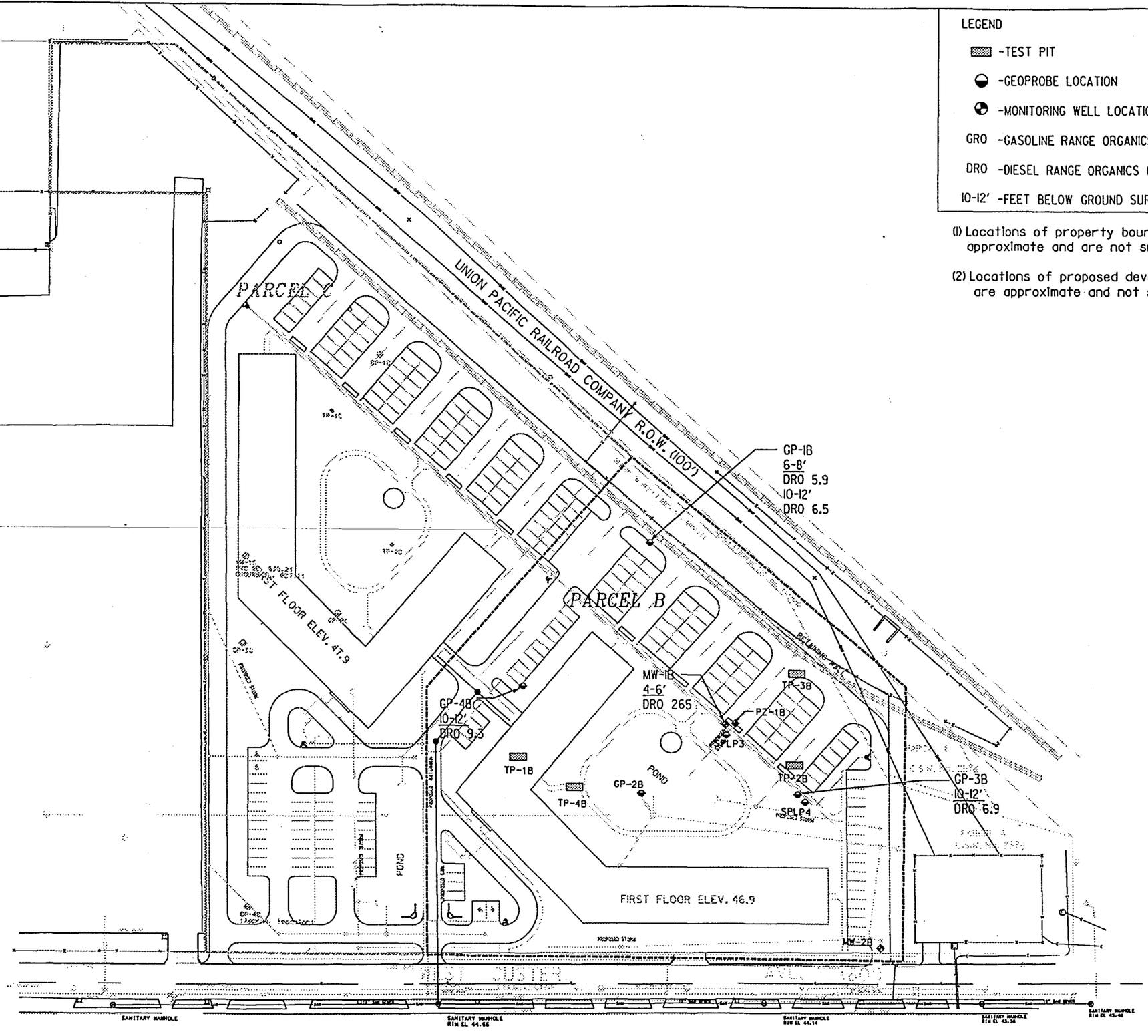
PHASE III
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

N

0 50 100

PROJECT NUMBER:	977517.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\PNA-C.DGN
SCALE:	1" = 100'
REVISED:	05-06-98

FIGURE 4B



LEGEND

- -TEST PIT
- -GEOPROBE LOCATION
- -MONITORING WELL LOCATION
- GRO -GASOLINE RANGE ORGANICS (PPM)
- DRO -DIESEL RANGE ORGANICS (PPM)
- 10-12' -FEET BELOW GROUND SURFACE

(1) Locations of property boundaries are approximate and are not surveyed.

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CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

SOIL DRO/GRO
DETECTED
CONCENTRATION MAP
PARCEL B

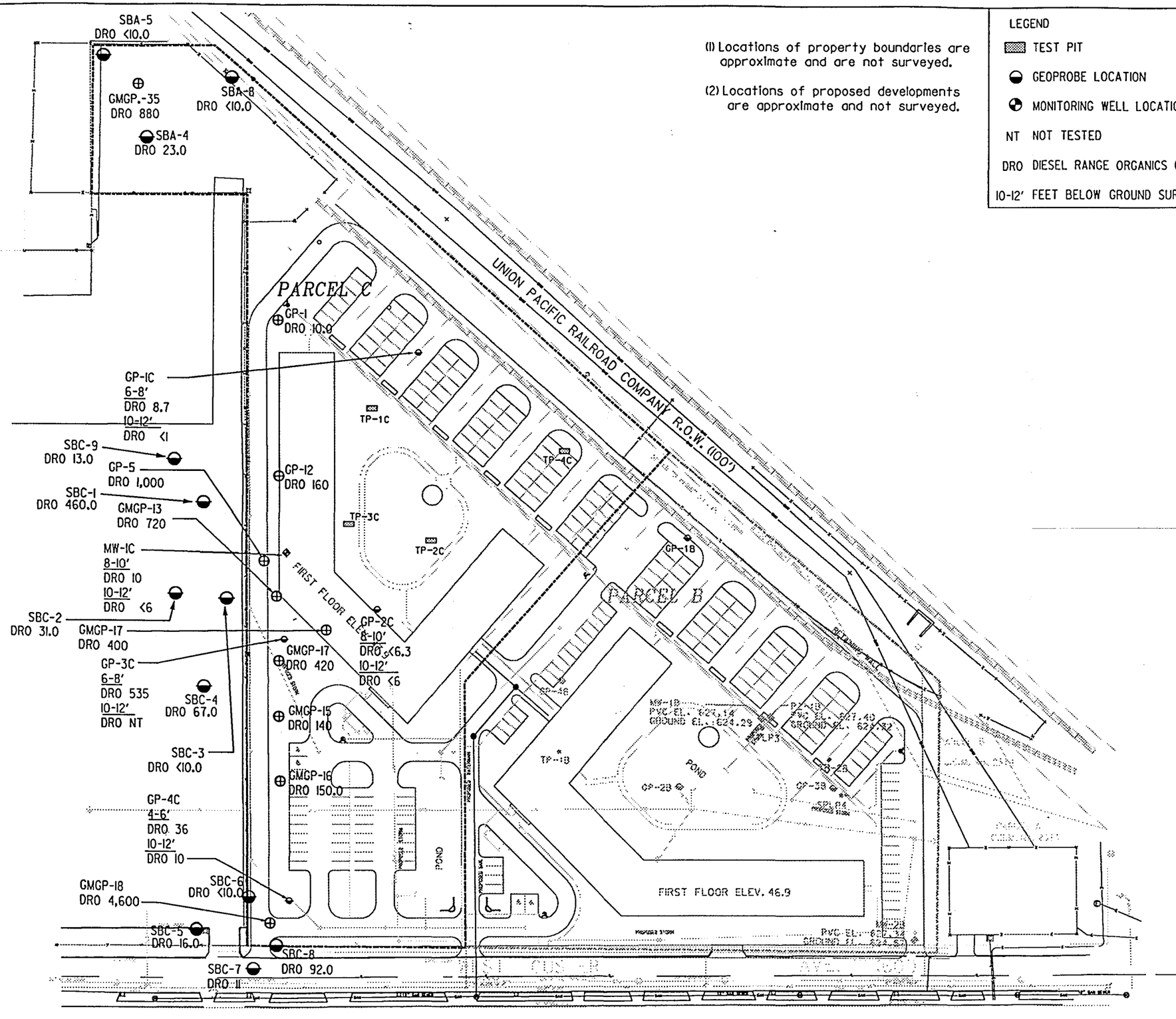
PHASE III
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

N

0 50 100

PROJECT NUMBER:	977517.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\DRO-B.DGN
SCALE:	1" = 100'
REVISED:	05-06-98

FIGURE 5A



(1) Locations of property boundaries are approximate and are not surveyed.

(2) Locations of proposed developments are approximate and not surveyed.

LEGEND

- TEST PIT
- GEOPROBE LOCATION
- MONITORING WELL LOCATION
- NT NOT TESTED
- DRO DIESEL RANGE ORGANICS (PPM)
- 10-12' FEET BELOW GROUND SURFACE

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CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

SOIL DRO
CONCENTRATION MAP
PARCEL C

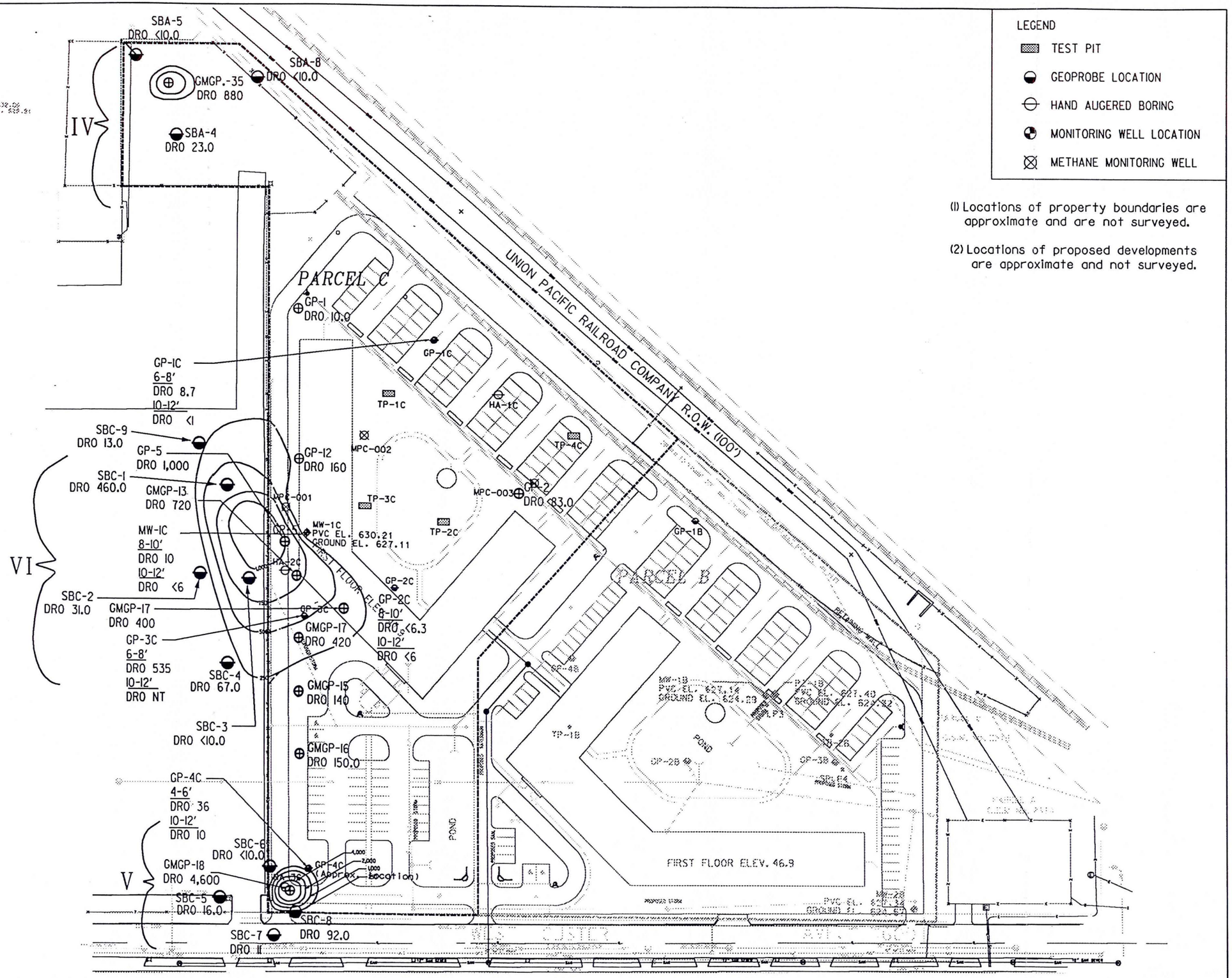
PHASE III
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

N

0 50 100

PROJECT NUMBER:	9775I7.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\DRO-C.DGN
SCALE:	1" = 100'
REVISED:	05-06-98

FIGURE 5B



LEGEND

- TEST PIT
- GEOPROBE LOCATION
- HAND AUGERED BORING
- MONITORING WELL LOCATION
- METHANE MONITORING WELL

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CHICAGO, ILLINOIS

CLIENT:

CONTINENTAL 85 FUND LLC

GEOPROBE,
MONITORING WELL AND
TEST PIT LOCATION MAP
PARCEL C

PHASE II
ENVIRONMENTAL SITE ASSESSMENT
CONTINENTAL 85 FUND LLC
GLENDALE, WISCONSIN

N

0 50 100

PROJECT NUMBER:	977517.03
DATE:	09-22-97
PROJECT MGR:	LFB
DRAWN BY:	TMW/JZ
FILE NAME:	grading\SURV-C.DGN
SCALE:	1" = 100'
REVISED:	05-06-98

FIGURE 6