AIRD & BERLIS LLP
Barristers and Solicitors

Scott A. Stoll
Direct: 416.865.4703
E-mail: sstoll@airdberlis.com

July 13, 2011

BY COURIER, EMAIL AND RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
27th Floor, Box 2329
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: Haldimand County Hydro Inc. ("HCHI")
Procedural Order No. 8 - Supplemental Evidence for HCHI Distribution Line – Preliminary Design
Board File No.: EB-2011-0027

We are counsel to HCHI in this matter and are writing in respect of Procedural Order No. 8 which provided the following:

> 1. "Haldimand County Hydro Inc. shall file with the Board and send copies to the Applicant and intervenors its proposed design for the 27.6/16 kV distribution line including pole locations, pole height, conductor locations and in-service date no later than Wednesday, July 13, 2011."

HCHI's response to Procedural No. 8 has been prepared consistent with the requirements identified above and its submissions filed June 22, 2011 (paragraph 59 reproduced below for convenience) wherein HCHI stated:

> "59) HCHI formally request that any order(s) granting leave to construct the Project include the following conditions:
>
> (a) The Applicant must design and build its transmission line pole locations, pole heights, and clearances relative to an HCHI distribution line consisting of two 27.6 kV 3 phase circuits as described in drawing 01-316 of the Kinectrics Report, including the neutral height of 25 feet above the crown of the road; including HCHI poles located midspan between two transmission poles where the transmission conductor sag is greatest and its swing arc also the greatest under the most severe weather and loading conditions.

(b) All road crossings shall be designed and built to provide adequate clearance for HCHI's future needs, based upon two 27.6 kV 3 phase circuits as described in drawing 01-316 of the Kinectrics Report, including the neutral height of 25 feet above the crown of the road, to cross under the transmission line safely.

(c) That the centreline of the proposed 230kV transmission line along Concession 5 be located on private property at least 10 metres from the property line of the municipal right-of-way the roadway and that the design ensure the maximum swing arc or blowout for the transmission line conductor remains within the Applicant's easement.

(d) That guy wires not be anchored within a municipal road right right-of-way.

(e) Where any span guys cross over the roadways that appropriate clearances under the span guys be provided for HCHI to construct two 27.6 kV 3 phase circuits as described in drawing 01-316 of the Kinectrics Report 6, including the neutral height of 25 feet above the crown of the road."

Accordingly, HCHI has prepared the attached drawing numbered "447_Con_5". The drawing shows three distribution line sections being: (i) parallel to the proposed transmission line along Concession Road 5 (both east and west of Cheapside Rd); (ii) where the proposed transmission line crosses the municipal roadway at Concession Road 4 (west of Sandusk Road); and (iii) where the proposed transmission line crosses Sandusk Road. It should be noted from the drawings that a higher pole is specified at Cheapside Road in order to accommodate the intersection of two double circuit distribution lines crossing each other at right angles.

Copies of the related standards referenced on the drawings are also attached. Proposed pole locations have been staked in the field during the week of July 4 - 8, 2011 and the GPS coordinates for each pole location is included on the drawings. Proposed pole lengths are also identified on the drawings, and conductor locations are in accordance with the standards drawings provided.

Further, HCHI would note that it intervened in this proceeding to ensure that the potential impact of the proposed transmission line was properly understood by HCHI, the Applicant and the Board. From the outset of the proceeding, HCHI has been clear that it is protecting its future distribution system needs and those of its customers as noted in its original letter requesting intervenor status dated March 17, 2011 which included:

> "b. **Co-existence incompatibility and congestion**. Haldimand County Hydro's distribution lines are either already present along the roadways contemplated by the Applicant for the proposed tie line or will be needed in the future. The need for distribution lines to serve Haldimand County Hydro's current and future load customers, or distribution connected distributed generators, is dynamic as opposed to transmission lines where the future need is static. By this Haldimand County Hydro means that customers or distribution connected distributed generators may develop anywhere along a roadway on either or both sides of the road, but a transmission line is essentially express from one point to another with highly improbable future need to connect in between."

HCHI is not providing an in-service date for the upgrade of the distribution line. The actual construction, including upgrading to 3 phase from single phase as well as from single circuit to double circuit, will be determined by HCHI and depend upon a number of factors including HCHI's capital project priorities and/or specific requirements to meet customer load or distributed generation connection needs.

A copy of this letter and the attached drawings has been filed on the Board's RESS and emailed to all participants in the proceeding. Hardcopies will be delivered to the Board's office.

Yours truly,

AIRD & BERLIS LLP

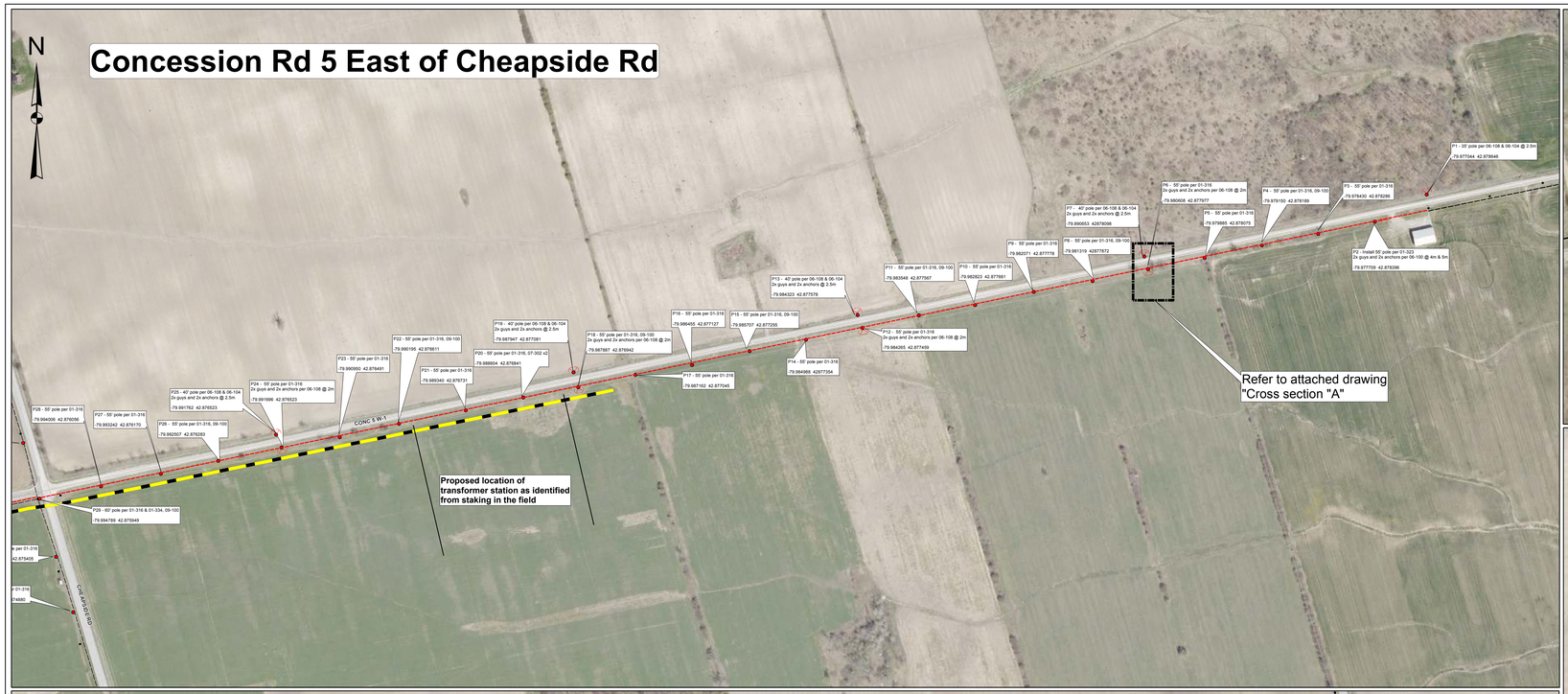
Scott A. Stoll

SAS/ct
Enclosures

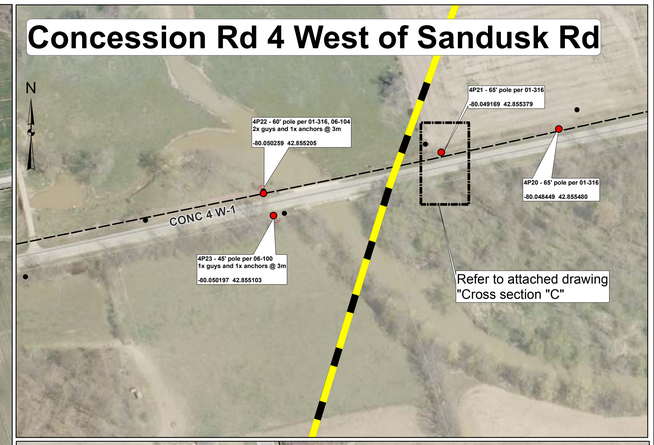
cc: K. Sebalj, OEB
N. Mikhail, OEB
All participants

10067347.1

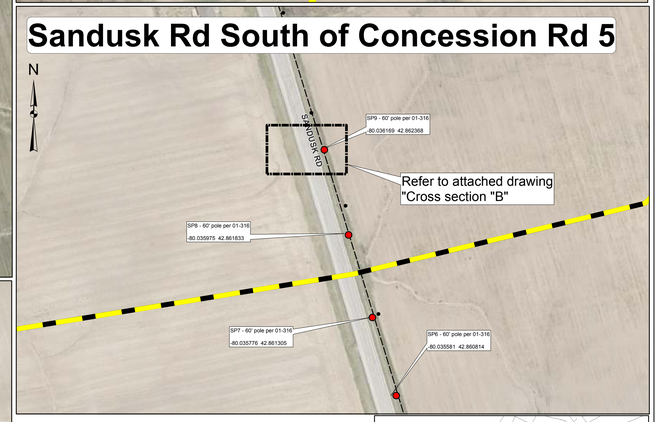
Concession Rd 5 East of Cheapside Rd



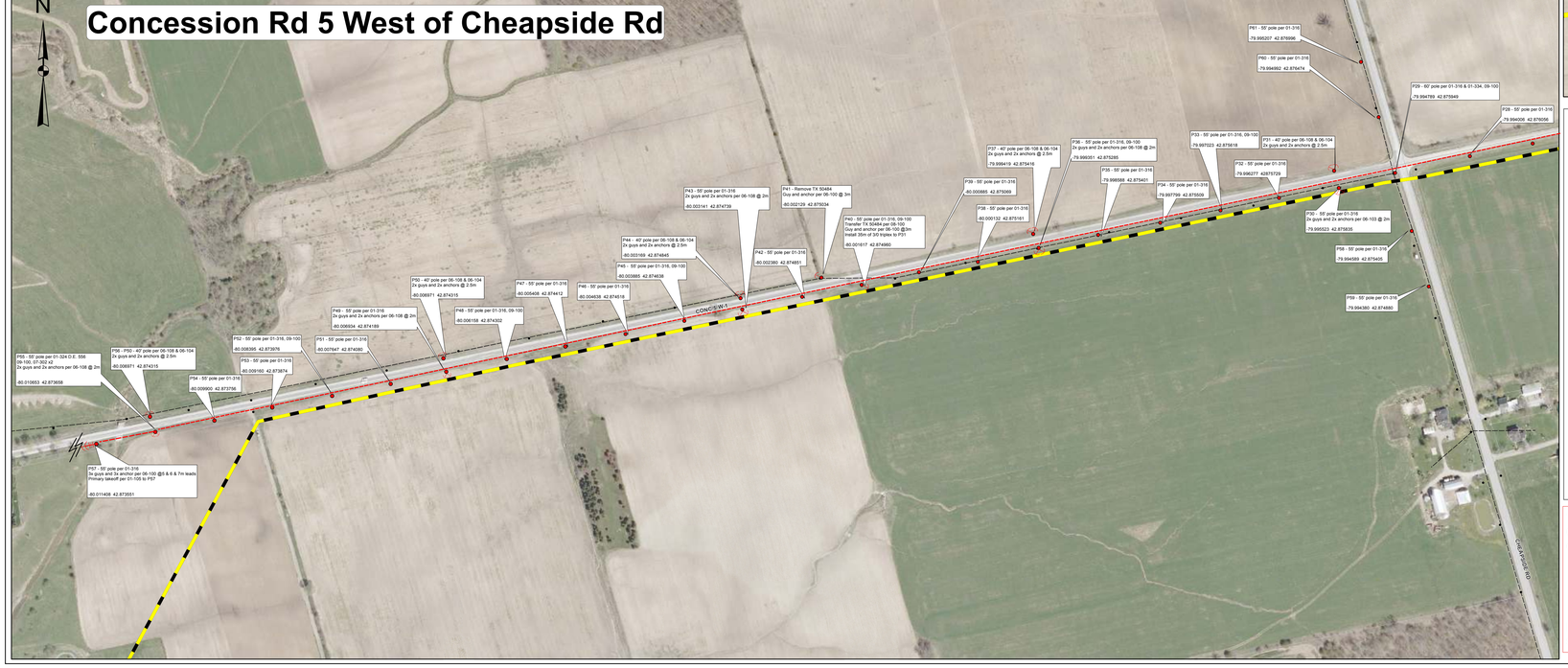
Concession Rd 4 West of Sandusk Rd



Sandusk Rd South of Concession Rd 5



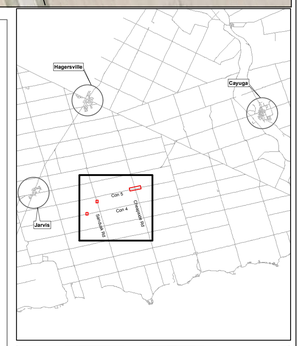
Concession Rd 5 West of Cheapside Rd



Legend

- Proposed HCHI Pole
- Existing HCHI Pole
- Guy & Anchor
- Proposed HCHI Conductor
- Existing HCHI Conductor
- Proposed Summerhaven Transmission Line

Proposed pole locations subject to municipal approval



This drawing is provided in response to Procedural Order 8 of OEB proceeding EB-2011-0027 which directs *"Haldimand County Hydro Inc. shall file with the Board and send copies to the Applicant and intervenors its proposed design for the 27.6 kV distribution line including pole locations, pole height, conductor locations and in-service date no later then WEDNESDAY, JULY 13, 2011"* **and should be considered in conjunction with its cover letter of the same date**

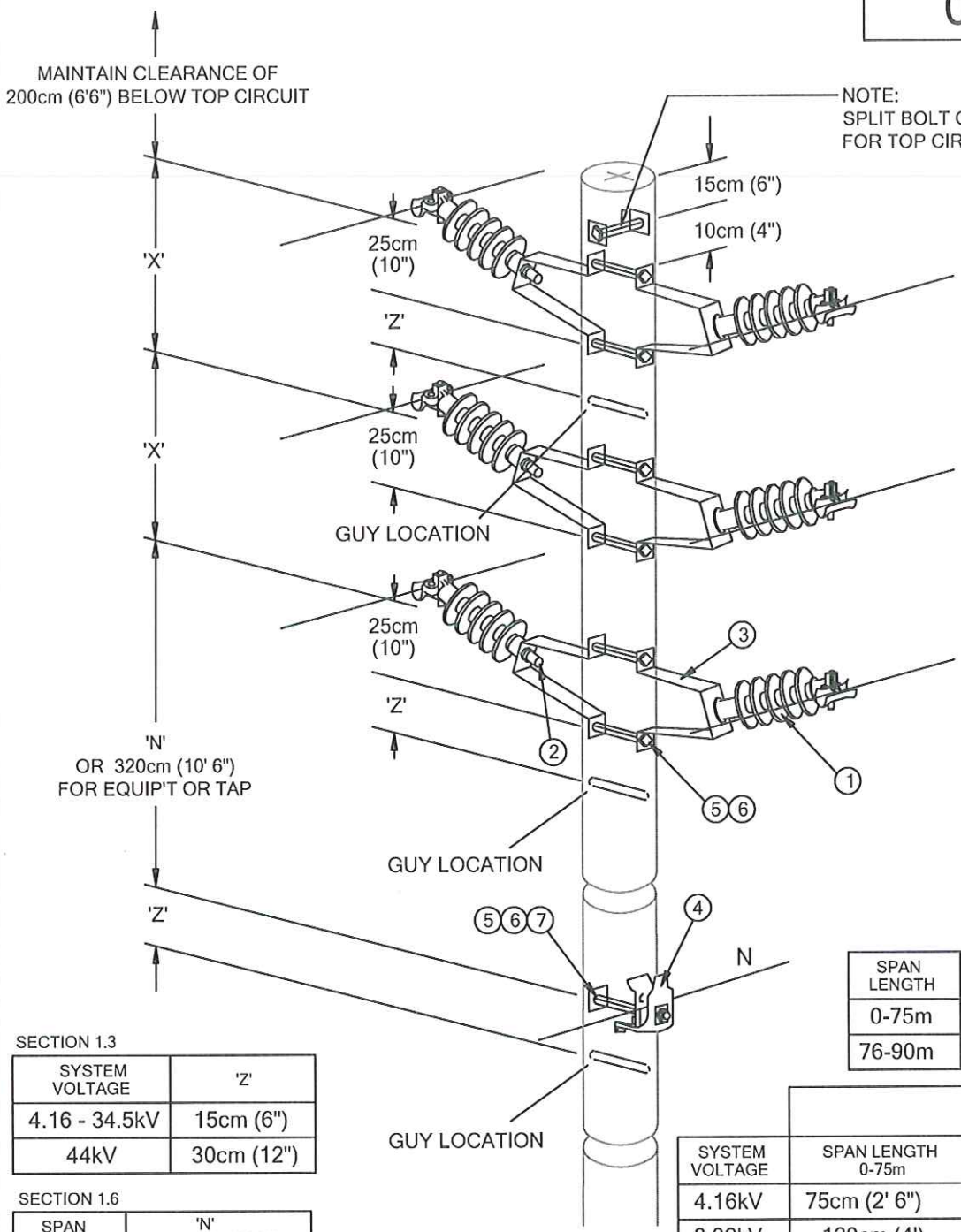
HALDIMAND COUNTY HYDRO

1 Greendale Drive
Caledonia, Ontario N3W 2J3
Phone: (905) 765-5211

Distribution Line Design
Provided in response to Procedural Order 8 of OEB Proceeding EB-2011-0027
Summerhaven Wind LP

SCALE: NTS		DATE: July 11, 2011
DRAWN: J.M.G / C.B.	DESIGNED: S.D.	APPROVED:
FILE NO.		DWG NO. 447_Con_5
WORK ORDER NO.		

01-316



SECTION 1.3

SYSTEM VOLTAGE	'Z'
4.16 - 34.5kV	15cm (6")
44kV	30cm (12")

SECTION 1.6

SPAN LENGTH	'N' MIN CLEARANCE
0-45m	1.5m (5')
46-60m	1.8m (6')
61-70m	2.1m (7')
71-90m	2.4m (8')

SPAN LENGTH	MINIMUM STAND-OFF BRACKET REQUIRED
0-75m	22.5cm (9")
76-90m	45cm (18")

	'X'	
SYSTEM VOLTAGE	SPAN LENGTH 0-75m	SPAN LENGTH 76-90m
4.16kV	75cm (2' 6")	105cm (3' 6")
8.32kV	120cm (4')	150cm (5')
13.8kV	120cm (4')	150cm (5')
27.6kV	150cm (5')	180cm (6')
34.5kV	150cm (5')	180cm (6')
44kV	150cm (5')	180cm (6')

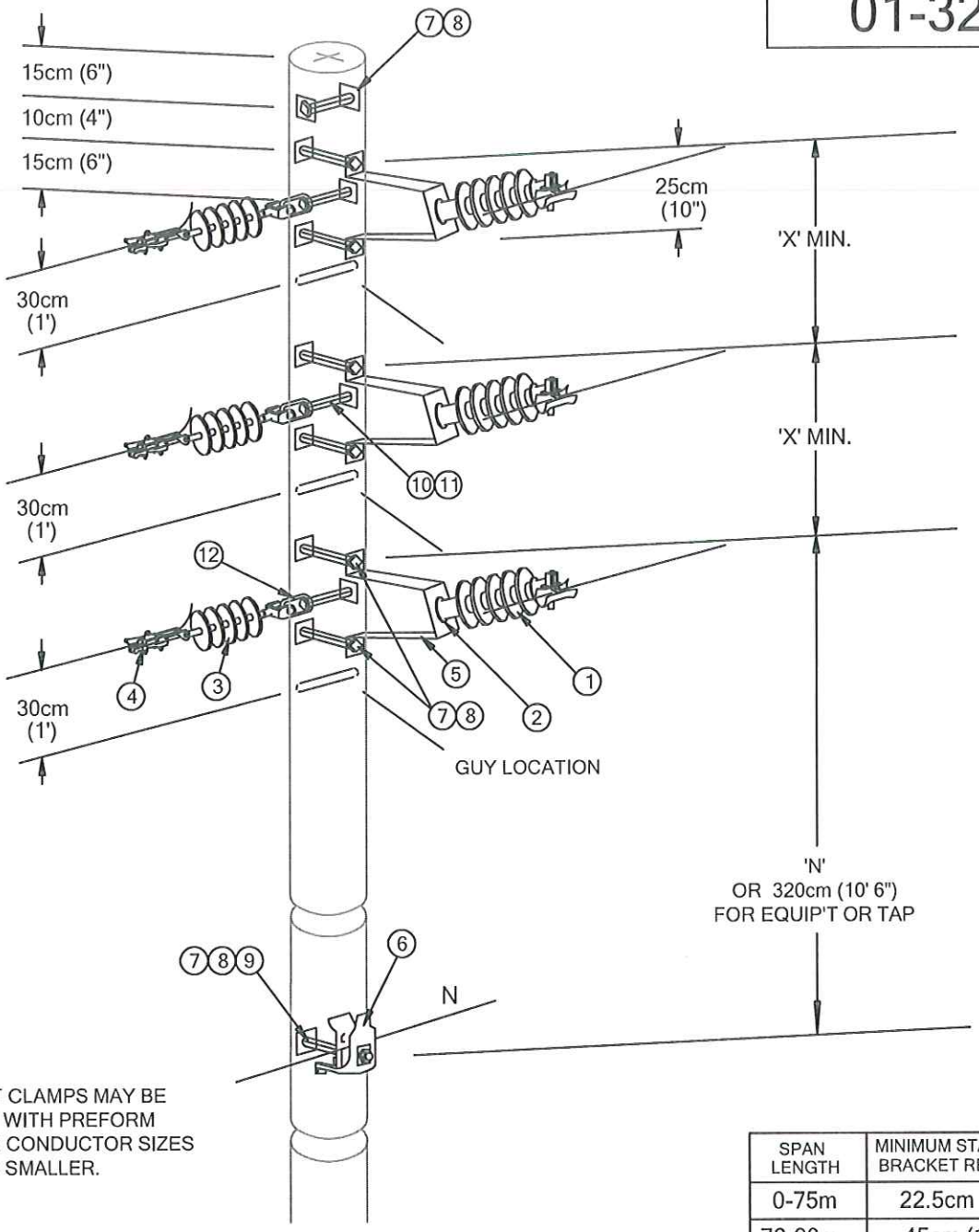
Utilities Standards Forum USF

Title: PRIMARY 3-PHASE 2-CCT, TANGENT
or LINE ANGLE 0° to 15° or UNDER-BUILT
4.16 to 44kV, MAX SPAN 90m

SIZE	FILE NAME:	DWG NO.	REV
A	01-316.DWG	01-316	3

SCALE	DATE:	SHEET
NTS	2008-07-14	1

01-323



NOTE:
WAVESEAT CLAMPS MAY BE REPLACED WITH PREFORM GRIPS FOR CONDUCTOR SIZES OF 3/0 AND SMALLER.

SPAN LENGTH	MINIMUM STAND-OFF BRACKET REQUIRED
0-75m	22.5cm (9")
76-90m	45cm (18")

SECTION 1.6

SPAN LENGTH	'N' * MIN CLEARANCE
0-45m	1.5m (5')
46-60m	1.8m (6')
61-70m	2.1m (7')
71-90m	2.4m (8')

	'X'	
SYSTEM VOLTAGE	SPAN LENGTH 0-75m	SPAN LENGTH 76-90m
4.16kV	75cm (2' 6")	105cm (3' 6")
8.32kV	120cm (4')	150cm (5')

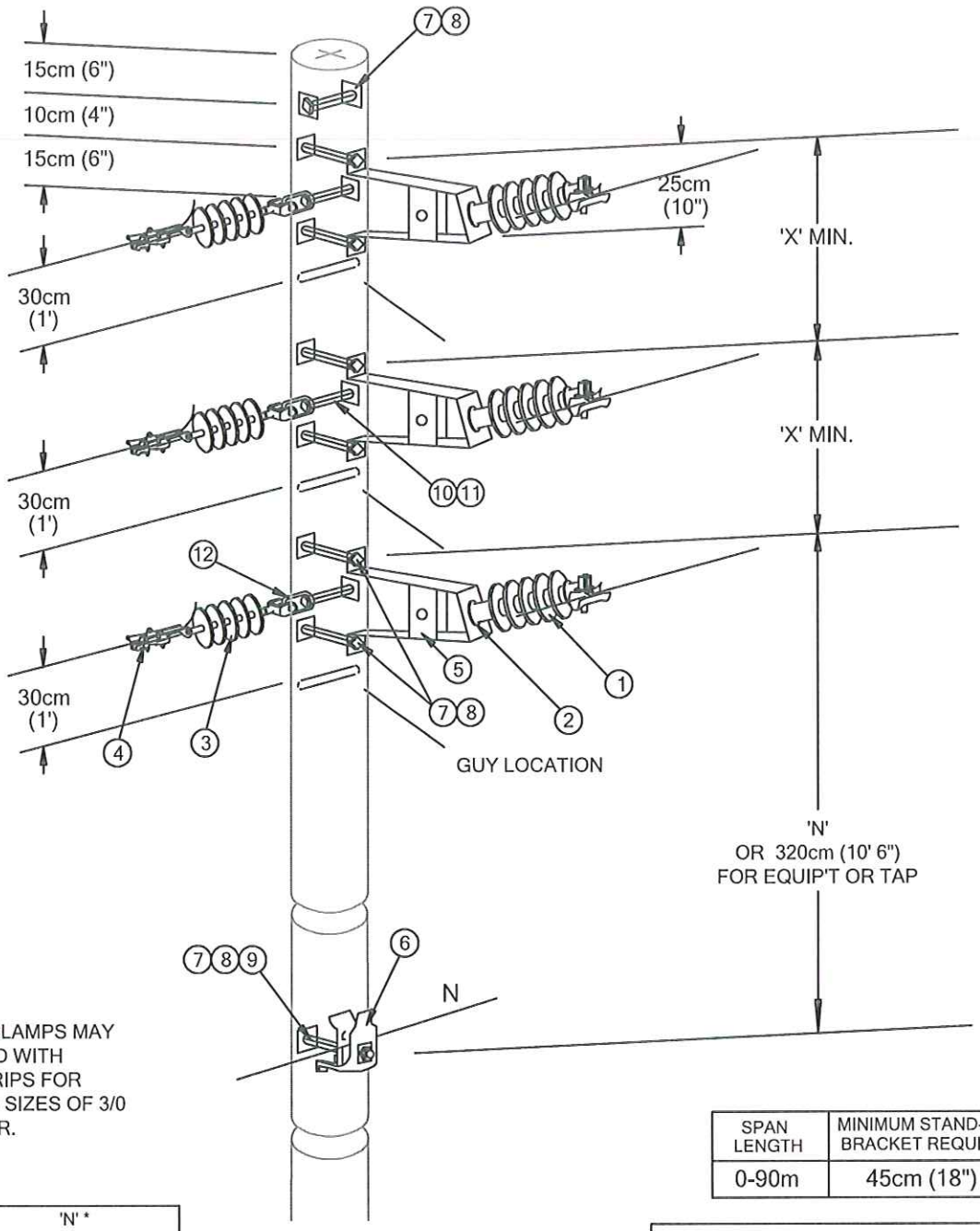
Utilities Standards Forum USF

Title: PRIMARY 3-PHASE VERTICAL DEADEND AND TANGENT
4.16 to 8.32kV, MAX SPAN 90m

SIZE	FILE NAME:	DWG NO.	REV
A	01-323.DWG	01-323	1

SCALE	DATE:	SHEET
NTS	2008-07-14	1

01-324



NOTE:
WAVESEAT CLAMPS MAY BE REPLACED WITH PREFORM GRIPS FOR CONDUCTOR SIZES OF 3/0 AND SMALLER.

SPAN LENGTH	MINIMUM STAND-OFF BRACKET REQUIRED
0-90m	45cm (18")

SECTION 1.6

SPAN LENGTH	'N' * MIN CLEARANCE
0-45m	1.5m (5')
46-60m	1.8m (6')
61-70m	2.1m (7')
71-90m	2.4m (8')

	'X'	
SYSTEM VOLTAGE	SPAN LENGTH 0-75m	SPAN LENGTH 76-90m
13.8kV	120cm (4')	150cm (5')
27.6kV	150cm (5')	180cm (6')

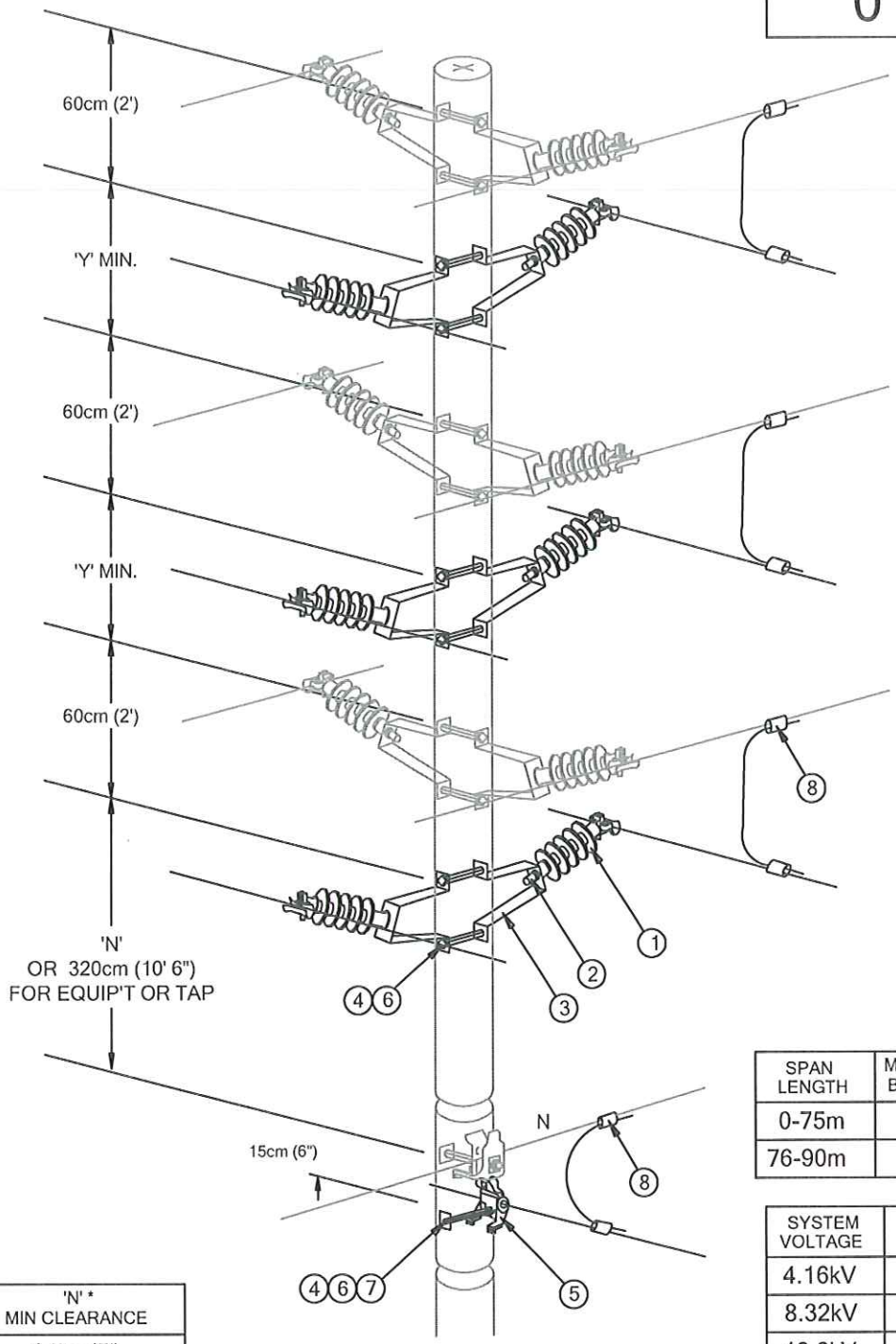
Utilities Standards Forum USF

Title: PRIMARY 3-PHASE VERTICAL DEADEND AND TANGENT
13.8 to 27.6kV, MAX SPAN 90m

SIZE	FILE NAME:	DWG NO.	REV
A	01-324.DWG	01-324	0

SCALE	DATE:	SHEET
NTS	2006-06-26	1

01-334



SECTION 1.6

SPAN LENGTH	'N' * MIN CLEARANCE
0-45m	1.5m (5')
46-60m	1.8m (6')
61-70m	2.1m (7')
71-90m	2.4m (8')

SPAN LENGTH	MINIMUM STAND-OFF BRACKET REQUIRED
0-75m	22.5cm (9")
76-90m	45cm (18")

SYSTEM VOLTAGE	'Y'
4.16kV	60cm (2')
8.32kV	60cm (2')
13.8kV	60cm (2')
27.6kV	70cm (2' 4")
34.5kV	80cm (2' 8")
44kV	90cm (3')

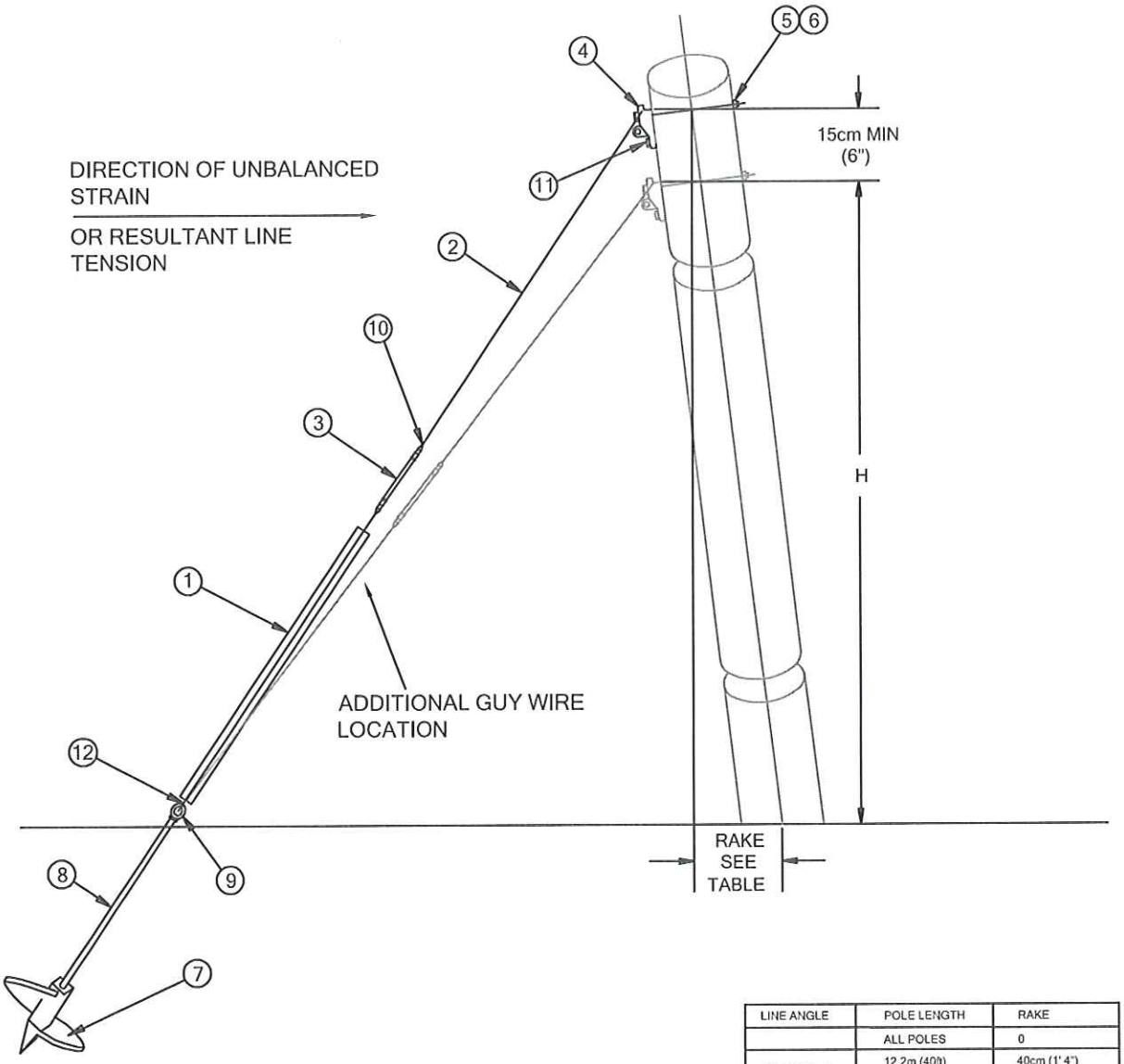
Utilities Standards Forum USF

Title: PRIMARY 3-PHASE 2-CCT CROSSOVER LINE TAP
4.16 to 44kV, MAX SPAN 90m

SIZE	FILE NAME:	DWG NO.	REV
A	01-334.DWG	01-334	1

SCALE	DATE:	SHEET
NTS	2008-07-14	1

06-100



LINE ANGLE	POLE LENGTH	RAKE
	ALL POLES	0
UP TO 15 °	12.2m (40ft)	40cm (1' 4")
	13.7m (45ft)	40cm (1' 4")
OVER 15 °	15.2m (50ft)	50cm (1' 8")
	16.8m (55ft)	50cm (1' 8")
	18.3m (60ft)	60cm (2' 0")
	19.8m (65ft)	60cm (2' 0")
	21.3m (70ft)	70cm (2' 3.5")
	22.9m (75ft)	70cm (2' 3.5")
	24.4m (80ft)	80cm (2' 7.5")

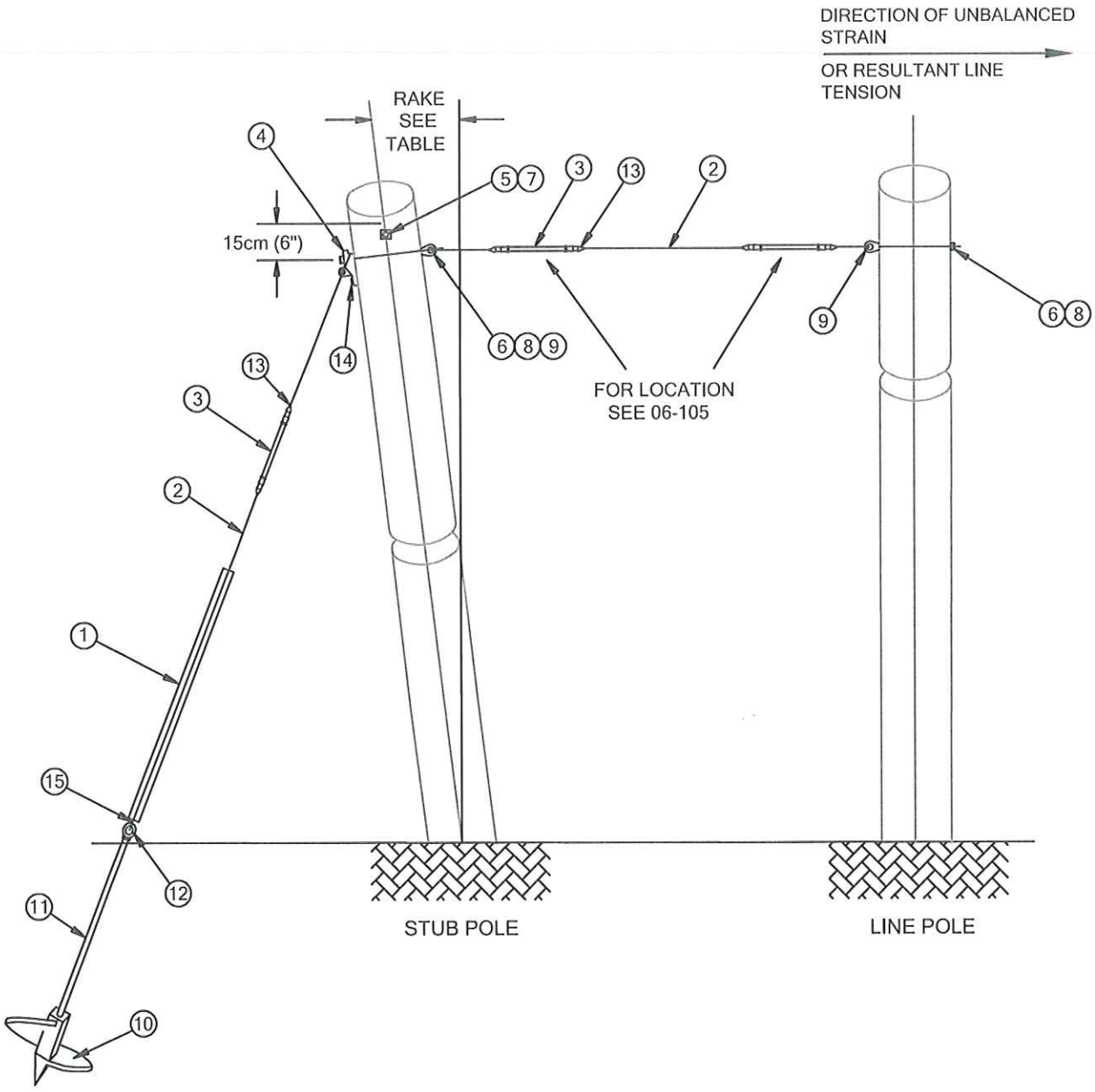
NOTE:
1. ANCHOR TYPE TO SUIT SOIL CONDITIONS SEE TABLE 06-12 OF SECTION 06.
2. ITEM 12 - CLAMP, GUY, 3-BOLT CAN BE SUBSTITUTED WITH ITEM 10 - GRIP, GUY WIRE, 3/8" (9mm)

Utilities Standards Forum USF

Title: DOWN GUY(S)

SIZE	FILE NAME:	DWG NO.	REV
A	06-100.DWG	06-100	0
SCALE NTS	DATE: 2006-06-26	SHEET 1	

06-104



NOTE:
1. ANCHOR TYPE TO SUIT SOIL CONDITIONS SEE TABLE 06-12 OF SECTION 06.
2. ITEM 16 - CLAMP, GUY, 3-BOLT CAN BE SUBSTITUTED WITH ITEM 14 - GRIP, GUY WIRE, 3/8" (9mm)

STUB LENGTHS	RAKE
9.1m (30ft)	60cm (2' 0")
10.7m (35ft)	70cm (2' 3 1/2")
12.2m (40ft)	80cm (2' 7 1/2")

Utilities Standards Forum USF

Title: SPAN and ANCHOR GUY

SIZE	FILE NAME:	DWG NO.	REV
A	06-104.DWG	06-104	0

SCALE	DATE:	SHEET
NTS	2006-06-26	1

06-108

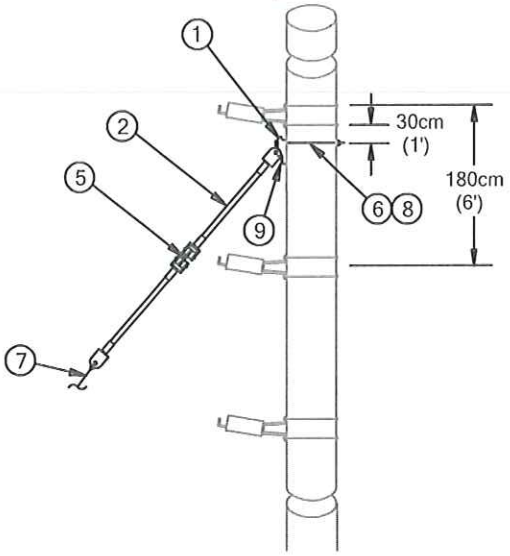


FIG. 1
GUYING DOUBLE CIRCUIT
BETWEEN PHASES

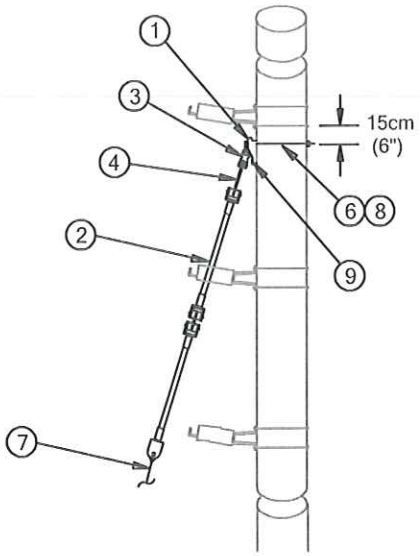


FIG. 2
GUYING DOUBLE CIRCUIT
BETWEEN PHASES

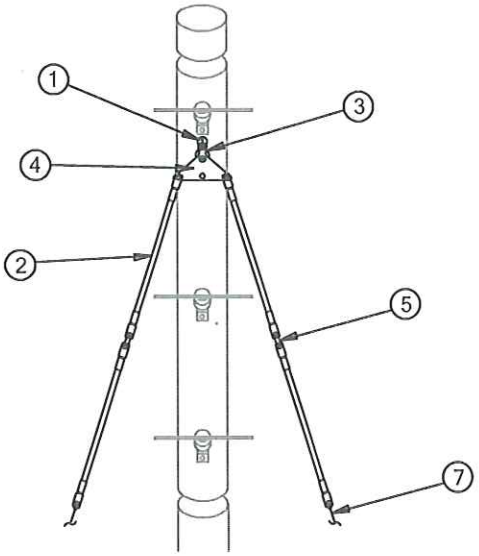


FIG. 3
GUYING TO TWO ANCHORS

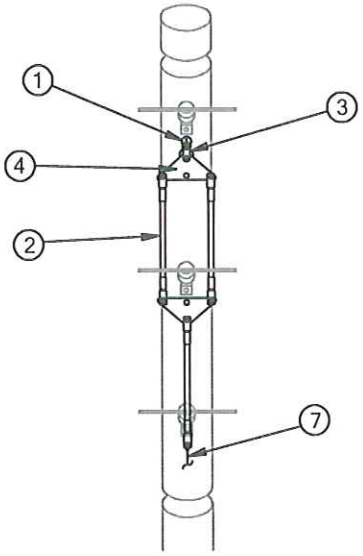
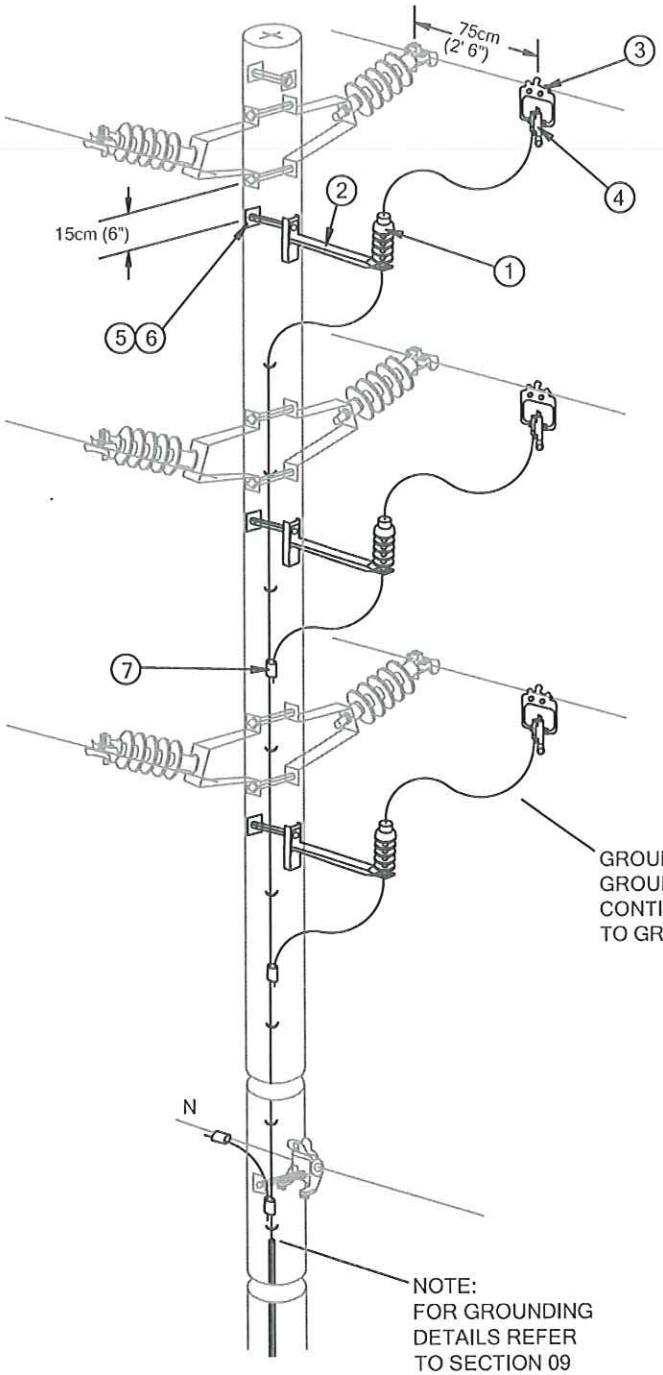


FIG. 4
GUYING TO ONE ANCHOR

Utilities Standards Forum USF

Title:	ATTACHMENT of GUYS on 2-CCT ARMLESS		
SIZE: A	FILE NAME: 06-108.DWG	DWG NO. 06-108	REV 0
SCALE: NTS	DATE: 2006-06-26	SHEET 1	

07-302



GROUNDING NOTE:
GROUND WIRE MUST BE ONE CONTINUOUS PIECE FROM ARRESTER TO GROUND ROD

NOTE:
FOR GROUNDING DETAILS REFER TO SECTION 09

NOTES:
1. REFER TO THE LATEST ESC BULLETIN 36-8-X AND MANUFACTURER APPLICATION NOTES FOR LIGHTNING ARRESTER APPLICATIONS.

Utilities Standards Forum
USF

Title: ARRESTER INSTALLATION
3-PHASE (VERTICAL)
4.16 to 44kV

SIZE	FILE NAME:	DWG NO.	REV
A	07-302.DWG	07-302	1
SCALE NTS	DATE: 2007-09-19	SHEET 1	

08-100

SYSTEM VOLTAGE	'X'	'Y'	'Z'
2.4kV	75cm (2' 6")	105cm (3' 6")	320cm (10' 6")
4.8kV	75cm (2' 6")	105cm (3' 6")	320cm (10' 6")
8kV	75cm (2' 6")	105cm (3' 6")	320cm (10' 6")
16kV	75cm (2' 6")	105cm (3' 6")	320cm (10' 6")
*16kV	105cm (3' 6")	150cm (5')	410cm (13' 6")
20kV	105cm (3' 6")	150cm (5')	410cm (13' 6")

* 16kV HAS OPTIONAL FRAMINGS FOR USE WITH LARGER DISCONNECTS

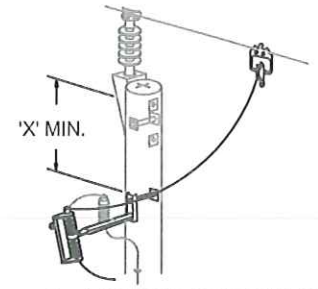


Figure A - 1-PHASE TANGENT FRAMING

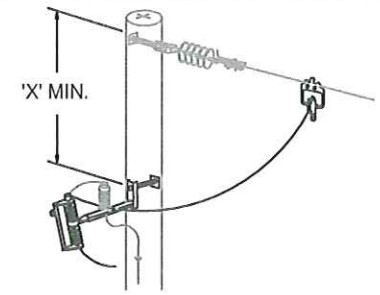


Figure B - 1-PHASE DEADEND FRAMING

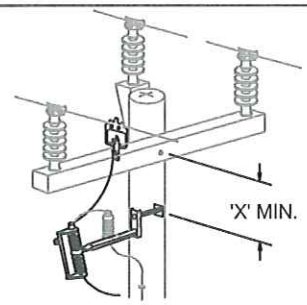


Figure C - 3-PHASE CROSSARM FRAMING

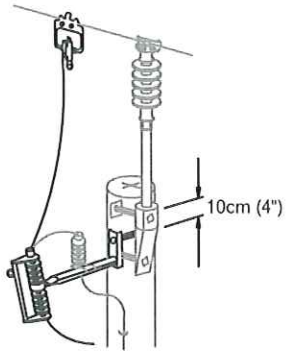
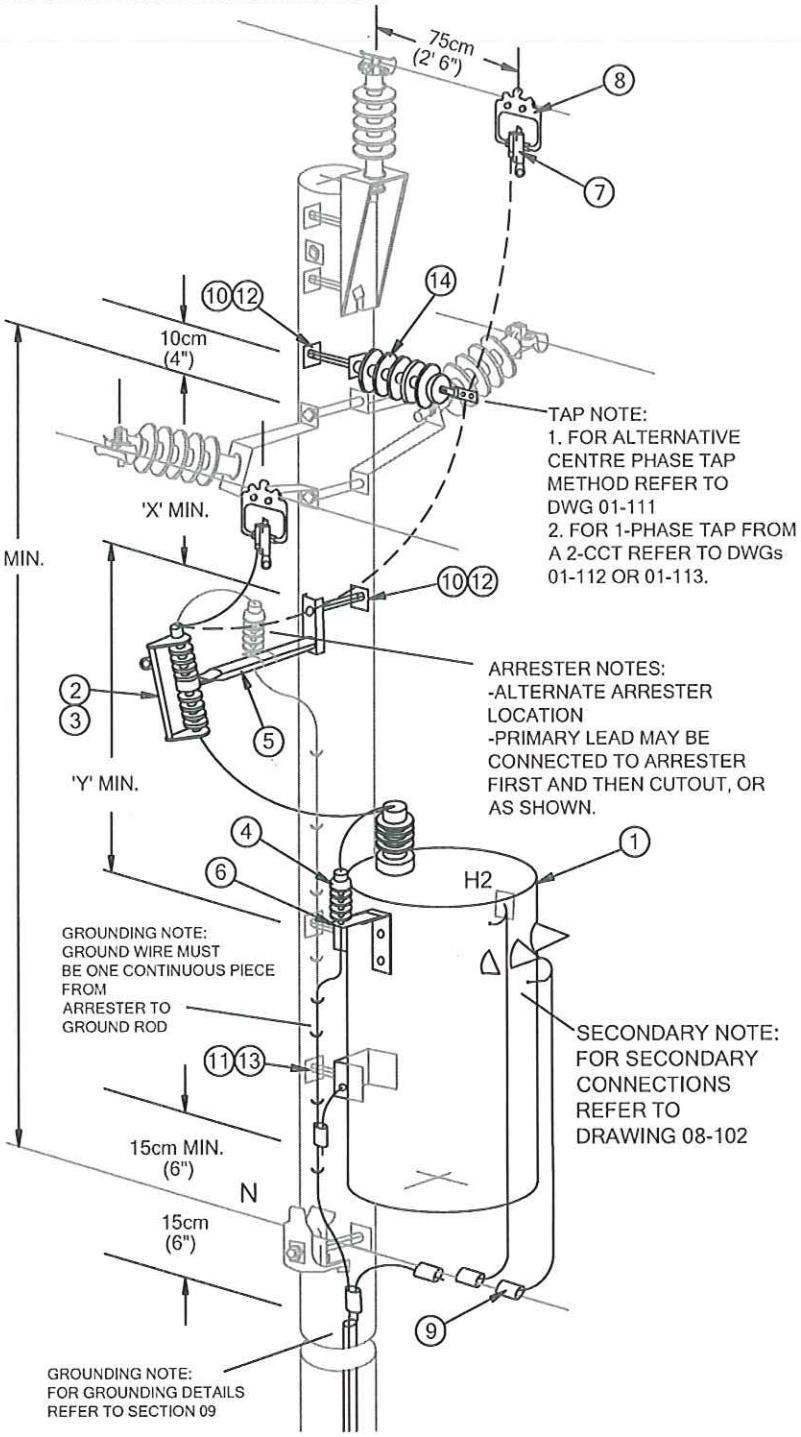


Figure D - 1-PHASE TANGENT FRAMING WITH POLE TOP EXTENSION



Utilities Standards Forum

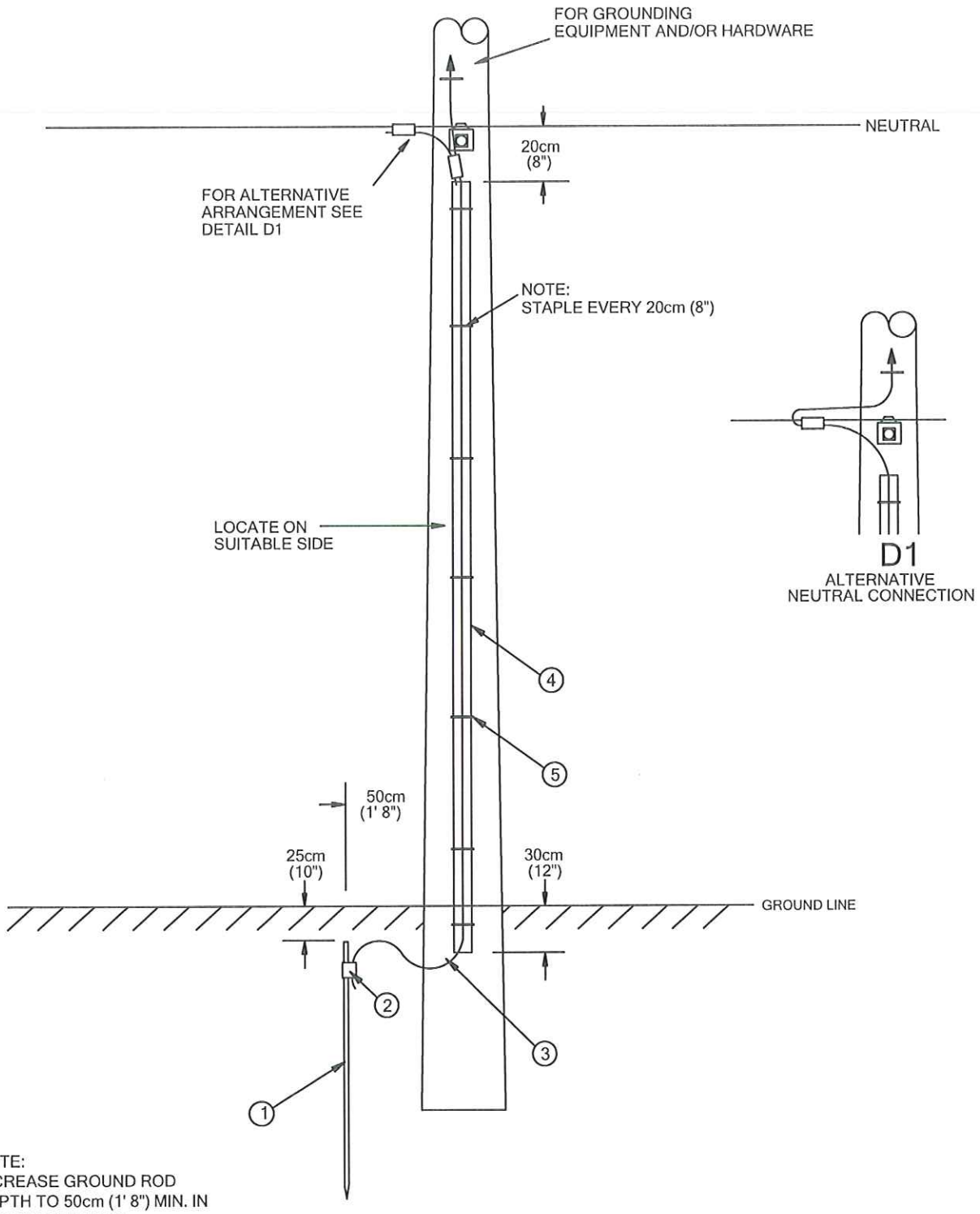
USF

Title: 1-PHASE TRANSFORMER INSTALLATION
(Utility Pole)
10 to 100kVA 2.4 to 20kV

SIZE	FILE NAME:	DWG NO.	REV
A	08-100.DWG	08-100	1

SCALE	DATE:	SHEET
NTS	2007-04-05	1

09-100



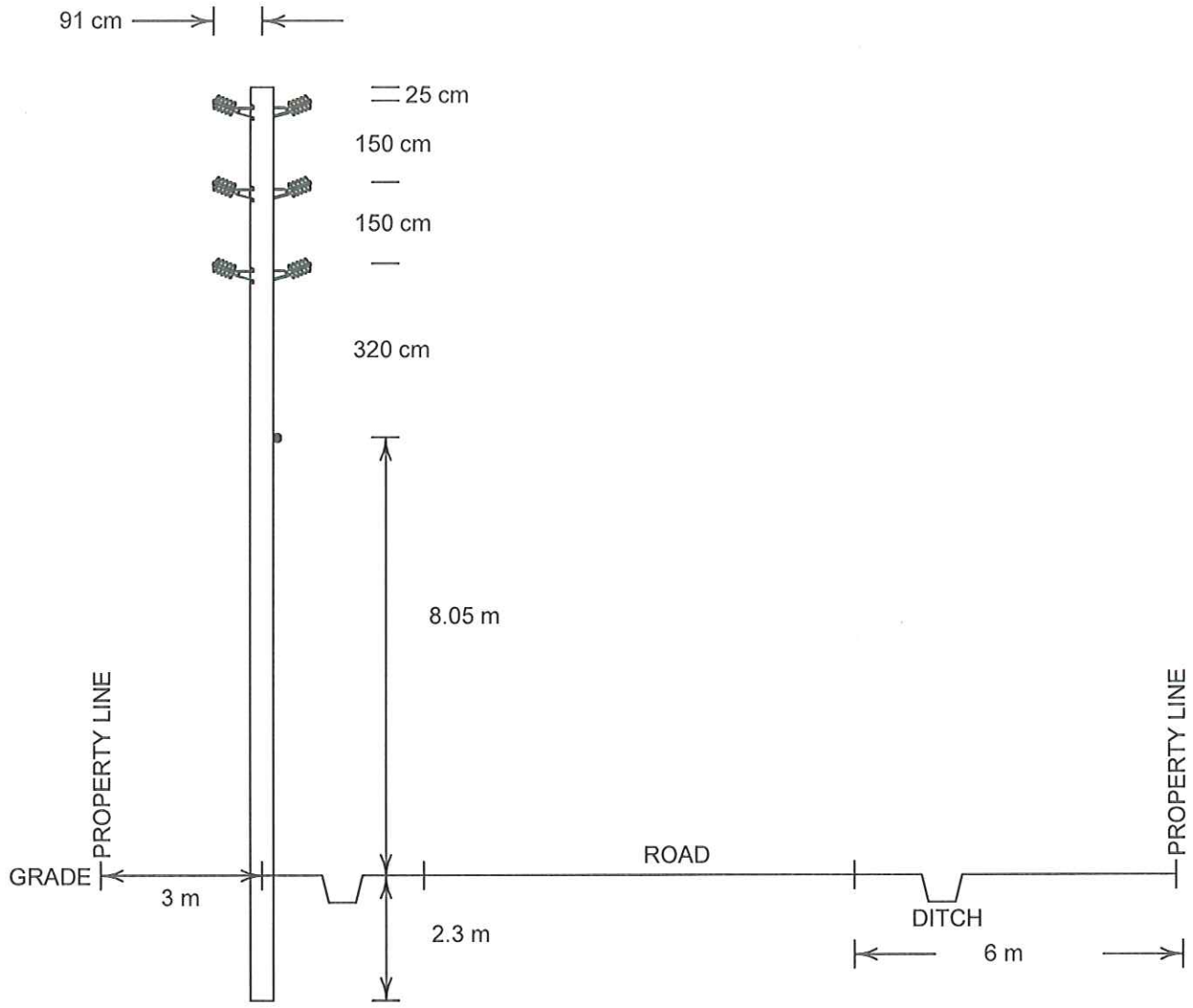
D1
ALTERNATIVE
NEUTRAL CONNECTION

NOTE:
INCREASE GROUND ROD
DEPTH TO 50cm (1' 8") MIN. IN
CULTIVATED LAND.

Utilities Standards Forum
USF

Title: GROUNDING FOR OVERHEAD INSTALLATIONS ON WOOD POLES

SIZE	FILE NAME:	DWG NO.	REV
A	09-100.DWG	09-100	2
SCALE NTS	DATE: 2008-03-18	SHEET 1	

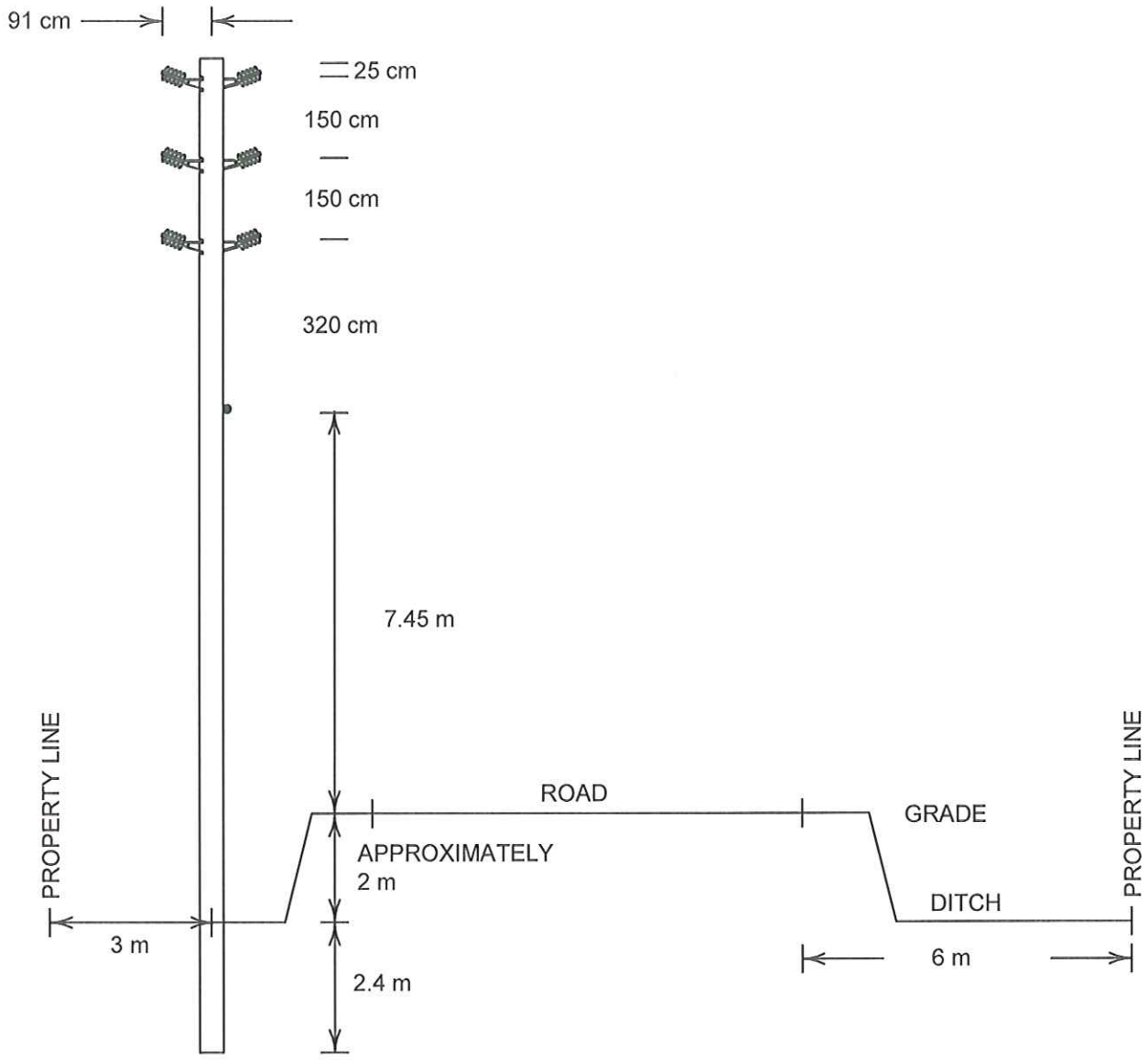


Haldimand County Hydro

Title:

CROSS SECTION "A" CONCESSION ROAD 5

APPROVED BY:	SIZE LET	FILE NAME: CROSS SECTION "A".DWG	DWG NO.	REV
DRAWN BY: J.L.	SCALE: NTS	DATE: JULY 7, 2011	SHEET 1 OF 1	

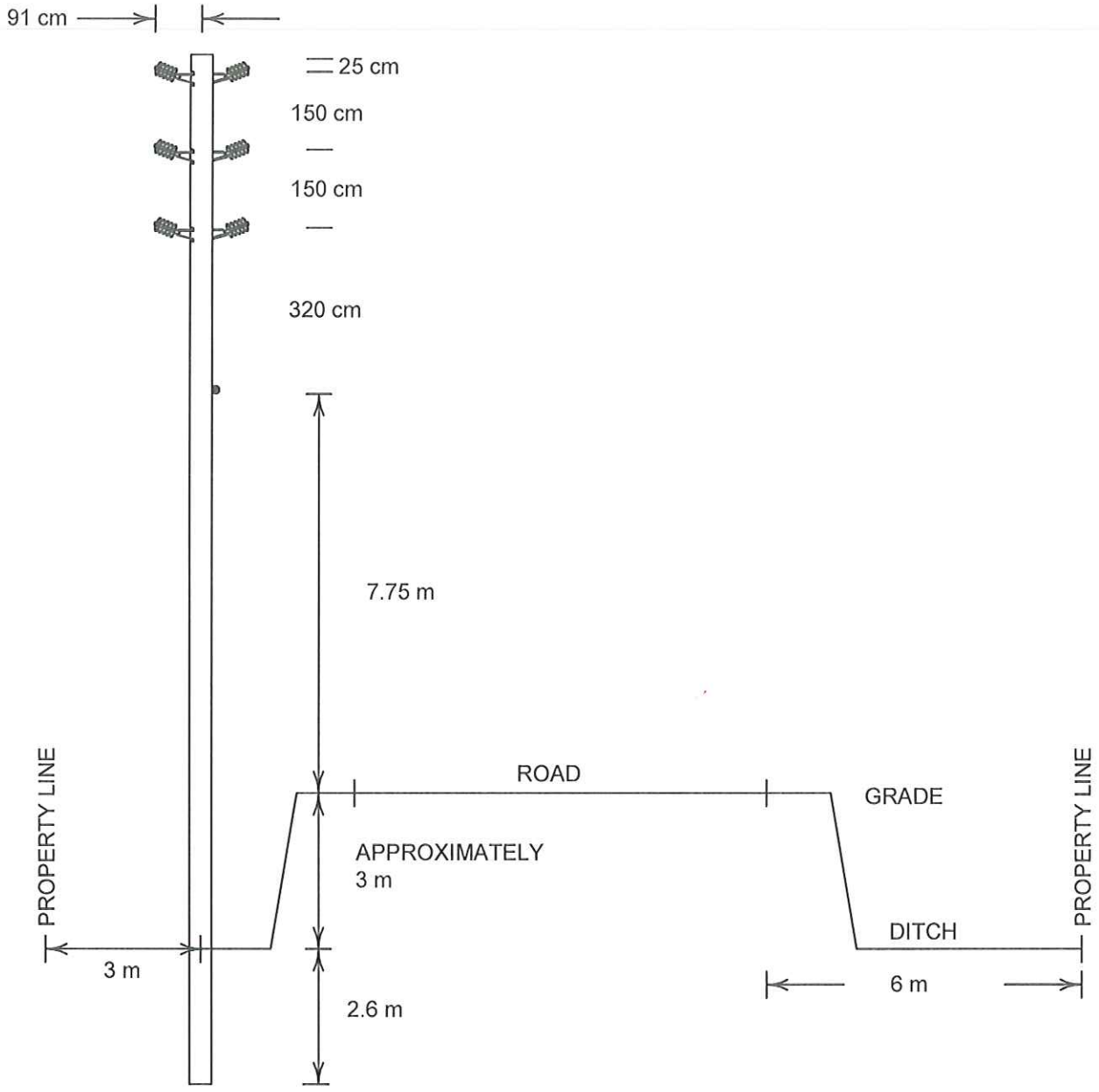


Haldimand County Hydro

Title:

CROSS SECTION "B" SANDUSK RD.

APPROVED BY:	SIZE LET	FILE NAME: CROSS SECTION "B".DWG	DWG NO.	REV
DRAWN BY: J.L.	SCALE: NTS	DATE: JULY 7, 2011	SHEET 1 OF 1	



Haldimand County Hydro

Title:

CROSS SECTION "C" CONCESSION ROAD 4

APPROVED BY:	SIZE LET	FILE NAME:	DWG NO.	REV
DRAWN BY: J.L.	SCALE: NTS	DATE: JULY 7, 2011	SHEET 1 OF 1	