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April 10, 2013

VIA RESS and Courier

Ontario Energy Board
2300 Yonge Street
P.O. Box 2319
Suite 2700
Toronto, ON M4P 1E4

Attention: Kirsten Walli
Board Secretary

Dear Ms. Walli:

Re: Varna Wind Inc. Leave to Construct Application
Board File No. EB-2012-0442
Interrogatories of the Applicant on Ritzema and Oldfield Evidence

Pursuant to Procedural Order No. 2, please find enclosed the interrogatories of the Applicant Varna Wind Inc. on Ritzema and Oldfield evidence in the above proceeding.

Please note that names of private individuals not parties in this proceeding have been redacted from Exhibit A to these interrogatories. A non-redacted copy of Exhibit A is being filed in hard copy in accordance with the Board's *Practice Direction on Confidential Filings*.

Sincerely,

Signed in the original

George Vegh

GV/
Enclosure

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Schedule B;

AND IN THE MATTER OF an application by Varna Wind Inc. for an order or orders pursuant to section 92 of the *Ontario Energy Board Act, 1998* granting leave to construct transmission facilities in the Municipalities of Bluewater and Huron East.

Interrogatories of the Applicant on Ritzema and Oldfield Evidence

Ritzema Evidence

Reference: Ritzema evidence page 2 and Exhibit 4

1. Please provide the source of the “map” referred to in respect of the assertion that the Applicant has planned to place a pole at the location indicated in Exhibit 4 of the Ritzema evidence. Please also provide the map itself. If the map cannot be produced, please provide the basis for the proposition that there will be a pole at the location indicated.

Reference: Ritzema evidence page 2 and Exhibit 4

The evidence states that the Ritzemas “claim ownership” of the pie-shaped plot of land that is cross hatched in pink at Exhibit 4 of the Ritzema evidence. Please provide a copy of all documentation that the Ritzemas rely upon to demonstrate their ownership of that plot of land.

2. Please advise how the land claimed to be Ritzema property located south of Centennial Road and east of Division Line (that is, the land which is "cross hatched" in pink at Exhibit 4 of the evidence) is used and who is using it.
3. Please provide a chronology indicating how long the land has been used in this or any other manner to the extent that the Ritzemas are aware.

Reference: Ritzema evidence, Exhibit 4

Exhibit 4 of the Ritzema evidence is a Google map showing how Centennial Road slopes northward and connects with Division Line. Attached as Exhibit A to these Interrogatories is a version of that map that includes registered owners (redacted) and the existing municipal right of way. Exhibit A demonstrates that Centennial Road deviates north of the right of way prior to

its connection at Division Line. The area in the triangle in between the right of way and Centennial Road is the same as the area which is cross hatched in pink at Exhibit 4 of the Ritzema evidence. That area will be referred to in these Interrogatories as the "Deviation Area" and the portion of Centennial Road in the Deviation Area will be referred to as the "Deviation Road".

4. Please advise whether the Ritzemas agree with the contents of the map at Exhibit A.
5. Did the Ritzemas or the predecessor to Mr. Ritzema in title to PIN 41280-0037(LT), being Lot 26, Concession 5, London Road Survey Tuckersmith; and part Lot 27, Concession 5, London road Survey Tuckersmith as in R331779; Huron East; open the Deviation Road in the place of the original road allowance that is in the Deviation Area?
6. Did the Ritzemas or the predecessor to Mr. Ritzema in title ever receive compensation for the land comprising the Deviation Road?
7. Is Mr. Ritzema now the person in possession of the portion of the original road allowance that is in the Deviation Area, particularly having regard to Exhibit A, which shows that a significant portion of the Deviation Area is farmed contiguously with land to the south of the Deviation Area owned by the neighbours to the south? If not Mr. Ritzema, then who is in possession of that land?
8. Has Mr. Ritzema received a signed and delivered, but unregistered, conveyance of the portion of original road allowance within the Deviation Area?
9. Are the Ritzemas aware of any claim for possession, compensation or otherwise from any other person, including without limitation, the neighbours to the south or their tenants, in regard to all or part of the Deviation Area?
10. Please make the following enquiries of the Municipality of Huron East:
 - a. Did the Deviation Road exist as a highway on December 31, 2002?
 - b. On the basis that the Deviation Road is a highway, does Huron East have plans, surveys and specifications as to the such highway?
 - c. If the Deviation Road did not exist as a highway on December 31, 2002, has a by-law of Huron East or a predecessor municipality been passed on or after January 1, 2003, dedicating the Deviation Road as a highway?
 - d. Did the predecessor of Mr. Ritzema in title to PIN 41280-0037(LT), being Lot 26, Concession 5, London Road Survey Tuckersmith; and part Lot 27, Concession 5, London road Survey Tuckersmith as in R331779; Huron East; open the Deviation Road in the place of the original road allowance that is in the Deviation Area? If so, did Huron East or any predecessor municipality assume such Deviation Road by, amongst other things, expenditure of public money on it?

- e. Did Huron East or any predecessor municipality open the Deviation Road in place of the original road allowance that is in the Deviation Area?
- f. Did Huron East or any predecessor municipality ever give compensation for the land comprising the Deviation Road to Mr. Ritzema, any predecessor in title to the Deviation Road, any person currently in possession of all or part of the Deviation Area or any other person?
- g. Did Huron East or any predecessor municipality ever pass a by-law stopping up and closing the portion of the original road allowance within the Deviation Area?
- h. Did Huron East or any predecessor municipality ever convey all or any portion of the original road allowance within the Deviation Area to Mr. Ritzema, a predecessor in title or any other person? If so, was the consent of the Ministry of Natural Resources obtained as such original road allowance runs over the Left Tributary of the Broadfoot Drain?

Oldfield Evidence

Reference: Oldfield evidence page 1, paragraph 2

The evidence states that the Oldfield barn is 9 metres from the proposed transmission line. Please advise on how this measurement was taken, that is, was the distance measured from the edge of the barn to the edge of the municipal right-of-way, or otherwise?

Reference: Oldfield evidence page 1, paragraph 3

The evidence refers to regulations in Bulgaria respecting setbacks from power lines. As described in the Applicant's answer to Board Staff interrogatory 10, the Applicant looks to the Canadian Standards Association (CSA) standard CSA-C22.3 No. 1-10, "Overhead Systems" for requirements with regard to minimum clearances required between the overhead conductor of transmission line and land features.

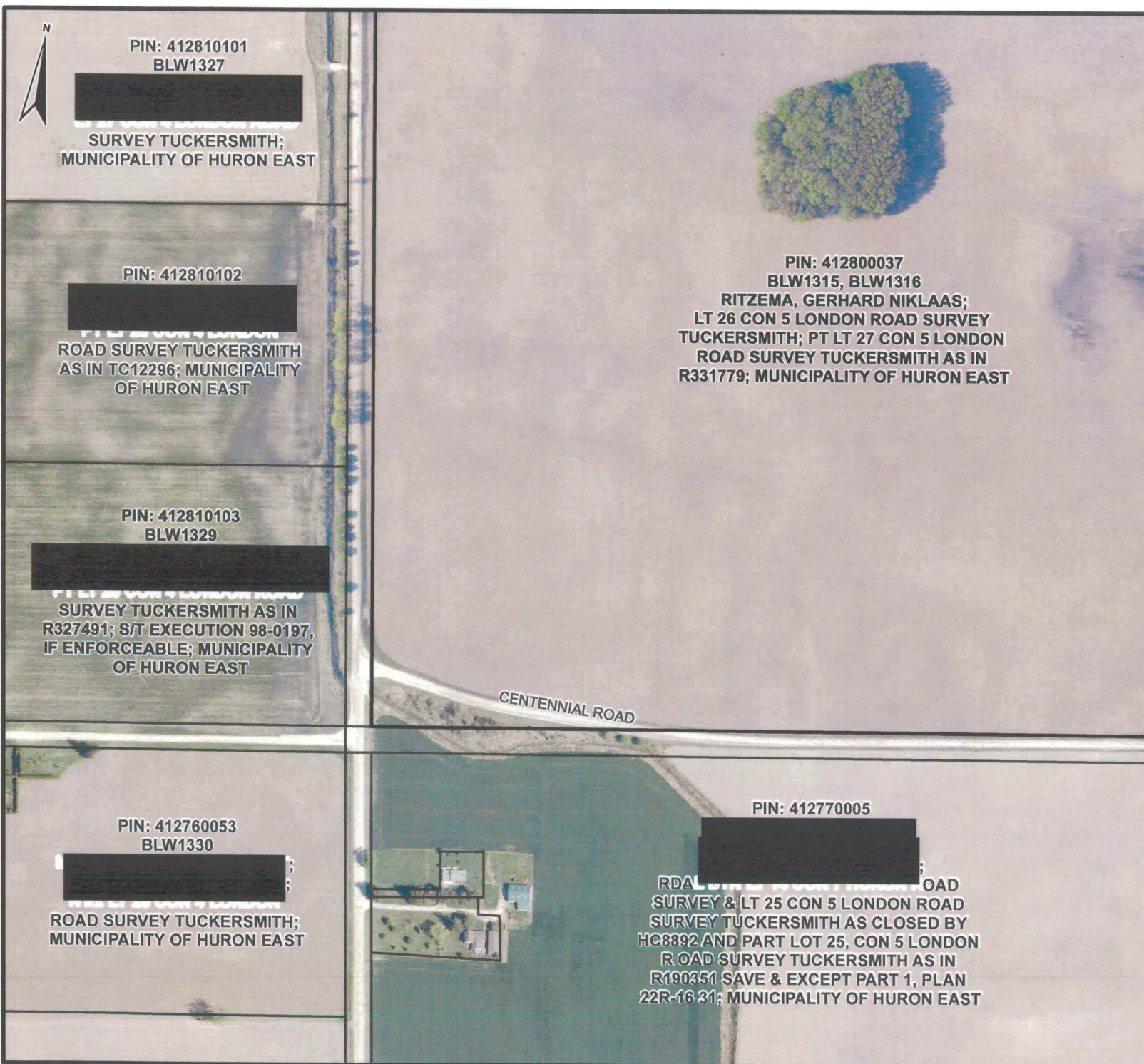
Attached as Exhibit B are the applicable portions of the CSA standard. The Applicant calculates the minimum horizontal distance requirement under this standard to be 2.51 meters. The formula and explanation for the calculation of the minimum horizontal distance from energized conductor to building (per CSA) is set out below (the information is derived from Table 9 of the CSA standard, as included in Exhibit B). Please confirm whether you agree with this calculation and, if not, please advise what the witness believes the CSA standard to be.

Basic horizontal clearance (meters) for phase-to-ground voltage greater than 750V and less than or equal to 22kV	Additional horizontal clearance (meters) for phase-to-ground voltage of 73kV	Total minimum horizontal clearance (meters) for phase-to-ground voltage of 73kV
2	0.51	2.51

Formula for horizontal clearance to building	2.0 m + .01 m/kV over 22 kV	
Maximum continuous operating voltage (Phase-to-Phase)	127 kV	Maximum operating voltage per IESO System Impact Assessment Report
Maximum continuous operating voltage (Phase-to-Ground)	73 kV	(127 kV / $\sqrt{3}$)
Phase-to-Ground voltage over 22 kV	51 kV	(73 kV-22 kV)
0.01 m / kV over 22 kV	0.51 m	(.01 X 51 kV)

DOCS 12370932v1

EXHIBIT A



PIN: 412810101
BLW1327

SURVEY TUCKERSMITH;
MUNICIPALITY OF HURON EAST

PIN: 412810102

ROAD SURVEY TUCKERSMITH
AS IN TC12296; MUNICIPALITY
OF HURON EAST

PIN: 412810103
BLW1329

SURVEY TUCKERSMITH AS IN
R327491; S/T EXECUTION 98-0197,
IF ENFORCEABLE; MUNICIPALITY
OF HURON EAST

PIN: 412760053
BLW1330

ROAD SURVEY TUCKERSMITH;
MUNICIPALITY OF HURON EAST

PIN: 412800037
BLW1315, BLW1316

RITZEMA, GERHARD NIKLAAS;
LT 26 CON 5 LONDON ROAD SURVEY
TUCKERSMITH; PT LT 27 CON 5 LONDON
ROAD SURVEY TUCKERSMITH AS IN
R331779; MUNICIPALITY OF HURON EAST

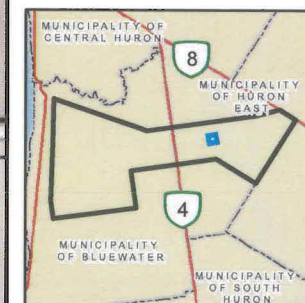
PIN: 412770005

RDAL SURVEY & LT 25 CON 5 LONDON ROAD
SURVEY TUCKERSMITH AS CLOSED BY
HC8892 AND PART LOT 25, CON 5 LONDON
ROAD SURVEY TUCKERSMITH AS IN
R190351 SAVE & EXCEPT PART 1, PLAN
22R-16 31; MUNICIPALITY OF HURON EAST

Bluewater
Map of Property
BLW1315, BLW1316

Legend

- Adjacent Property Boundary
- Property Boundary
- Road



0 50 100
Metres
1:4,000

Date: April 1, 2013
Projection: NAD 1983 UTM Zone 17N
Sources: Parcel Data from First Base Solutions,
Imagery from NextEra Energy Resources,
Ontario Ministry of Natural Resources
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EXHIBIT B

- (b) horizontal clearances shall apply where the conductor is in the position of swing, as determined in accordance with Clause 5.2.7.

5.7.3 Clearances of wires and conductors passing by or over buildings, signs, billboards, lamps, traffic signs, standards, and antennas (not attached)

5.7.3.1 Basic clearances

The minimum horizontal and vertical clearances from wires and conductors to buildings, signs, and similar plant specified in Table 9 shall apply under the following conditions:

- (a) clearances shall apply to any part of a building, including balconies, fire escapes, antennas and their supporting structures, and other permanent fixtures;
- (b) vertical clearances shall apply under conditions of maximum sag of the wire or conductor;
- (c) horizontal clearances shall apply when the wire or conductor is in the position of swing, as determined in accordance with Clause 5.2.7; and
- (d) guy wires, communication cables, and drop wires shall not be allowed to rub against buildings or other plant.

5.7.3.2 Application of clearances

Note: In this Clause, the word "building" is used to refer to any of the plant specified in Clause 5.7.3.1.

The minimum required vertical clearance at any given point on a building shall apply when the wire or conductor is above that point and closer horizontally than the specified minimum horizontal clearance.

The minimum required horizontal clearance shall apply when the wire or conductor is closer vertically to the point in question than the specified minimum vertical clearance.

The vertical clearance from a wire passing under a building projection to the nearest point of that projection shall be not less than the horizontal clearance requirement.

Furthermore, the minimum clearances specified in this Clause shall apply to all points on the wire or conductor and all points on the building.

Where buildings contain flammable materials or explosives, the need for additional clearances shall be investigated.

When clearances as specified in Table 9 are applied, allowance shall be made for the swing of the sign or similar plant.

5.7.3.3 Conductors energized above 200 kV

When buildings are located adjacent to a transmission corridor with lines operating above 200 kV, a study shall be conducted to determine suitable clearances between conductors and buildings greater than those specified in Table 9, taking into account electrostatic induction. In these situations, additional measures might be necessary to mitigate the effects of electrostatic induction on the building, its occupants, or construction and maintenance personnel. Measures that may be taken include

- (a) change in conductor height;
- (b) increased right-of-way width;
- (c) installation of shielding between the transmission line and buildings constructed at the edge of the right-of-way;
- (d) modification of the building configuration; or
- (e) grounding of metallic objects.

Note: The list in this Clause is not comprehensive.

5.7.3.4 Conductors energized at 230 kV phase-to-phase or greater

When overhead or underground low-voltage or communication wiring is located under a transmission line or adjacent to a transmission corridor, with the transmission lines operating at 230 kV (phase-to-phase) or greater, an electromagnetic induction study shall be conducted to determine suitable clearances between transmission conductors and low-voltage wiring, less than or equal to 22 kV (line-to-ground). In specific

situations, measures might be necessary to mitigate the effects of electromagnetic induction on low-voltage and communication wiring for the safety of workers and/or building occupants and the supply of undisturbed regulated low-voltage power supply. Measures that may be taken include

- (a) avoiding installation of low-voltage or communication wires parallel to high-voltage lines;
- (b) installing low-voltage or communication wires perpendicular to high-voltage lines;
- (c) changing low-voltage or communication feeds to multiple sources;
- (d) increasing plant's supply voltage from nominal 110 V; or
- (e) increasing separation between low-voltage or communication wires and high-voltage lines.

5.7.4 Clearances from supply wires and conductors to bridges

5.7.4.1 General

Clause 5.7.4 specifies clearances for supply wires and conductors that are attached to or pass under, over, or near a bridge. Clause 5.7.4 does not cover clearances over a bridge used solely for a railway or over portions of a bridge normally traversed by pedestrians, road vehicles, or trains. Clearances over or adjacent to portions of the bridge that are normally traversed by pedestrians, road vehicles, or trains are specified in Tables 2 and 4.

5.7.4.2 Basic clearances for supply conductors

The minimum clearance from supply conductors to bridges as specified in Table 10 shall apply under the following conditions:

- (a) vertical clearances shall apply under conditions of maximum sag for a conductor above the portion of the bridge involved, and shall apply to the initial sag at the lowest anticipated temperature for the area for a conductor under the portion of the bridge involved; and
- (b) horizontal clearances shall apply when a wire is in the position of swing, as determined in accordance with Clause 5.2.7.

5.7.4.3 Operation of bridges

Wires or cables shall not interfere with the use or operation of a bridge.

5.7.4.4 Guarding of trolley contact conductors

Where the trolley contact conductor is located such that a trolley pole leaving the conductor could make simultaneous contact between the conductor and the bridge structure, suitable guards shall be provided. Guards shall be substantial inverted troughs of non-conducting material located above the contact conductor or other suitable means of preventing contact between the trolley pole and the bridge structure.

5.7.5 Minimum separation of equipment and clearances of conductors over and adjacent to swimming pools

Conductors and equipment shall not be located over or adjacent to a swimming pool unless it is not practical to locate them elsewhere. If equipment and conductors need to pass over a swimming pool or the area surrounding a pool, the minimum clearance of conductors and separation of equipment from swimming pools shall be as specified in Table 11 and as shown in Figure 1.

Conductor sags shall be determined in accordance with Clauses 5.2.5 and 5.2.7 for vertical and swing conditions.

5.7.6 Horizontal separations from supply equipment to buildings

The minimum horizontal separations from supply equipment to buildings shall be as specified in Table 12. The supply equipment shall not inhibit the normal use of balconies, doors, windows, fire escapes, permanent ladders, catwalks, and other such structures.

Table 9
Minimum design clearances from wires and conductors
not attached to buildings, signs, and similar plant
 (See Clauses 5.7.3.1 to 5.7.3.3.)

Wire or conductor		Minimum clearance, m			
		To buildings*†		To signs, billboards, lamp and traffic sign standards, and similar plant	
		Horizontal to surface‡	Vertical to surface	Horizontal to object‡	Vertical to object
Guys, communication cables, and drop wires		0	0.08	0	0.08
Supply conductors					
0–750 V	Insulated or grounded	1.0	2.5§	0.3	0.5
	Enclosed in effectively grounded metallic sheath	0	0	0	0.08
	Not insulated, grounded, or enclosed in effectively grounded metallic sheath	1.0	2.5§	1.0	0.5
> 0.75 kV ≤ 22 kV	Enclosed in effectively grounded metallic sheath	0	0	0	0.08
	Not enclosed in effectively grounded metallic sheath	2.0‡‡	3.0**	2.0	2.5
> 22 kV***††		2.0 + 0.01 m/kV over 22 kV	3.6 + 0.01 m/kV over 22 kV	2.0 + 0.01 m/kV over 22 kV	3.6 + 0.01 m/kV over 22 kV

*Clearances over or adjacent to portions of a building normally traversed by persons or vehicles are specified in Tables 2 and 4.

†Clearances are applicable to non-metallic buildings or buildings whose metallic parts are effectively grounded. For other buildings, an assessment might be needed to determine additional clearances for electrostatic induction (see Clause 5.7.3.3).

‡Conductor swing shall be added to these values in accordance with Clause 5.7.3.1.

§This clearance may be reduced to 1 m for portions of the building considered normally inaccessible.

**Conductors of these voltage classes should not be carried over buildings where other suitable construction can be used.

††Where it is necessary to carry conductors of these voltage classes over buildings, it should be determined whether additional measures, including increased clearances, are needed to ensure that the crossed-over buildings can be used safely and effectively.

‡‡This value may be reduced to 1.5 m where the building does not have fire escapes, balconies, and windows that can be opened adjacent to the conductor.

Note: Voltages are rms line-to-ground.