

**DRAFT AMENEDMENT 04 TO THE
IMPLEMENTATION WORK PLAN
CENTREDALE MANOR RESTORATION PROJECT
SUPERFUND SITE
NORTH PROVIDENCE, RHODE ISLAND**

OCTOBER 16, 2002

Prepared for:

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Prepared by:



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Plainville, Connecticut
*An Employee Owned Company***

LEA Commission Number 15RP102

**IMPLEMENTATION WORK PLAN – AMENDMENT 04
CENTREDALE MANOR RESTORATION PROJECT SUPERFUND SITE
NORTH PROVIDENCE, RHODE ISLAND**

1.0 AREAS OF EXCAVATION

Soil and sediment will be excavated from Action Areas 2, 3, 3 / 4, 4, 5, 6, 7, 9, 10, 11, and 12. Except for Action Area 3 / 4 and Action Area 10, the proposed areas of excavation within each of these Action Areas are defined. These areas are illustrated in the attached figures. The areas of soil and sediment to be proposed for excavation within Action Area 3 / 4 and Action Area 10 will be defined by the laboratory results of samples obtained on September 10, 2002, and analyzed using USEPA Method 8290. No soil and sediment will be excavated from Action Area 1 as part of this Non-Time-Critical Removal Action.

As shown in the attached figures, the limits of the proposed areas of excavation are defined to the west by previously established boundaries. For Action Area 2, the limit of excavation to the west will be the institutional boundary defined by the toe of the slope of the east embankment. For Action Area 3 / 4, the western limit of excavation will be defined by the 93.0 ft elevation contour (~10 ft to the west of AP-DEL-04). For remaining areas adjacent to Allendale Pond, Action Areas 3, 4, 5, 6, and 7, the limit of excavation to the west will be the boundary defined by the 92.8± ft elevation contour (based on an average Allendale Pond elevation of 93.8 ft). For Action Areas 9, 10, 11, and 12, the limit of excavation to the west will be the boundary defined by the 76.0± ft elevation contour.

The limits of each proposed area of excavation are based to the north, east, and south on the locations from which samples analyzed using Method 8290 were reported to contain concentrations of dioxin less than the toxicity equivalents (TEQ) of 1.0 ppb. These sample locations were established in accordance with the EPA-approved sampling plan dated July 11, 2002; have been identified by survey; and are currently staked in the field. The sample locations are illustrated in the attached figures. The areas of soil and sediment to be excavated are based on these sample locations, as shown in the figures. Prior to excavation, the areas of soil and sediment to be removed will be marked in the field based on the limits of the areas provided in the figures. A summary of the proposed quantity to be removed from each Action Area is provided in Table 1.



2.0 PRE-EXCAVATION ACTIVITIES

2.1 Dewatering Activities

Prior to initiating excavation activities, the elevation of Allendale Pond will be lowered. This will be accomplished by removing stop logs and raising the associated sluice gate at Allendale Dam. The elevation of the pond is proposed to be lowered approximately four feet. The pond will be lowered incrementally, such that any downstream affects of the release of water are minimized.

In the proposed areas of excavation adjacent to Lymansville Pond, temporary cofferdams will be placed sufficiently beyond the proposed excavation limits to minimize the amount of water in the excavation area. As presented in the IWP, water will be pumped from the area of excavation over the cofferdam and back into the pond. Sediment will then be excavated using the methods described in Section 3.0.

2.2 Clearing Activities

Prior to initiating any excavation activities, each area of excavation will be cleared of any debris and brush that may be present in the wooded areas along the edge of each pond. This material will be chipped. Trees and shrubs will remain in place. The chipped material will be shipped off-site to a local recycling facility.

3.0 EXCAVATION ACTIVITIES

Soil and sediment will be excavated from within the marked excavation boundaries using a vacuum truck system or light construction equipment and hand tools. The vacuum truck system is comprised of a vacuum and hose system, and is capable of excavating soil and sediment from great distances. The vacuum truck system enables the material to be excavated and vacuumed directly into the body of the truck. The use of the vacuum truck system will minimize the disruption to the residential properties.

Within each of the areas of excavation, the soil and sediment will be excavated to a depth of two feet below ground surface. The depth of each excavation will be measured in the field using a batter board to assure uniformity of the excavation and to verify that the proposed two feet of soil and sediment have been excavated. No post-excavation samples will be obtained.

The excavated soil and sediment will be transported from each area of excavation to the containment pad. Free liquids that are removed with soil and sediment will be adsorbed by sawdust that is placed in the body of the transportation vehicle prior to the excavation process.



Any remaining free liquids will be removed from the body of the vehicle prior to placing the soil and sediment on the containment pad. The free liquids will be treated using a bag filter and carbon polish treatment train and will be discharged to the river at the base of Allendale Dam. Discharge monitoring for turbidity at the point of discharge will be performed each day that water is discharged.

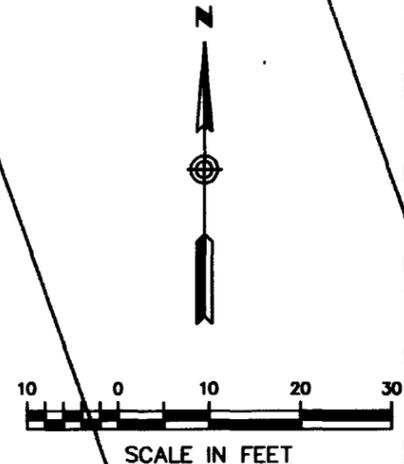
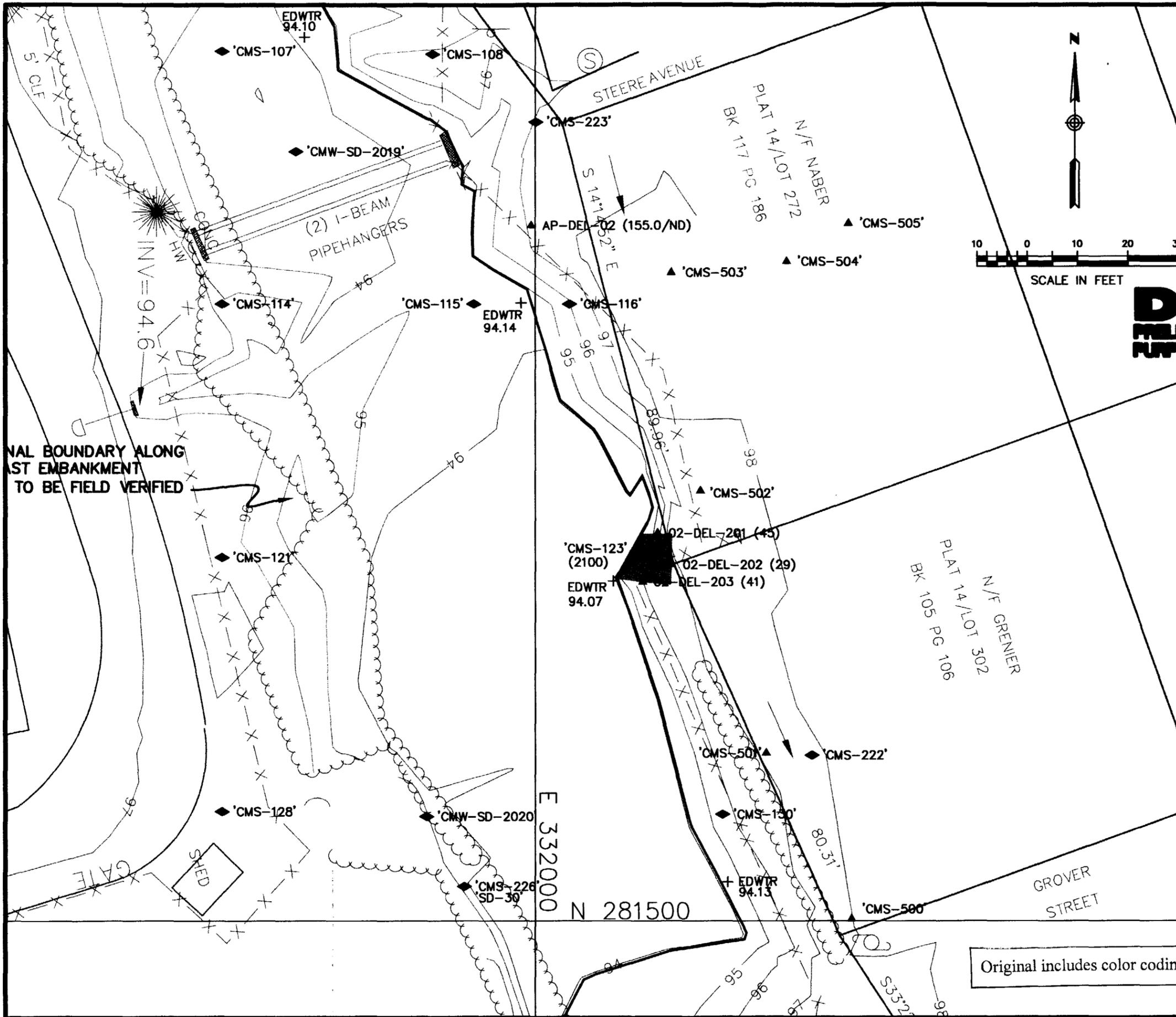
4.0 SITE RESTORATION

Site restoration will be conducted immediately after the excavation of soil and sediment from each area. Restoration will consist of backfill and vegetation. In each area of excavation, two feet of fill will be placed to re-establish the pre-excavation grades.



TABLE 1
ESTIMATED QUANTITY OF SOIL AND SEDIMENT TO BE REMOVED
CENTREDALE MANOR RESTORATION PROJECT SUPERFUND SITE
NORTH PROVIDENCE, RHODE ISLAND

ACTION AREA	VOLUME (estimated cubic yards)	Quantity (estimated tons)
2	7	11
3	17	26
3 / 4	22	33
4	7.5	12
5	6	9
6	25	38
7	10	15
9	12	18
10	23	35
11	6	9
12	9	14
Total	144.5	220



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PRELIMINARY FOR REVIEW
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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (2100) (DIOXIN CONCENTRATION IN ppt)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (2100) (DIOXIN CONCENTRATION IN ppt)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0')
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

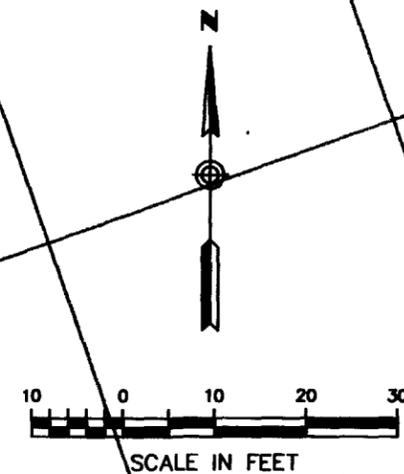
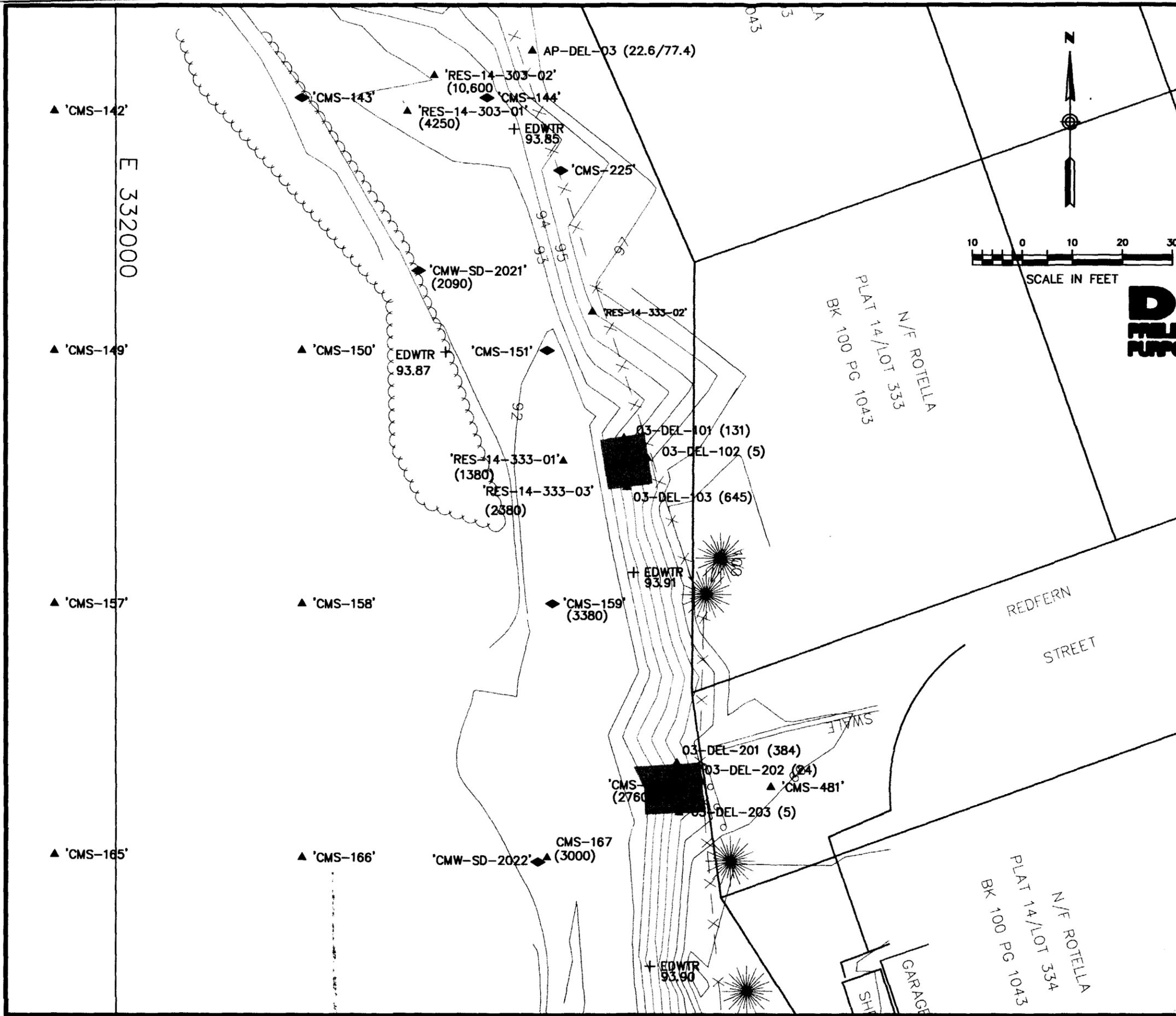
CENTREDALE MANOR SUPERFUND SITE
 NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 2

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FIGURE 2





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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0')
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

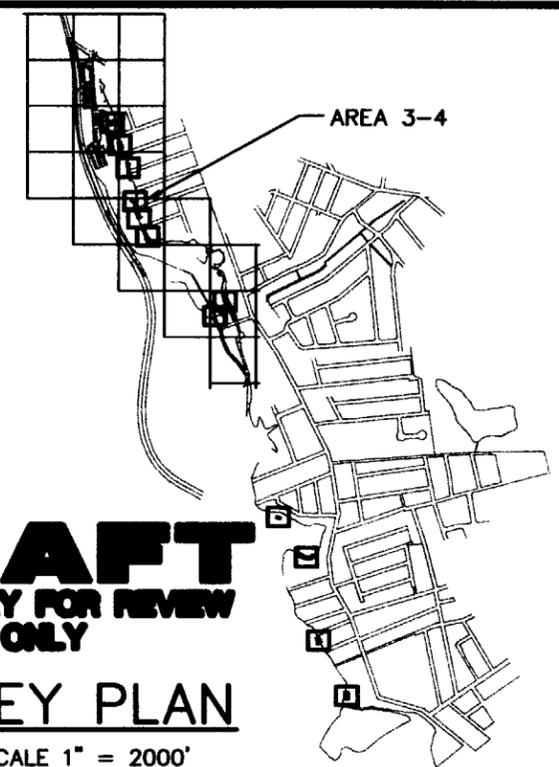
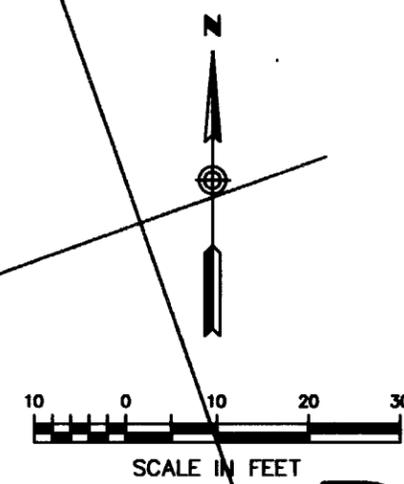
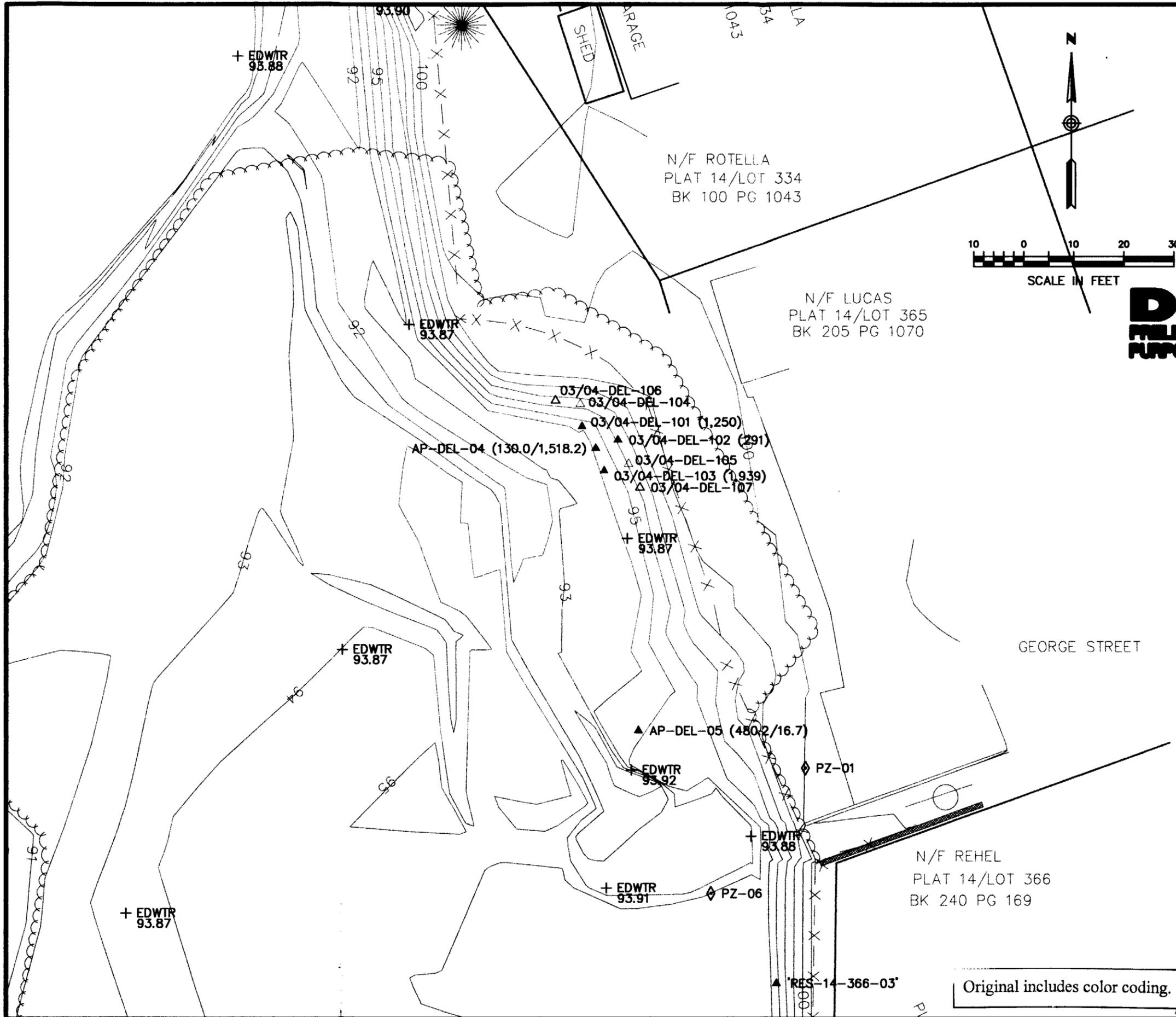
CENTREDALE MANOR SUPERFUND SITE
NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 3

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FIGURE 3



Original includes color coding.



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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ (2100) CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ (2100) CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ (50.9/78.9) CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0')
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt) (54)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt) (9612)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

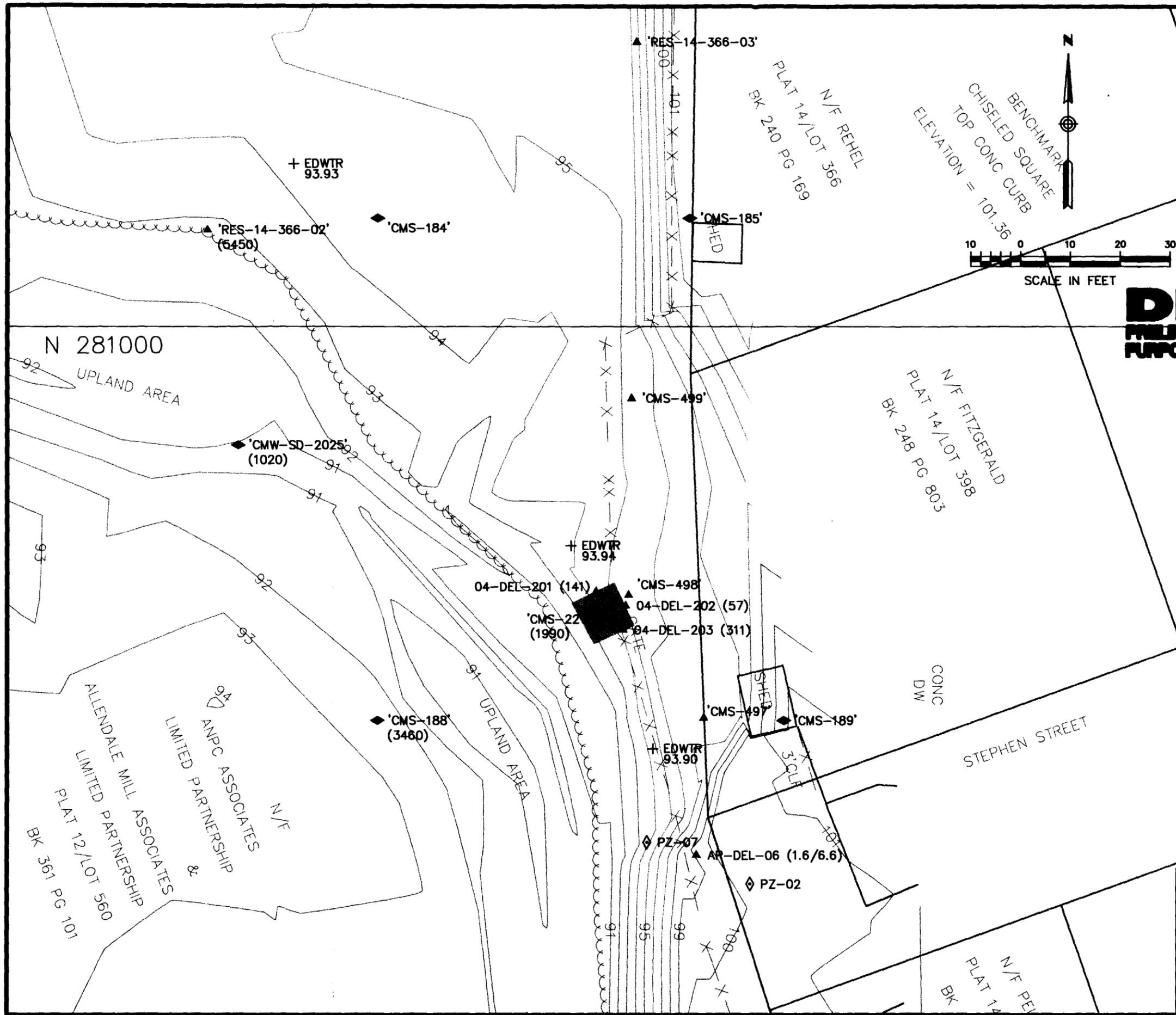
CENTREDALE MANOR SUPERFUND SITE
 NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 3-4

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FIGURE 3/4





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KEY PLAN
 SCALE 1" = 2000'

LEGEND

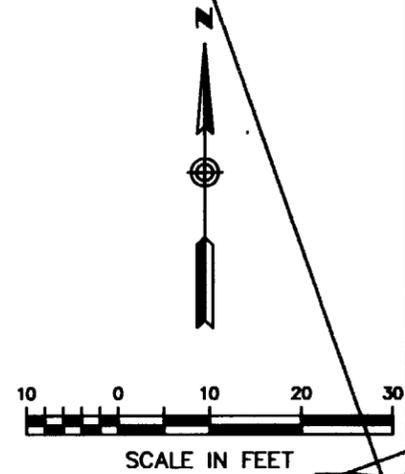
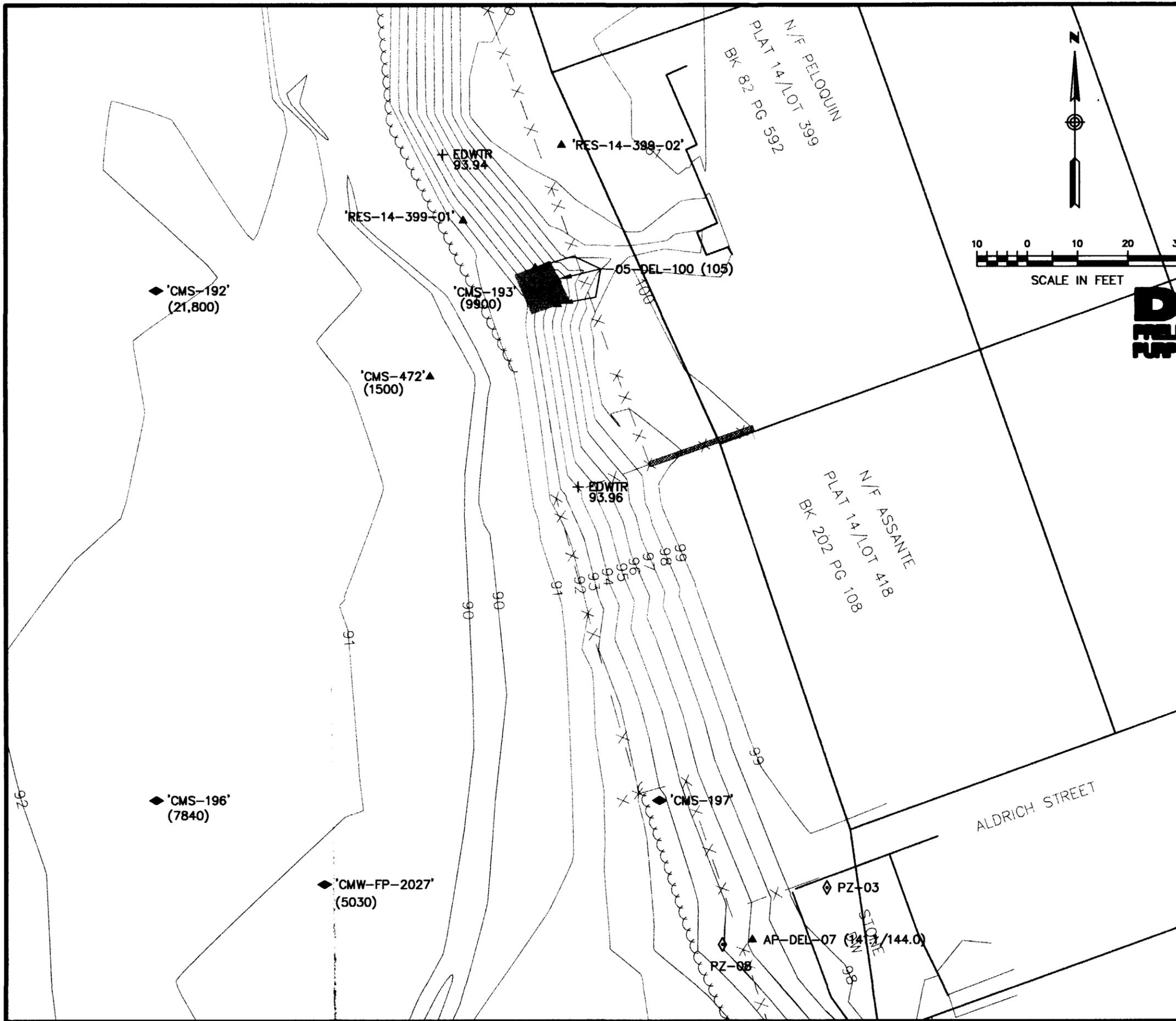
- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ (2100) CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ (2100) CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0')
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt)
- ▲ (54)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt)
- ▲ (9612)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

CENTREDALE MANOR SUPERFUND SITE
NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 4

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FIGURE 4





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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ◆ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt) (2100)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt) (2100)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0') (50.9/78.9)
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt) (54)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt) (9612)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◇ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

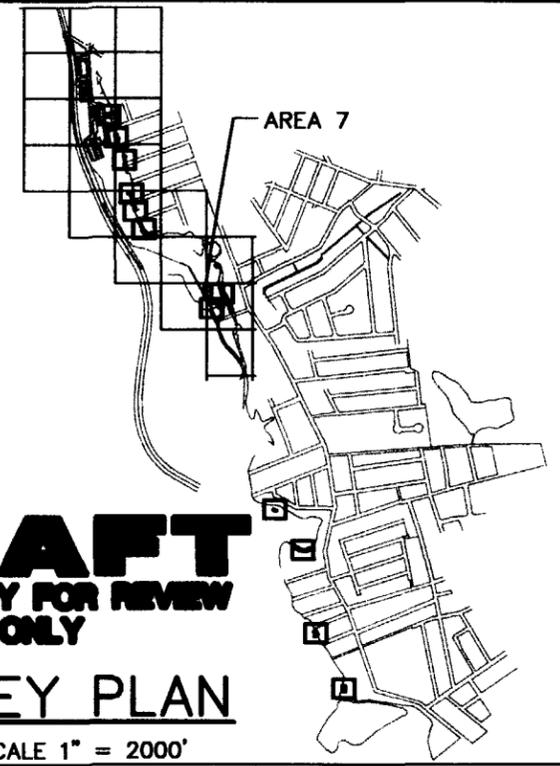
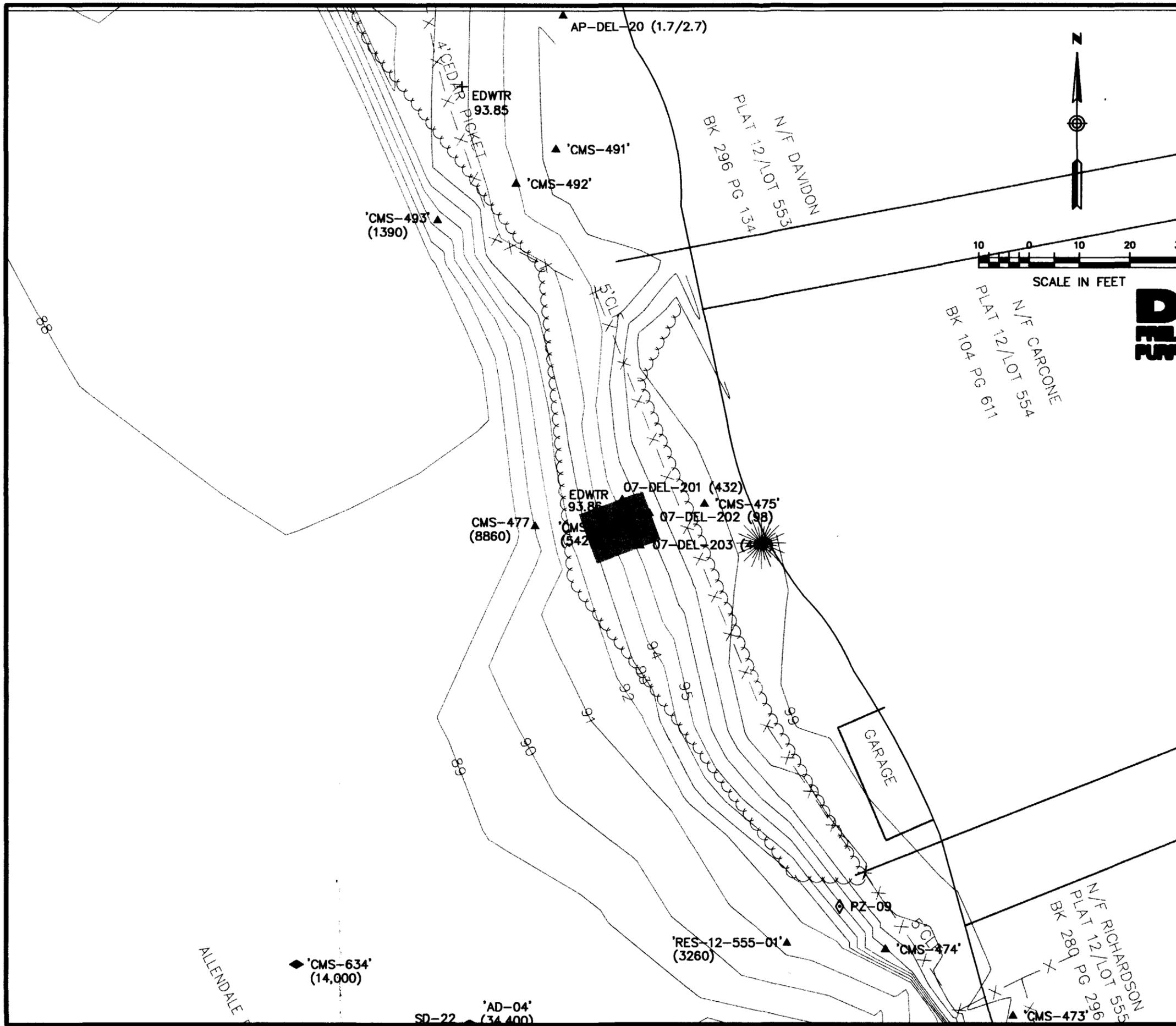
CENTREDALE MANOR SUPERFUND SITE
 NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 5

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FIGURE 5



Original includes color coding.



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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0')
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◇ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

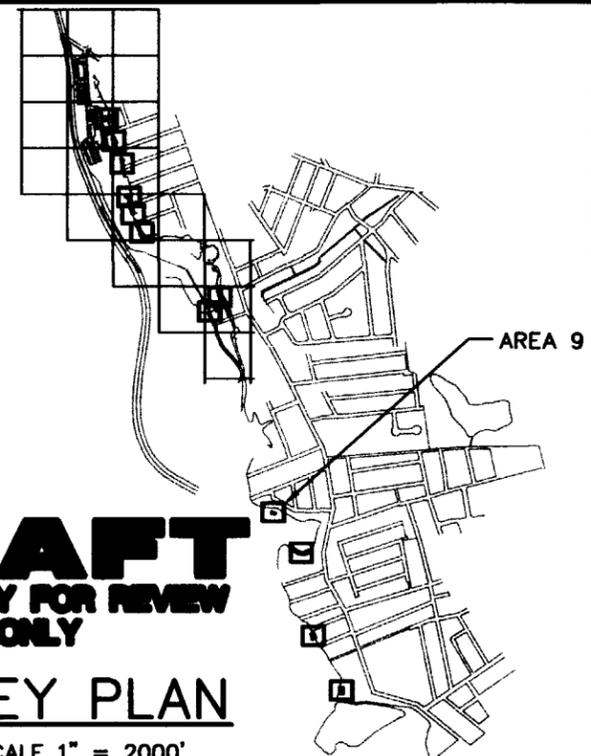
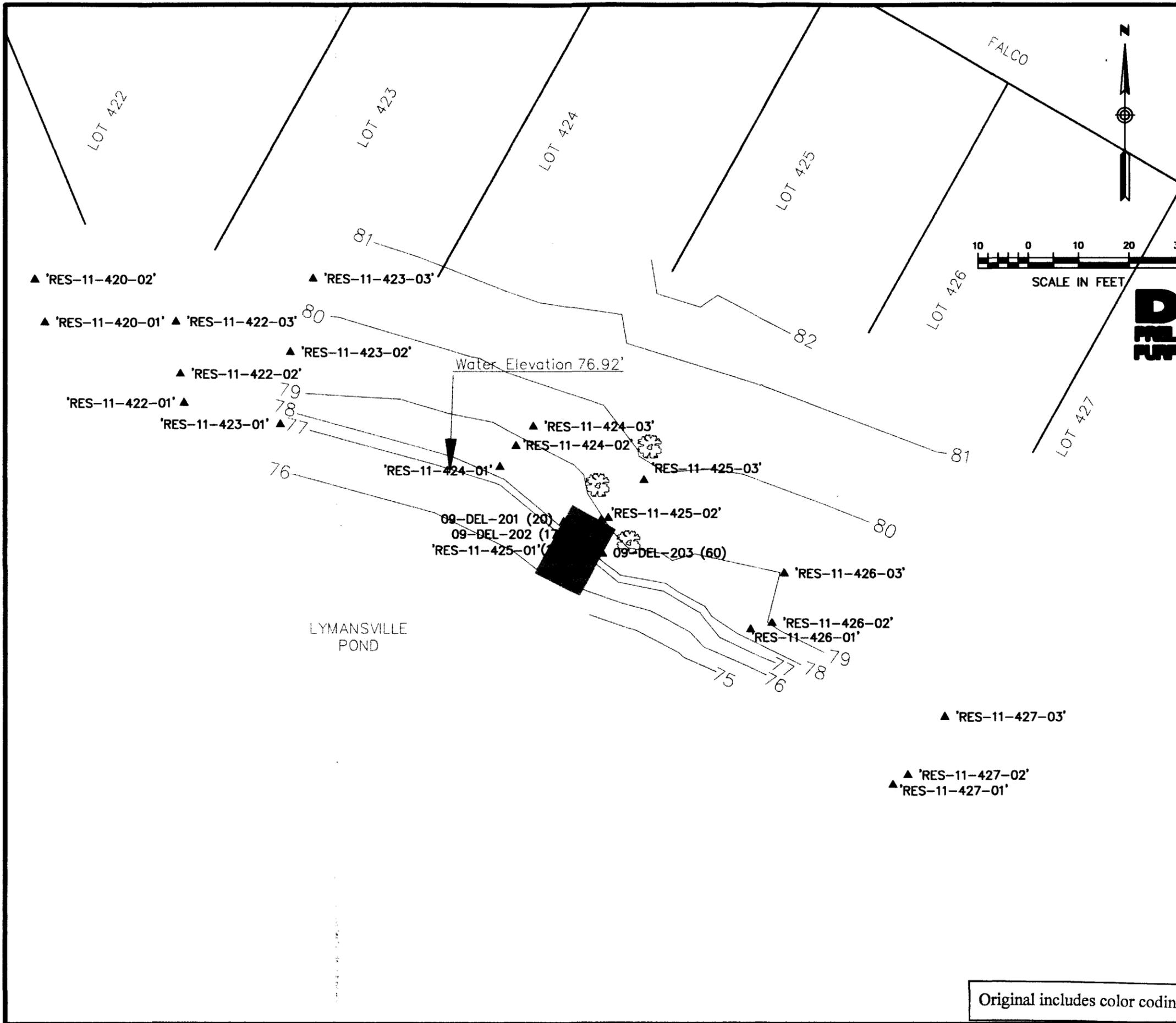
CENTREDALE MANOR SUPERFUND SITE
 NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 7

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FIGURE 7



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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (2100)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (2100)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (50.9/78.9) (0-1.0'/1.0'-2.0')
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt) (54)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt) (9612)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

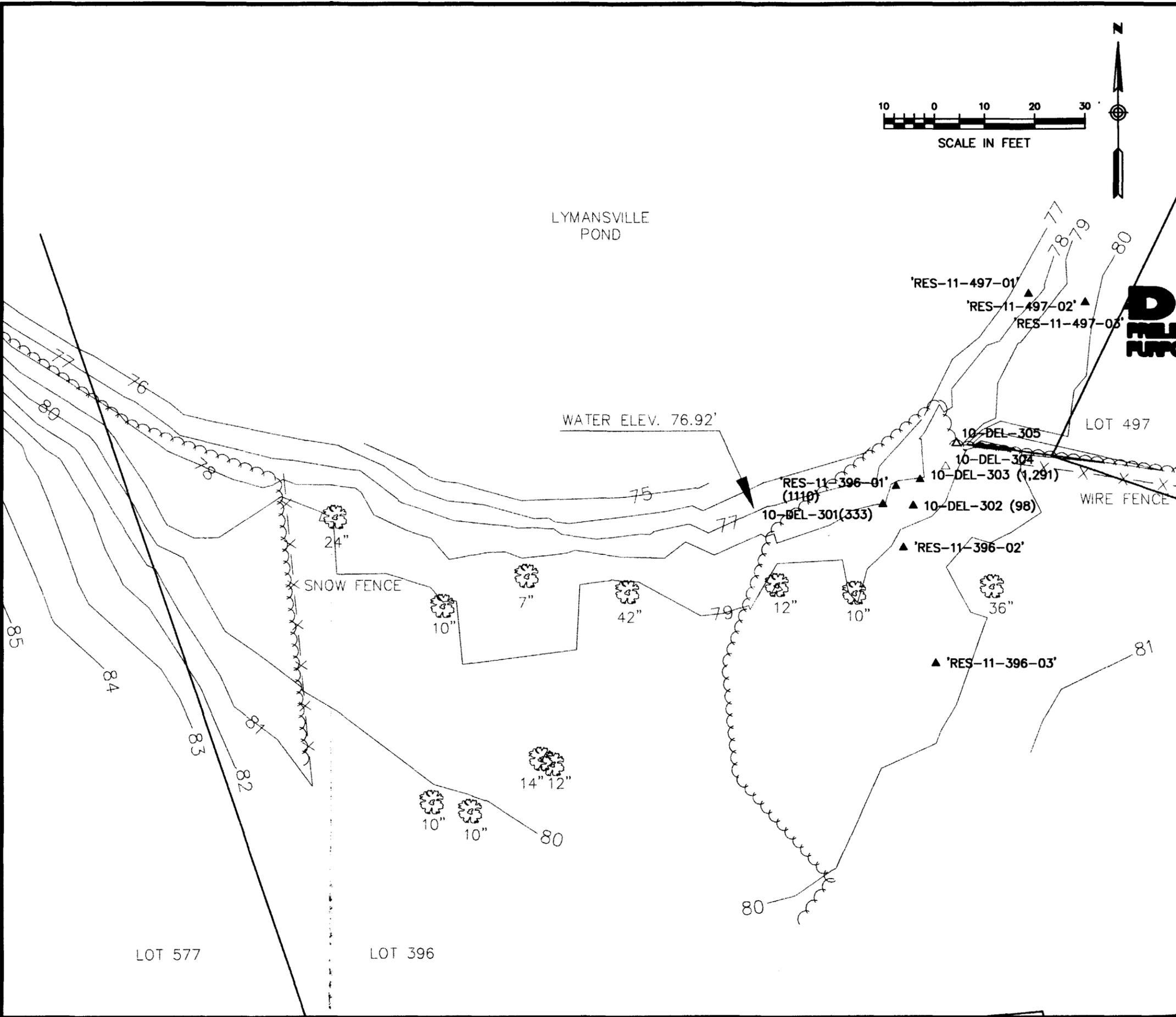
CENTREDALE MANOR SUPERFUND SITE
 NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 9

Original includes color coding

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 15RP102.003

FIGURE 9





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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0')
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

CENTREDALE MANOR SUPERFUND SITE
 NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 10

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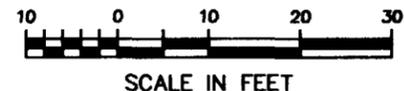
FIGURE 10



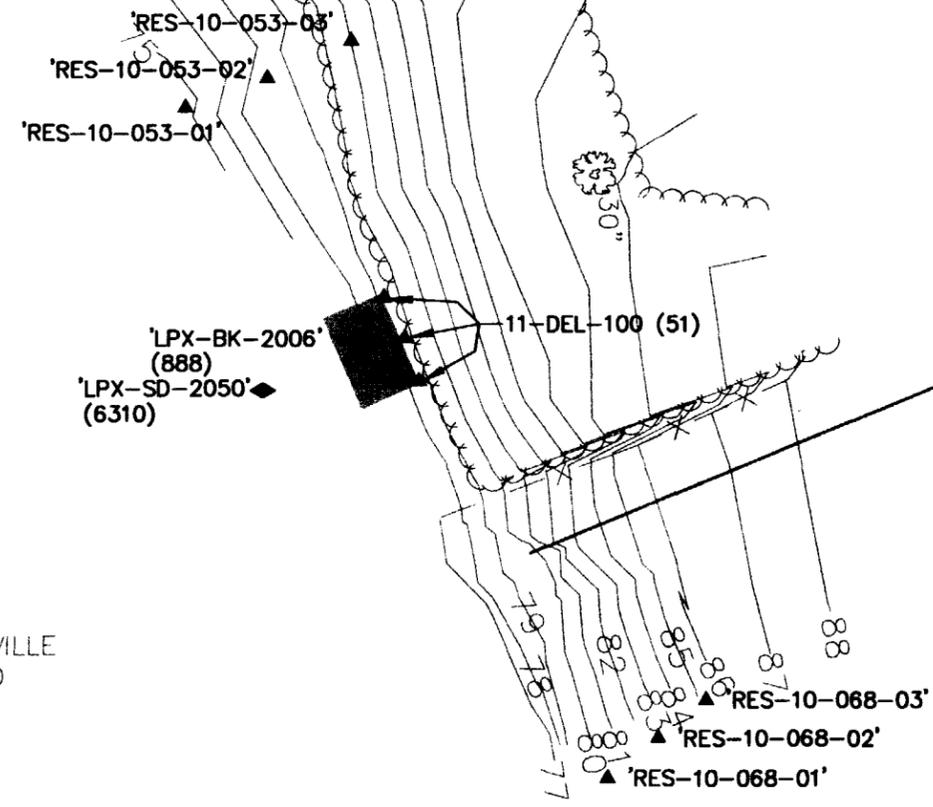
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WATER ELEV 76.92'

(FORMERLY LYMAN AVE.)



LOT 68



LYMANVILLE POND

LOT 74

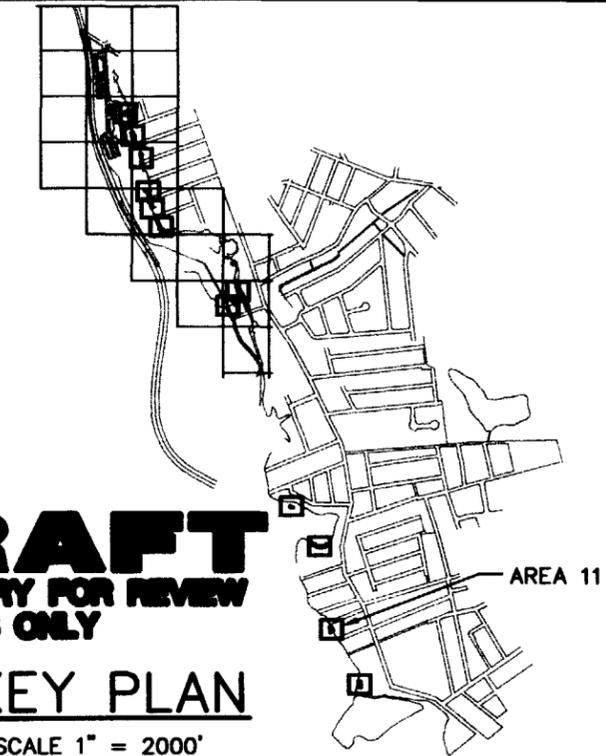
LOT 71

WATER ST.

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KEY PLAN

SCALE 1" = 2000'



LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0')
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- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

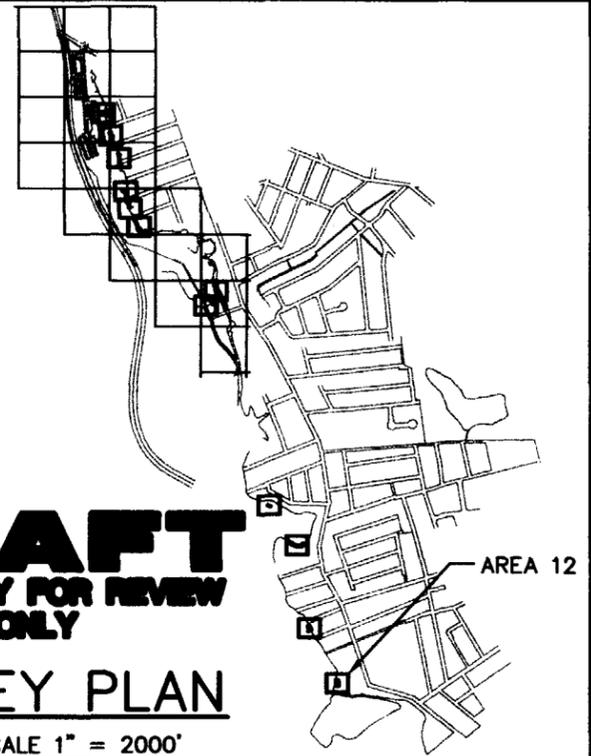
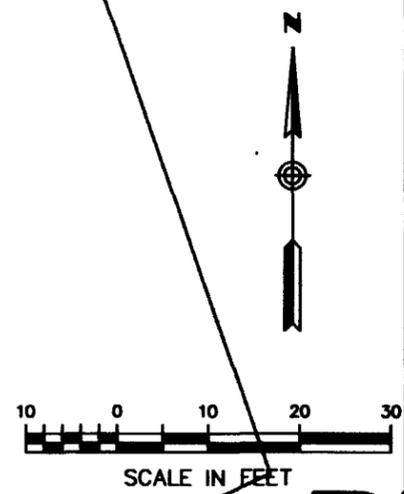
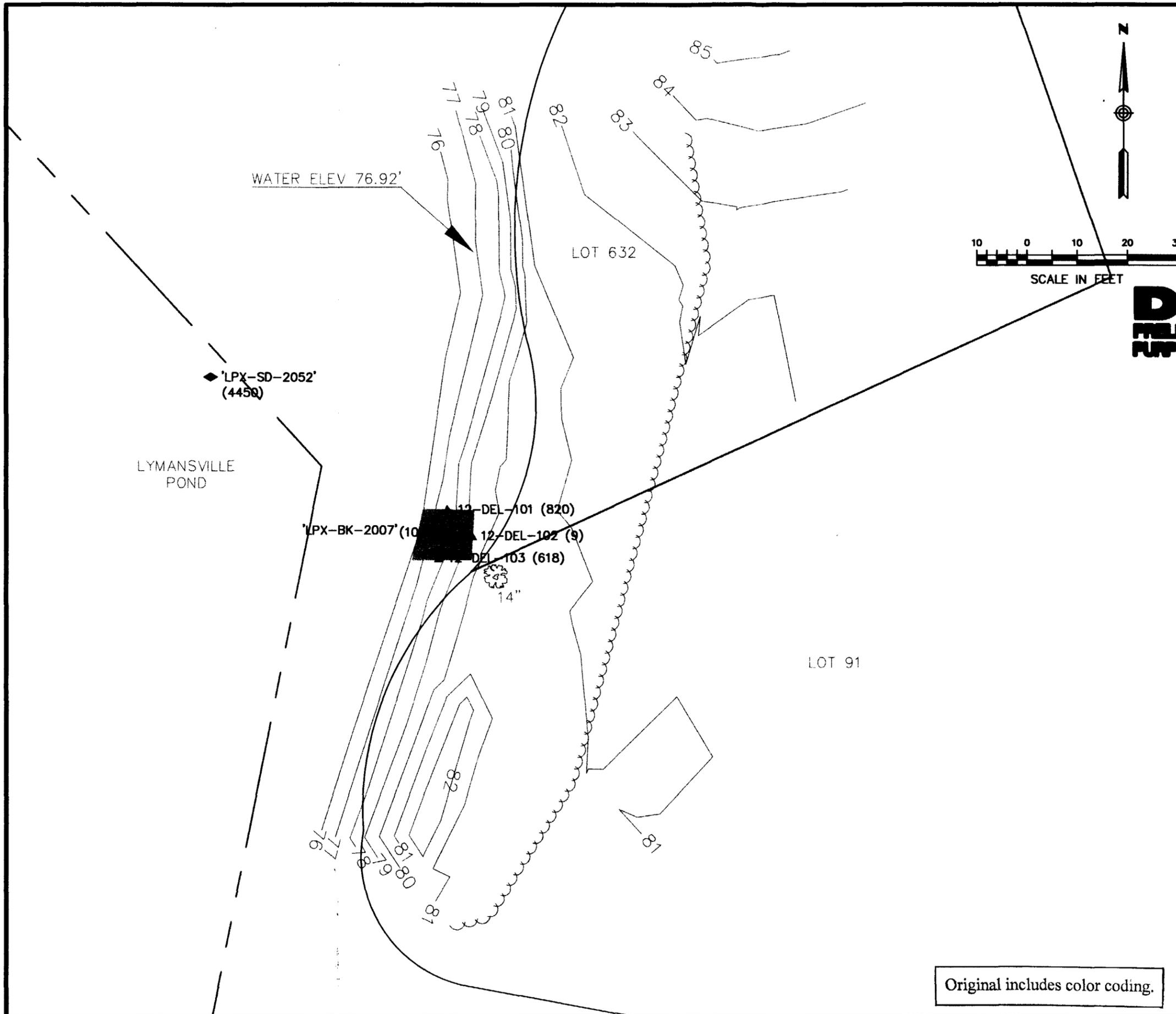
CENTREDALE MANOR SUPERFUND SITE
NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 11

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FIGURE 11



Original includes color coding,



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KEY PLAN

SCALE 1" = 2000'

LEGEND

- ▲ CMS-422 EPA SOIL SAMPLE, DIOXIN < 1000 ppt
- ▲ CMS-456 EPA SOIL SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt) (2100)
- ◆ CMS-091 EPA SEDIMENT SAMPLE, DIOXIN < 1000 ppt
- ◆ CMS-123 EPA SEDIMENT SAMPLE, DIOXIN > 1000 ppt (DIOXIN CONCENTRATION IN ppt) (2100)
- ▲ AP-DEL-01 APRIL 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (0-1.0'/1.0'-2.0') (50.9/78.9)
- ▲ 02-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (< 1000 ppt) (54)
- ▲ 01-DEL-201 JULY 2002 SAMPLE LOCATION (TOTAL TEQ CONCENTRATION IN ppt) (>1000 ppt) (9612)
- PROPOSED AREA OF EXCAVATION
- + 96.70 SPOT ELEV. & OR WATER ELEV.
- △ PROPOSED SAMPLE LOCATION
- △ PROPOSED SAMPLE LOCATION "TO BE HELD"
- ◆ PIEZOMETER LOCATION
- ppt PARTS PER TRILLION

CENTREDALE MANOR SUPERFUND SITE
NORTH PROVIDENCE, R.I.
PROPOSED AREA OF EXCAVATION
ACTION AREA 12

Original includes color coding.

Comm.No. 15RP102.003	FIGURE 12	
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