BOSWELL
EST 1924

Headquarters
330 Phillips Avenue
South Hackensack, NJ 07606
O 201 641 0770
info@boswellengineering.com
boswellengineering.com

VIA E-MAIL

January 20, 2025

Mr. John Birkner
Deputy City Manager
City of Englewood
2-10 North Van Brunt Street
Englewood, NJ 07631

Re: Radiological Screening
Denning Park
340 Harold Avenue
City of Englewood
Bergen County, New Jersey
Our File No. EW-120E

Dear Mr. Birkner:

The following summarizes of the radiological screening performed at Denning Park.

Scope of Work

On January 10, 2025, Boswell, Inc. (Boswell) was retained by the City of Englewood to conduct radiological screening at Denning Park in response to citizen concerns regarding possible impacts to the park from the former Ledoux & Company (Ledoux) operations. Ledoux was formerly located at 359 Alfred Avenue, Teaneck, New Jersey and operated a metallurgical laboratory that examined radiological samples and utilized radiological materials in the testing equipment. The former Ledoux building borders Denning Park to the east.

Radiological Screening

The radiological screening was conducted utilizing a Ludlum Model 3 radiological survey meter equipped with a Ludlum Model 44-2 Gamma Detector. The instrument data sheets and calibration documentation are included in ***Attachment C***. All readings were taken approximately ½" above the ground surface unless otherwise noted.

For the purposes of this survey, readings greater than three times (3x) background level would be considered elevated and further radiological investigation warranted. It should be noted that Boswell did not observe any readings above background at any of the screening locations.

Radiological Results

Prior to the survey, Boswell recorded measurements in both Boswell's office and outside the park at Tietjen and Lafayette Avenues. The readings were between 8-14 MicroRems per hour (uR/hour) at both locations and are considered background levels.

Boswell proceeded to enter Denning Park and surveyed various areas throughout the park. Readings were taken at spot locations and along various transects. At no time did Boswell observe any gamma readings above background levels (8-14 uR/hr). The screening results and an aerial map illustrating the screening locations are attached in ***Attachments A and B***; site photographs are included in ***Attachment D.***

Conclusions and Recommendations

None of the surveyed locations in Denning Park recorded a gamma radiation reading above the observed background level of 8-14 uR/hour. Based on the screening results, Boswell does not recommend any further radiological investigation at the subject property.

Please do not hesitate to contact Tom O'Neill (toneill@boswellengineering.com) or me (201) 373-8905 - frossi@boswellengineering.com), if you have any questions or require additional information.

Very truly yours,

Frank J. Rossi, LSRP

FJR/TO/cr
Attachments

cc: Peter C. Ten Kate, P.E.

250120CRL1

ATTACHMENT A

SCREENING RESULTS SHEETS

ATTACHMENT A

RADIOLOGICAL SURVEY

Site: DENNING PARK

Address: 340 HAROLD AVENUE
ENGLEWOOD, NJ

Job No.: EW-120E

Instrument:	Ludlum 3	Serial No.	26768
Probe:	Ludlum 44-2	Serial No.	PR405589

Date: 1/10/2025
Sampler: TO
Weather: 30° clear

Number	Reading (uR/hr)	Location
Background	8-14	Boswell office
Background	8-14	Tietjen & Lafayette
1	8-14	Playground, south end of park
2	8-14	End of walkway
3	8-14	Bridge, west side
4	8-14	Bridge, east side
5	8-14	At fence gap, southwest corner of park
6	8-14	Along fence at east end of ballfield
7	8-14	Along fence at east end of ballfield
8	8-14	Along fence at east end of ballfield
9	8-14	Along fence at east end of ballfield
10	8-14	By gate, southeast
11	8-14	By light pole
12	8-14	Ballfield south end
13	8-14	Ballfield south end
14	8-14	South side of field, center of goal
15	8-14	Bench
16	8-14	Bench
17	8-14	Center of field transect
18	8-14	Center of field
19	8-14	North end of field, end of fence
20	8-14	Bleachers by basketball court
21	8-14	Basketball court, perimeter - corners & middle
22	8-14	Basketball court, Inside center
23	8-14	Along fence, north end of field
24	8-14	Light pole, northeast
25	8-14	Along creek, transect
26	8-14	Playground, corners and inside
27	8-14	Walkway southwest corner
28	8-14	Walkway south to Ledoux building

NOTES:

uR/hr. = MicroRems per hour

Action level = 3x background

RADIOLOGICAL SURVEY

Site: DENNING PARK
Address: 340 HAROLD AVENUE
ENGLEWOOD, NJ
Job No.: EW-120E

Instrument:	Ludlum 3	Serial No.	26768
Probe:	Ludlum 44-2	Serial No.	PR405589

Date: 1/10/2025
Sampler: TO
Weather: 30° clear

Number	Reading (uR/hr)	Location
29	8-14	Walkway south to Ledoux building
30	8-14	Next to Ledoux building exterior wall, 5' up
31	8-14	Northwest entrance, at walkway and Lafayette
32	8-14	Bench area, transect along walkway
33	8-14	Center of bench area
34	8-14	Fenced area at southeast, inside fence
35	8-14	Fenced area at southeast, inside fence
36	8-14	Fenced area at southeast, inside fence
37	8-14	Fenced area at southeast, inside fence

uR/hr. = MicroRems per hour
Action level = 3x background
Source check at 08:00 and 10:50 - OK

ATTACHMENT B

RADIOLOGICAL SURVEY POINTS SHEET

ATTACHMENT B

NOTES:
NEARMAP IMAGE DATE:
MARCH 08, 2024

LEGEND:

- Site Location
- Spot Readings
- Continuous Readings Along Transect

N / W / E / S

0 35 70
FEET

BOSWELL

RADIOLOGICAL SURVEY
DENNING PARK IMPROVEMENTS
BLOCK: 2220 / LOT: 1.02
CITY OF ENGLEWOOD
BERGEN COUNTY, NEW JERSEY

DRAWN BY: SK	DATE: JANUARY 16, 2025	PROJECT NO.: EW-120E
CHECKED BY: FJR	SCALE: 1IN = 70 FT	SHEET: 1 OF 1

ATTACHMENT C

INSTRUMENT DATA SHEETS AND CALIBRATION DOCUMENTATION

ATTACHMENT C

SUNTRAC Services, Inc.

CERTIFICATE OF CALIBRATION

1818 East Main Street
League City, TX 77573
Phone: (281) 338-2133
Fax: (281) 338-2136
www.suntrac.com

Customer: 15419

Pine Environmental Services,llc
92 North Main St. Bldg 20
Windsor, NJ 08561

	Manufacturer	Model Number	Serial Number
Instrument Serviced:	Ludlum	3	26768
Detector:	Ludlum	44-2	PR405589

Meter Range Multiplier	Distance Calculated (inches)	Filter	Calculated Calibration Point	Instrument Meter Reading	Unit	Tolerance Factor +-10%
x0.1	PULSER	N	1	1	µR/hr	1.00
	PULSER	N	4	4	µR/hr	1.00
x1.0	PULSER	N	10	10	µR/hr	1.00
	PULSER	N	40	40	µR/hr	1.00
x10	579	N	100	100	µR/hr	1.00
	284	N	400	400	µR/hr	1.00
x100	178	N	1000	1100	µR/hr	1.10
	78	N	4000	4200	µR/hr	1.05

Calibrated in accordance with Texas Radioactive Materials License Number L03062, and requirements of ANSI/NCSL Z540-1-1994; ANSI-N323A-1997; and 10 CFR 34.25 & 35.61. NIST Traceable #212924/T211498.

Temperature: 72ºF Humidity: 50% Altitude: 30inHG Geotropism: ☑

Calibration Source S/N: A280 Source Activity: 56.56 mCi Cs137: 16.75 mR/hr.@100cm;<+/-5%

Pulser Utilized: Yes Pulser Information: Ludlum Model 500 S/N 50802

Battery Check: OK OP Volts: 900 Detector Position: Parallel

Check Source: Yes Isotope: Cs-137 Isotope S/N: 502 µR/hr At Contact: 1000

Technician Comments: The check source reading was taken with the front end of the detector at contact with source. The X 0.1, X 1 ranges are calibrated electronically.

Thomas Edwards — 3/6/2024
Calibrated By Thomas Edwards — Cal. Date

12 months — 3/6/2025
Calibration Interval — Cal. Due Date

D. O'Reilly — 03apr24
Quality Assurance Reviewed By — Review Date

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

Pine Environmental Services, Inc.

Instrument ID 26768
Description Ludlum Model 3
Calibrated 1/8/2025 11:24:48AM

Manufacturer Ludlum
Model Number Model 3
Serial Number/ Lot Number 26768
Location New Jersey
Department

State Certified
Status Pass
Temp °C 22.4
Humidity % 25

Calibration Specifications

Group # 1
Group Name Coin Test
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Next Cal Date / Last Cal Date/ Expiration Date Opened Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kelly McGuire

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

LUDLUM MEASUREMENTS, INC.

Model 3
General Purpose Ratemeter

FEATURES

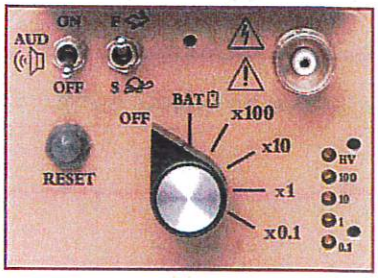
- Supports GM & Scintillation Detectors
- Rugged Construction & Low Price
- 4-Range Analog Ratemeter
- Greater than 2000 Hour Battery Life
- Audio On-Off, BAT CHECK
- Options & Accessories for Multiple Applications

Introduction

This is Ludlum's best selling, general purpose, handheld analog ratemeter known for accuracy and long-lasting dependability. The analog meter comes in a variety of measurement ranges and units to support the external radiation detector selected.

The cast aluminum instrument housing with its separate battery compartment and accompanying metal handle offer an industrial robustness and quality that promote long-lasting protection and instrument life. The front-panel controls include a rotary switch for selecting the four-decade range, instrument shut-off, and battery test, an audio on/off switch, a fast/slow response switch, and a count reset button.

A one meter (39 in.) straight type detector cable with "C" style connector is included in the price of the instrument.



Specifications

Part Number: 48-1605

COMPATIBLE DETECTORS: GM and scintillation
HIGH VOLTAGE: adjustable from 400 to 1500 Vdc
THRESHOLD: -30 mV ± 10 mV
LINEARITY: within 10% of true value
CONTROLS:

- Rotary Selector Switch: off, battery check, range selections for x0.1, x1, x10, x100
- Reset: pushbutton to zero meter
- Response: toggle between FAST (4 secs) or SLOW (22 secs) from 10% to 90% of final reading
- Audio Switch: on/off, built-in unimorph speaker, 60 dB at 61 cm (2 ft)
- Calibration Controls: accessible from front of instrument (protective cover provided)

CONSTRUCTION: cast and drawn aluminum with beige powder coating
METER DIAL: 0–2 mR/hr, or 0–500 kcpm, BAT TEST (others available)
DETECTOR CONNECTOR: type "C" series (others available)
TEMPERATURE RANGE: -20 to 50 °C (-4 to 122 °F)
May be certified for operation from -40 to 65 °C (-40 to 150 °F)
POWER: two each "D" cell batteries (housed in externally accessible sealed compartment)
BATTERY LIFE: typically greater than 2000 hours with alkaline batteries (battery condition can be checked on meter)
SIZE: 16.5 x 8.9 x 21.6 cm (6.5 x 3.5 x 8.5 in.) (H x W x L)
WEIGHT: 1.6 kg (3.5 lb), including batteries

Model 3 face view

Also Available:
Model 3A: Identical to Model 3, but with built-in audible and visual alarms (Part No. 48-1408)
Model 3-IS: Intrinsic safety rating for operating in hazardous areas (Part No. 48-3581)
Model 14C: Includes internal GM detector with range of 0–20 mSv/h (0–2000 mR/hr) (Part No. 48-1611)
Model 3000-Series of digital, low-weight, versatile instruments. See website for further details.

Ludlum Measurements, Inc. P.O. Box 810, Sweetwater, Texas 79556
Web: ludlums.com **Tel:** 800-622-0828 / 325-235-5494 **Fax:** 325-235-4672 **Email:** sales@ludlums.com

Jul 2021

LUDLUM MEASUREMENTS, INC.

Model 44-2
Gamma Detector

(Two views shown of Model 44-2)

Specifications

Part Number: 47-1532

INDICATED USE: low-level, wide-energy gamma survey
DETECTOR TYPE: scintillator, 2.5 x 2.5 cm (1 x 1 in.) (Dia x thickness)
SUGGESTED INSTRUMENTS: general purpose survey meters, ratemeters, and scalers
EFFICIENCY: ^{125}I for 7%; ^{57}Co for 10%; ^{137}Cs for 3%; ^{60}Co for 3%
SENSITIVITY: typically 175 cpm/µR/hr (^{137}Cs gamma)
RECOMMENDED ENERGY RANGE: 20 keV – 1.5 MeV
ENERGY RESPONSE: energy dependent
BACKGROUND: 1800 cpm (in 10 µR/hr field)
PHOTOMULTIPLIER TUBE: 2.9 cm (1.1 in.) diameter, magnetically shielded
OPERATING VOLTAGE: typically 500 to 1200 V
TEMPERATURE RANGE: -15 to 50 °C (5 to 122 °F); may be certified to operate from -40 to 65 °C (-40 to 150 °F)
ENVIRONMENTAL RATING: IP65
CONNECTOR: series "C" (others available)
CONSTRUCTION: aluminum housing with beige powder coat finish
SIZE: 5.1 X 21 cm (2 x 8.25 in.) (Dia x L)
WEIGHT: 0.5 kg (1 lb)

Options

Sample Holders: Model 180-1, Model 180-1L, and Model 180-24 sample holders provide repeatable geometry for counting wipes, filter paper, or slides at user-selectable spacing of 0.32, 0.64, 1.3, 2.5, and 5.1 cm (0.125, 0.25, 0.5, 1, and 2 in.) from the detector.

- **Model 180-1:** anodized aluminum frame, sample tray, and collimator (P/N 47-1675)
- **Model 180-1L:** as above, but with 0.64 cm (0.25 in.) painted lead collimator (P/N 47-2988)
- **Model 180-24:** anodized aluminum frame and sample tray (no collimator) (P/N 47-2631)

Planchets: 5.1 cm x 3.2 mm (2.0 x 0.125 in.) (Dia x thickness) in stainless steel or aluminum, minimum order quantity of 500
Stainless Steel (P/N 7525-371-01); Aluminum (P/N 7525-371)
Collimator: lead shielding/collimator for 5.1 cm (2 in.) OD detectors (P/N 4002-227)

Ludlum Measurements, Inc. P.O. Box 810, Sweetwater, Texas 79556
Web: http://www.ludlums.com **Tel**: 800-622-0828 / 325-235-5494 / **Fax**: 325-235-4672 / **Email**: sales@ludlums.com

Nov 2021

ATTACHMENT D

PHOTO DOCUMENTATION

ATTACHMENT D

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SITE PHOTOGRAPHS

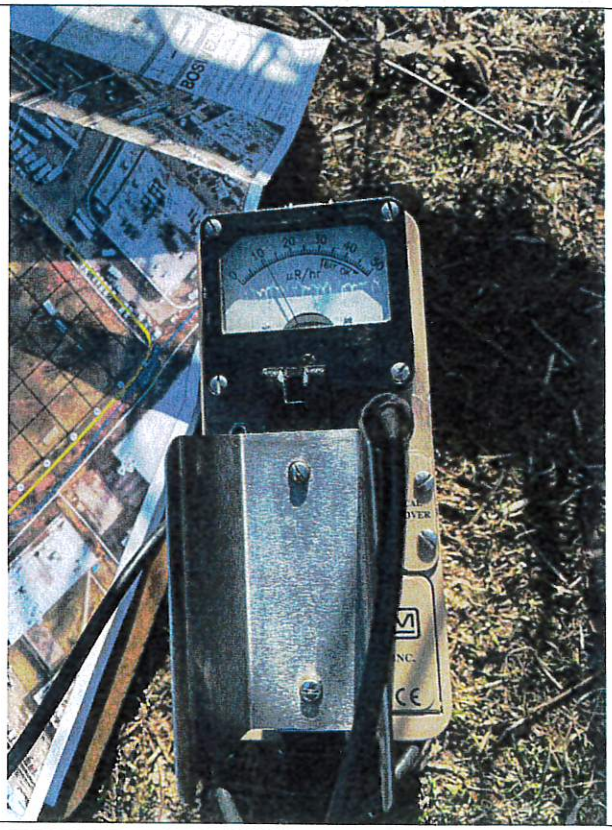
CLIENT NAME:	SITE LOCATION:	DATE:	PROJECT NAME:	PROJECT NO.:
City of Englewood	Denning Park, 240 Harold Avenue, Englewood, NJ	January 10, 2025	Radiological Screening Denning Park	EW-120E

Photo No. 1.

Description:
Gap in fence along Overpeck Creek tributary. Former Ledoux building is at left of photograph.

Photo No. 2.

Description:
Meter reading at gap in fence.



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EST 1924

SITE PHOTOGRAPHS

CLIENT NAME:	SITE LOCATION:	DATE:	PROJECT NAME:	PROJECT NO.:
City of Englewood	Denning Park, 240 Harold Avenue, Englewood, NJ	January 10, 2025	Radiological Screening Denning Park	EW-120E

Photo No. 3.

Description:
East end of ballfield, view facing south.

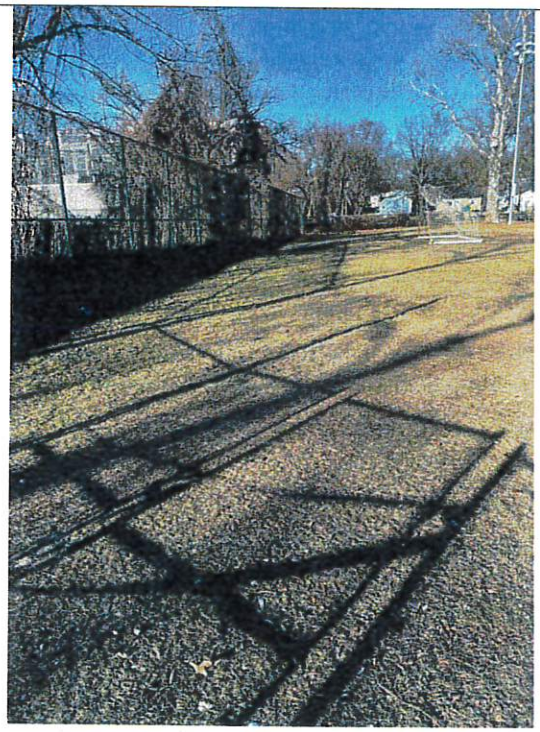
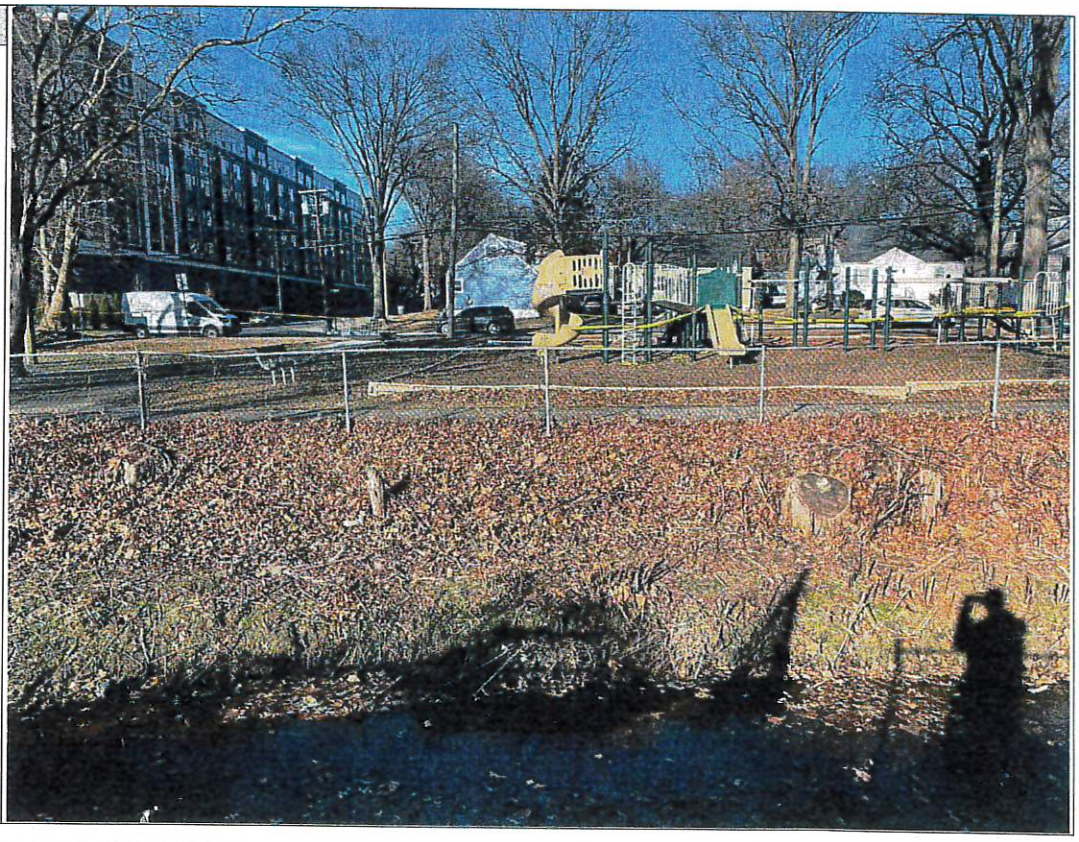


Photo No. 4.

Description:
Playground at southwest corner of Denning Park.



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SITE PHOTOGRAPHS

CLIENT NAME:	SITE LOCATION:	DATE:	PROJECT NAME:	PROJECT NO.:
City of Englewood	Denning Park, 240 Harold Avenue, Englewood, NJ	January 10, 2025	Radiological Screening Denning Park	EW-120E

Photo No. 5.

Description:
Goal at east end of ballfield.

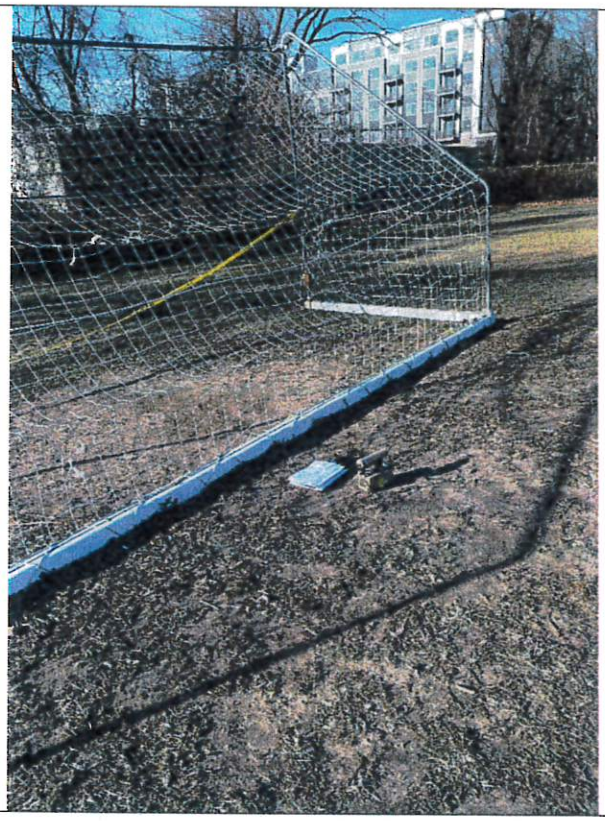

Photo No. 6.

Description:
Center of ballfield. View facing east.

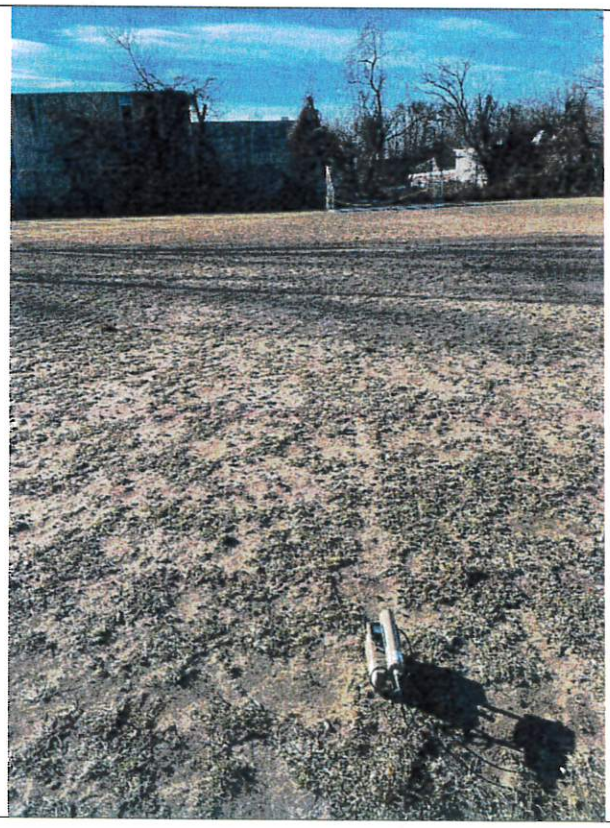

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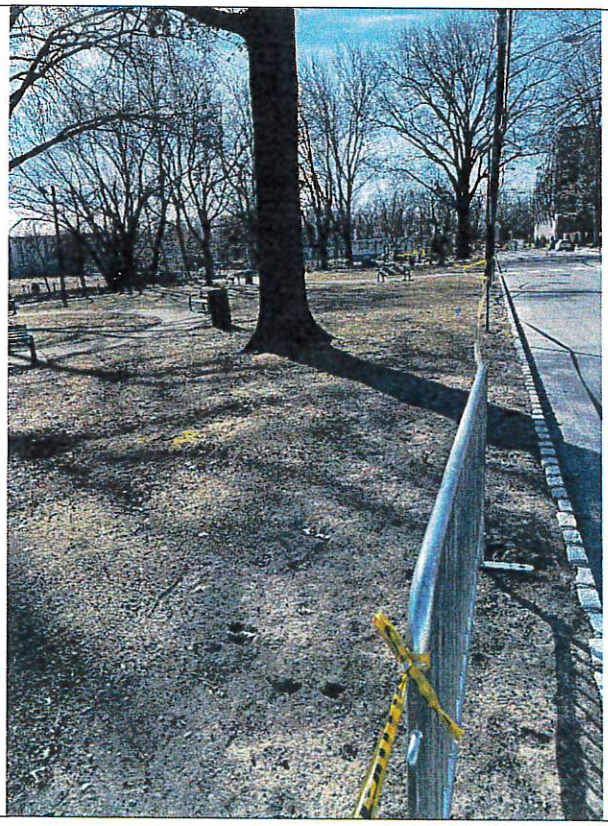
Photo No. 7.

Description:
Rear of former Ledoux Building, view facing east.

Photo No. 8.

Description:
South side of park along Lafayette Avenue.



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SITE PHOTOGRAPHS

CLIENT NAME:	SITE LOCATION:	DATE:	PROJECT NAME:	PROJECT NO.:
City of Englewood	Denning Park, 240 Harold Avenue, Englewood, NJ	January 10, 2025	Radiological Screening Denning Park	EW-120E

Photo No. 9.

Description:
West side of park, view facing north.

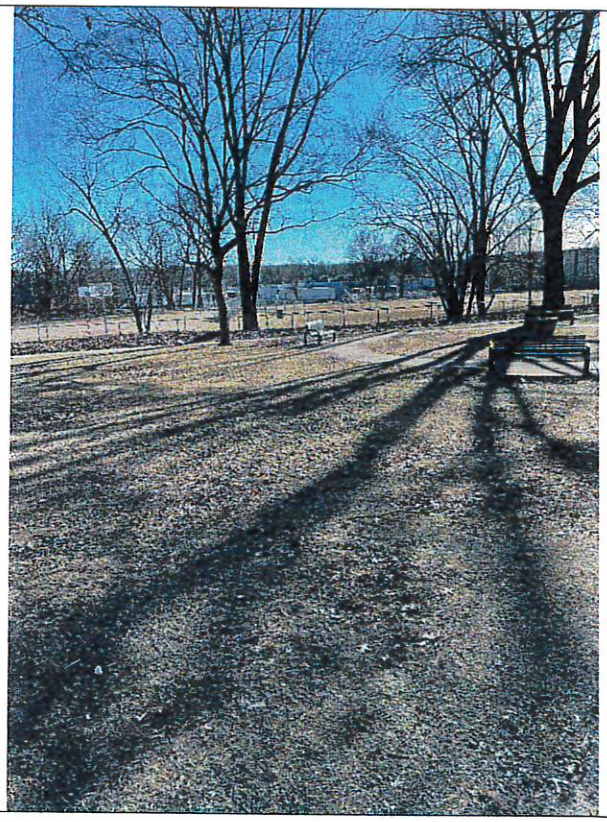

Photo No. 10.

Description:
Basketball court at west side of park.