

Waste Management Disposal Services of Maine, Inc. - Crossroads Landfill Norridgewock, Maine Phase 14 Landfill

**Sound Level Assessment
R. Scott Bodwell, P.E.
Bodwell EnviroAcoustics, LLC**

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Bodwell EnviroAcoustics, LLC (BEA)

- **Acoustical Consulting in Maine Since 1987**
- **Founded BEA in 2010**
- **Over 300 Acoustics/Sound Studies in Maine**
- **Participation in Maine DEP Rulemaking for Control of Noise since 1989**
- **Major Industrial & Energy Projects**
- **Acoustics (Sound Level) Analyses for Crossroads Landfill since 2001**

Noise Standards & Sound Level Limits

**Maine DEP Solid Waste Management Rules (SWMR)
Chapter 400.4.F.(1)(d) Existing Uses and Scenic
Character**

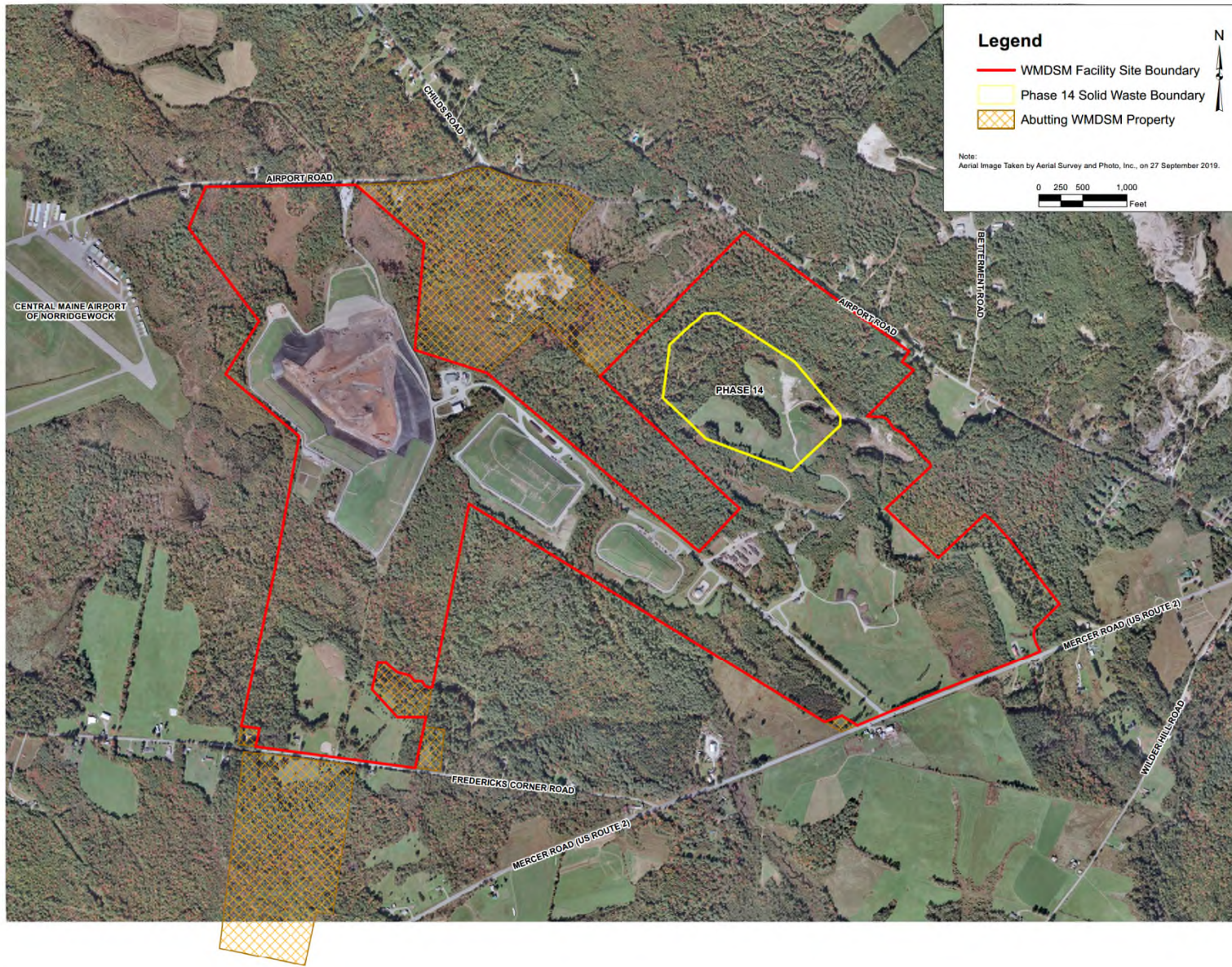
Sound Level Limits

- (i) 75 dBA for daytime and nighttime hours at the facility property boundary;**
- (ii) 60 dBA for daytime hours and 50 dBA for nighttime hours at any protected location not predominantly commercial or industrial; or**
- (iii) 70 dBA for daytime hours and 60 dBA for nighttime hours predominantly commercial or industrial.**

Daytime = 7 am to 7 pm

Nighttime = 7 pm to 7 am

Aerial Site Map



Site Plan Phase 14 Waste Management Disposal Services of Maine, Inc. Crossroads Landfill Norridgewock, Maine	
Geosyntec consultants	Figure
Acton, Massachusetts	September 2020
	1

Sound Level Limits

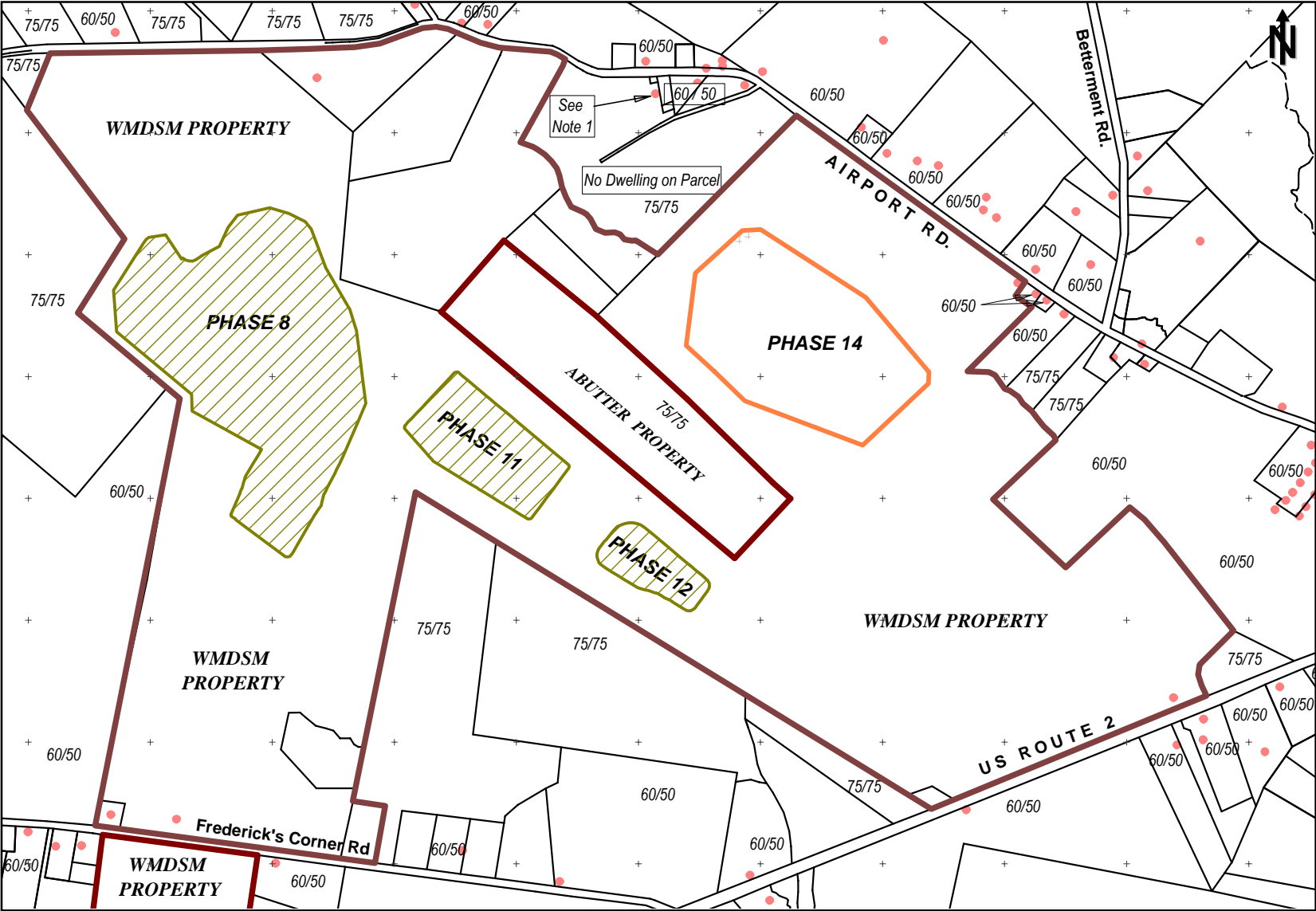


FIGURE 3-1

**LAND USE & SOUND
LIMIT MAP**

LEGEND

60/50 = MEDEP DAY/NIGHT
SOUND LIMIT (dBA) AT
PROTECTED
LOCATIONS

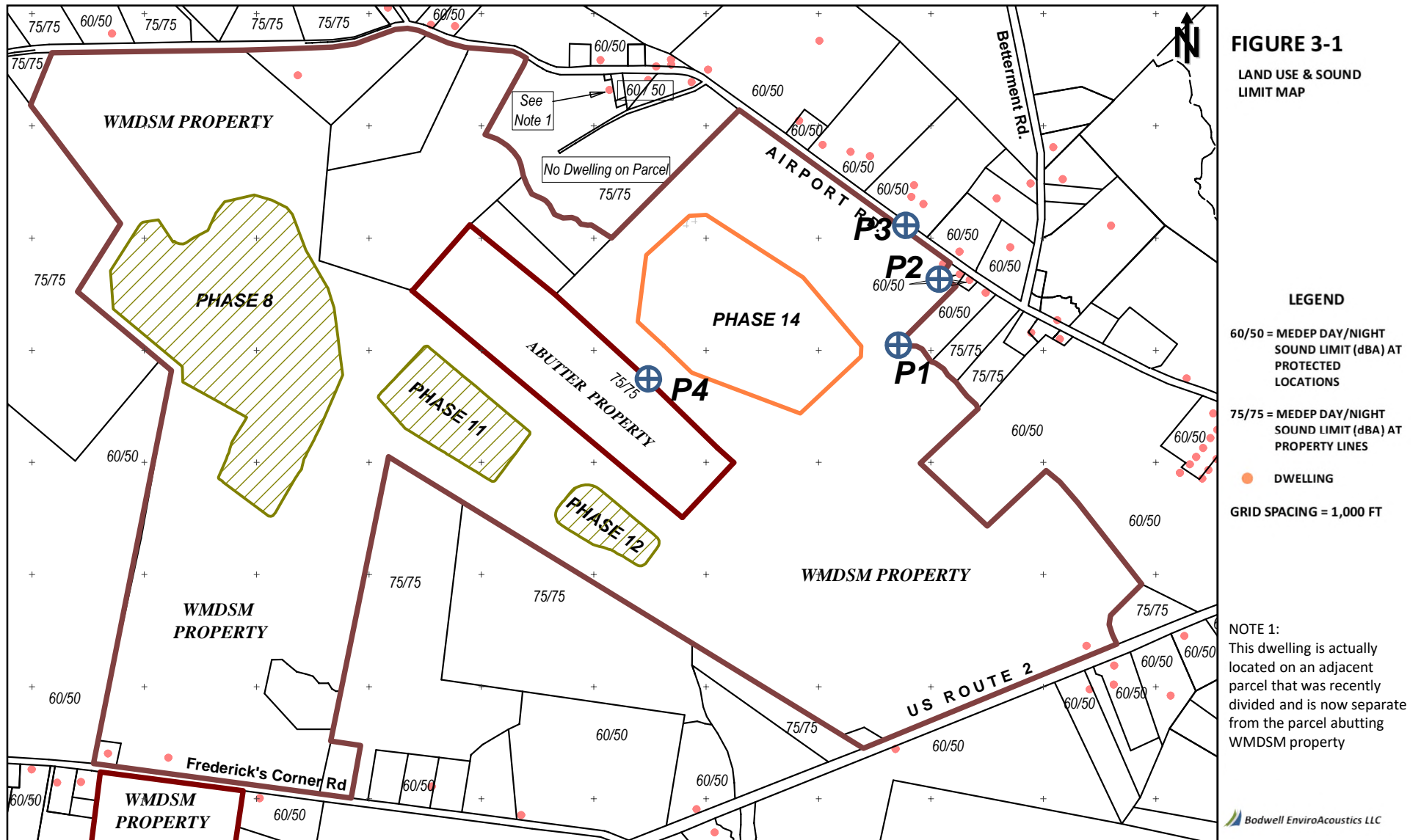
75/75 = MEDEP DAY/NIGHT
SOUND LIMIT (dBA) AT
PROPERTY LINES

● DWELLING

GRID SPACING = 1,000 FT

NOTE 1:
This dwelling is actually
located on an adjacent
parcel that was recently
divided and is now separate
from the parcel abutting
WMDSM property

Sound Level Limits – Receptor Points



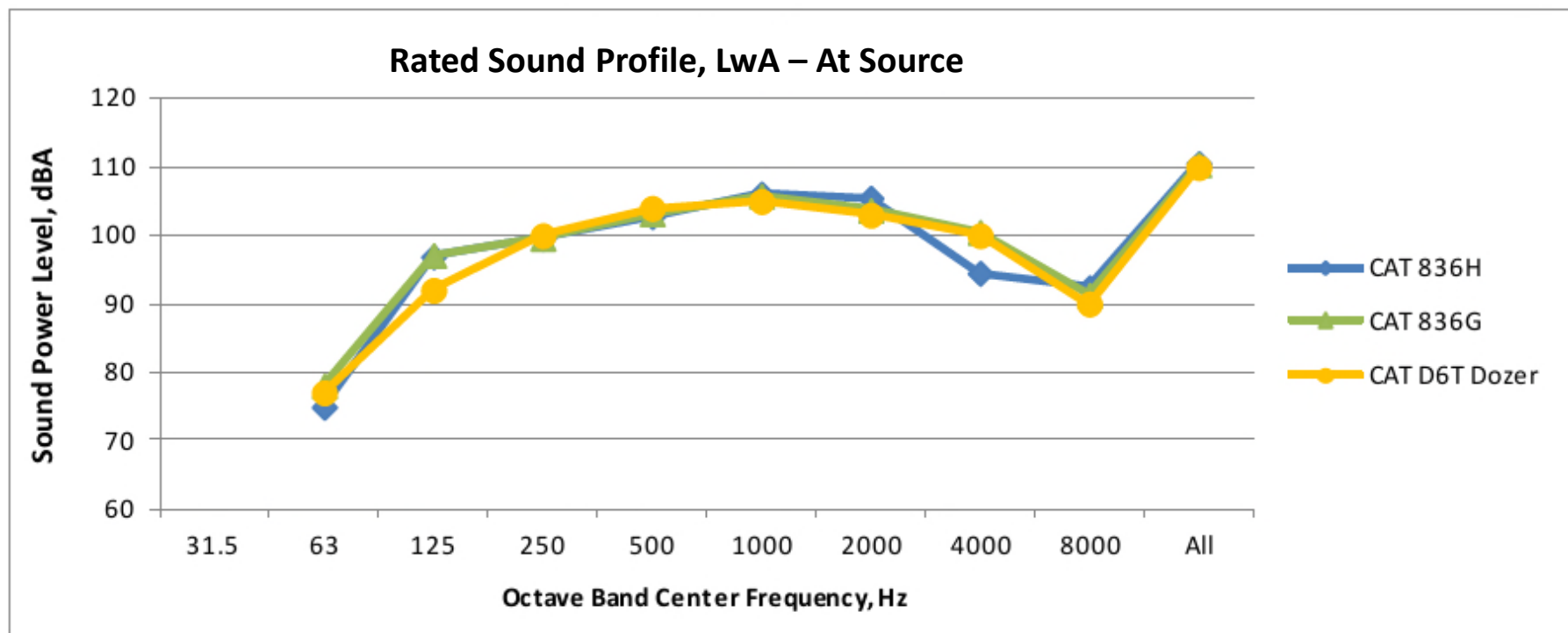
Sound Sources

Types

- Mobile Equipment – Waste Compactors & Bulldozers

Sound Performance

- Equipment Specifications from Caterpillar
- Overall & Octave Band Sound Levels



Predictive Sound Model

- International sound propagation standard
- Terrain-based (three dimensional)
- Full-rated equipment sound levels
- Source Heights – Top of Exhaust
- Simultaneous Operation - Nearest Areas to Receptor Points
- No attenuation from foliage
- Mix of hard and soft ground
- Proven methodology based on extensive sound testing in Maine

INTERNATIONAL
STANDARD

ISO
9613-2

First edition
1996-12-15

**Acoustics — Attenuation of sound during
propagation outdoors —**

Part 2:
General method of calculation

Sound Model Results

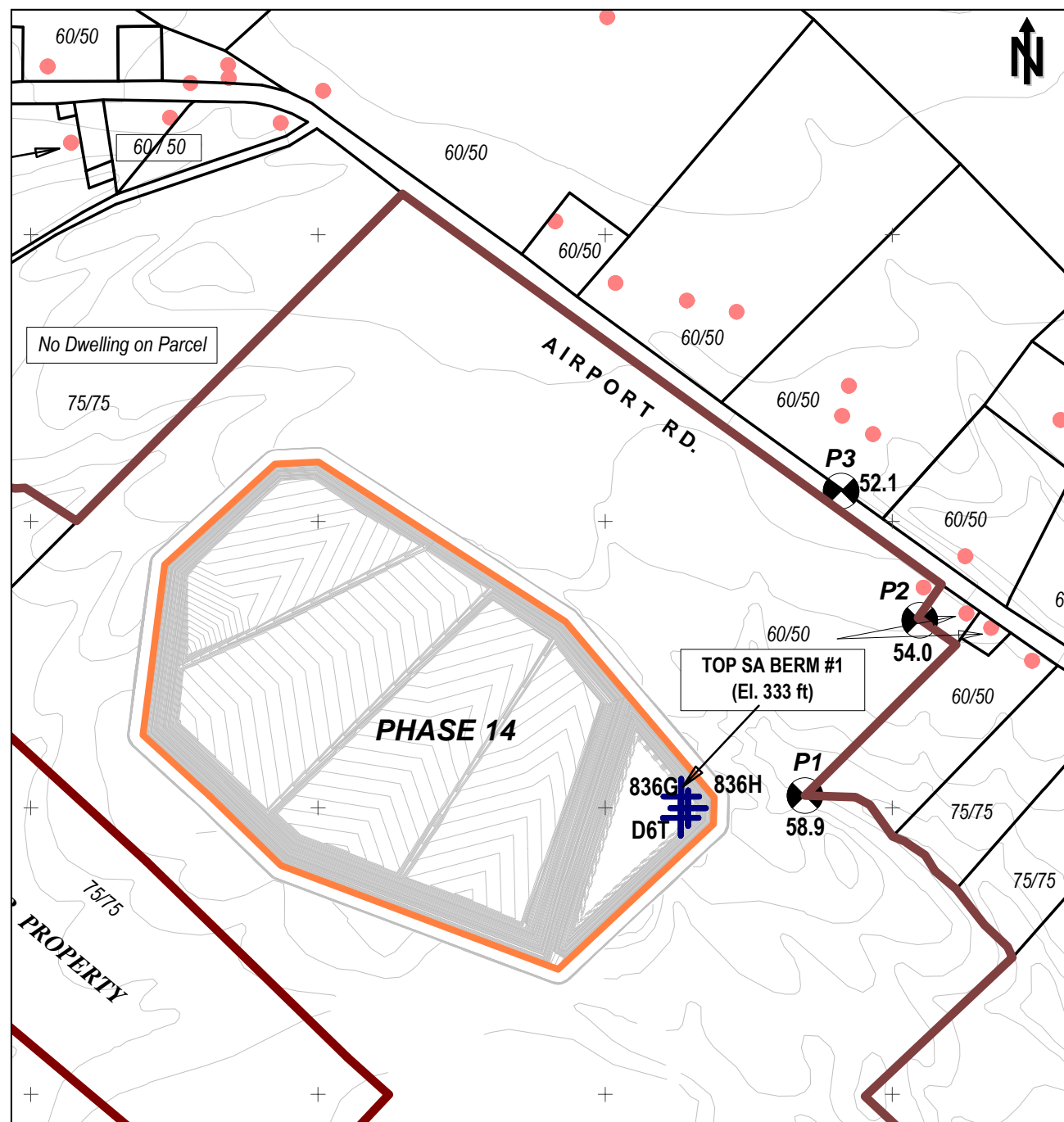
**Figure 5-2.
Predicted Sound Levels Full Phase 14**

**Full Operation with
Sound Abatement (SA)
Berm - 10 feet above
Landfill Operating
Surface**

⊗ Receptor Point

+ Equipment
Sound Source

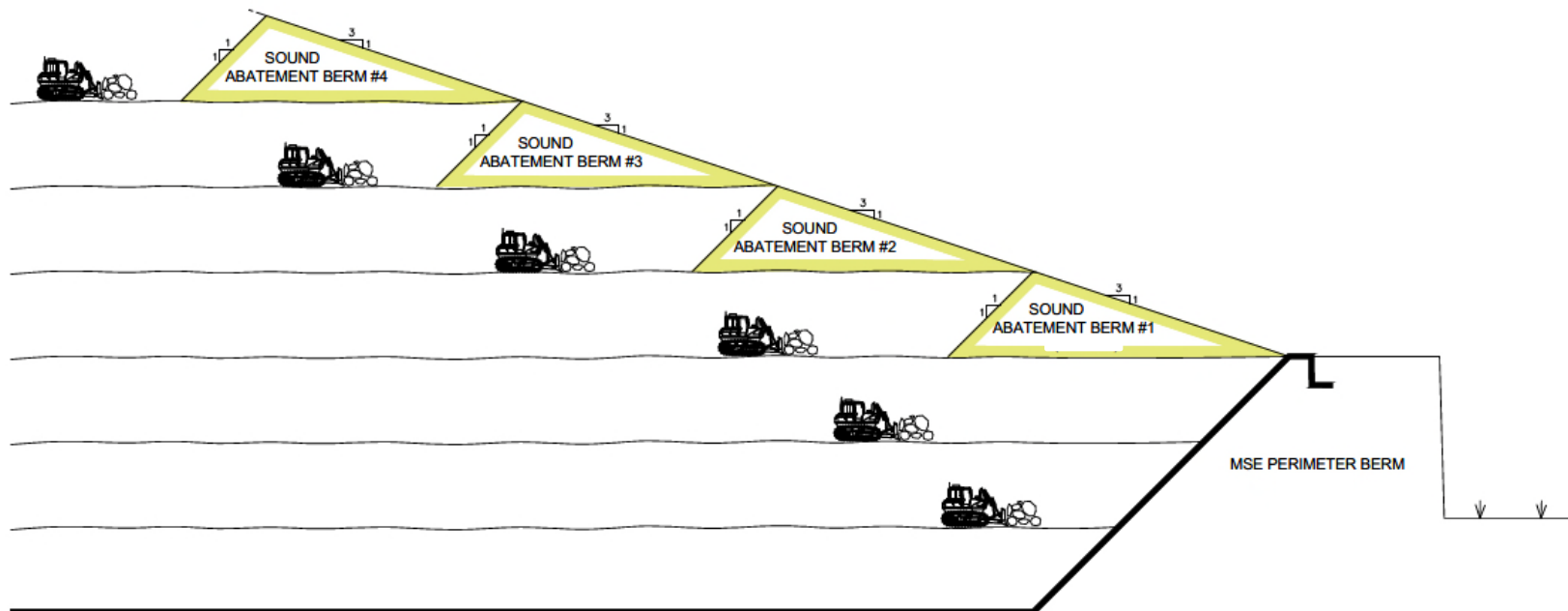
60/50 Maine DEP
Daytime/Nighttime
Limits (dBA)



Sound Abatement (SA) Berm

SA Berm

- Only needed for Receptor P1
- Small area of Phase 14 Landfill



Sound Model

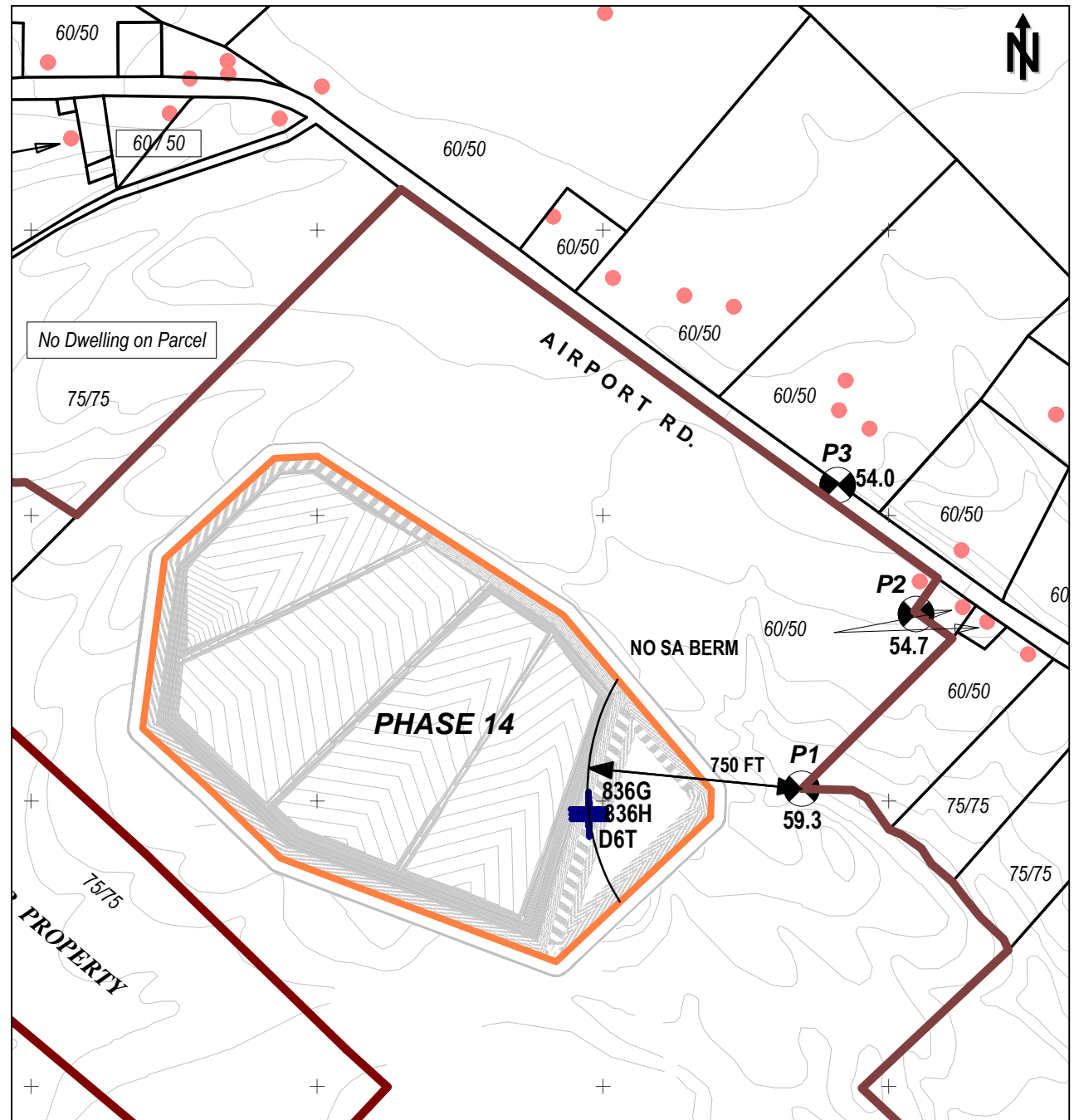
**Figure 5-3.
Predicted Sound
Levels Full Phase 14**

**Nearest Operating
Area to Rec P1
without SA Berm**

⊗ Receptor Point

+ Equipment
Sound Source

60/50 Maine DEP
Daytime/Nighttime
Limits (dBA)



Sound Model

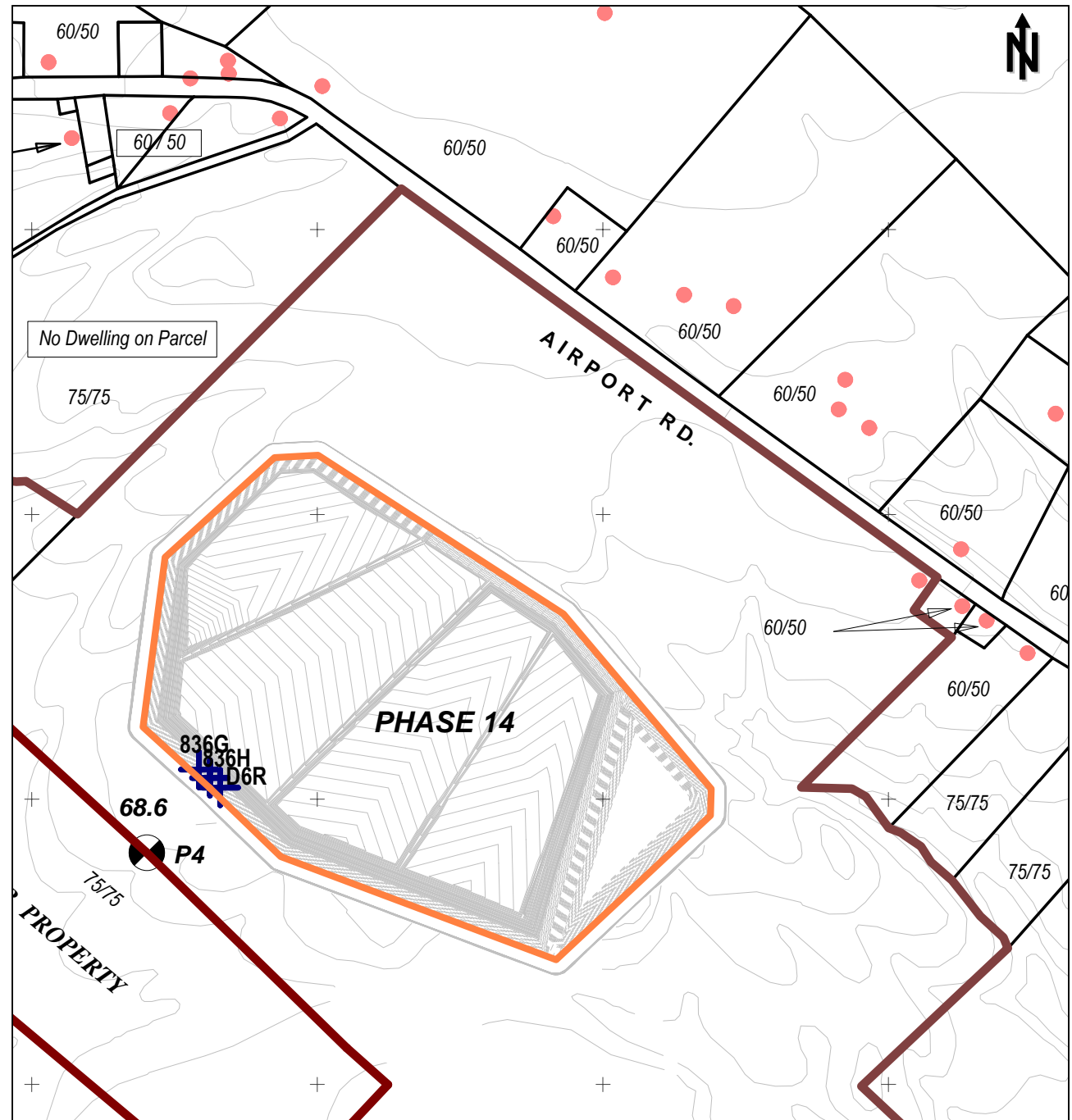
Figure 5-4. Predicted Sound Levels Full Phase 14

Nearest Operating Area to Rec P4 No SA Berm

-  Receptor Point

- + Equipment
Sound Source

60/50 Maine DEP
Daytime/Nighttime
Limits (dBA)



Sound Model Results & Compliance Evaluation

Receptor Point	Description and Approximate Distance to Phase 14 Operating Boundary		Predicted Hourly Sound Level and Applicable Daytime Limit, dBA			
	Description	Distance (ft)	Interim with SA Berm	Interim 750 feet with no SA Berm	Phase 14 Nearest to P4	Daytime Sound Limit Criterion
P1	Protected Location	315	58.9	59.3	n/a	60
P2	Protected Location	946	54.0	54.7	n/a	60
P3	Protected Location	1,032	52.1	54.0	n/a	60
P4	Abutting Property – No Dwelling	315	n/a	n/a	68.6	75

Table 5-1. Predicted Sound Levels from Phase 14 Landfill Operations at Receptor Points

n/a = Receptor Point not applicable for the modeled operating scenario