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Request IR-1:

Please provide specific details on the criteria used and the work completed to determine the original scope of 77 structures requiring structure and conductor replacement.

Response IR-1:

The construction rebuild of the L-5031 transmission line was initiated in 2023 based on findings and recommendations arising from NS Power's transmission line inspection program. Inspection results from 2017 identified deficiencies in the conductor, as well as a number of transmission structures that required replacement. These findings were reviewed by NS Power subject matter experts, and corrective work requests were submitted.

Given the volume and extent of the identified deficiencies, NS Power's internal Transmission Line Engineering group was engaged to assess the condition of the line and recommend the most appropriate path forward. Following this review, it was determined that a comprehensive rebuild of the L-5031 transmission line represented the most suitable long-term solution. This decision was driven primarily by the deteriorated condition of the conductor and wood pole structures.

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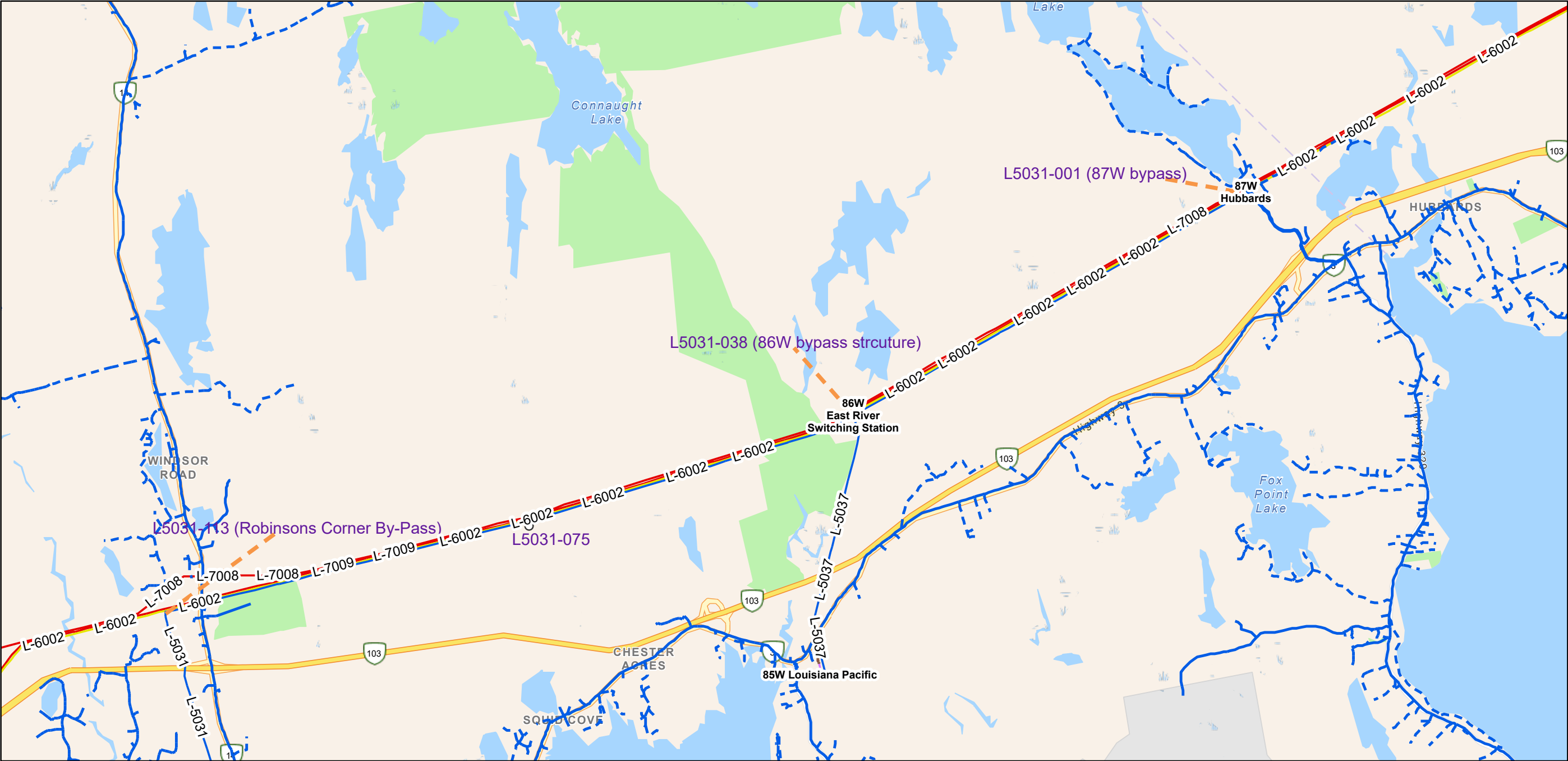
Request IR-2:

Please provide a GIS map showing the overall L5031 transmission line path, identifying the locations of the deteriorated structures being replaced under the original scope, the additional structure replacements, the mobile substation, and the bypass structures.

Response IR-2:

Please refer to Attachment 1, which provides a GIS map view of the L-5031- Hubbards to East Chester scope, including the replacement of structures L-5031-000 through L-5031-075. Attachment 1 also identifies the locations of the three temporary bypass structures required to complete this work. The mobile transformer unit was initially installed at the Robinsons Corner location, at the intersection of L-5031-113 and L-5031A-030A.

L5031-000 to L5031-075 Phase 2 Scope Drawing (includes location of the 3 by-pass structures)



06/08/2026, 15:33:24

Primary Overhead Electric Line Segment

- Three Phase, 69000
- Three Phase, 138000
- Three Phase, 4kV
- Three Phase, 12kV

Single Phase, 12kV

Primary Underground Electric Line Segment

- Single Phase, 12kV
- Three Phase, 12kV

Electric Station

- Switch Station
- Sub Station

Overhead Transmission Line

- 230 kV

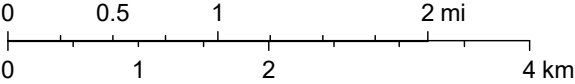
138 kV

69 kV

Below 69 kV

Distribution Feeder Extents

1:73,900



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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Request IR-3:

Page 1 of 6, Description, NS Power noted that

“L5031 is a 19.75 kilometre (146 Structures) 69kV transmission line, built in 1966, that connects 87W Hubbards and 84W Robinsons Corner Substations.”

The project is to replace deteriorated assets on approximately 78 structures, including 77 structures and conductor replacements plus 1 insulator replacement.

(a) Please describe the components of 69kV transmission line structure and provide NS Power’s standards and drawings to support the explanation.

(b) Please provide the expected design life of 69kV transmission life.

(c) Please provide the expected design life of conductors, joints, support structures, foundations, insulators, or any other component used in the L5031 transmission line design.

Response IR-3:

(a) The existing L-5031 transmission line consists of wood pole structures, insulators, and a combination of 336.4 kcmil ACSR Linnet and 1/0 ACSR Raven conductors. Please refer to Attachment 1, which illustrates a typical 69 kV wood pole transmission structure standard. Today’s updated standard would look similar to the original drawings used, however, the original drawings used during the period in which the line was originally constructed in 1966 are not available.

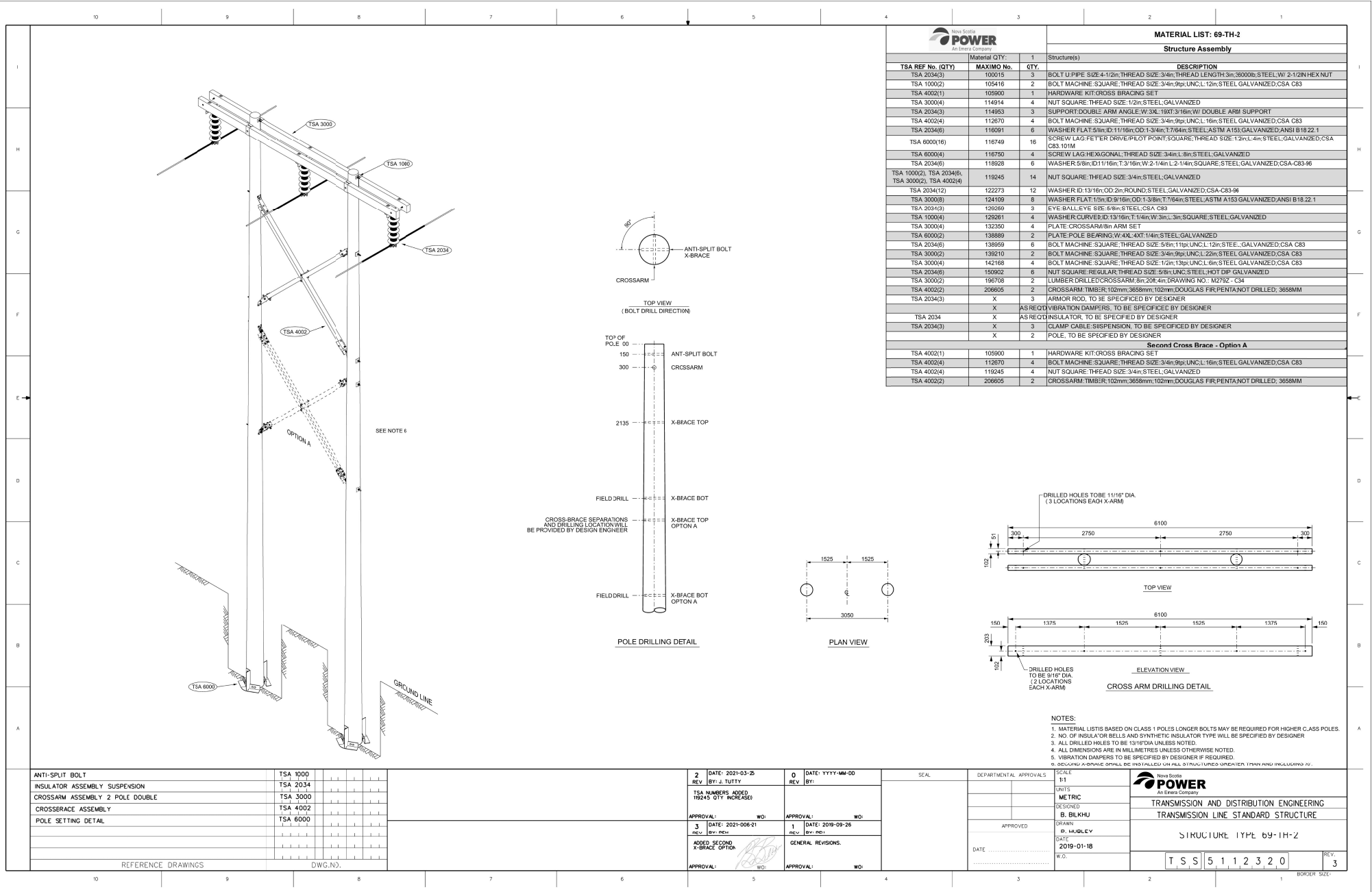
NS Power now designs and constructs new 69kV transmission lines to 138 kV standards. Accordingly, the replacement L-5031 transmission line has been designed and will be

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1 constructed to current 138 kV standards, consistent with present-day transmission system
2 planning, reliability, and asset management practices.

3
4 (b) The theoretical design life of the existing 69 kV wood transmission structures is
5 approximately 50 to 60 years. Structure and insulator swing are designed based on
6 probabilistic design concepts per CSA C22.3 No.60826 using a 1-in-50-year return period
7 of events.

8
9 (c) The transmission structures are designed for an estimated service life of 50-60 years, based
10 on the expected performance and durability of the wood structural components, fasteners,
11 conductor, and all other associated line components.



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Request IR-4:

The ATO Contingency Statement notes:

“In total, the outstanding scope includes replacement of approximately 50 structures and 8km of conductor.”

(a) How many structures have been replaced to date?

(i) If the number of structures replaced to date plus the forecast 50 outstanding structures requiring replacement exceeds 77 in total:

(a) Please explain why additional structures require replacement beyond the 77 identified in the 2024 ACE Plan application.

(b) Please describe the work completed by NS Power to determine that these additional structures require replacement.

(c) Please explain why the original field inspection did not sufficiently identify that these additional structures require replacement.

(d) Please identify the specific cost associated with replacing these additional structures.

(b) How many km’s of conductor were estimated to be replaced in the 2024 ACE Plan application?

(i) How many km’s of conductor have been replaced to date?

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1 **(ii) If the number of kilometres of conductor replaced to date plus the forecast**
2 **8km of outstanding conductor requiring replacement exceeds the number of**
3 **km's of conductor forecast to be replaced in the 2024 ACE Plan:**

4
5 **(a) Please explain why an additional conductor requires replacement**
6 **beyond the number identified in the 2024 ACE Plan application.**

7
8 **(b) Please describe the work completed by NS Power to determine that**
9 **these additional km's of conductor require replacement.**

10
11 **(c) Please explain why the original field inspection did not sufficiently**
12 **identify that these additional km's of conductor require replacement.**

13
14 **(d) Please identify the specific cost associated with replacing these**
15 **additional km's of conductor.**

16
17 Response IR-4:

18
19 **(a)** To date, 24 new transmission structures have been installed as part of the L5031 - Hubbards
20 to East Chester scope. The installation of the remaining 47 transmission structures is in
21 progress.

22
23 **(i)** No additional structure replacements beyond the original request are required. The
24 L5031 - Hubbards to East Chester scope aims to replace 77 structures with 71 new
25 structures. The new design has been optimized to improve structural performance
26 while reducing overall project costs. In addition, the revised design reduces the total
27 number of transmission structures, resulting in a simpler, more efficient
28 configuration with fewer assets to construct, maintain, and operate in future.

29
30 (a-d) N/A.

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1 (b) The Phase 2 scope includes the replacement of approximately 33 km of conductor,
2 representing approximately 11 km of transmission line reconstructed across three phases
3 (11 km $\times$ 3 phase conductors).
4

5 (i) Conductor replacement has been completed on 18 of the 24 new transmission
6 structures installed. To date, approximately 8.73 km of new conductor has been
7 installed, representing approximately 2.91 line km of the 11 km Phase 2
8 transmission line scope.
9

10 (ii) No additional conductor material is required to complete the phase 2 scope.
11

12 (a-d) N/A.

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Request IR-5:

Page 2 of 6 of the application states:

“This project was submitted with the intention of using a mobile substation throughout the construction period to continue providing service to customers. Due to the mobile substation being required at other higher priority sites, three bypass line structures were constructed to continue service during the construction period. The bypass costs increased contract and materials by approximately \$1M.”

(a) Please describe the specific reasons why the mobile substation was required at other higher priority sites.

(b) What alternative solutions had considered for the bypass circuit that could have minimized costs?

(i) If not, please explain why not.

(c) Does NS Power have an inventory of other spare mobile substations?

(i) If so, please explain why NS Power could not use one of its other spare mobile substations.

(d) Did NS Power assess renting or procuring another mobile substation as an alternative to constructing the three bypass line structures?

(i) If not, why not?

(ii) If so, please explain why this alternative was not preferred.

(e) Please identify the cost included in the original 2024 ACE Plan project cost estimate associated with using the mobile substation.

(f) For the three bypass structures, please provide a detailed cost breakdown, including

(i) Installation costs

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- 1 **(ii) The cost of each bypass structure**
2 **(iii) The cost of three bypass structures**
3
4 **(g) Please compare the bypass structures with regular transmission structures and**
5 **explain the difference in design and cost.**
6
7 **(h) Please describe the function of these bypass structures.**
8
9 **(i) Are these structures permanent or are they temporary structures?**
10
11 **(j) Please explain specifically why NS Power could not delay the L5031 Replacements**
12 **and Upgrades Project until the mobile substation became available.**
13
14 **(i) Was the condition of the L5031 assets at the time of the 2024 ACE Plan**
15 **application in a more advanced state of deteriorated condition than other**
16 **assets that have undergone recent similar transmission replacement and**
17 **upgrades?**
18
19 **(a) Please provide NS Power’s 2024 asset condition and criticality**
20 **assessment of the L5031 Hubbards to East Chester assets that were**
21 **intended to be replaced.**
22
23 **(b) Please provide the same information for NS Power’s five most recently**
24 **completed similar transmission replacement and upgrades relative to**
25 **the time that each project was submitted for Board approval.**
26

27 Response IR-5:

- 28 **(a) NS Power owns three 25 MVA mobile transformers. To ensure emergency preparedness**
29 **across the system, at least one 25 MVA mobile transformer must remain available for**
30 **deployment and should not be committed to long-term service.**

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1 In January 2025, a substation transformer in the Glace Bay area failed, and in order to
2 maintain service while the repairs were completed, one of the 25 MVA mobile transformers
3 was required to be installed. A second mobile transformer was already in service at another
4 substation to temporarily support winter peak loading conditions to serve firm customer
5 load. A third 25 MVA that was installed on L-5031 and had to be removed from service to
6 ensure one was available for deployment.

7
8 (b) Based on the existing system configuration and transmission line design, there are only two
9 practical options for obtaining the extended construction outage window required to
10 complete the work without negatively impacting customers: the use of a mobile substation
11 or the installation of temporary bypass structures. Any alternative approach would require
12 greater than 4 weeks of planned outages, affecting both residential and commercial
13 customers within the area served by the line.

14
15 The project team also evaluated the option of widening the existing transmission right-of-
16 way to allow construction of the new L-5031 transmission line parallel to the energized
17 line. Under this approach, the new structures could be constructed while the existing line
18 remained in service, with only short customer outages required to complete the final
19 connections at the substations. The existing transmission structures would then be retired
20 and removed.

21
22 However, this option was ultimately deemed infeasible due to environmental and land-use
23 constraints. Portions of the existing transmission corridor traverse environmentally
24 sensitive areas, and widening the right-of-way would have required the acquisition of
25 additional easements and associated regulatory approvals. Due to the sensitivities of the
26 land parcels noted, it is unlikely NS Power would gain approvals. As a result, this
27 alternative was not considered a viable solution for the project.

28
29 The project team also evaluated the possibility of offloading all distribution customers
30 served by the 84W Substation in Chester. To make this work, NS Power would need at

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1 least two sets of regulators and approximately 10 km of conductor upgrades along Highway
2 3, which would result in a significant distribution capital project. Due to the cost and
3 timeframe required, this alternative was found to be infeasible for this project.

4
5 (c) All mobile substation units were utilized. Please refer to part (a) for explanation.
6

7 (d) The option to rent or purchase a mobile substation unit were considered by the project
8 team, however, due to the significant cost and expected delivery times, these were not a
9 viable solution for this project. The estimated cost of the bypass structures is approximately
10 \$489,351, whereas the cost of purchasing a mobile substation units would be
11 approximately 3 million dollars. The cost to rent a mobile substation 25 MVA for a period
12 of 3 months would total over \$540,000.
13

14 (e) Costs associated with the use of a mobile substation for this project are limited to
15 transportation, installation, and removal activities. These costs primarily include
16 transporting the mobile substation to and from the site, as well as the NS Power resources
17 required to safely connect and disconnect the unit from the transmission lines. No other
18 project costs are directly attributable to the use of the mobile substation.
19

20 (f) Detailed cost breakdown for the three by-pass structures:

21 (i) Installation Costs - \$273,446.

22 (ii) 87W and Robinsons Corner bypass cost \$292,135. The L-5037 tap bypass cost
23 \$197,216.

24 (iii) Total cost \$489,351.
25

26 (g) The bypass structures have been designed and will be constructed in accordance with
27 existing transmission standards. They meet all applicable reliability-based design criteria
28 and clearance requirements. Two of the three bypass structures will remain in service as
29 permanent assets upon completion of the project. The bypass structure at L-5037, however,

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1 has been designed as a temporary installation and will be removed once the work is
2 complete.

3
4 The temporary structure has been designed to the minimum transmission standards,
5 providing a cost-effective solution while maintaining the strength, durability, and
6 performance required to meet NS Power's transmission design requirements. This approach
7 ensures safe and reliable operation and minimizes the risk of structural failure during the
8 project.

9
10 (h) The purpose of the three bypass structures is to facilitate construction activities associated
11 with the L5031- Hubbards to East Chester scope while maintaining service continuity on
12 adjacent system segments. The bypass structures will temporarily connect L-5031 to L-
13 6002, allowing customers normally supplied by L-5031 to be served from L-6002 for the
14 duration of the construction period.

15
16 (i) The bypass structure on L-5037 is a temporary installation and will be removed once
17 construction activities are complete. This bypass is temporary and is designed to facilitate
18 construction while ensuring that a key customer remains supplied throughout the
19 construction period. This bypass is not intended to be used for future connections or line
20 sectioning. The other two bypass structures, located at 87W and Robinsons Corner, will
21 remain in service as permanent assets.

22
23 The bypass structure at 87W is intended to support future mobile installations required for
24 transformer maintenance at the 87W substation. Retaining this structure as a permanent
25 asset will facilitate future maintenance activities while minimizing required system outages
26 and reducing the need for additional temporary infrastructure.

27
28 Similarly, the bypass structure at Structure L-5031-113 (Robinsons Corner) will remain as
29 a permanent asset to support future mobile applications, if required. Its primary purpose is

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1 to provide operational flexibility during maintenance activities or in the event of a failure
2 of L-5031, helping maintain service to customers supplied from 84W.

3
4 (j) Yes, the condition of the L-5031 structures and conductor were found to need replacement
5 based on condition assessed during NS Power's transmission inspection program.

6
7 (i) The asset or line risk is driven not only by the assessed condition, which indicates
8 that it is approaching the end of its service life, but also by the absence of alternate
9 transmission lines capable of serving customers in the area in the event of a failure.
10 Should an unplanned outage occur, customers would experience prolonged service
11 interruptions, and emergency restoration efforts would likely incur significant costs
12 and resource requirements.

13
14 (a) The replacement of these assets is therefore essential to maintaining system
15 reliability and reducing the risk of extended customer outages. Refer to
16 Attachment 1, which provides the results of the 2024 inspection report for
17 Structures L5031-001 through L5031-075 highlighting their current
18 condition and associated risks.

19
20 (b) NS Power has not undertaken a full transmission line replacement project
21 comparable to the L-5031 project within at least the past five years.

Line No: L5031		Inspection Review Report																														
Str #	Str Type / From Type	Line Angle	Span	Pole Spacing	Pole Lgth L	Pole Lgth C	Pole Lgth R	Conducto r	OHGW	Insulators I		Insulators II		Insulators III		GPS Lat	GPS Long	Access	Grd Cr	Min Grd Cr	GC Status	Air Temp	Insp Date	Str Status	Field Priority	Work OrderID	Schedule #	Comments	Env Notification	Inspection Method		
L5031-000	2Pole: 69-Dt-2	Light (5-30)	26	6	40		40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)				-64 5' 19.5862" N	44 38' 39.0530" W	Sub	9.3	8.92	Pass	NK	2024-04-08	Pass	N/A			Ok, out of sub, 6 guys 3 wrapped		Foot		
L5031-000	2Pole: 69-Dt-2	Light (5-30)	26	6	40		40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)				-64 5' 19.5862" N	44 38' 39.0530" W	Sub	9.3	8.92	Pass	NK	2020-03-12	Pass	N/A	3770249	20195	Ok 6 guys 3 need wrapped		Foot		
L5031-000	2Pole: 69-Dt-2	Light (5-30)	26	6	40		40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)				-64 5' 19.5862" N	44 38' 39.0530" W	Sub	9.3	8.92	Pass	NK	2019-10-22	Pass							Helicopter	
L5031-000	2Pole: 69-Dt-2	Light (5-30)	26	6	40		40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)				-64 5' 19.5862" N	44 38' 39.0530" W	Sub	9.3	8.92	Pass	NK	2018-10-22	Pass							Helicopter	
L5031-000	2Pole: 69-Dt-2	Light (5-30)	26	6	40		40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)				-64 5' 19.5862" N	44 38' 39.0530" W	Sub	9.3	8.92	Pass	NK	2017-06-21	Pass	N/A			ok, new 2012		Foot		
L5031-000	2Pole: 69-Dt-2	Light (5-30)	26	6	40		40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)				-64 5' 19.5862" N	44 38' 39.0530" W	Sub	9.3	8.92	Pass	NK	2013-07-10	Pass					New structure 6 guys double arm		Foot	
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2024-04-08	Pass	N/A			R ants, dusty, sounds ok. 11 guys, r guy slack only one wrapped		Foot		
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2020-03-12	Pass	N/A	3770249	20195	Ok 11 guys r side guy slack its the only one wrapped		Foot		
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2019-10-22	Pass							Helicopter	
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2018-10-22	Pass							Helicopter	
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2017-06-21	Pass	N/A			ok, soundsbt punky on poles but still fine, slight moss on arms		Foot		
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2013-07-10	Pass					Air id ok 11 guys right pole has top rot 3 impact 336 to 336		Foot	
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2010-02-01	Pass					11 guys 8 anc 5/16 steel, guy hooks Rt pole has top rot ok Line ID 5031 good 6 impact bails for mobile mid span 3 AL to AL impacts in jumpers 2008R done WO 251792 Dose 1M off high spot		Foot	
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2007-02-20	Pass			251792	2008R	11 guys, 5.50 close to R1 (4.88 with drop) EUS Invoice # J021691		Foot	
L5031-001	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	45	10	40	40	40	1/0	No	Suspensio n (Horizontal I Strain)	36	Porcelain (Grey)	Suspensio n Vertical	15	Porcelain (Grey)	-64 5' 21.7790" N	44 38' 38.1592" W	None	7.600000 00000000 05	7.38	Pass	19	2005-07-15	Pass					11 GUVS			
L5031-002	2Pole: 69-T-H(2)	Tangent	229	10	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 30.8142" N	44 38' 34.4221" W	None	8.1	7.22	Pass	18	2024-04-08	Pass	N/A			Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Foot	
L5031-002	2Pole: 69-T-H(2)	Tangent	229	10	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 30.8142" N	44 38' 34.4221" W	None	8.1	7.22	Pass	18	2020-03-12	Pass	N/A			Poles a bit punky ok old brown porcelain look ok. Shoes	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Foot	
L5031-002	2Pole: 69-T-H(2)	Tangent	229	10	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 30.8142" N	44 38' 34.4221" W	None	8.1	7.22	Pass	18	2019-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Helicopter
L5031-002	2Pole: 69-T-H(2)	Tangent	229	10	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 30.8142" N	44 38' 34.4221" W	None	8.1	7.22	Pass	18	2018-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Helicopter
L5031-002	2Pole: 69-T-H(2)	Tangent	229	10	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 30.8142" N	44 38' 34.4221" W	None	8.1	7.22	Pass	18	2017-06-21	Fail	1-2 years	3770249	20195	fail brown ins, rest ok, poles bit punky but fine	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Foot	
L5031-002	2Pole: 69-T-H(2)	Tangent	229	10	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 30.8142" N	44 38' 34.4221" W	None	8.1	7.22	Pass	18	2013-07-10	Pass					No X brace bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Foot
L5031-002	2Pole: 69-T-H(2)	Tangent	229	10	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 30.8142" N	44 38' 34.4221" W	None	8.1	7.22	Pass	18	2010-02-01	Pass					No X Brace Bow Arms(2) 69-T-S (L&P)	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Foot
L5031-003	2Pole: 69-T-H(2)	Tangent	145	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 36.5355" N	44 38' 32.1007" W	None	6.3	5.57	Flag	18	2024-04-08	Pass	N/A			No change reassess next, brown porcelain, wet site	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Foot	
L5031-003	2Pole: 69-T-H(2)	Tangent	145	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 36.5355" N	44 38' 32.1007" W	None	6.3	5.57	Flag	18	2020-03-12	Pass	N/A			R ants a bit hollow and punky 1 a bit of grind rot tr and a crack at top punky brown porcelain shoes reassess next	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Foot	
L5031-003	2Pole: 69-T-H(2)	Tangent	145	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)				-64 5' 36.5355" N	44 38' 32.1007" W	None	6.3	5.57	Flag	18	2019-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)		Helicopter
L50315																																

L5031-009	2Pole: 69-T-H(2)	Tangent	154	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 11.2011" N	44 38' 18.0352" W	None	6.5	5.770000 00000000 05	Flag	18	2020-03- 12	Fail	2-4 years			L 1 broken 1 chipped brown porcelain shoes poles a bit punky	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-009	2Pole: 69-T-H(2)	Tangent	154	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 11.2011" N	44 38' 18.0352" W	None	6.5	5.770000 00000000 05	Flag	18	2019-10- 22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter
L5031-009	2Pole: 69-T-H(2)	Tangent	154	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 11.2011" N	44 38' 18.0352" W	None	6.5	5.770000 00000000 05	Flag	18	2018-10- 22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter
L5031-009	2Pole: 69-T-H(2)	Tangent	154	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 11.2011" N	44 38' 18.0352" W	None	6.5	5.770000 00000000 05	Flag	18	2017-06- 21	Fail	1-2 years	3770249	20195	fail brwn ins, 1 broken left string, rest ok, 2 small wp holes left pole sounds ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-009	2Pole: 69-T-H(2)	Tangent	154	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 11.2011" N	44 38' 18.0352" W	None	6.5	5.770000 00000000 05	Flag	18	2013-07- 11	Pass			No X brace bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-009	2Pole: 69-T-H(2)	Tangent	154	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 11.2011" N	44 38' 18.0352" W	None	6.5	5.770000 00000000 05	Flag	18	2010-02- 01	Pass			5-6 Small wp holes 69 T-S (L&P) ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-009	2Pole: 69-T-H(2)	Tangent	154	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 11.2011" N	44 38' 18.0352" W	None	6.5	5.770000 00000000 05	Flag	18	2005-11- 14	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	
L5031-010	2Pole: 69-T-H(2)	Tangent	122	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 15.7634" N	44 38' 16.1720" W	Woods Rd X's	6.7	6.08	Flag	18	2024-04- 04	Fail	2-4 years			No change, repairs not completed.	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-010	2Pole: 69-T-H(2)	Tangent	122	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 15.7634" N	44 38' 16.1720" W	Woods Rd X's	6.7	6.08	Flag	18	2020-03- 12	Fail	2-4 years			L 2 broken brown porcelain shoes both poles a bit punky	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-010	2Pole: 69-T-H(2)	Tangent	122	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 15.7634" N	44 38' 16.1720" W	Woods Rd X's	6.7	6.08	Flag	18	2019-10- 22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter
L5031-010	2Pole: 69-T-H(2)	Tangent	122	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 15.7634" N	44 38' 16.1720" W	Woods Rd X's	6.7	6.08	Flag	18	2018-10- 22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter
L5031-010	2Pole: 69-T-H(2)	Tangent	122	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 15.7634" N	44 38' 16.1720" W	Woods Rd X's	6.7	6.08	Flag	18	2017-06- 21	Fail	1-2 years	3770249	20195	fail brwn ins, 2 broken left phase, rest ok, wp holes left pole sounds fine	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-010	2Pole: 69-T-H(2)	Tangent	122	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 15.7634" N	44 38' 16.1720" W	Woods Rd X's	6.7	6.08	Flag	18	2013-07- 11	Fail			No X brace bow arms Air ID good 2 broken belts left phase	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-010	2Pole: 69-T-H(2)	Tangent	122	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 15.7634" N	44 38' 16.1720" W	Woods Rd X's	6.7	6.08	Flag	18	2010-02- 01	Pass			69 T-S (L&P) No air ID # 10 Rt pole 1 small wp hole slight top rot Both poles	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-011	2Pole: 69-T-H(2)	Tangent	191	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 23.8031" N	44 38' 12.8883" W	None	7.100000 00000000 05	6.25	Flag	18	2024-04- 04	Pass		N/A	Brown porcelain rest ok 2 guys slack	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-011	2Pole: 69-T-H(2)	Tangent	191	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 23.8031" N	44 38' 12.8883" W	None	7.100000 00000000 05	6.25	Flag	18	2020-03- 12	Pass		N/A	Brown porcelain shoes poles a bit punky ok this time	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-011	2Pole: 69-T-H(2)	Tangent	191	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 23.8031" N	44 38' 12.8883" W	None	7.100000 00000000 05	6.25	Flag	18	2019-10- 22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter
L5031-011	2Pole: 69-T-H(2)	Tangent	191	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 23.8031" N	44 38' 12.8883" W	None	7.100000 00000000 05	6.25	Flag	18	2018-10- 22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter
L5031-011	2Pole: 69-T-H(2)	Tangent	191	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 23.8031" N	44 38' 12.8883" W	None	7.100000 00000000 05	6.25	Flag	18	2017-06- 21	Fail	1-2 years	3770249	20195	fail brwn ins, rest ok, slight crack in one arm but looks ok 3 wp holes left pole bit punky but ok, guys are bit slack need tightening	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-011	2Pole: 69-T-H(2)	Tangent	191	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 23.8031" N	44 38' 12.8883" W	None	7.100000 00000000 05	6.25	Flag	18	2013-07- 11	Pass			No X brace bow arms 2 side guys	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-011	2Pole: 69-T-H(2)	Tangent	191	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 23.8031" N	44 38' 12.8883" W	None	7.100000 00000000 05	6.25	Flag	18	2010-02- 01	Pass			69 T-S (L&P) 2 storm guys 2 anc 5/16 steel, guy hooks Rt pole 1sm wp hole poles are weather cracked	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2024-04- 04	Pass		N/A	OK	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2020-03- 12	Pass		N/A	Couple old small wp holes both a bit punky ok this time	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2019-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter		
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2018-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter		
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2017-06- 21	Pass	N/A	3770249	20195	ok, 3 small wp holes right pole, poles both bit punky but ok for now	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2013-07- 11	Pass			No X brace Bow arms Swamp	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2010-02- 01	Pass			WO 251792 Done 2008R Replace all insulators 69-T-S (L&P) ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2007-02- 20	Fail		251792	2008R	3 broken bells right phase, 3 good.EUS invoice # J021691	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Reactive	
L5031-012	2Pole: 69-T-H(2)	Tangent	145	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 6' 29.2422" N	44 38' 10.6667" W	1.0M Wide Stream N44-38-12.1 W64- 06-27.2 Port Bridges/Hard Rock Bottom (Shallow)	8.3	7.57	Pass	18	2005-11- 14	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)			
L5031-013	2Pole: 69-T-H(2)	Tangent	239	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 38.6707" N	44 38' 6.8227" W	100M Wide Swamp	11.5	10.6	Pass	18	2024-04- 04	Pass		N/A	Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-013	2Pole: 69-T-H(2)	Tangent	239	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 38.6707" N	44 38' 6.8227" W	100M Wide Swamp	11.5	10.6	Pass	18	2020-03- 12	Pass		N/A	Brown porcelain shoes rest ok this time	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-013	2Pole: 69-T-H(2)	Tangent	239	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 38.6707" N	44 38' 6.8227" W	100M Wide Swamp	11.5	10.6	Pass	18	2019-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter		
L5031-013	2Pole: 69-T-H(2)	Tangent	239	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 38.6707" N	44 38' 6.8227" W	100M Wide Swamp	11.5	10.6	Pass	18	2018-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter		
L5031-013	2Pole: 69-T-H(2)	Tangent	239	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 38.6707" N	44 38' 6.8227" W	100M Wide Swamp	11.5	10.6	Pass	18	2017-06- 21	Pass		N/A	3770249	20195	fail brwn ins , rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot
L5031-013	2Pole: 69-T-H(2)	Tangent	239	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 38.6707" N	44 38' 6.8227" W	100M Wide Swamp	11.5	10.6	Pass	18	2013-07- 11	Pass			No X brace Bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-013	2Pole: 69-T-H(2)	Tangent	239	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 6' 38															

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

L5031-026	2Pole: 69-T-H(2)	Tangent	184	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 4.7871" N	44 37' 32.0742" W	None	8.3	7.62	Pass	19	2017-06-23	Fail	1-2 years	3770249	20195	fail brwn ins, rest ok, right pole bit punky but ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-026	2Pole: 69-T-H(2)	Tangent	184	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 4.7871" N	44 37' 32.0742" W	None	8.3	7.62	Pass	19	2013-07-11	Pass				No X brace bow arms 6 old WP holes right pole	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-026	2Pole: 69-T-H(2)	Tangent	184	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 4.7871" N	44 37' 32.0742" W	None	8.3	7.62	Pass	19	2010-02-01	Pass				69 T-5 (L&P) ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2024-04-04	Pass	N/A				Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2020-03-13	Pass	N/A				Brown porcelain shoes rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2019-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter	
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2018-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter	
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2017-06-23	Fail	1-2 years	3770249	20195	fail brwn ins, rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2013-07-11	Pass					No X brace bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2010-02-01	Pass					69 T-5 (L&P) Flag to Eng Rt pole replaced 2-3 years ago ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-027	2Pole: 69-T-H(2)	Tangent	136	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 10.4331" N	44 37' 29.8211" W	None	6.5	5.96	Flag	19	2007-02-20	Pass					Right pole has been replaced.	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-028	2Pole: 69-T-H(2)	Tangent	130	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 15.3960" N	44 37' 27.8342" W	None	7.3	6.76	Pass	19	2024-04-04	Pass	N/A					Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot
L5031-028	2Pole: 69-T-H(2)	Tangent	130	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 15.3960" N	44 37' 27.8342" W	None	7.3	6.76	Pass	19	2020-03-13	Pass	N/A					Brown porcelain shoes rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot
L5031-028	2Pole: 69-T-H(2)	Tangent	130	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 15.3960" N	44 37' 27.8342" W	None	7.3	6.76	Pass	19	2019-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter	
L5031-028	2Pole: 69-T-H(2)	Tangent	130	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 15.3960" N	44 37' 27.8342" W	None	7.3	6.76	Pass	19	2018-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter	
L5031-028	2Pole: 69-T-H(2)	Tangent	130	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 15.3960" N	44 37' 27.8342" W	None	7.3	6.76	Pass	19	2017-06-23	Fail	1-2 years	3770249	20195	fail brwn ins, rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-028	2Pole: 69-T-H(2)	Tangent	130	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 15.3960" N	44 37' 27.8342" W	None	7.3	6.76	Pass	19	2013-07-11	Pass					No X brace bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-028	2Pole: 69-T-H(2)	Tangent	130	10	40		40	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 15.3960" N	44 37' 27.8342" W	None	7.3	6.76	Pass	19	2010-02-01	Pass					69 T-5 (L&P) ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2024-03-20	Pass	N/A				Brown porcelain, L 1 broken. L guy slack, neither wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2024-03-20	Pass	N/A				Brown porcelain L 1 broken. L guy slack, neither wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2020-03-13	Pass	N/A				Brown porcelain shoes rest ok 2 slack guys need wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2019-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter	
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2018-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter	
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2017-06-23	Fail	1-2 years	3770249	20195	fail brwn ins rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2013-07-11	Pass					No X brace bow arms guys here have been installed 2 side guys Access Mersey Connector Rd	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-029	2Pole: 69-T-H(2)	Tangent	161	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Brown)							-64 8' 21.6068" N	44 37' 25.3351" W	Access Hwy # 3 East River to Mersey Connector take trail to right 100' before gate 1st str toward 89W	8.0	7.37	Pass	19	2010-02-01	Fail		535245	2012R	Str leaning 4' to South & Install 2 storm guys & anc to hold 69 T-5 (L&P) photo incl # 1 6-12 months Completed on EUS W15648 installed anchor ext W15636	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot		
L5031-030	2Pole: 69-T-H(2)	Tangent	152																																

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

L5031-037	2Pole: 69-T-H(2)	Tangent	228	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 13.8418" N	44 37' 4.2753" W	5.0M Wide River N44-37-04.50 W64- 09-13-40 10' wide brige here Access Hwy # 3 to East River Merny Connector through gate (keys requ) to line Xing 2nd str toward 87W	6.3	5.54	Flag	21	2018-10- 22	Pass					1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter	
L5031-037	2Pole: 69-T-H(2)	Tangent	228	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 13.8418" N	44 37' 4.2753" W	5.0M Wide River N44-37-04.50 W64- 09-13-40 10' wide brige here Access Hwy # 3 to East River Merny Connector through gate (keys requ) to line Xing 2nd str toward 87W	6.3	5.54	Flag	21	2017-06- 21	Pass	N/A	3770249	20195	ok, left pole has curvature but seems solid arms look newer	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-037	2Pole: 69-T-H(2)	Tangent	228	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 13.8418" N	44 37' 4.2753" W	5.0M Wide River N44-37-04.50 W64- 09-13-40 10' wide brige here Access Hwy # 3 to East River Merny Connector through gate (keys requ) to line Xing 2nd str toward 87W	6.3	5.54	Flag	21	2013-07- 11	Pass				New double arms sticks on arm above centre & left phase	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-037	2Pole: 69-T-H(2)	Tangent	228	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 13.8418" N	44 37' 4.2753" W	5.0M Wide River N44-37-04.50 W64- 09-13-40 10' wide brige here Access Hwy # 3 to East River Merny Connector through gate (keys requ) to line Xing 2nd str toward 87W	6.3	5.54	Flag	21	2010-02- 01	Fail		535245	2012R	69 T-5 (L&P) phot # 2 incl (B4 side arm broken) 1-6 months	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2024-03- 20	Pass	N/A		Ok 8 guys not wrapped frontside minor slack	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2024-03- 20	Pass	N/A		Ok 8 guys not wrapped frontside minor slack	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2020-03- 23	Pass	N/A		8 guys a bit slack need wrapped ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2019-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter	
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2018-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter	
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2017-06- 21	Pass	N/A	3770249	20195	ok, guys slightly slack but ok for now	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2013-07- 11	Pass			No X brace single arm	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-038	3Pole: 69-Di-3	Light (5- 30)	137	10	40	40	40	1/0	No	Suspensio n (Horizonta l Strain)	6	Glass (Clear)	Suspensio n Vertical	15	Porcelain (Grey)	Suspensio n (Horizonta l Strain)	30	Porcelain (Grey)	-64 9' 19.8721" N	44 37' 1.8708" W	None	7.7	7.16	Pass	22	2010-02- 01	Pass			8 guys, 8 anc 5/16 steel guy hooks 69- DT3	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2024-03- 20	Pass	N/A			Structure ok. Birdrage c, r, at splices. Flying taps for 5037	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2024-03- 20	Pass	N/A			Structure ok. Birdrage c, r, at splices. Flying taps for 5037	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2020-03- 23	Pass	N/A			Ok splice all birdrage c r ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2019-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter		
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2018-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter		
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2017-06- 21	Pass	N/A	3770249	20195	ok, note the breakers on each phase- not sure if thats what they are called	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2013-07- 11	Pass			No X brace single arm inlines 86W- 502	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot		
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2010-02- 01	Pass			12 AL to AL Ampact for Tap to 5037 (138 T-5 (phase to tap))	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot		
L5031-039	2Pole: 138-T-H(1)	Tangent	85	12	50		50	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)						-64 9' 23.4865" N	44 37' 0.5550" W	L5031 X's over tap for L5037	8.5	8.17	Pass	22	2007-02- 23	Pass			Passes over 5087, tape down to it, 12 impact A1 to A1 86W-502 in-line switch, copper to A1 with amp from switch (6 amper)	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot		
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2024-03- 20	Pass	N/A			Brown porcelain rest ok air good. in- line switches	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2024-03- 20	Pass	N/A			Brown porcelain rest ok air good. in- line switches	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2020-03- 23	Pass	N/A			Brown porcelain shoes old small wghts 1 ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2019-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter		
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2018-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter		
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2017-06- 21	Fail	1-2 years	3770249	20195	fail brwn ins, rest ok, poles bit punky but ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2013-07- 15	Pass			No X brace bow arms Left pole sounds hollow at butt line ID good	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot		
L5031-040	2Pole: 69-T-H(2)	Tangent	48	12	45		45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)						-64 9' 25.3093" N	44 36' 59.6969" W	Mersey Connector Rd. Logging Rd	8.5	8.28	Pass	22	2010-03- 01	Pass			Air ID good 69 T-5 (L&P) switch 86W-502 here Linen ID 5031 good Air ID # 40 good	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot		
L5031-041	2Pole: 69-Di-2	Tangent	146	12	45		45	1/0	No	Suspensio n (Horizonta l Strain)	30	Glass (Green)						-64 9' 31.0983" N	44 36' 57.3741" W	Logging Rd X's Access Hwy # 3 to East River Merny Connector through gate (keys requ) 2nd str toward BW	7.3	6.67	Pass	22	2024-03- 20	Fail	1-2 years			Repairs not completed. Crack in frontside arm see pic. 6 guys, not wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-041	2Pole: 69-Di-2	Tangent	146	12	45		45	1/0	No	Suspensio n (Horizonta l Strain)	30	Glass (Green)						-64 9' 31.0983" N	44 36' 57.3741" W	Logging Rd X's Access Hwy # 3 to East River Merny Connector through gate (keys requ) 2nd str toward BW	7.3	6.67	Pass	22	2024-03- 20	Fail	1-2 years			Repairs not completed. Crack in frontside arm see pic. 6 guys, not wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-041	2Pole: 69-Di-2	Tangent	146	12	45		45	1/0	No	Suspensio n (Horizonta l Strain)	30	Glass (Green)						-64 9' 31.0983" N	44 36' 57.3741" W	Logging Rd X's Access Hwy # 3 to East River Merny Connector through gate (keys requ) 2nd str toward BW	7.3	6.67	Pass	22	2020-03- 23	Fail	1-2 years			Front arm is developing a bad crack 6 guys backside 2 slack need wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Foot	
L5031-041	2Pole: 69-Di-2	Tangent	146	12	45		45	1/0	No	Suspensio n (Horizonta l Strain)	30	Glass (Green)						-64 9' 31.0983" N	44 36' 57.3741" W	Logging Rd X's Access Hwy # 3 to East River Merny Connector through gate (keys requ) 2nd str toward BW	7.3	6.67	Pass	22	2019-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter		
L5031-041	2Pole: 69-Di-2	Tangent	146	12	45		45	1/0	No	Suspensio n (Horizonta l Strain)	30	Glass (Green)						-64 9' 31.0983" N	44 36' 57.3741" W	Logging Rd X's Access Hwy # 3 to East River Merny Connector through gate (keys requ) 2nd str toward BW	7.3	6.67	Pass	22	2018-10- 22	Pass				1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands Rights, an LOA will be required.)	Helicopter		
L5031-041	2Pole: 69-Di-2	Tangent	146	12	45		45	1/0	No	Suspensio n (Horizonta l Strain)	30	Glass (Green)						-64 9' 31.0983" N	44														

L5031-043	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	98	10	45	45	45	1/0	No	Suspensio n (Horizontal Strain)	17	Glass (Green)	Suspensio n (Horizontal Strain)	13	Porcelain (Grey)	Suspensio n Vertical	12	Porcelain (Brown)	-64 9' 39.2866" N	44 36' 54.0883" W	Swampy 1.0M Wide Stream N44-36-55.30 W64-09-37.70 Port Bridges	8.4	7.96	Pass	22	2018-10-22	Pass						1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Helicopter
L5031-043	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	98	10	45	45	45	1/0	No	Suspensio n (Horizontal Strain)	17	Glass (Green)	Suspensio n (Horizontal Strain)	13	Porcelain (Grey)	Suspensio n Vertical	12	Porcelain (Brown)	-64 9' 39.2866" N	44 36' 54.0883" W	Swampy 1.0M Wide Stream N44-36-55.30 W64-09-37.70 Port Bridges	8.4	7.96	Pass	22	2017-06-21	Fail	1-2 years	3770249	20195	fail brown idler ins only, rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-043	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	98	10	45	45	45	1/0	No	Suspensio n (Horizontal Strain)	17	Glass (Green)	Suspensio n (Horizontal Strain)	13	Porcelain (Grey)	Suspensio n Vertical	12	Porcelain (Brown)	-64 9' 39.2866" N	44 36' 54.0883" W	Swampy 1.0M Wide Stream N44-36-55.30 W64-09-37.70 Port Bridges	8.4	7.96	Pass	22	2013-07-15	Pass				8 guys wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-043	3Pole: 69-Da-3(0-30 Deg)	Light (5-30)	98	10	45	45	45	1/0	No	Suspensio n (Horizontal Strain)	17	Glass (Green)	Suspensio n (Horizontal Strain)	13	Porcelain (Grey)	Suspensio n Vertical	12	Porcelain (Brown)	-64 9' 39.2866" N	44 36' 54.0883" W	Swampy 1.0M Wide Stream N44-36-55.30 W64-09-37.70 Port Bridges	8.4	7.96	Pass	22	2010-02-01	Pass				69 DA-3 8 guys, 7 anc 5/16 steel wrapped	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2024-03-20	Pass	N/A			Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2024-03-20	Pass	N/A			Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2020-03-23	Pass	N/A			Brown porcelain shoes rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2019-10-22	Pass							Helicopter
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2018-10-22	Pass							Helicopter
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2017-06-21	Fail	1-2 years	3770249	20195	fail brown ins, rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2017-06-15	Fail	2-4 years			poles sound good! brown insulators	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2013-07-15	Pass				No X brace bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-044	2Pole: 69-T-H(2)	Tangent	124	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 44.6768" N	44 36' 52.8406" W	Logging Rd X's	8.6	8.06	Pass	22	2010-02-01	Pass				69 T-5 (L&P) ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2024-03-20	Pass	N/A			Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2024-03-20	Pass	N/A			Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2020-03-23	Pass	N/A			Brown porcelain shows poles a bit punky	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2019-10-22	Pass							Helicopter
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2018-10-22	Pass							Helicopter
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2017-06-15	Fail	2-4 years	3770249	20195	grout cracking, brown insulators	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2013-07-15	Pass				No X brace bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-045	2Pole: 69-T-H(2)	Tangent	47	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 47.0591" N	44 36' 52.3387" W	None	7.7	7.390000 00000000	Pass	12	2010-02-01	Pass				69 T-5 (L&P) ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2024-03-20	Pass	N/A			Ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2024-03-20	Pass	N/A			Ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2020-03-23	Pass	N/A			Shoes ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2019-10-22	Pass							Helicopter
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2018-10-22	Pass							Helicopter
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2017-06-15	Pass	N/A	3770249	20195	everything good new x arm/hardware insulators etc.	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2013-07-15	Pass				New double arms right pole sounds soft	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-046	2Pole: 69-T-H(2)	Tangent	123	10	45		45	1/0	No	Suspensio n Vertical	15	Porcelain (Grey)							-64 9' 51.5112" N	44 36' 51.3364" W	Access Hwy # 3 to East River Mensy Connector Rd through gate (keys req) under L5031 xing straight through left at intersection back under line 5031 xing 3rd str toward 87W str before east river	6.8	6.060000 00000000	Flag	12	2010-02-01	Fail		535245	2012R	87W side arm cracked badly phot # 5 - 6 69 T-5 (L&P) 6-12 months Completed on EUS W15648	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2024-03-20	Pass	N/A			Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2024-03-20	Pass	N/A			Brown porcelain rest ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2020-03-23	Pass	N/A			Brown porcelain shoes bit of tr ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2019-10-22	Pass							Helicopter
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2018-10-22	Pass							Helicopter
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2017-06-15	Fail	2-4 years	3770249	20195	brown insulators	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2013-07-15	Pass				No X brace bow arms	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-047	2Pole: 69-T-H(2)	Tangent	98	10	40		40	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)							-64 9' 56.1049" N	44 36' 50.3022" W	None	9.4	8.78	Pass	12	2010-02-01	Pass				69 T-5 (L&P) ok	1. NSDNR Crown Land: 21038 (Contact Environmental Services and Lands and Rights, an LOA will be required.)	Foot	
L5031-048	3Pole: 138-01-3	Light (5-30)	196	13	45	45	45	1/0	No	Suspensio n Vertical	12	Porcelain (Brown)	Suspensio n (Horizontal Strain)	30	Porcelain (Grey)				-64 10' 4.2278" N	44 36' 48.4734" W	Bad Gully East River Crosses N44-36-49.50 W64-09-59.90 & Steep Hill best access is from mensy connector road need a river crossing permit for East River	6.4	5.38	Flag	10	2024-03-20	Fail	1-2 years			Some already identified, repairs not completed. C backside 2 broken, 1 cracked of 5 they look burnt, L backside string look a bit burnt There is conductor damage over a few meters backside c and L. Burnt spots, few melted spots, appears minor. Jumpers have			

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REDACTED (CONFIDENTIAL INFORMATION REMOVED)

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Request IR-6:

With regards to the “Variance Analysis” provided on Page 3 of 6 of the current application:

(a) Please explain why a mobile transformer was required given that NS Power constructed the three bypass line structures.

(i) Please identify the specific project cost associated with using the mobile transformer.

(b) On Page 2 of 6 of the Reason for Variance, NS Power noted that “This project was submitted with the intention of using a mobile substation throughout the construction period to continue providing service to customers ... three bypass line structures were constructed to continue service during the construction period”

(i) Please describe the function of the mobile substation and compare it with the function of mobile transformer under Variance Analysis.

(ii) Please explain why the three bypass line structures can replace the use of mobile substation.

Response IR-6:

(a) The project's initial approach to obtaining the required construction outage window for transmission line L-5031 involved the use of a mobile substation unit. Construction commenced in Q1 2025 utilizing the mobile unit; however, after several weeks, the unit was recalled for higher-priority system needs and was subsequently disconnected and removed from the project site. This represented a change in the project’s approach to achieve the required outage on Line L5031. Also, please refer to IR-5.

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1 In response to the unavailability of the mobile unit, the project team developed the bypass
2 structure solution as an alternative measure to allow execution. The bypass structures
3 provide a temporary connection that allows customers supplied by L-5031 to remain
4 energized while completing the L-5031 construction work. This approach enabled the
5 project to continue progressing while maintaining service continuity for affected
6 customers.

7
8 (i) It is difficult to isolate the mobile unit costs from the overall project expenditures.
9 Labour costs were recorded under the following account categories: Regular
10 Labour, Term Labour, Overtime Labour, and Term Overtime Labour. In addition
11 to the labour costs incurred by NS Power regional staff, the project also included
12 contract expenditures for transportation and access road upgrades totaling \$27,450.

13
14 (b)

15 (i) The mobile transformer and the mobile substation refer to the same equipment and
16 serve the same function. The difference is solely in terminology, as both terms are
17 used interchangeably to describe the same mobile electrical asset.

18
19 (ii) Please refer to IR-5 part (h), which explains the function of the bypass structures.
20 Similarly, the mobile substation unit would connect to L-6002, and supply
21 customers served from the 84W Chester substation. Both options involve
22 sectionalizing the line, providing the required construction outage window while
23 maintaining service to all customers.

24
25 Regardless of the option selected, a bypass structure at L-5037 would be required.
26 Without the bypass structures, the customers would be impacted by extended
27 outages.

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Request IR-7:

With regard to the “Capital Project Detailed Estimate” provided on Page 4 of 6 of the current application:

(a) Please provide a comparison of the materials unit costs for wood poles, insulators and O/H conductors to the unit costs used to develop the related 2024 ACE Plan project cost estimates.

(i) If this information is not readily available, please provide the estimated quantities that NS Power assumed in its 2024 ACE Plan application and in the current ATO application for wood poles, insulators and O/H conductors.

(a) Based on these quantities and the “Lot” materials costs identified in NS Power’s 2024 ACE Plan application and the current ATO application, please provide the calculated materials unit costs for wood poles, insulators and O/H conductors from NS Power’s 2024 ACE Plan application and the current ATO application.

(ii) Please describe the reasons for any unit cost variances greater than 10% of the 2024 ACE Plan unit cost estimates.

(b) In response to Board staff IR-6a) in Matter M11922, NS Power stated:

“NS Power uses standard work units referred to as compatible units (CUs) to develop the cost estimate for projects such as this. Each CU has a labour rate and a material rate, which itemize all the individual tasks and materials to perform each component of a project. The material rates are constantly updated with the latest pricing from vendors, so the material cost reflects the actual cost of materials at the time of approval. These CUs are then mapped to asset classes including wood poles, insulators, and overhead conductor.”

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1 **(i) Please provide the CU rate used to map project costs in NS Power’s 2024 ACE**
2 **Plan application and the current ATO application.**

3
4 **(ii) Please provide the number of CU units mapped to projects costs in NS Power’s**
5 **2024 ACE Plan application and the current ATO application.**

6
7 **(iii) Please describe the reasons for any CU rate variances greater than 10% of the**
8 **2024 ACE Plan CU rates.**

9
10 **(iv) Please describe the reasons for any CU number of unit variances greater than**
11 **10% of the 2024 ACE Plan CU number of units.**

12
13 **(c) Beyond the increase in “Materials” costs associated with the three bypass structures,**
14 **please describe the reasons for the increase in “Materials” cost for “Wood Pole”,**
15 **“Insulator & Other Structural Material”, and “O/H Conductor”.**

16
17 **(d) Beyond the increase in “Contracts” costs associated with the three bypass structures**
18 **and rock breaking, please describe the reasons for the increase in “Contracts” cost**
19 **for “Wood Pole”, and “O/H Conductor”.**

20
21 Response IR-7:

22
23 **(a) The Comparison Table below indicates the project material cost variances between 2024**
24 **and 2026.**

25
26 NS Power uses standard work units referred to as compatible units (CUs) to develop the
27 cost estimate for projects such as this. Each CU has a labour rate and a material rate, which
28 itemize all the individual tasks and materials to perform each component of a project. The
29 material rates are updated with latest pricing from vendors, so the material cost reflects the
30 actual cost of materials at the time of approval. These CUs are then mapped to asset classes

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including wood poles, insulators, and overhead conductor. As such, lot sizes and unit costs cannot be provided as requested.

(i)

Material	2024 ACE Submission (CAD\$)	2026 ATO Submission (CAD\$)
Wood Poles	728,896	828,896
Insulators and other structural material	1,678	106,643
O/H Conductor	271,661	371,661
L-5037 Bypass Material	0	42,348
87W and Robinsons Corner Bypass Material	0	52,431

(ii) This project was initially filed in ACE 2024, using 2022-2023 material and labour costs. However, the ATO was filed with revised material costs for the wood product and other components that make up the transmission structure. The variance seen above is primarily attributed to the additional material for the bypass structures, with incremental increases in material pricing. The bypass material are net new material costs.

(b)

(i) The CU rate used in NS Power's 2024 ACE submission was \$[REDACTED]. The CU rate used in NS Power's 2026 ATO submission is \$[REDACTED].

(ii) The 2024 ACE submission and the ATO submission should not be compared on a like-for-like basis, as the ATO and the original request represent different scopes and cost bases.

The ATO includes actual expenditures incurred for the completed portion of the project using the applicable 2024 and 2025 rates as well as incorporates the costs associated with the additional bypass structures. It also includes the remaining

REDACTED

1 scope of work required to complete the project, which has been estimated using
2 2026 rates.

3
4 In the ACE 2024 application, 8981.13 CUs were submitted. The outstanding scope
5 from the 2024 ACE submission represents 5,276 CUs, while the additional bypass
6 structures account for an additional 981.43 CUs. As a result, direct comparisons
7 between the 2024 ACE submission and the ATO submission do not accurately
8 reflect the differences in project scope, timing, and applicable cost rates.
9

10 (iii) The variances in the CU rates are based on actual material costs and contractual
11 costs associated with transmission line construction. These rates are estimates and
12 may vary depending on actual field conditions, including weather-related delays
13 and other operational factors. Material costs may also fluctuate based on supplier
14 pricing and market conditions.

15
16 (iv) Please refer to (b) (ii).

17
18 (c) Please refer to (b) (iii).

19
20 (d) Please refer to (b) (i). CU rates have increased from 2022 to 2026.

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Request IR-8:

Board staff has reviewed NS Power's 2025 and 2026 ACE Plan application related to the project. Based on this review, Board staff notes that Figure 23 in the 2025 ACE Plan application (filed on December 9, 2024) showed previous expenditures in the project to \$738,094, forecast 2025 spending on the project of \$1,274,730, and a total estimate for the project of \$4,562,284. Similarly, Figure 22 in the 2026 ACE Plan application (filed on December 12, 2025) showed previous expenditures in the project to \$3,520,682, forecast 2026 spending on the project of \$1,898,274, and a total estimate for the project of \$5,418,956.

Based on this summary:

- (a) Please describe the specific work completed by NS Power on the project since December 12, 2025.**
- (b) Please provide a breakdown of spending on the project between December 19, 2024, and December 12, 2025.**
- (c) Please provide a breakdown of spending on the project between December 12, 2025, and July 13, 2026.**
- (d) Please explain why NS Power did not update the project cost to the current ATO amount in its 2026 ACE Plan application.**
- (e) When did NS Power realize that the mobile substation originally intended to be used on the project would not be available?**
- (f) When did NS Power decide that construction of the three bypass structures would be required for the project?**

(i) When did NS Power begin construction work associated with the three bypass structures?

(g) Please describe the specific work completed by NS Power on the project in 2024 and prior to reflecting the project spending of \$738,094.

(h) Please describe the specific work completed by NS Power on the project in 2025 to reflect the project spending of \$2,782,588 in 2025 (ie., \$3,520,682 minus \$738,094).

Response IR-8:

For clarity, the previous expenditure column referenced in this IR is a forecasted expenditure for the project up to the end of 2024, based on the 2024 Q3 Forecast which would have been completed in July/August 2024.

(a) No field construction work has been completed on this project since December 12, 2025.

(b) Table below shows a breakdown of spending on this project between December 2024, and December 2025:

Spend Period	Actual spend value (CAD \$)	Comments
December 2024	54,120	Regular field labour, materials, contracts, and overheads.
January to December 2025	3,685,705	Regular and overtime field labour, term labour, materials, contracts, consulting, and overheads.

(c) Spending on the project between December 2025, and July 2026, is as follows:

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Spend Period	Actual spend value (CAD \$)	Comments
January to July 2026	37,688	Regular and overtime field labour, materials, contracts, consulting, and overheads.

(d) The ultimate cost to complete the project was not known in December 2025, when the 2026 ACE Plan forecast was submitted. The Issued for Construction (IFC) engineering design for the bypass structures was not finalized until March 2026.

(e) NS Power determined in Q1 2025 that the mobile transformer unit would no longer be a viable option for the project. Construction activities had commenced; however, after several weeks, work was halted until a viable alternative could be implemented.

(f) Following assessment by NS Power SMEs and given the constraints, the project team agreed in Q2 2025 to proceed with the construction of three bypass structures as the preferred solution.

(i) Construction of the three bypass structures is scheduled to commence in August 2026. The start of construction was ultimately delayed due to transmission line outage restrictions.

(g) Project spend in 2024 and prior is as follows:

Project	Spend Period	Actual spend value (CAD \$)	Comments
-L5031A – Replacement & upgrade R.C Tap (C0055696)	2023	938,804	Regular field labour, materials, contracts, and overheads.
L-5031-Hubbards to East Chester	Prior to December 2023	0	No project spend.

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L-5031-Hubbards to East Chester	January to December 2024	213,286	Regular field labour, materials, contracts, consulting, and overheads.
------------------------------------	-----------------------------	---------	--

- 1
- 2 (h) Refer to part (b). Construction contracts, material procurement, and rock-breaking
- 3 activities associated with the completed scope accounted for the majority of the project
- 4 expenditures incurred in 2025.

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Request IR-9:

What alternative solutions had considered for the rock breaking that could have minimized costs?

(a) If not, please explain why not.

Response IR-9:

(a) The Transmission Capital Project team has evaluated alternative rock-breaking methods, including drilling and controlled blasting. However, the capability doesn't exist currently in Nova Scotia to perform these alternatives. Some factors include specialized equipment, employee training, permitting requirements, and enhanced safety measures necessary to perform the work. Consequently, the current rock-breaking method remains the only practical and viable solution available to NS Power for the excavation activities required to install the transmission poles.

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Request IR-10:

Please explain the regular transmission line pole installation methods and provide NS Power standards and drawings to support the explanation.

(a) Please explain why NS Power can't perform the regular pole installation method and the purpose of additional rock-breaking work.

(b) Please explain the total number of poles that required additional rock breaking works.

(c) Please describe the cost of rock breaking work per pole and provide the total cost of rock breaking-work.

Response IR-10:

The standard transmission line pole installation method involves using an excavator to dig a hole for the installation of a new pole or log anchor. When rock is encountered during excavation, the excavator is equipped with a hydraulic jackhammer attachment to break and remove the rock until the required installation depth is achieved in accordance with the project design specifications. Please refer to Attachment 1, which shows all structure types utilized for this project (NS Power transmission standard drawings).

(a) Not applicable. Rock breaking is part of the standard installation. Please refer to Attachment 1, which includes the standard pole installation depths for varying structure types used for this project. method.

(b) Due to the rock composition encountered in the Chester area, most, if not all, new pole and log anchor installations required additional rock-breaking efforts to achieve the required excavation depths.

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1 (c) It is challenging to accurately quantify the number of hours or days spent on rock-breaking
2 activities for each individual pole and log anchor excavation. To date, 24 new transmission
3 structures have been installed; however, each structure consists of either two- or three-pole
4 assemblies and may require multiple log anchors. Please refer to Attachment 1 for details
5 of the structure types utilized on this project.

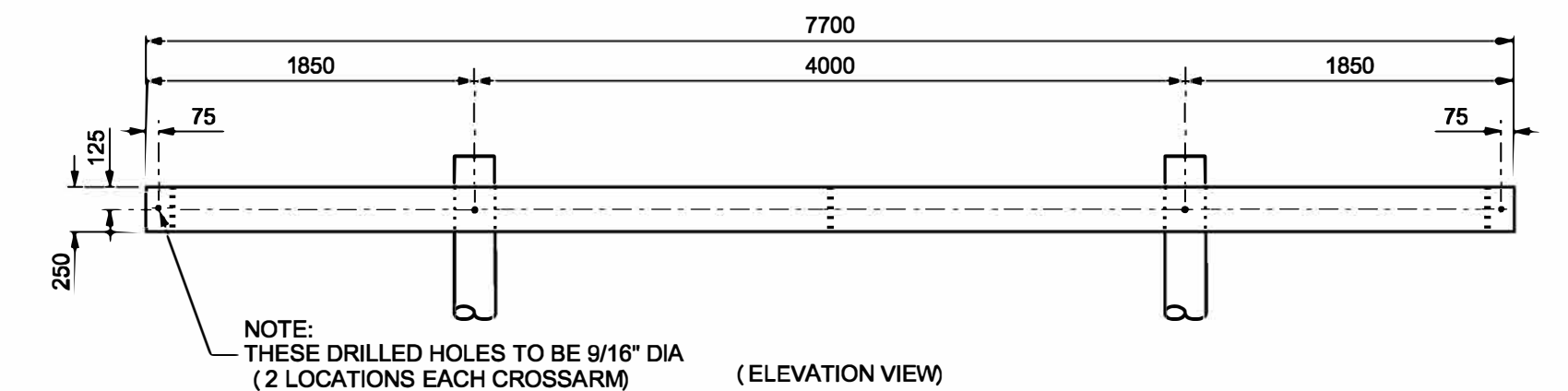
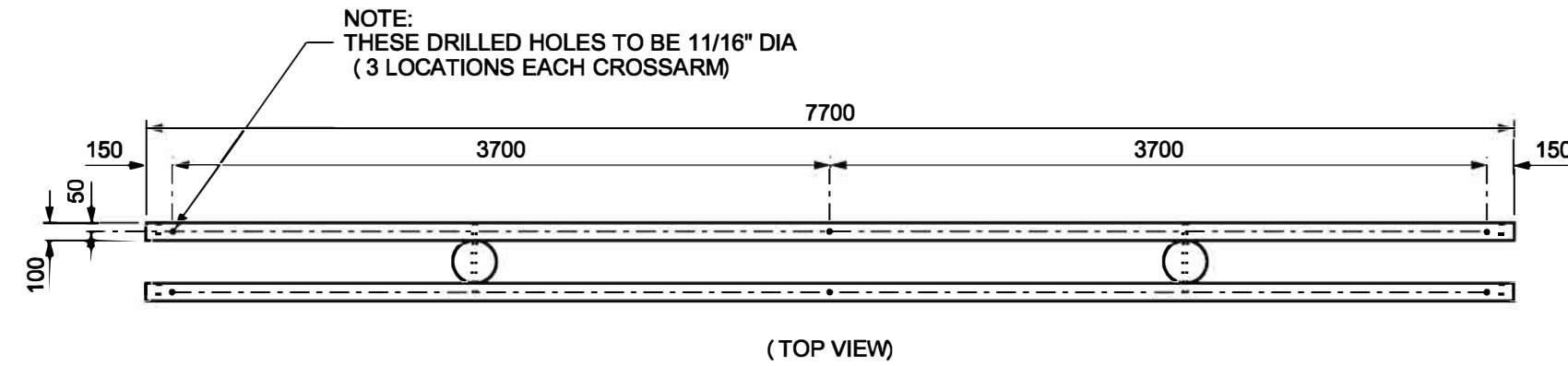
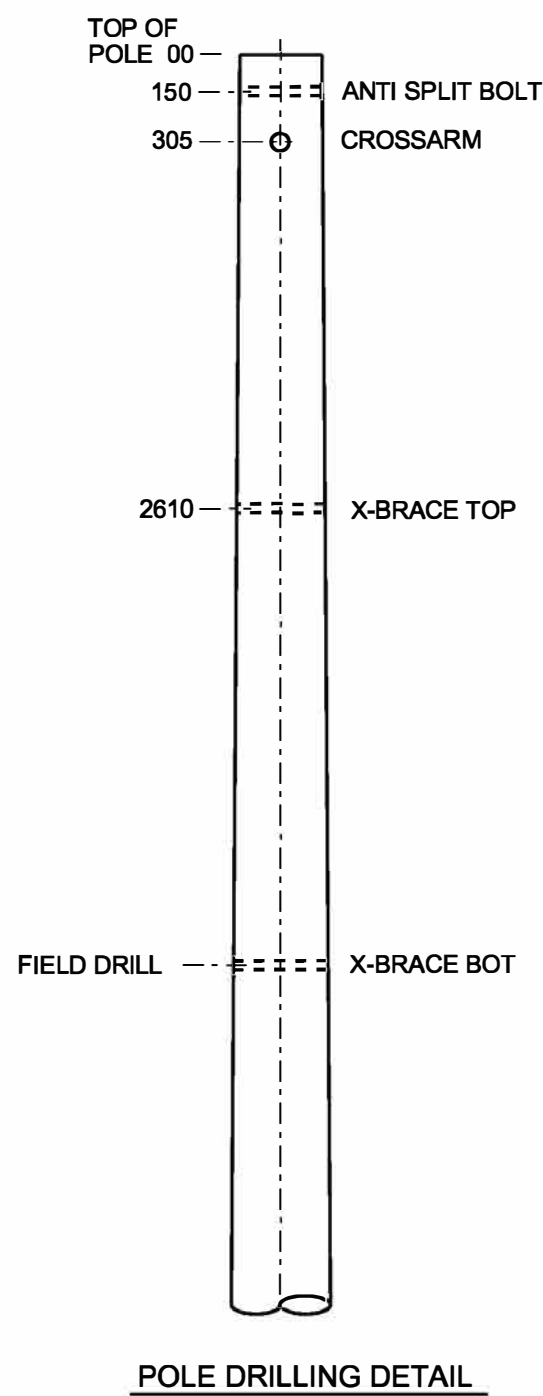
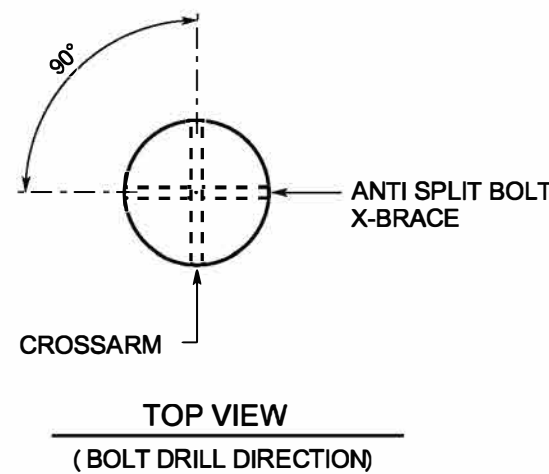
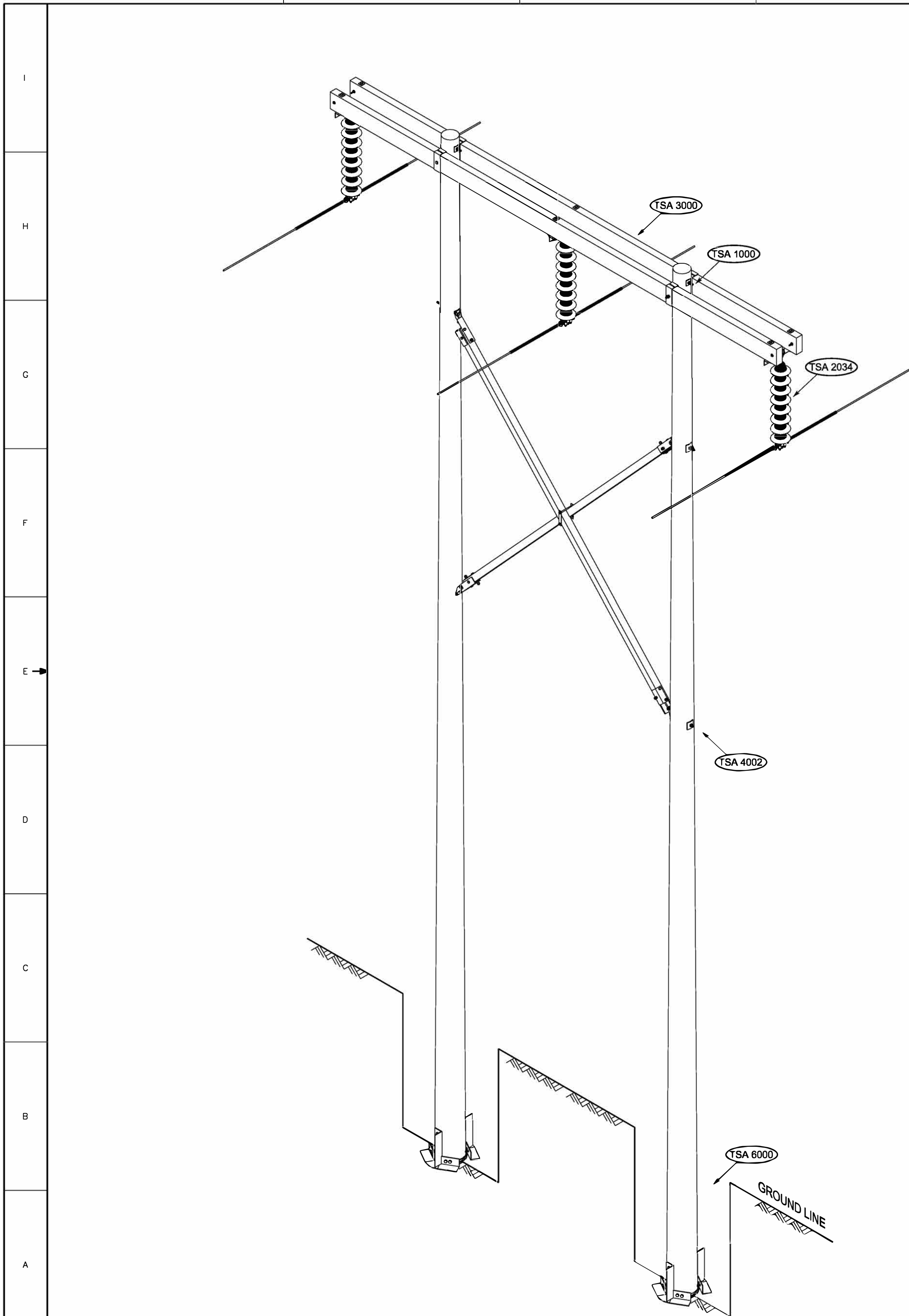
6
7 The total cost associated with rock-breaking activities completed to date is included within
8 the construction contractor's costs and is estimated at approximately \$254,775. Overall,
9 excavation and rock-breaking activities have been completed for 52 structure locations, in
10 addition to three bypass structures. An additional 19 structure locations remain to be
11 excavated as part of the L5031- Hubbards to East Chester scope of work.

L5031 LINE REBUILD

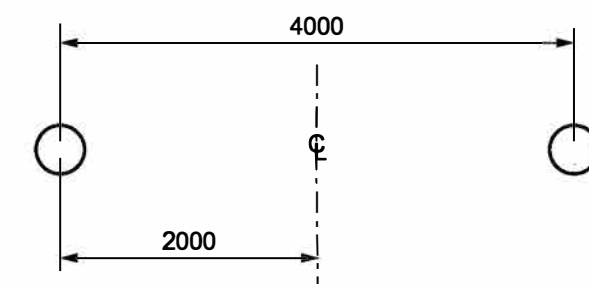
Appendix F
FRAMING AND ASSEMBLY STANDARDS

Appendix F

FRAMING AND ASSEMBLY STANDARDS



CROSS ARM DRILLING DETAIL



POLE LAYOUT

NOTES:

1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 9/16\"/>

**MATERIAL LIST**
Transmission Line Structure Type: 138-TH-2

Material quantity for : 1 Structure(s)

MAXIMO Item No.	QTY.	DESCRIPTION
100015	2	BOLT U-PIPE SIZE:4-1/2in;THREAD SIZE: 3/4in;THREAD LENGTH:3in;36000lb;STEEL;W/ 2-1/2IN HEX NUT
100636	2	CROSSARM:TIMBER;W:4inXL: 17ft;T:4in;DOUGLAS FIR;PENTA;NOT DRILLED
105416	2	BOLT MACHINE:SQUARE;THREAD SIZE: 3/4in;9tpi;UNC;L: 12in;STEEL;GALVANIZED;CSA C83
105900	1	HARDWARE KIT: CROSS BRACING SET
112155	2	CROSSARM:TIMBER;W:10inXL: 25ft;T:4in;DOUGLAS FIR;PENTA;CSA 080;DRILLED
114914	8	NUT SQUARE: THREAD SIZE: 1/2in;STEEL;GALVANIZED
114953	3	SUPPORT:DOUBLE ARM ANGLE;W:3XL:19XT:3/16in;W/ DOUBLE ARM SUPPORT
112670	4	BOLT MACHINE:SQUARE;THREAD SIZE: 3/4in;9tpi;UNC;L: 16in;STEEL;GALVANIZED;CSA C83
116091	6	WASHER FLAT:5/8in;ID:11/16in;OD:1-3/4in;T:7/64in;STEEL;ASTM A153;GALVANIZED;ANSI B18.22.1
116749	16	SCREW LAG;FETTER DRIVE/PILOT POINT;SQUARE;THREAD SIZE:1/2in;L:4in;STEEL;GALVANIZED CSA C83.101M
116750	4	SCREW LAG-HEXAGONAL;THREAD SIZE:3/4in;L:8in;STEEL;GALVANIZED
118928	6	WASHER:5/8in;ID:11/16in;T:3/16in;W:2-1/4in;L:2-1/4in;SQUARE;STEEL;GALVANIZED;CSA-C83-96
119245	8	NUT SQUARE: THREAD SIZE: 3/4in;STEEL, GALVANIZED
122273	12	WASHER:ID:13/16in;OD:2in;ROUND;STEEL;GALVANIZED;CSA-C83-96
124109	8	WASHER FLAT:1/2in;ID:9/16in;OD:1-3/8in;T:7/64in;STEEL;ASTM A153;GALVANIZED;ANSI B18.22.1
129259	3	EYE:BALL;EYE SIZE: 5/8in;STEEL;CSA C83
129261	4	WASHER:CURVED;ID:13/16in;T:1/4in;W:3in;L:3in;SQUARE;STEEL;GALVANIZED
138889	2	PLATE:POLE BREARING;W:4XL:4XT:1/4in;STEEL;GALVANIZED
139210	2	BOLT MACHINE:SQUARE;THREAD SIZE: 3/4in;9tpi;UNC;L: 22in;STEEL;GALVANIZED;CSA C83
141302	6	BOLT MACHINE:SQUARE;THREAD SIZE: 5/8in;11tpi;UNC;L:14in;STEEL;GALVANIZED;CSA C83
142168	4	BOLT MACHINE:SQUARE;THREAD SIZE:1/2in;13tpi;UNC;L:6in;STEEL;GALVANIZED;CSA C84
150902	6	NUT SQUARE:REGULAR;THREAD SIZE:5/8in;UNC;STEEL;HOT DIP GALVANIZED;CSA C83
154741	4	PLATE:CROSSARM/10\"/>
Project Specific Materials		
116439	3	ARMOR ROD:636 KCMIL, 37 W;13STR;DIA RANGE:0.908-0.929in;L:80in;ACSR;ALUMINUM;GREEN;13;ROD DIAMETER: 0.25IN; MPN: AR-0135
124430	3	CLAMP:SUSPENSION;1-1-1/2in;BOLT SIZE:1/2in;ALUMINUM;BOLTED
137419	24	INSULATOR:SUSPENSION;DIA:10XL:5-3/4in;GLASS;VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB

ANTI SPLIT BOLT ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	0	1
INSULATOR ASSEMBY SUSPENSION	T	5	0	3	1	1	5	5	4	0	1	0	1	7
2 POLE DOUBLE CROSS ARM ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	2	1
2 POLE DOUBLE CROSS BRACE ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	2	5
POLE SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	1
REFERENCE DRAWINGS														
DWG.NO.														

0	DATE: YYYY-MM-DD
REV	BY:
APPROVAL:	WO:
1	DATE: 2019-10-30
REV	BY: J. TUTTY
GENERAL REVISIONS	
APPROVAL: B. S. B.	WO:



DEPARTMENTAL APPROVALS
APPROVED
DATE
W.O.

SCALE 1:1
UNITS METRIC
DESIGNED B. BILKHU
DRAWN P. HUBLEY
DATE 2019-02-02
W.O.

TRANSMISSION AND DISTRIBUTION ENGINEERING
TRANSMISSION LINE STANDARD STRUCTURE
STRUCTURE TYPE 138-TH-2
T-5031-1-510-01-001
REV. 0
BORDER SIZE:



MATERIAL LIST
Transmission Line Structure Type: 138-TH-2(2XB)

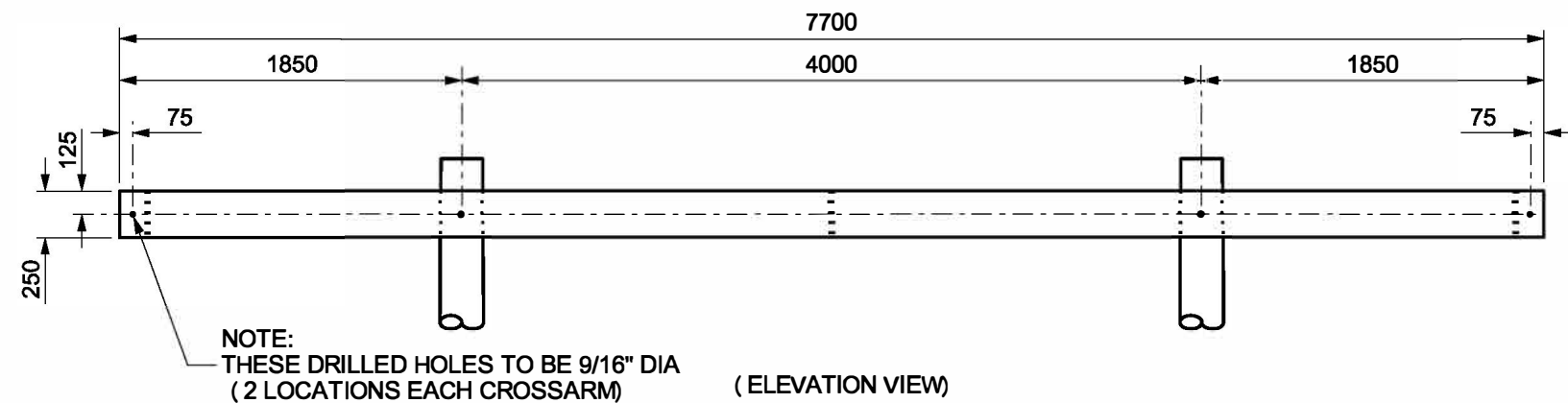
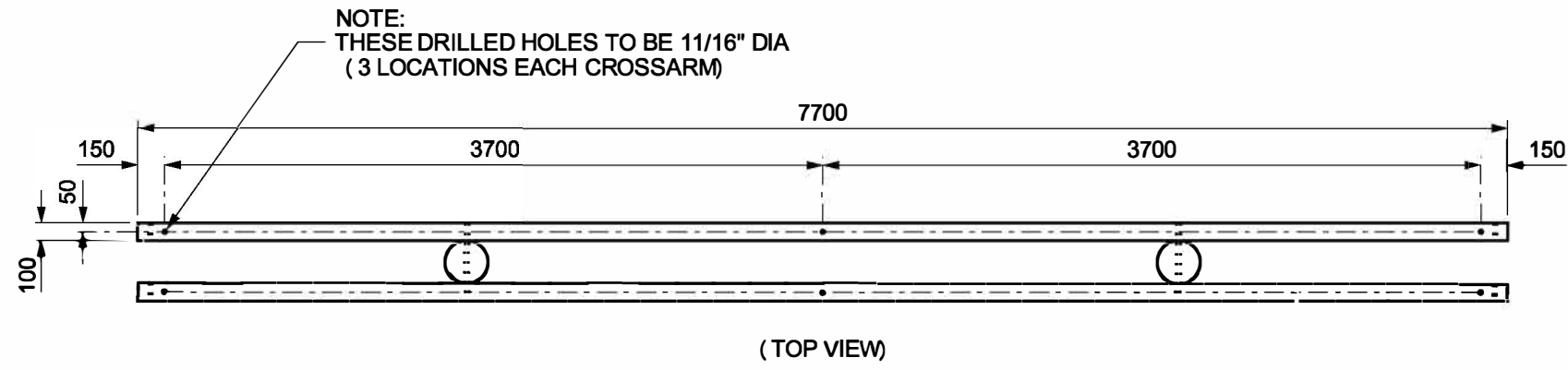
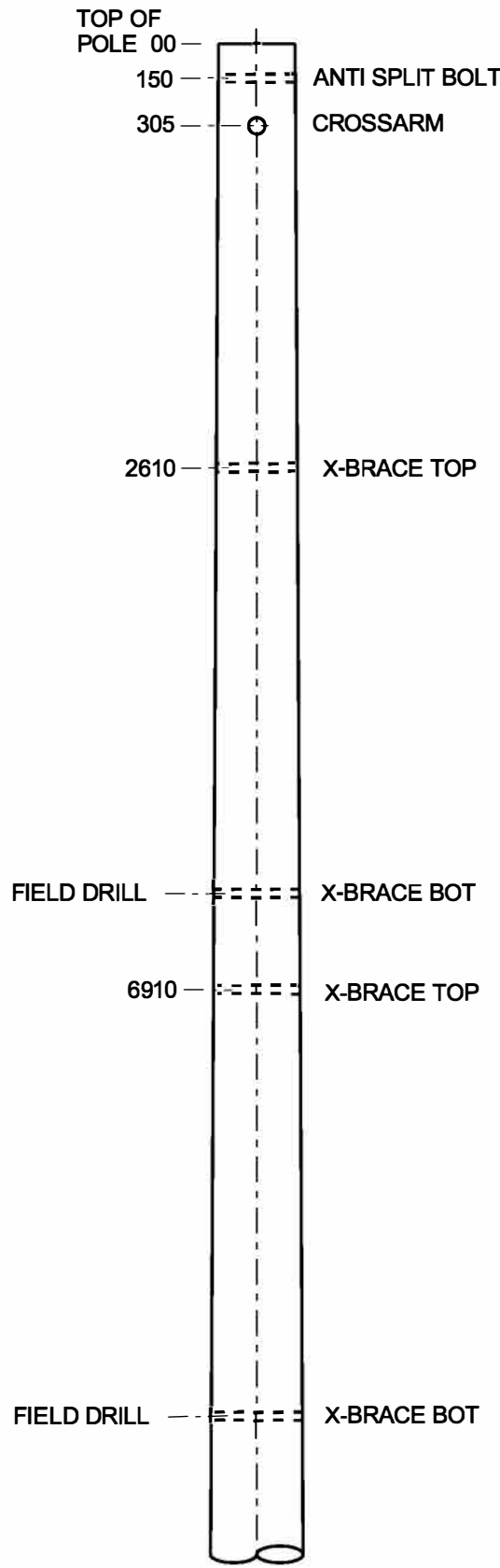
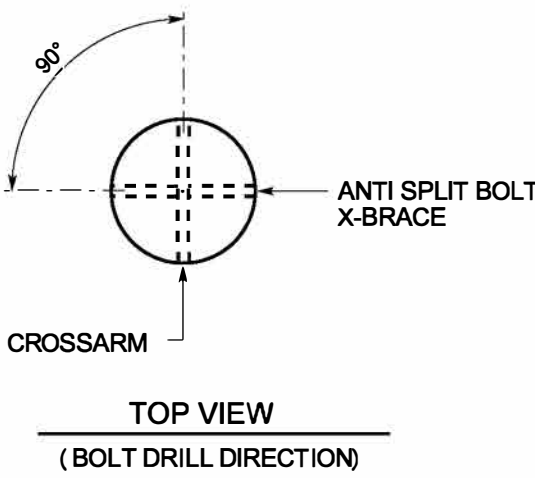
Material quantity for : 7 Structure(s)

MAXIMO Item No.	QTY.	DESCRIPTION
100015	2	BOLT U-PIPE SIZE: 4-1/2in; THREAD SIZE: 3/4in; THREAD LENGTH: 3in; 36000lb; STEEL; W/ 2-1/2IN HEX NUT
100636	4	CROSSARM: TIMBER; W: 4inXL: 17ft; T: 4in; DOUGLAS FIR; PENTA; NOT DRILLED
105416	2	BOLT MACHINE: SQUARE; THREAD SIZE: 3/4in; 9tpi; UNC; L: 12in; STEEL; GALVANIZED; CSA C83
105900	2	HARDWARE KIT: CROSS BRACING SET
112155	2	CROSSARM: TIMBER; W: 10inXL: 25ft; T: 4in; DOUGLAS FIR; PENTA; CSA 080; DRILLED
114914	8	NUT SQUARE: THREAD SIZE: 1/2in; STEEL; GALVANIZED
114953	3	SUPPORT: DOUBLE ARM ANGLE; W: 3XL: 19XT: 3/16in; W/ DOUBLE ARM SUPPORT
112670	8	BOLT MACHINE: SQUARE; THREAD SIZE: 3/4in; 9tpi; UNC; L: 16in; STEEL; GALVANIZED; CSA C83
116091	6	WASHER FLAT: 5/8in; ID: 11/16in; OD: 1-3/4in; T: 7/64in; STEEL; ASTM A153; GALVANIZED; ANSI B18.22.1
116749	16	SCREW LAG; FETTER DRIVE/PILOT POINT; SQUARE; THREAD SIZE: 1/2in; L: 4in; STEEL; GALVANIZED CSA C83.101M
116750	4	SCREW LAG; HEXAGONAL; THREAD SIZE: 3/4in; L: 8in; STEEL; GALVANIZED
118928	6	WASHER: 5/8in; ID: 11/16in; T: 3/16in; W: 2-1/4in; L: 2-1/4in; SQUARE; STEEL; GALVANIZED; CSA-C83-96
119245	12	NUT SQUARE: THREAD SIZE: 3/4in; STEEL, GALVANIZED
122273	12	WASHER: ID: 13/16in; OD: 2in; ROUND; STEEL; GALVANIZED; CSA-C83-96
124109	8	WASHER FLAT: 1/2in; ID: 9/16in; OD: 1-3/8in; T: 7/64in; STEEL; ASTM A153; GALVANIZED; ANSI B18.22.1
129259	3	EYE: BALL; EYE SIZE: 5/8in; STEEL; CSA C83
129261	4	WASHER: CURVED; ID: 13/16in; T: 1/4in; W: 3in; L: 3in; SQUARE; STEEL; GALVANIZED
138889	2	PLATE: POLE BREARING; W: 4XL: 4XT: 1/4in; STEEL; GALVANIZED
139210	2	BOLT MACHINE: SQUARE; THREAD SIZE: 3/4in; 9tpi; UNC; L: 22in; STEEL; GALVANIZED; CSA C83
141302	6	BOLT MACHINE: SQUARE; THREAD SIZE: 5/8in; 11tpi; UNC; L: 14in; STEEL; GALVANIZED; CSA C83
142168	4	BOLT MACHINE: SQUARE; THREAD SIZE: 1/2in; 13tpi; UNC; L: 6in; STEEL; GALVANIZED; CSA C84
150902	6	NUT SQUARE: REGULAR; THREAD SIZE: 5/8in; UNC; STEEL; HOT DIP GALVANIZED; CSA C83
154741	4	PLATE: CROSSARM/10" ARM SET

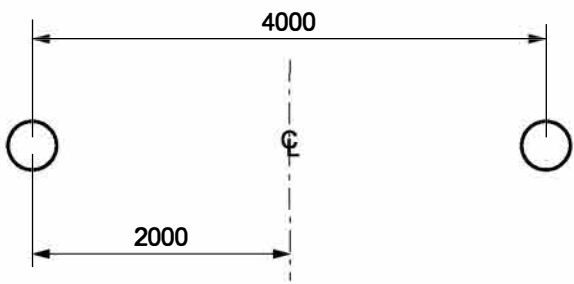
Project Specific Materials

116439	3	ARMOR ROD: 636 KCMIL, 37 W; 13STR; DIA RANGE: 0.908-0.929in; L: 80in; ACSR; ALUMINUM; GREEN; 13; ROD DIAMETER: 0.25IN; MPN: AR-0135
124430	3	CLAMP: SUSPENSION; 1-1-1/2in; BOLT SIZE: 1/2in; ALUMINUM; BOLTED
137419	24	INSULATOR: SUSPENSION; DIA: 10XL: 5-3/4in; GLASS; VOLTAGE: 130kV; ANSI 52-5; CAPACITY: 120KN/25000LB

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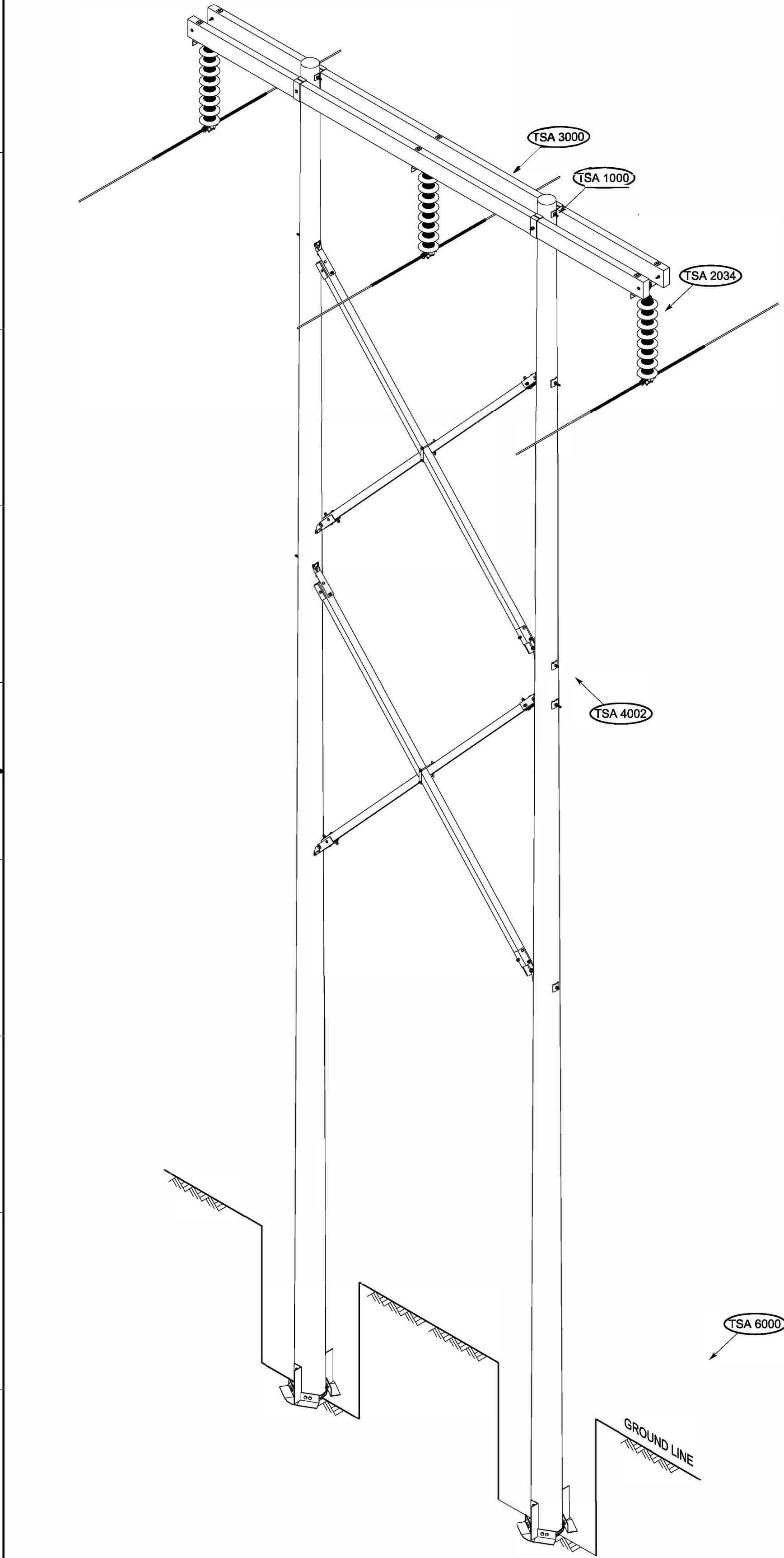
CROSS ARM DRILLING DETAIL



POLE LAYOUT

NOTES:

1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 9/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.



ANTI SPLIT BOLT ASSEMBLY	T 5 0 3 1	1 5 5 4	0 1 0 0 1
INSULATOR ASSEMBY SUSPENSION	T 5 0 3 1	1 5 5 4	0 1 0 1 7
2 POLE DOUBLE CROSS ARM ASSEMBLY	T 5 0 3 1	1 5 5 4	0 1 0 2 1
2 POLE DOUBLE CROSS BRACE ASSEMBLY x2	T 5 0 3 1	1 5 5 4	0 1 0 2 5
POLE SETTING DETAIL	T 5 0 3 1	1 5 5 3	0 1 0 0 1
REFERENCE DRAWINGS		DWG.NO.	

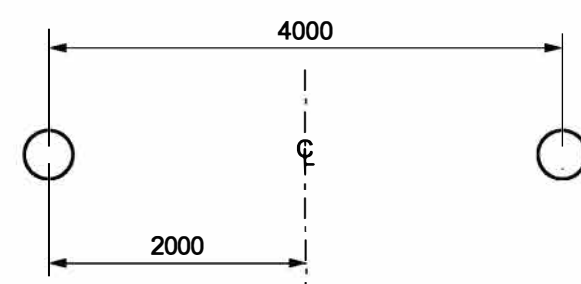
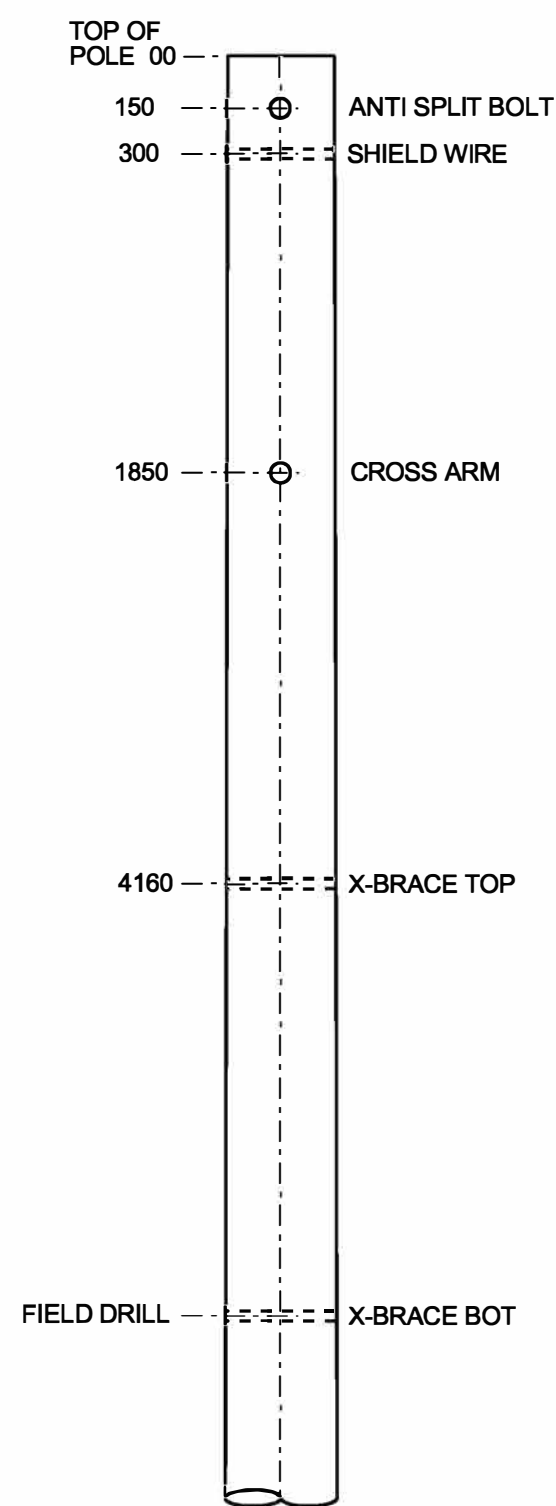
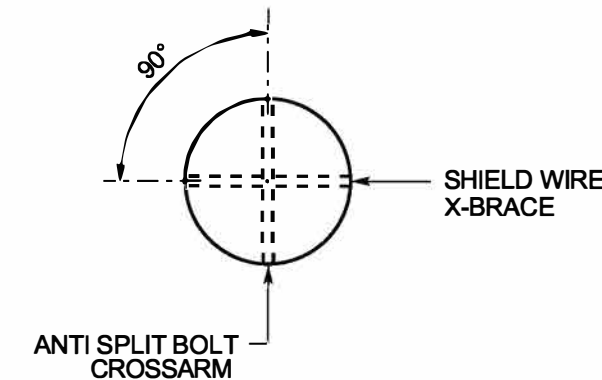
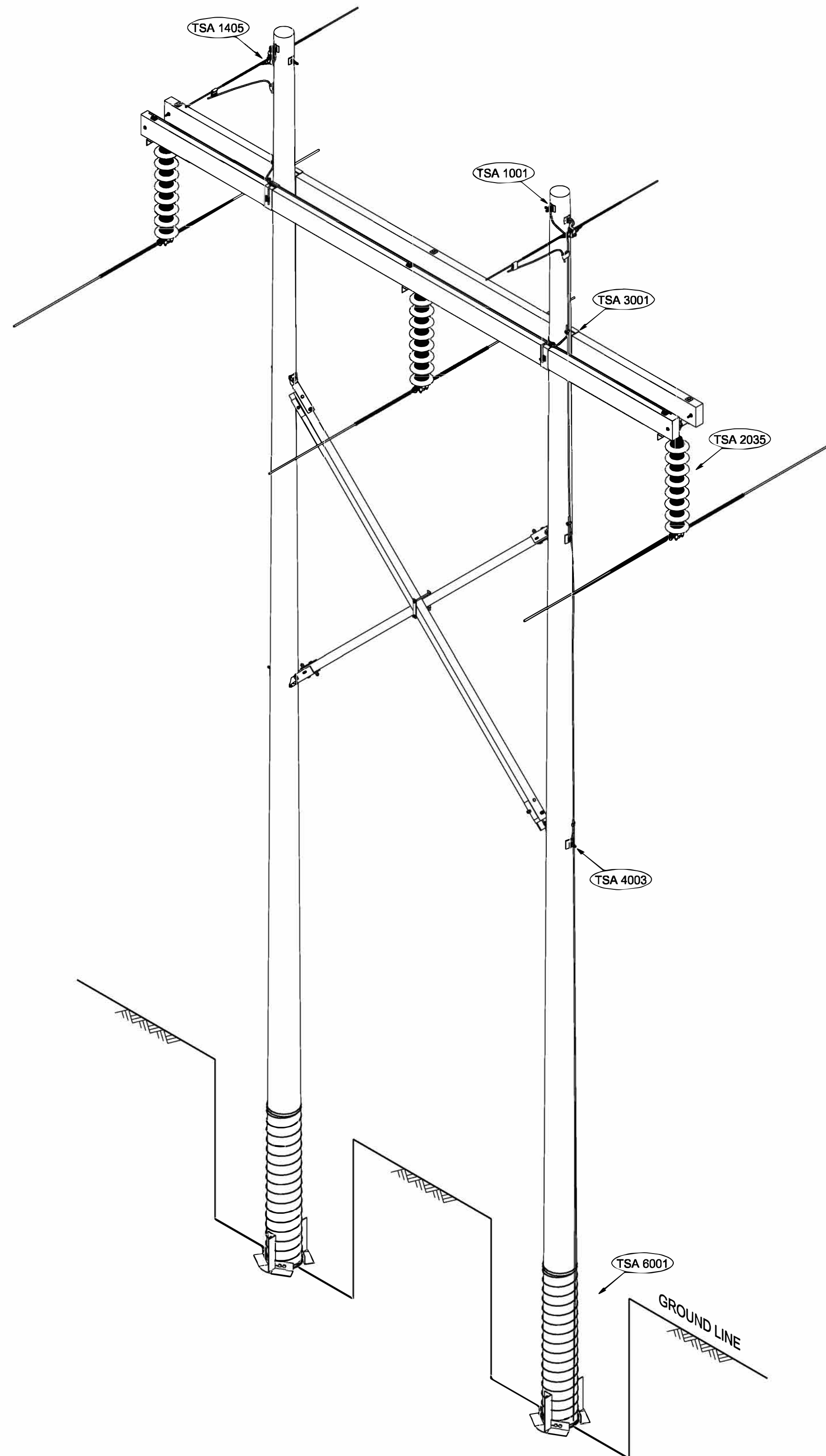
0	DATE: YYYY-MM-DD
REV	BY:
APPROVAL:	WO:
1	DATE: 2019-10-30
REV	BY: J. TUTTY
GENERAL REVISIONS	
APPROVAL: B. S. B.	WO:



DEPARTMENTAL APPROVALS	
APPROVED	
DATE	

SCALE	1:1
UNITS	METRIC
DESIGNED	B. BILKHU
DRAWN	P. HUBLEY
DATE	2019-02-02
W.O.	

Nova Scotia POWER	TRANSMISSION AND DISTRIBUTION ENGINEERING
	TRANSMISSION LINE STANDARD STRUCTURE
	STRUCTURE TYPE 138-TH-2(2XB)
T-5031-1-510-01-002	REV. 0



Nova Scotia
POWER
An Emera Company

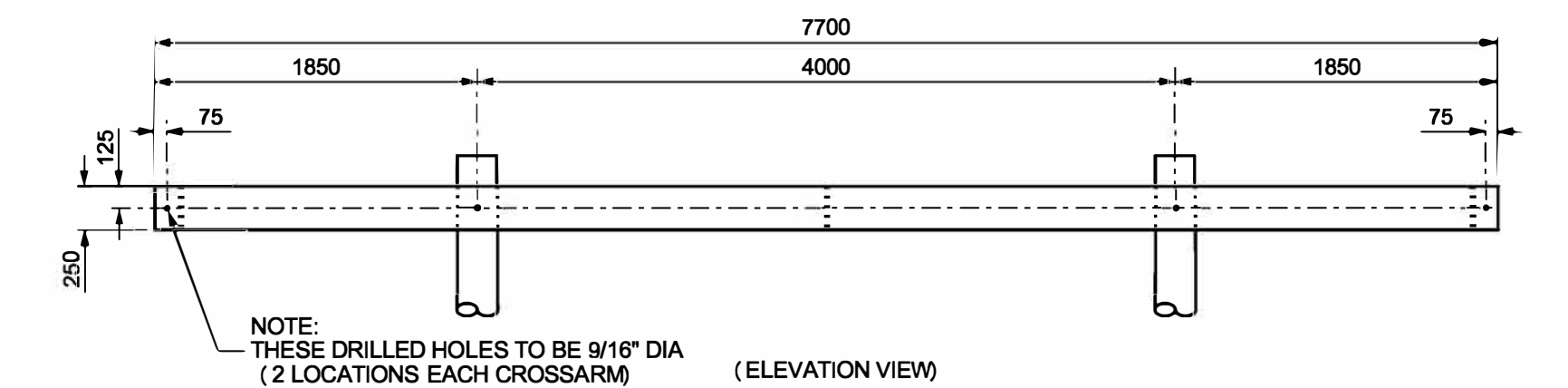
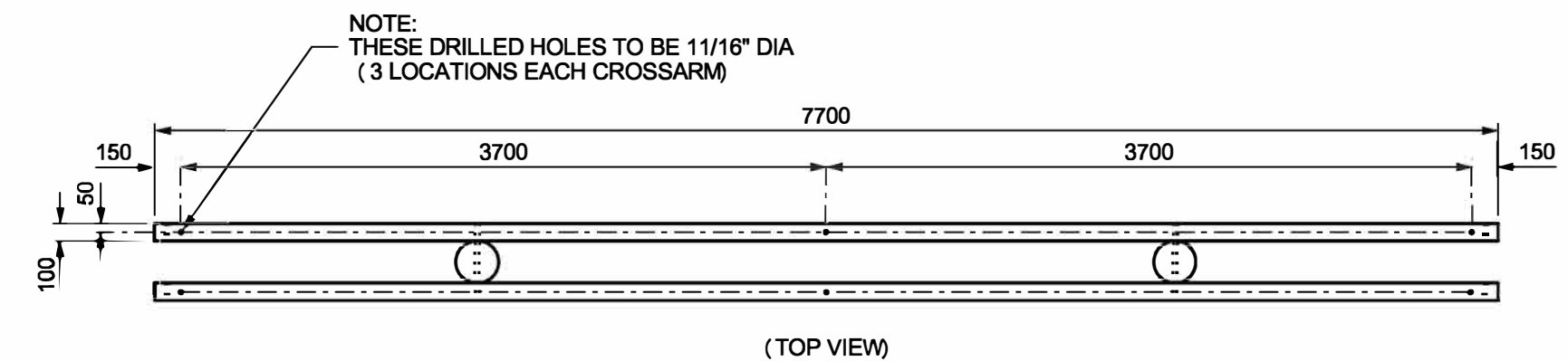
MATERIAL LIST
Transmission Line Structure Type: 138-TH-2(O)

Material quantity for :	1 Structure(s)
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MAXIMO Item No.	QTY.	DESCRIPTION
100015	3	BOLT U-PIPE SIZE: 4-1/2in; THREAD SIZE: 3/4in; THREAD LENGTH: 3in; 36000lb; STEEL; W/ 2-1/2IN HEX NUT
100636	2	CROSSARM: TIMBER; W: 4in XL: 17ft; T: 4in; DOUGLAS FIR; PENTA; NOT DRILLED
100661	AS REQ'D	WIRE GUY: DIA: 5/16in XL: 150m; 160; GALVANIZED
100662	AS REQ'D	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105350	AS REQ'D	STAPLE INDUSTRIAL- GROUND WIRE MOLDING; W: 11/16in; 2in; GALVANIZED STEEL
105358	6	CLIP: BONDING; 7/16in; CARBON STEEL; GALVANIZED
105368	4	CONNECTOR OVERHEAD- WEDGE; RUN CABLE SIZE: 2/0AWG; AACSC/ACSR; TAP CABLE SIZE: 2/0AWG; AACSC/ACSR
105416	2	BOLT MACHINE: SQUARE; THREAD SIZE: 3/4in; 9tpi; UNC; L: 12in; STEEL; GALVANIZED; CSA C83
105900	1	HARDWARE KIT: CROSS BRACING SET
112155	2	CROSSARM: TIMBER; W: 10in XL: 25ft; T: 4in; DOUGLAS FIR; PENTA; CSA 080; DRILLED
112670	4	BOLT MACHINE: SQUARE; THREAD SIZE: 3/4in; 9tpi; UNC; L: 16in; STEEL; GALVANIZED; CSA C83
114914	8	NUT SQUARE: THREAD SIZE: 1/2in; STEEL; GALVANIZED
114953	3	SUPPORT: DOUBLE ARM ANGLE; W: 3XL: 19XT: 3/16in; W/ DOUBLE ARM SUPPORT
116091	6	WASHER FLAT: 5/8in; ID: 11/16in; OD: 1-3/4in; T: 7/64in; STEEL; ASTM A153; GALVANIZED; ANSI B18.22.1
116745	2	BOLT EYE: SHOULDER; THREAD SIZE: 3/4in; L: 12in; 18350lb; STEEL; GALVANIZED; CSA C83 67; SQUARE HEAD
116749	16	SCREW LAG: FETTER DRIVE/PILOT POINT; SQUARE; THREAD SIZE: 1/2in; L: 4in; STEEL; GALVANIZED CSA C83.101M
116750	4	SCREW LAG: HEXAGONAL; THREAD SIZE: 3/4in; L: 8in; STEEL; GALVANIZED
118928	6	WASHER: 5/8in; ID: 11/16in; T: 3/16in; W: 2-1/4in; L: 2-1/4in; SQUARE; STEEL; GALVANIZED; CSA-C83-96
119245	10	NUT SQUARE: THREAD SIZE: 3/4in; STEEL, GALVANIZED
122273	12	WASHER: ID: 13/16in; OD: 2in; ROUND; STEEL; GALVANIZED; CSA-C83-96
124109	8	WASHER FLAT: 1/2in; ID: 9/16in; OD: 1-3/8in; T: 7/64in; STEEL; ASTM A153; GALVANIZED; ANSI B18.22.1
124113	8	CONNECTOR OVERHEAD- SERVIT/ SPLIT BOLT; RUN CABLE SIZE: 2/0-2AWG; ALUMINUM/ COPPER; TAP CABLE SIZE: 2/0-8AWG; COPPER
124442	16	CLIP: BONDING; 7/16in; CARBON STEEL; GALVANIZED
129259	3	EYE BALL: EYE SIZE: 5/8in; STEEL; CSA C83
129261	8	WASHER CURVED; ID: 13/16in; T: 1/4in; W: 3in; L: 3in; SQUARE; STEEL; GALVANIZED
137119	4	SHELL: AMPACT SHELL/BLUE
138889	2	PLATE: POLE BREARING; W: 4XL: 4XT: 1/4in; STEEL; GALVANIZED
139210	2	BOLT MACHINE: SQUARE; THREAD SIZE: 3/4in; 9tpi; UNC; L: 22in; STEEL; GALVANIZED; CSA C83
141302	6	BOLT MACHINE: SQUARE; THREAD SIZE: 5/8in; 11tpi; UNC; L: 14in; STEEL; GALVANIZED; CSA C83
142168	4	BOLT MACHINE: SQUARE; THREAD SIZE: 1/2in; 13tpi; UNC; L: 6in; STEEL; GALVANIZED; CSA C84
150902	6	NUT SQUARE: REGULAR; THREAD SIZE: 5/8in; UNC; STEEL; HOT DIP GALVANIZED; CSA C83
154741	4	PLATE: CROSSARM/10" ARM SET
175264	2	SHACKLE ANCHOR: TWISTED; SHACKLE DIA: 5/8in; PIN DIA: 3.15in; 120kn; W/ BOLT AND NUT; COTTER PIN
192767	2	GRIP: TWIN SUSPENSION UNIT/PREFORMED; L: 53in; 7/16in STRAND; DUCTILE IRON; FOR 7/16in GALVANIZED STRAND; MPN: TGSMS-4857D11

Project Specific Materials

116439	3	ARMOR ROD: 636 KCMIL; 37 W; 13STR; DIA RANGE: 0.908-0.929 in; L: 80in; ACSR: ALUMINUM; GREEN; 13; ROD DIAMETER: 0.25IN; MPN: AR-0135
124430	3	CLAMP: SUSPENSION: 1-1-1/2in; BOLT SIZE: 1/2in; ALUMINUM; BOLTED
137419	24	INSULATOR: SUSPENSION: DIA: 10X; L: 5-3/4in; GLASS: VOLTAGE: 130kv; ANSI 52-5; CAPACITY: 120KN/25000LB



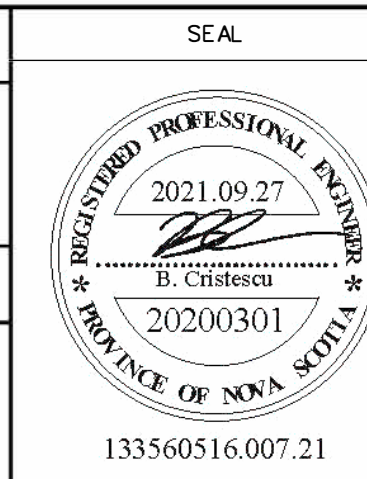
CROSS ARM DRILLING DETAIL

NOTES:

1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

ANTI SPLIT BOLT ASSEMBLY GROUNDED	T 5,0,3,1,1	1,5,5,4,0,1,0,0,2
OHSW TANGENT ASSEMBLY	T 5,0,3,1,1	1,5,5,4,0,1,0,0,9
INSULATOR ASSEMBY SUSPENSION GROUNDED	T 5,0,3,1,1	1,5,5,4,0,1,0,1,8
2 POLE DOUBLE CROSS ARM ASSEMBLY GROUNDED	T 5,0,3,1,1	1,5,5,4,0,1,0,2,2
2 POLE DOUBLE CROSS BRACE ASSEMBLY GROUNDED	T 5,0,3,1,1	1,5,5,4,0,1,0,2,6
POLE SETTING DETAIL GROUNDED	T 5,0,3,1,1	1,5,5,3,0,1,0,0,2
REFERENCE DRAWINGS		DWG.NO.

0 REV	DATE: YYYY-MM-DD BY:
APPROVAL: WO:	
1 REV	DATE: 2019-10-30 BY: J. TUTTY
GENERAL REVISIONS	
APPROVAL: WO:	



DEPARTMENTAL APPROVALS	
APPROVED	
DATE	
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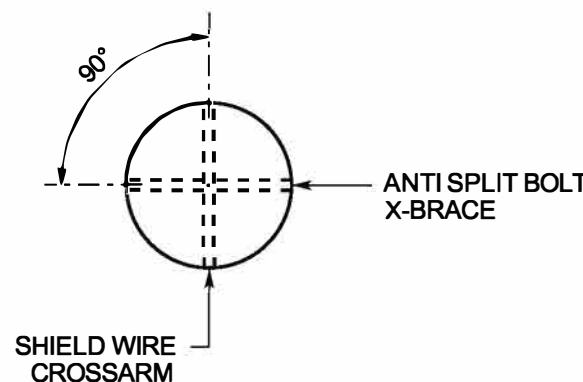
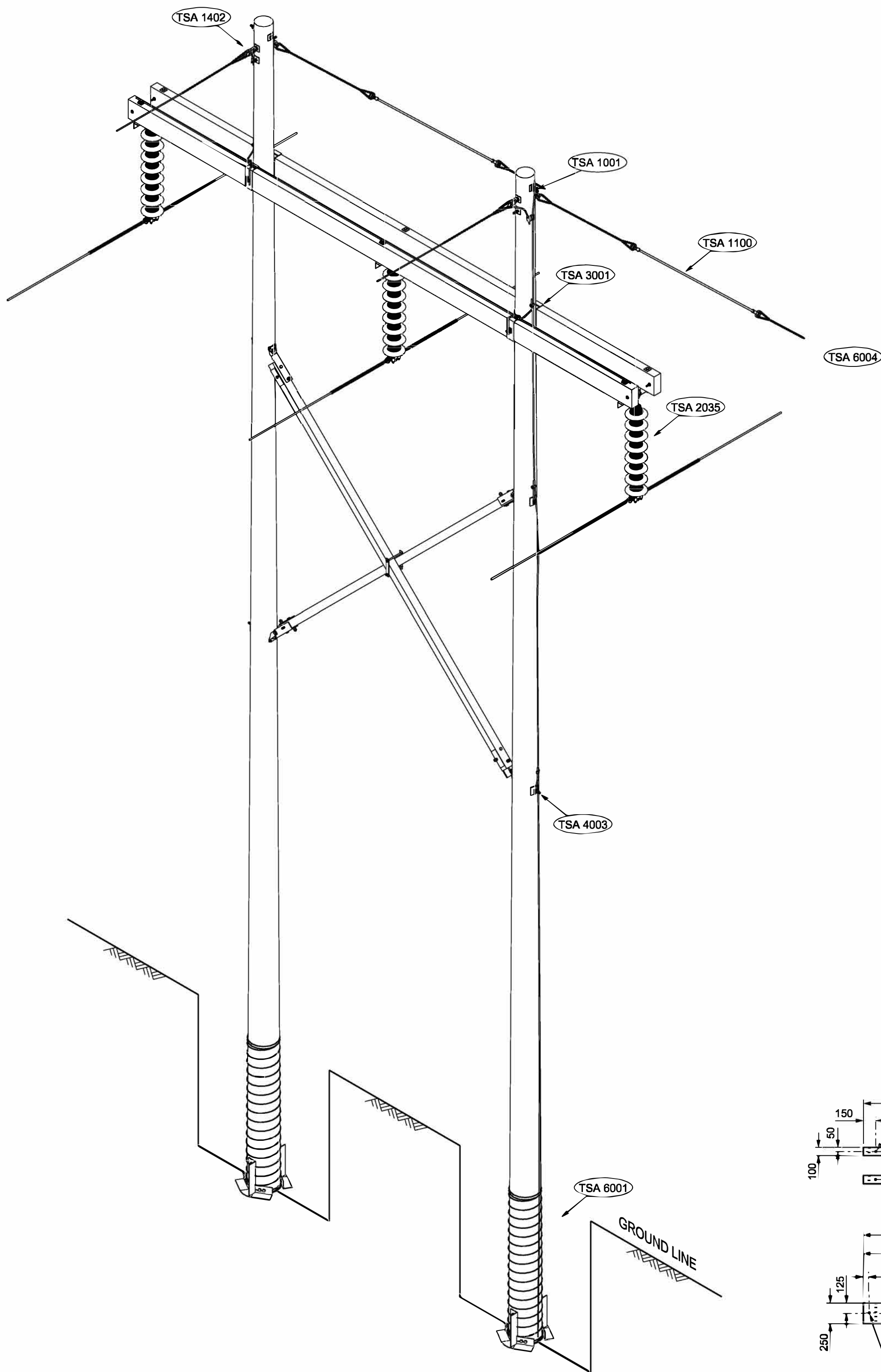
SCALE	1:1
UNITS	METRIC
DESIGNED	B. BILKHU
DRAWN	P. HUBLEY
DATE	2019-02-02
W.O.	

 Nova Scotia POWER An Emera Company	
TRANSMISSION AND DISTRIBUTION ENGINEERING	
TRANSMISSION LINE STANDARD STRUCTURE	
STRUCTURE TYPE 138-TH-2(O)	
T-5031-1-510-01-003	REV. 0

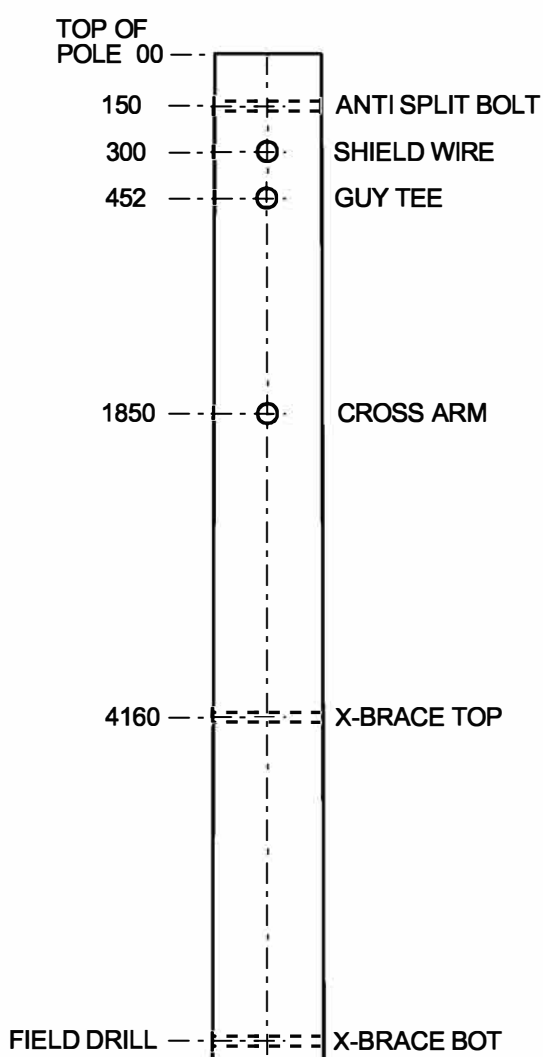


1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

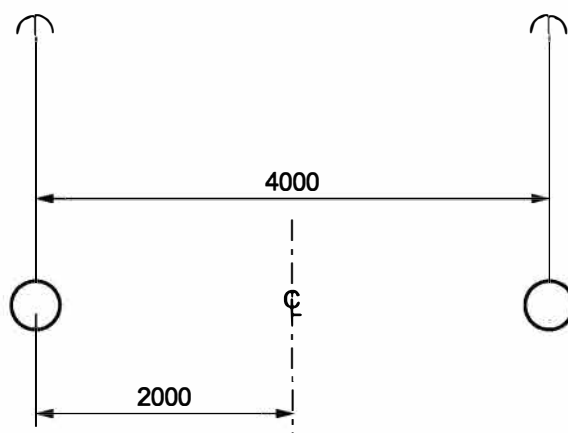
 Nova Scotia POWER An Emera Company		
TRANSMISSION AND DISTRIBUTION ENGINEERING		
TRANSMISSION LINE STANDARD STRUCTURE		
STRUCTURE TYPE 138-TH-2(0)(2XB)		
T-5031-1-510-01-004		REV. 0



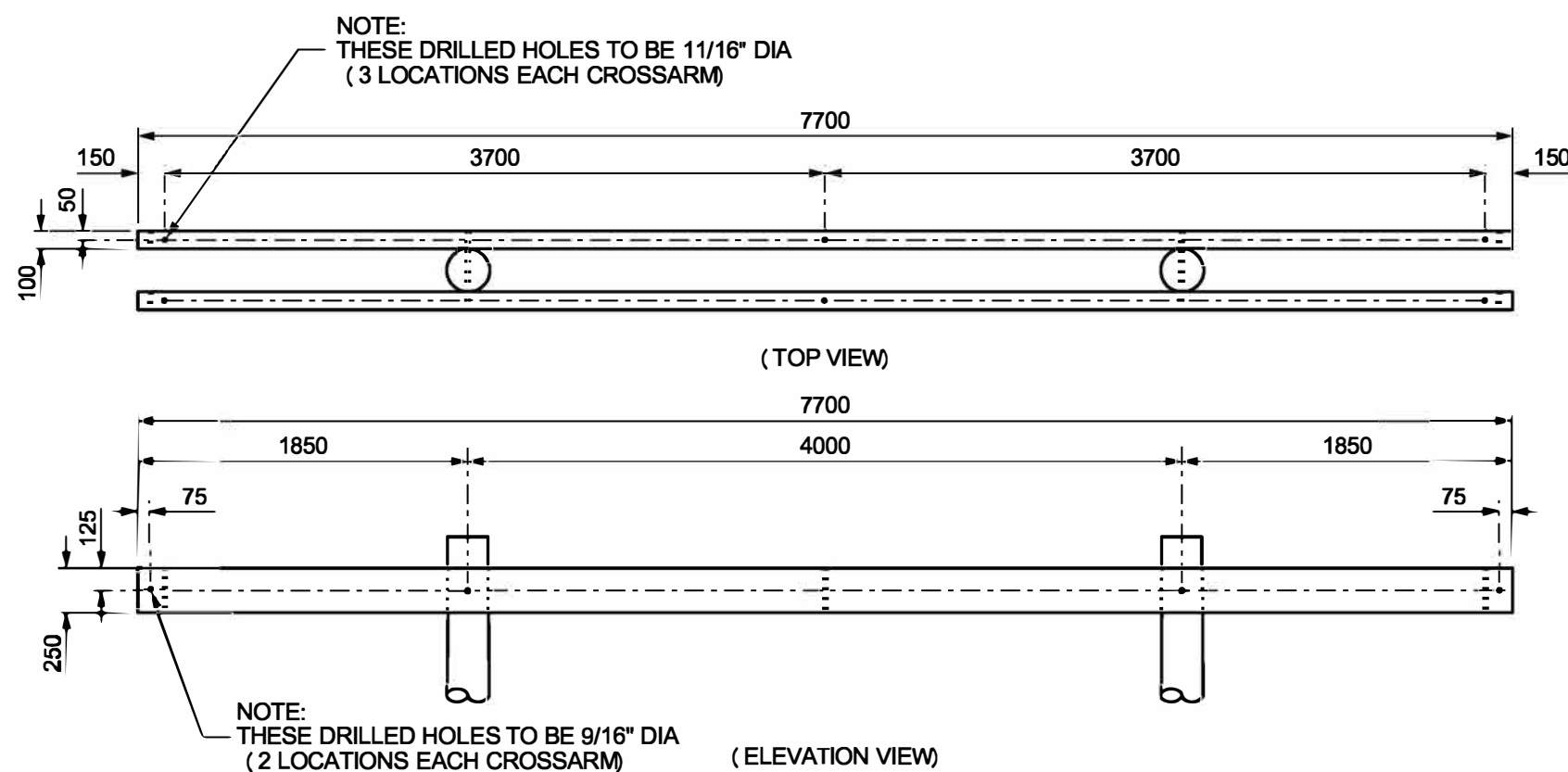
TOP VIEW
(BOLT DRILL DIRECTION)



POLE DRILLING DETAIL



POLE LAYOUT



CROSS ARM DRILLING DETAIL



MATERIAL LIST
Transmission Line Structure Type: 138-TH-2(O) DE

Material quantity for : 1 Structure(s)

MAXIMO Item No.	QTY.	DESCRIPTION
100015	3	BOLT U-PIPE SIZE:4-1/2in;THREAD SIZE:3/4in;THREAD LENGTH:3in;36000lb;STEEL;W/ 2-1/2IN HEX NUT
100332	2	INSULATOR, GUY STRAIN, FIBREGLASS, 96" 21000LB, NSPI SPEC. D-I-2, 7/16" GUY WIRE
100383	2	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	2	CROSSARM:TIMBER;W:4inXL:17ft;T:4in;DOUGLAS FIR;PENTA;NOT DRILLED
100661	AS REQD	WIRE GUY:DIA:5/16inXL:150m;160;GALVANIZED
100662	AS REQD	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	2	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105350	AS REQD	STAPLE INDUSTRIAL:GROUND WIRE MOLDING;W:11/16in;2in;GALVANIZED STEEL
105358	6	CLIP:BONDING;7/16in;CARBON STEEL;GALVANIZED
105368	2	CONNECTOR OVERHEAD:WEDGE;RUN CABLE SIZE:2/0AWG;AASC/ACSR;TAP CABLE SIZE:2/0AWG;AASC/ACSR
105416	4	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:12in;STEEL;GALVANIZED;CSA C83
105900	1	HARDWARE KIT: CROSS BRACING SET
112155	2	CROSSARM:TIMBER;W:10inXL:25ft;T:4in;DOUGLAS FIR;PENTA;CSA 080;DRILLED
112670	4	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:16in;STEEL;GALVANIZED;CSA C83
114900	10	GRIP:GUY/PREFORMED;7/16;GREEN GRIP LENGTH 38" - GDE 1108
114914	8	NUT SQUARE: THREAD SIZE: 1/2in;STEEL;GALVANIZED
114953	3	SUPPORT:DOUBLE ARM ANGLE;W:3XL:19XT:3/16in;W/ DOUBLE ARM SUPPORT
116091	6	WASHER FLAT:5/8in;ID:11/16in;OD:1-3/4in;T:7/64in;STEEL;ASTM A153;GALVANIZED;ANSI B18.22.1
116745	2	BOLT EYE:SHOULDER;THREAD SIZE:3/4in;L:12in;18350lb;STEEL;GALVANIZED;CSA C83 67;SQUARE HEAD
116749	16	SCREW LAG;FETTER DRIVE/PILOT POINT;SQUARE;THREAD SIZE:1/2in;L:4in;STEEL;GALVANIZED CSA C83.101M
116750	4	SCREW LAG:HEXAGONAL;THREAD SIZE:3/4in;L:8in;STEEL;GALVANIZED
118928	6	WASHER:5/8in;ID:11/16in;T:3/16in;W:2-1/4in;L:2-1/4in;SQUARE;STEEL;GALVANIZED;CSA-C83-96
119245	12	NUT SQUARE: THREAD SIZE: 3/4in;STEEL, GALVANIZED
122273	12	WASHER:ID:13/16in;OD:2in;ROUND;STEEL;GALVANIZED;CSA-C83-96
124109	8	WASHER FLAT:1/2in;ID:9/16in;OD:1-3/8in;T:7/64in;STEEL;ASTM A153;GALVANIZED;ANSI B18.22.1
124113	8	CONNECTOR OVERHEAD:SERVIT/SPLIT BOLT;RUN CABLE SIZE:2/0-2AWG:ALUMINUM/COPPER;TAP CABLE SIZE:2/0-8AWG;COPPER
124442	16	CLIP:BONDING;7/16in;CARBON STEEL;GALVANIZED
129259	3	EYE:BALL;EYE SIZE:5/8in;STEEL;CSA C83
129261	8	WASHER:CURVED;ID:13/16in;T:1/4in;W:3in;L:3in;SQUARE;STEEL, GALVANIZED
137107	2	TEE: DEADEND/GUYING;HIGH STRENGTH STEEL
137119	2	SHELL:IMPACT SHELL/BLUE
138889	2	PLATE:POLE BREARING;W:4XL:4XT:1/4in;STEEL;GALVANIZED
138901	4	CLEVIS INSULATOR:DEAD END/THIMBLE:INSIDE LENGTH:2.19in;PIN DIA:0.62in;0.75in;24000lb;DUCTILE IRON;GALVANIZED;W/ COTTER BOLT
139210	2	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:22in;STEEL;GALVANIZED;CSA C83
141302	6	BOLT MACHINE:SQUARE;THREAD SIZE:5/8in;11tpi;UNC;L:14in;STEEL;GALVANIZED;CSA C83
142168	4	BOLT MACHINE:SQUARE;THREAD SIZE:1/2in;13tpi;UNC;L:6in;STEEL;GALVANIZED;CSA C84
150902	6	NUT SQUARE REGULAR;THREAD SIZE:5/8in;UNC;STEEL;HOT DIP GALVANIZED;CSA C83
154741	4	PLATE:CROSSARM/10"ARM SET

Project Specific Materials

138918	2	WASHER:CURVED;ID:13/16in;T:3/8in;W:4in;L:4in;SQUARE;STEEL;GALVANIZED
156577	2	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 3/4" X 9' -0"
116439	3	ARMOR ROD:636 KCMIL, 37 W;13STR:DIA RANGE:0.908-0.929in;L:80in;ACSR;ALUMINUM;GREEN;13;ROD DIAMETER: 0.25in; MPN: AR-0135
124430	3	CLAMP: SUSPENSION;1-1-1/2in;BOLT SIZE:1/2in;ALUMINUM;BOLTED
137419	24	INSULATOR: SUSPENSION;DIA:10XL:5-3/4in;GLASS;VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB
177863	2	ANCHOR : LOG; DIA: 8inXL: 5ft CCA TREATED PINE; NOT DRILLED

NOTES:

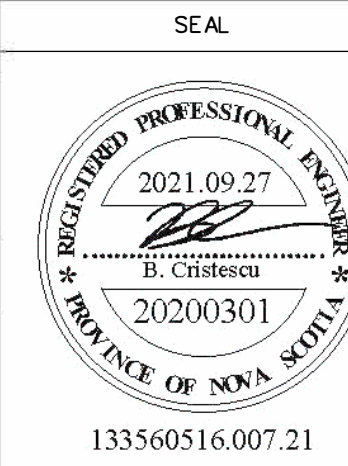
1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
5. IF DOUBLE GUYS ARE USED ON THIS STRUCTURE, INSTALL GUY WIRE SPACER CLAMPS ON ALL DOUBLE GUYS AT MIDPOINT BETWEEN GUY GRIPS.
6. GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.9m TO THE GROUND

ANTI SPLIT BOLT ASSEMBLY GROUND	T	5	0	3	1	1	5	5	4	0	1	0	0	2
GUY STRAIN INSULATOR ASSEMBLY	T	5	0	3	1	1	5	5	1	0	1	0	0	1
OHSW DEADEND ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	0	7
INSULATOR ASSEMBY SUSPENSION GROUND	T	5	0	3	1	1	5	5	4	0	1	0	1	8
2 POLE DOUBLE CROSS ARM ASSEMBLY GROUND	T	5	0	3	1	1	5	5	4	0	1	0	2	2
2 POLE DOUBLE CROSS BRACE ASSEMBLY GROUND	T	5	0	3	1	1	5	5	4	0	1	0	2	6
POLE SETTING DETAIL GROUND	T	5	0	3	1	1	5	5	3	0	1	0	0	2
LOG ANCHOR SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	3

REFERENCE DRAWINGS

DWG.NO.

0	DATE: YYYY-MM-DD
REV	BY:
APPROVAL:	WO:
1	DATE: 2019-10-30
REV	BY: PEH/J. TUTTY
GENERAL REVISIONS	
APPROVAL:	WO:



DEPARTMENTAL APPROVALS	SCALE 1:1
	UNITS
	METRIC
	DESIGNED
	B. BILKHU
	DRAWN
	P. HUBLEY
	DATE
	2019-02-02
	W.O.



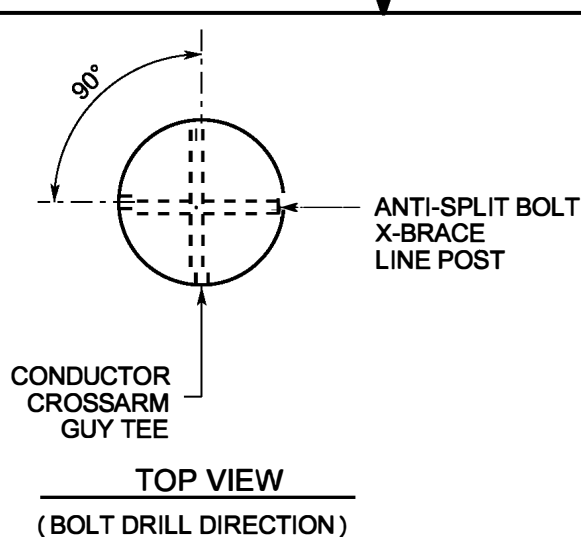
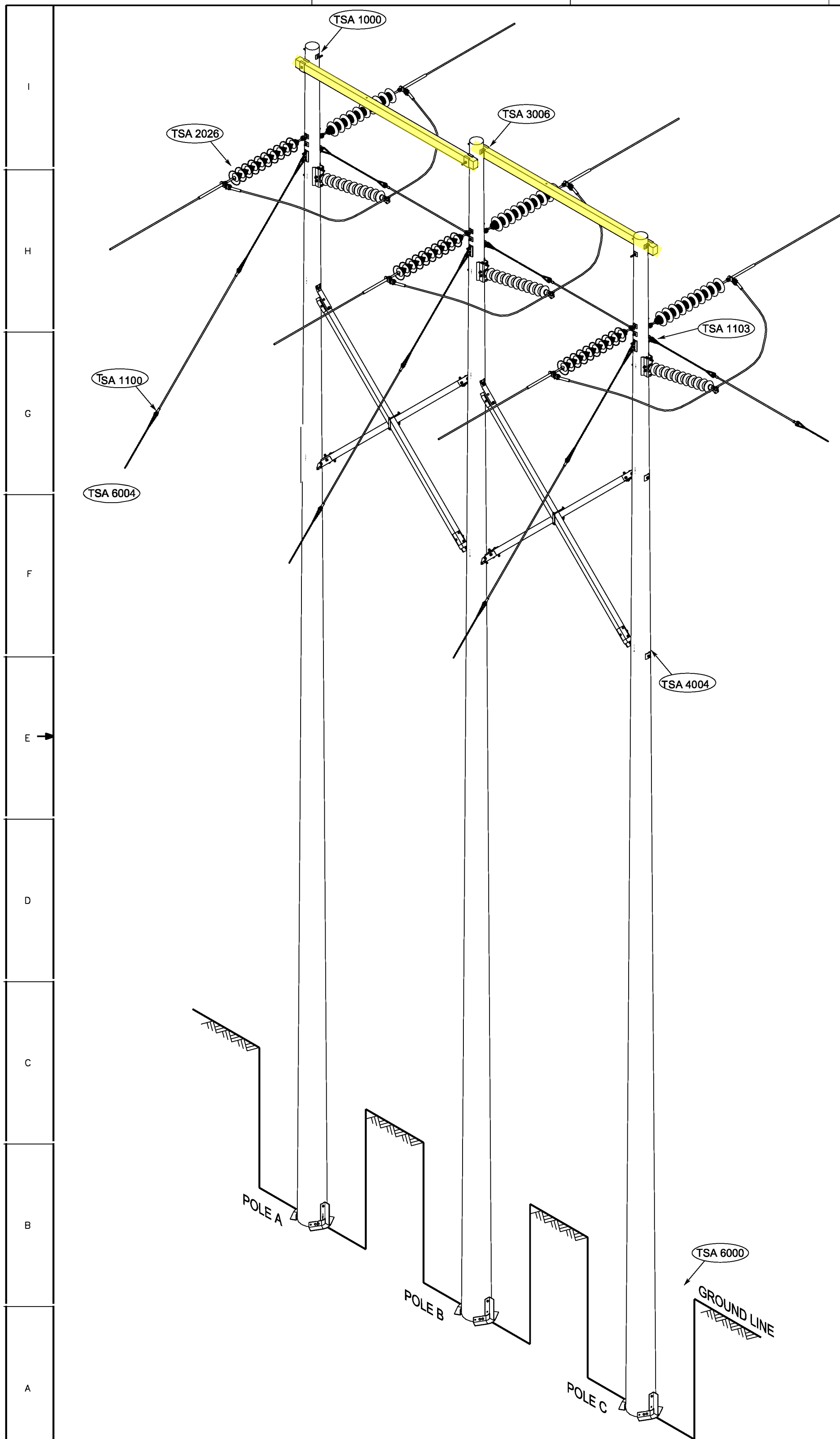
TRANSMISSION AND DISTRIBUTION ENGINEERING
TRANSMISSION LINE STANDARD STRUCTURE

STRUCTURE TYPE 138-TH-2(O) DE

T-5031-1-510-01-005

REV. 0

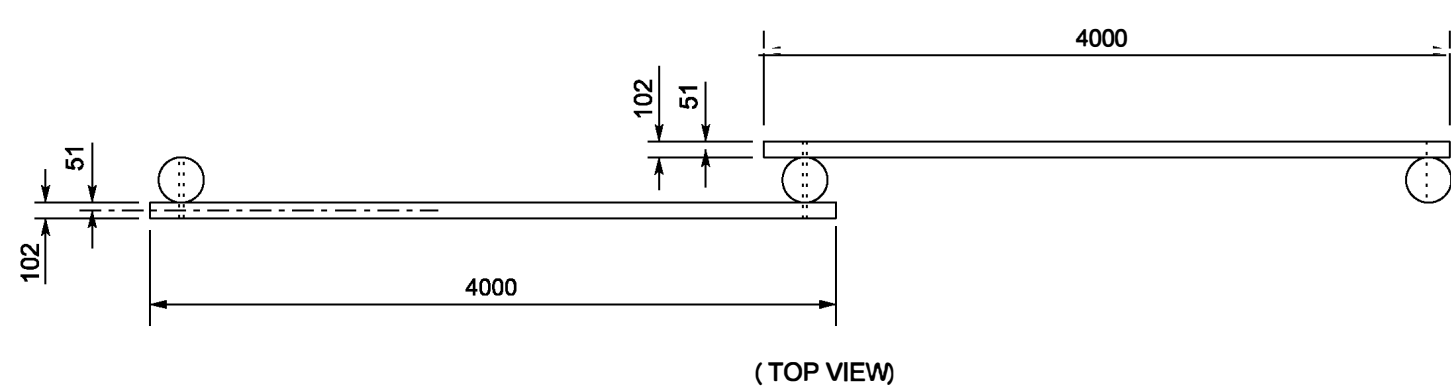
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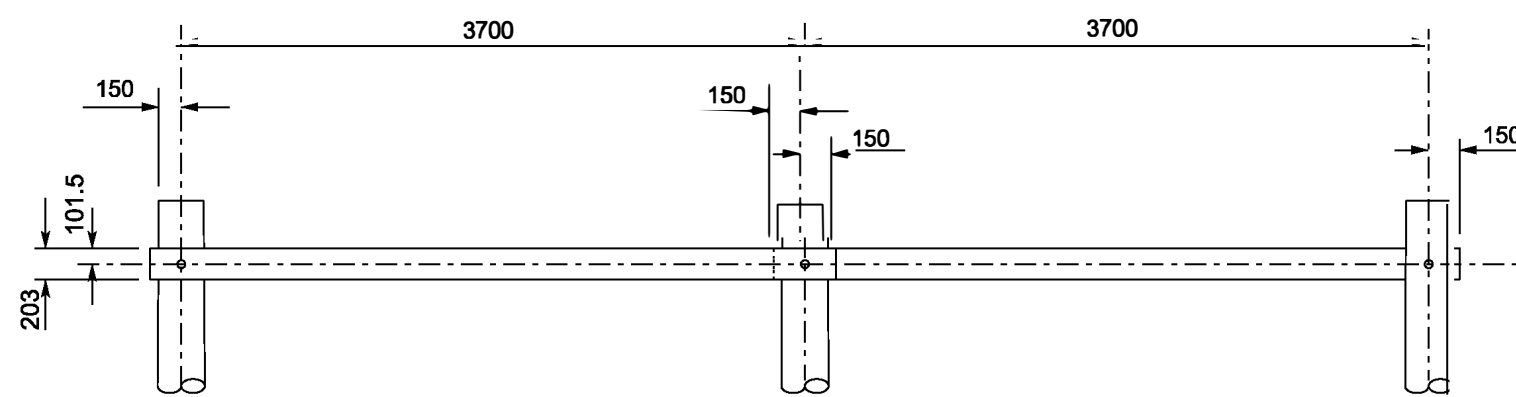
TOP VIEW
(BOLT DRILL DIRECTION)

TOP OF POLE 00	150	300	1700	1850	2000	2152	2302	FIELD DRILL	4505
ANTI SPLIT BOLT	ANTI SPLIT BOLT	ANTI SPLIT BOLT	CONDUCTOR	CONDUCTOR	GUY TEE	GUY TEE	LINE POST	LINE POST	X-BRACE TOP
300	CROSSARM	CROSSARM	CROSSARM	CROSSARM	CROSSARM	CROSSARM	CROSSARM	CROSSARM	CROSSARM
1700	CONDUCTOR	CONDUCTOR	CONDUCTOR	CONDUCTOR	GUY TEE	GUY TEE	LINE POST	LINE POST	X-BRACE TOP
1850	CONDUCTOR	CONDUCTOR	CONDUCTOR	CONDUCTOR	GUY TEE	GUY TEE	LINE POST	LINE POST	X-BRACE TOP
2000	GUY TEE	GUY TEE	GUY TEE	GUY TEE	GUY TEE	GUY TEE	LINE POST	LINE POST	X-BRACE TOP
2152	GUY TEE	GUY TEE	GUY TEE	GUY TEE	GUY TEE	GUY TEE	LINE POST	LINE POST	X-BRACE TOP
2302	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	X-BRACE TOP
FIELD DRILL	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	LINE POST	X-BRACE TOP
4505	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP
FIELD DRILL	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT
POLE A	POLE B	POLE C							

POLE DRILLING DETAIL



(TOP VIEW)



(ELEVATION VIEW)

CROSSARM DRILLING



MATERIAL LIST
Transmission Line Structure Type: **138-DT-3(LP)**

Material quantity for: 1 Structure(s)

MAXIMO Item No.	QTY.	DESCRIPTION
100332	6	INSULATOR, GUY STRAIN, FIBREGLASS, 96" 21000LB, NSPI SPEC. D-12, 7/16" GUY WIRE
100383	6	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	4	CROSSARM:TIMBER:W:4inXL:17ft:T:4in:DOUGLAS FIR:PENTA:NOT DRILLED
100662	AS REQD	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	6	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105365	6	CLEVIS BALL:Y:INSIDE LENGTH:2.06in:STEEL:GALVANIZED
105416	3	BOLT MACHINE: SQUARE:THREAD SIZE:3/4in:9tpi:UNC:L:12in:STEEL:GALVANIZED:CSA C83
105900	2	HARDWARE KIT: CROSS BRACING SET
112670	14	BOLT MACHINE: SQUARE:THREAD SIZE:3/4in:9tpi:UNC:L:16in:STEEL:GALVANIZED:CSA C83
114900	24	GRIP:GUY/PREFORMED, 7/16, GREEN GRIP LENGTH 38" - GDE 1108
116749	24	SCREW LAG:FETTER DRIVE/PILOT POINT,SQUARE:THREAD SIZE:1/2in:L:4in:STEEL:GALVANIZED CSA C83 101M
116750	6	SCREW LAG:HEXAGONAL:THREAD SIZE:3/4in:L:8in:STEEL:GALVANIZED
119245	30	NUT SQUARE: THREAD SIZE: 3/4in:STEEL, GALVANIZED
119903	6	FASTENER, BOLT MACHINE HEAD GALVANIZED, SQUARE, 3/4" X 14", CSA STD. C83 ITEM B-3, 25 PER BOX
122273	6	WASHER-ID:13/16in:OD:2in:ROUND:STEEL:GALVANIZED:CSA-C83-96
129261	26	WASHER-CURVED:ID:13/16in:T:1/4in:W:3in:L:3in:SQUARE:STEEL:GALVANIZED
132350	4	PLATE, CROSSARM, 8" ARM (SET)
132380	3	WASHER:13/16in:T:1/4in:W:3in:L:3in:SQUARE:STEEL:GALVANIZED
137106	6	CLEVIS INSULATOR:HOT LINE/SOCKET EXTENSION:INSIDE LENGTH:1-1/2in:PIN DIA:5/8in;1-1/8in:DUCTILE IRON:HOT DIP GALVANIZED
137107	6	TEE: DEADEND/GUYING:HIGH STRENGTH STEEL
138889	3	PLATE:POLE BREARING:W:4XL:4XT:1/4in:STEEL:GALVANIZED
138901	6	CLEVIS INSULATOR:DEAD END/THIMBLE:INSIDE LENGTH:2.19in:PIN DIA:0.62in, 0.75in,24000lb:DUCTILE IRON:GALVANIZED;W/ COTTIER BOLT
139206	6	BOLT EYE: SHOULDER:THREAD SIZE:3/4in:L:14in:STEEL:GALVANIZED:CSA C83 67
139210	1	BOLT MACHINE: SQUARE:THREAD SIZE:3/4in:9tpi:UNC:L:22in:STEEL:GALVANIZED:CSA C83
191203	3	INSULATOR:LINE POST/HORIZONTAL:L:CURVED BENDABLE GAIN BASE 1395mm SILICONE RUBBER,VOLTAGE:138kV:STL 22.2 KN; KL138ASHB328
198982	2	LUMBER:DRILLED/CROSSARM:102mm:4000mm:203mm:DRAWING NO.: M279Z - C37

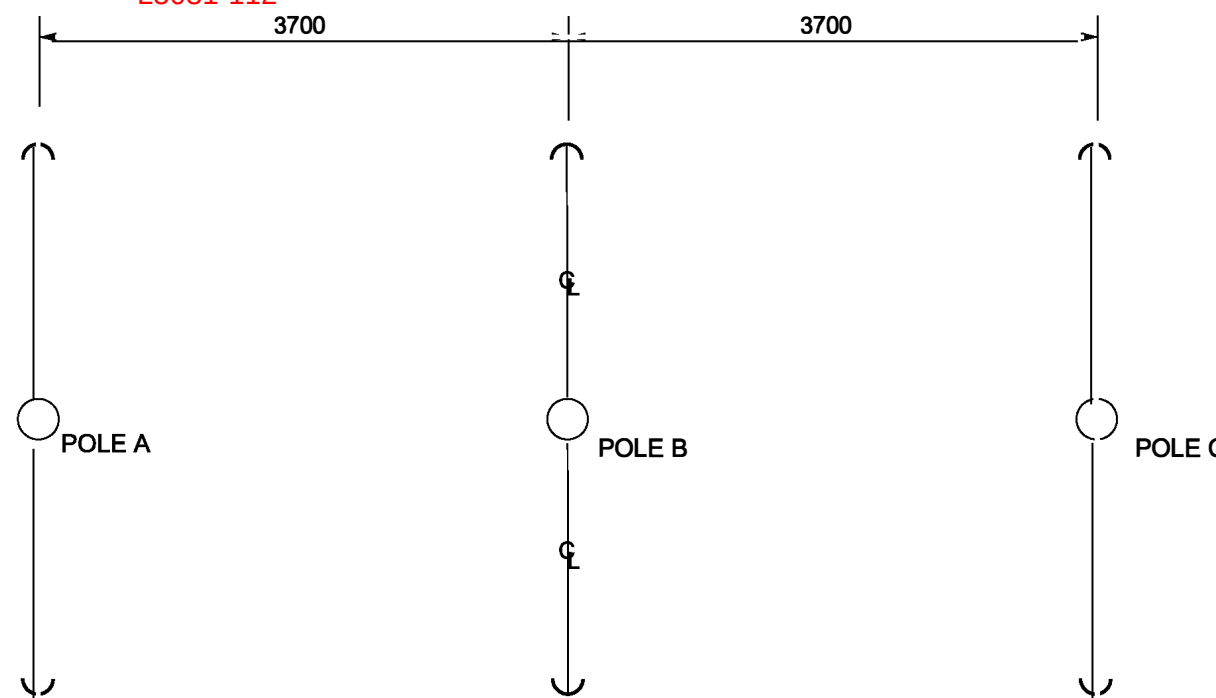
Project Specific Materials

144098	6	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 1" X 10'-0"
CUSTOM	6	WASHER, CURVED, RECTANGULAR 3 3/8" x 3 1/2" x 3/8", WITH 1 1/8" DIAM. HOLE FOR 1" BOLT, HUBBELL CATAGOLD ID 400285029 OR EQUIVALENT
101400	6	SLEEVE COMPRESSION:556.5MCM:STEEL/ALUMINUM:CABLE MATERIAL:ACSR:STRANDED
137419	60	INSULATOR:SUSPENSION:DIA:10XL:5-3/4in:GLASS:VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB
124176	3	CLAMP:LINEPOST/INSULATOR,0.5-1.06in:ALUMINUM

2024 IFC Adjustments:

The following list of 138-DT-3(LP) structures can be constructed without the top crossarms (198982) if desired. Drilled holes for the crossarm are not required for these structures. Conductor height shall still be per the IFC drilling detail.

L5031-016
L5031-018
L5031-032
L5031-036
L5031-037
L5031-041
L5031-047
L5031-068
L5031-069
L5031-071
L5031-075
L5031-087
L5031-094
L5031-100
L5031-107
L5031-108
L5031-111
L5031-112



NOTES:

POLE LAYOUT.

- MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
- ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
- IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
- IF DOUBLE GUYS ARE USED ON THIS STRUCTURE, INSTALL GUY WIRE SPACER CLAMPS ON ALL DOUBLE GUYS AT MIDPOINT BETWEEN GUY GRIPS.
- GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

ANTI SPLIT BOLT ASSEMBLY	T	5,0,3,1,1	1	5,5,4,0,1	0,0,1
GUY STRAIN INSULATOR ASSEMBLY	T	5,0,3,1,1	1	5,5,1,0,1	0,0,1
SINGLE GUY TEE DOUBLE DEADEND ASSEMBLY	T	5,0,3,1,1	1	5,5,4,0,1	0,0,3
DT-3 TANGENT DEADEND ASSEMBLY (MODIFIED - NO JUMPERS)	T	5,0,3,1,1	1	5,5,4,0,1	0,1,5
LINE POST INSULATOR ASSEMBLY	T	5,0,3,1,1	1	5,5,4,0,1	0,1,9
3 POLE SINGLE CROSS ARM ASSEMBLY	T	5,0,3,1,1	1	5,5,4,0,1	0,2,3
3 POLE CROSS BRACE ASSEMBLY	T	5,0,3,1,1	1	5,5,4,0,1	0,2,7
POLE SETTING DETAIL	T	5,0,3,1,1	1	5,5,3,0,1	0,0,1
LOG ANCHOR SETTING DETAIL	T	5,0,3,1,1	1	5,5,3,0,1	0,0,3

REFERENCE DRAWINGS

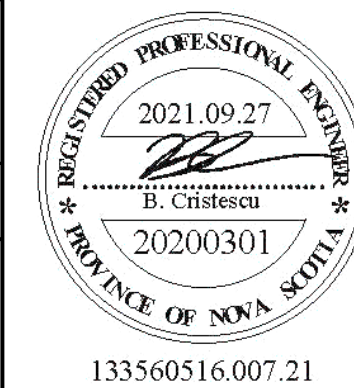
DWG.NO.

0 DATE: YYYY-MM-DD
REV BY:

APPROVAL: WO:
1 DATE: 2019-10-30
REV BY: J. TUTTY
GENERAL REVISIONS

APPROVAL: WO:

SEAL



DEPARTMENTAL APPROVALS

APPROVED
DATE: 2019-02-02
W.O.

SCALE

1:1

UNITS

METRIC

DESIGNED

B. BILKHU

DRAWN

P. HUBLEY

DATE

2019-02-02

W.O.



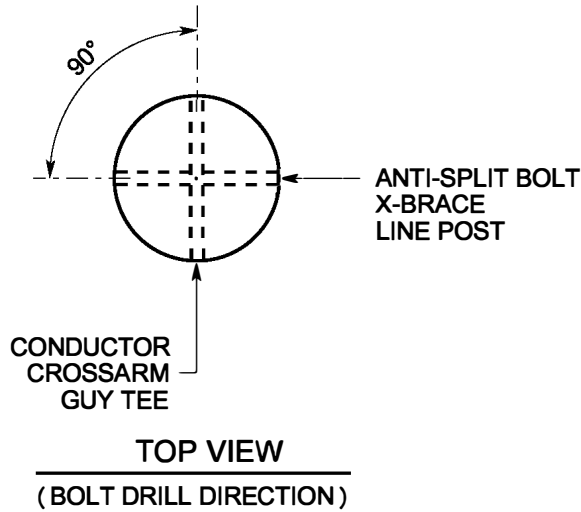
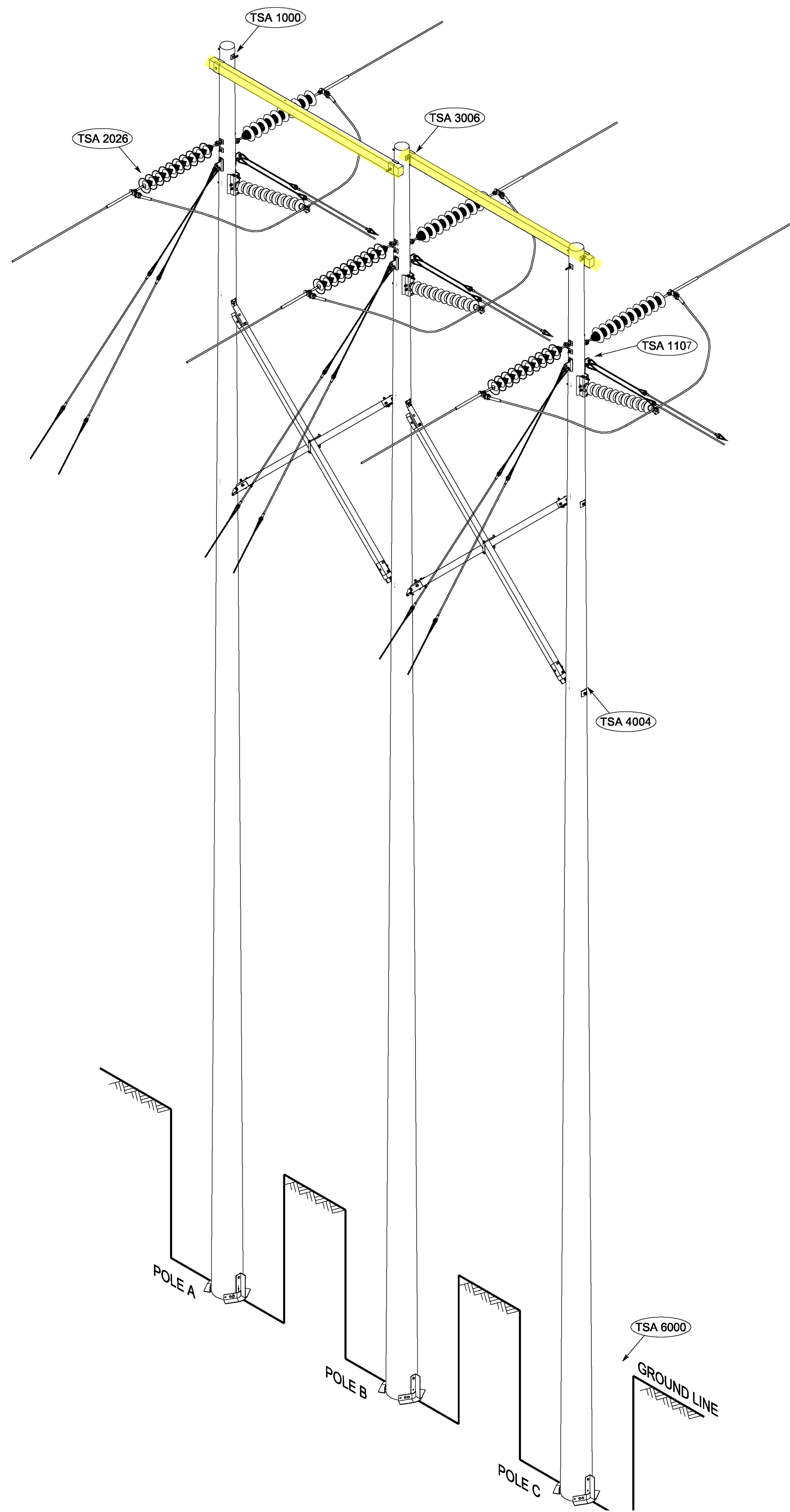
TRANSMISSION AND DISTRIBUTION ENGINEERING
TRANSMISSION LINE STANDARD STRUCTURE

STRUCTURE TYPE 138-DT-3 (LP)

T-5031-1-511-01-001

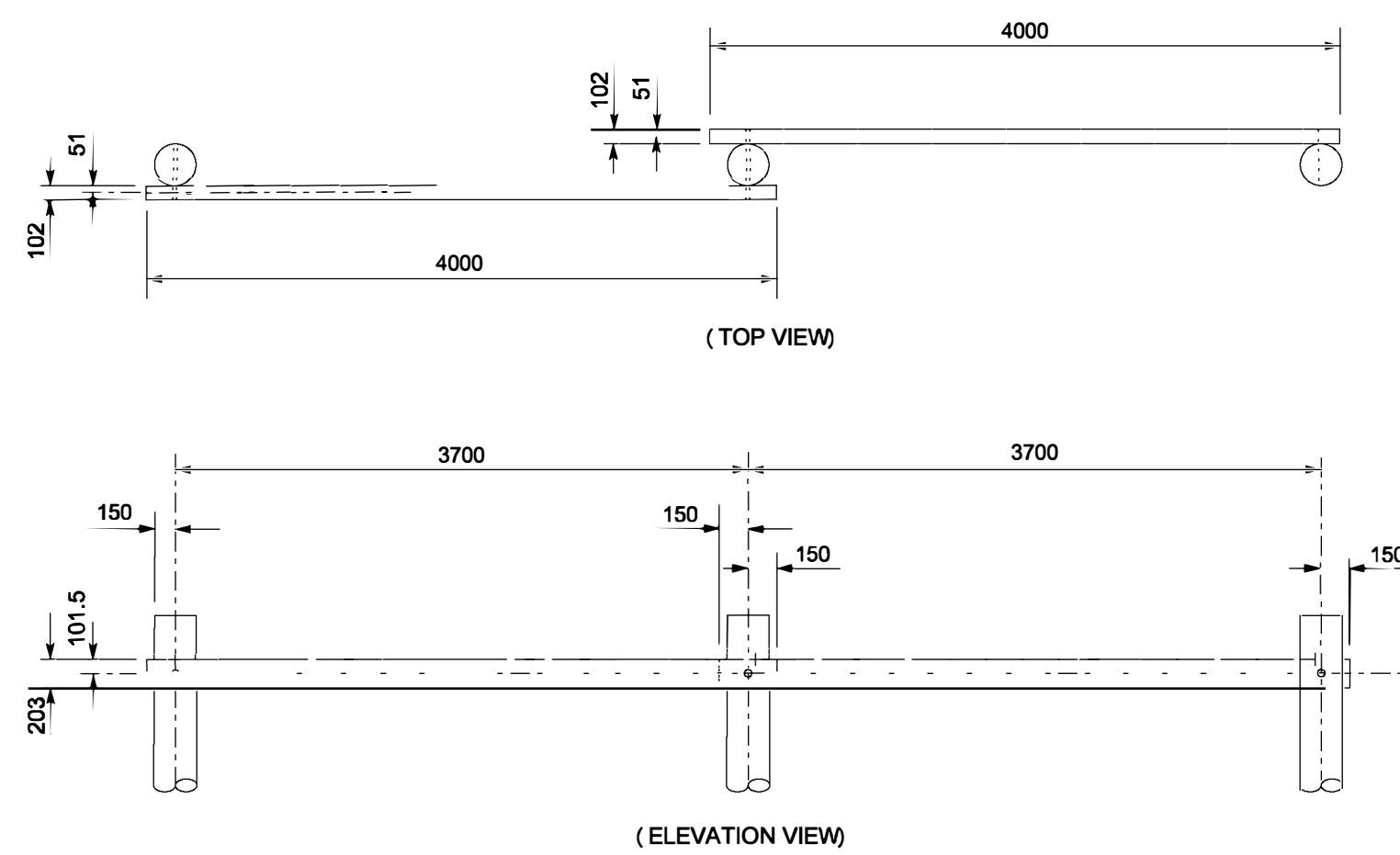
REV. 0

BORDER SIZE:



TOP OF POLE 00	150	300	1700	1850	2000	2152	2302	FIELD DRILL	4505	FIELD DRILL
ANTI SPLIT BOLT	ANTI SPLIT BOLT	ANTI SPLIT BOLT	CONDUCTOR	CONDUCTOR	GUY TEE	GUY TEE	LINE POST	LINE POST	X-BRACE TOP	X-BRACE BOT
300	CROSSARM	300	CROSSARM	300	CROSSARM	300	CROSSARM	300	CROSSARM	300
1700	CONDUCTOR	1700	CONDUCTOR	1700	CONDUCTOR	1700	CONDUCTOR	1700	CONDUCTOR	1700
1850	CONDUCTOR	1850	CONDUCTOR	1850	CONDUCTOR	1850	CONDUCTOR	1850	CONDUCTOR	1850
2000	GUY TEE	2000	GUY TEE	2000	GUY TEE	2000	GUY TEE	2000	GUY TEE	2000
2152	GUY TEE	2152	GUY TEE	2152	GUY TEE	2152	GUY TEE	2152	GUY TEE	2152
2302	LINE POST	2302	LINE POST	2302	LINE POST	2302	LINE POST	2302	LINE POST	2302
FIELD DRILL	LINE POST	FIELD DRILL	LINE POST	FIELD DRILL	LINE POST	FIELD DRILL	LINE POST	FIELD DRILL	LINE POST	FIELD DRILL
4505	X-BRACE TOP	4505	X-BRACE TOP	4505	X-BRACE TOP	4505	X-BRACE TOP	4505	X-BRACE TOP	4505
FIELD DRILL	X-BRACE BOT	FIELD DRILL	X-BRACE BOT	FIELD DRILL	X-BRACE BOT	FIELD DRILL	X-BRACE BOT	FIELD DRILL	X-BRACE BOT	FIELD DRILL
POLE A	POLE B	POLE C								

POLE DRILLING DETAIL

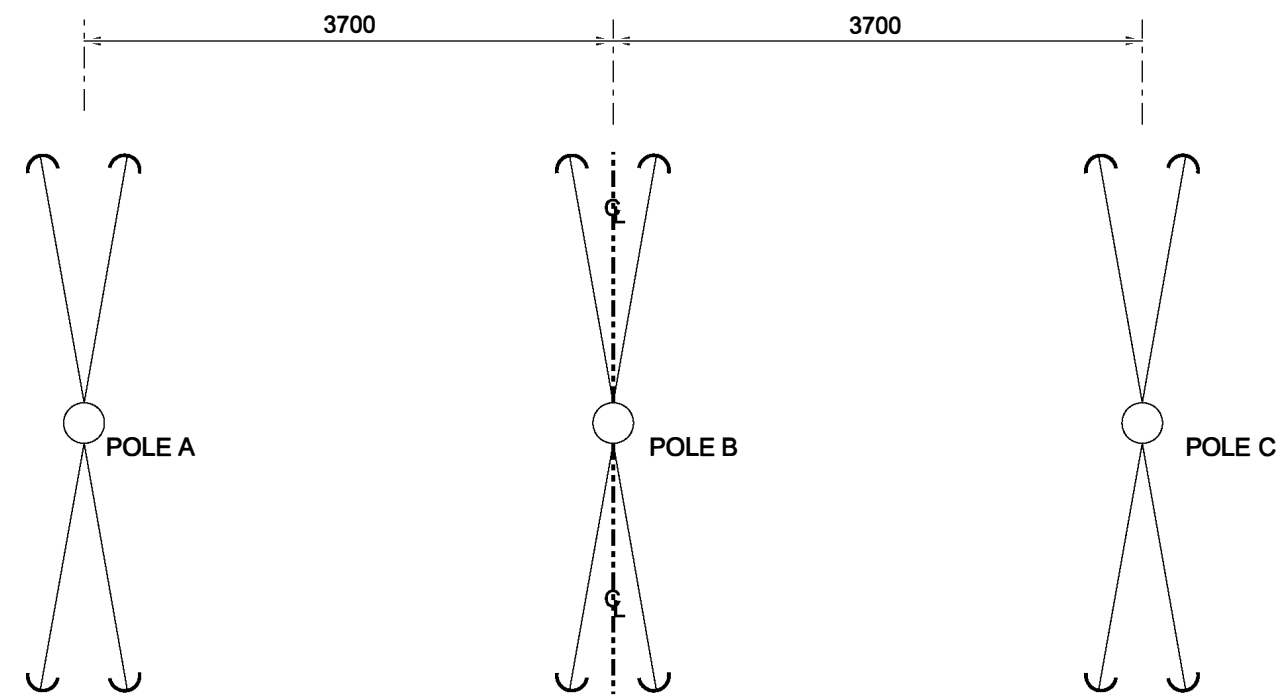


CROSSARM DRILLING

MATERIAL LIST
Transmission Line Structure Type: 138-DT-3(LP)(2G)

Material quantity for :		1 Structure(s)
MAXIMO Item No.	QTY.	DESCRIPTION
100332	12	INSULATOR, GUY STRAIN, FIBREGLASS, 96" 21000LB, NSPI SPEC. D-12, 7/16" GUY WIRE
100383	12	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	4	CROSSARM:TIMBER;W:4inX;L:17ft;T:4in;DOUGLAS FIR;PENTA;NOT DRILLED
100662	AS REQ'D	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	6	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105365	6	CLEVIS BALL: Y;INSIDE LENGTH:2.06in;STEEL;GALVANIZED
105416	3	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:12in;STEEL;GALVANIZED;CSA C83
105900	2	HARDWARE KIT: CROSS BRACING SET
112670	12	BOLT MACHINE: SQUARE;THREAD SIZE: 3/4in;9tpi;UNC;L:16in;STEEL;GALVANIZED;CSA C83
114900	30	GRIP: GUY/PREFORMED, 7/16, GREEN GRIP LENGTH 38" - GDE 1108
116749	24	SCREW LAG;FETTER DRIVE/PILOT POINT;SQUARE;THREAD SIZE: 1/2in;L:4in;STEEL;GALVANIZED CSA C83.101M
116750	6	SCREW LAG;HEXAGONAL;THREAD SIZE: 3/4in;L:8in;STEEL;GALVANIZED
119245	27	NUT SQUARE: THREAD SIZE: 3/4in;STEEL, GALVANIZED
119903	6	FASTENER, BOLT MACHINE HEAD GALVANIZED, SQUARE, 3/4" X 14", CSA STD. C83 ITEM B-3, 25 PER BOX
122273	6	WASHER:ID:13/16in;OD:2in;ROUND;STEEL;GALVANIZED;CSA-C83-96
129261	30	WASHER: CURVED;ID:13/16in;T:1/4in;W:3in;L:3in;SQUARE;STEEL;GALVANIZED
132350	4	PLATE, CROSSARM, 8" ARM (SET)
132380	3	WASHER:13/16in;T:1/4in;W:3in;L:3in;SQUARE;STEEL;GALVANIZED
137106	6	CLEVIS INSULATOR;HOT LINE/SOCKET EXTENSION;INSIDE LENGTH:1-1/2in;PIN DIA:5/8in;1-1/8in;DUCTILE IRON;HOT DIP GALVANIZED
138889	3	PLATE;POLE BREARING;W:4XL:4XT:1/4in;STEEL;GALVANIZED
138901	12	CLEVIS INSULATOR;DEAD END/THIMBLE;INSIDE LENGTH:2.19in;PIN DIA:0.62in;0.75in;24000lb;DUCTILE IRON;GALVANIZED;W/ COTTIER BOLT
139206	6	BOLT EYE: SHOULDER;THREAD SIZE: 3/4in;L:14in;STEEL;GALVANIZED;CSA C83.67
139210	1	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:22in;STEEL;GALVANIZED;CSA C83
177169	6	TEE: DOUBLE GUY
191203	3	INSULATOR;LINE POST/HORIZONTAL;L:CURVED BENDABLE GAIN BASE 1395mm SILICONE RUBBER;VOLTAGE:138kV;STL 22.2 KN; KL138ASHB328
198982	2	LUMBER;DRILLED/CROSSARM;102mm;4000mm;203mm;DRAWING NO.: M2792 - C37
Project Specific Materials		
144098	12	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 1" X 10' -0"
CUSTOM	12	WASHER, CURVED, RECTANGULAR 3 3/8" x 3 1/2" x 3/8", WITH 1 1/8" DIAM. HOLE FOR 1" BOLT, HUBBELL CATAGOLD ID 400285029 OR EQUIVALENT
101400	6	SLEEVE COMPRESSION:566.5MCM;STEEL/ALUMINUM;CABLE MATERIAL:ACSR;STRANDED
137419	60	INSULATOR;SU SPENSION;DIA:10XL:5-3/4in;GLASS;VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB
124176	3	CLAMP;LINEPOST/INSULATOR;0.5-1.06in;ALUMINUM
177864	6	ANCHOR : LOG; DIA: 8inXL: 8ft CCA TREATED PINE; NOT DRILLED

2024 IFC Adjustments:
The following list of 138-DT-3(LP)(2G) can be constructed without the top crossarms (198982) if desired. Drilled holes for the crossarm are not required for these structures.
L5031-048



POLE LAYOUT

NOTES:

- MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
- NO. OF INSULATOR BELLS AND TYPE OF SYNTHETIC INSULATOR TYPE WILL BE SPECIFIED BY DESIGNER.
- ALL DRILLED HOLES TO BE 13/16"DIA UNLESS NOTED.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
- IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
- GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

ANTI SPLIT BOLT ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	0	1
GUY STRAIN INSULATOR ASSEMBLY	T	5	0	3	1	1	5	5	1	0	1	0	0	1
DOUBLE GUY TEE DOUBLE DEADEND ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	0	5
DT-3 TANGENT DEADEND ASSEMBLY (MODIFIED - NO JUMPERS)	T	5	0	3	1	1	5	5	4	0	1	0	1	5
LINE POST INSULATOR ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	1	9
3 POLE SINGLE CROSS ARM ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	2	3
3 POLE CROSS BRACE ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	2	7
POLE SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	1
LOG ANCHOR SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	3
REFERENCE DRAWINGS														
DWG.NO.														

O DATE: YYYY-MM-DD
REV BY:APPROVAL: WO:
1 DATE: 2019-10-30
REV BY: J. TUTTY

GENERAL REVISIONS

APPROVAL: WO:

SEAL



133560516.007.21

DEPARTMENTAL APPROVALS

APPROVED

DATE

SCALE

1:1

UNITS

METRIC

DESIGNED

B. BILKHU

DRAWN

P. HUBLEY

DATE

2019-02-02

W.O.

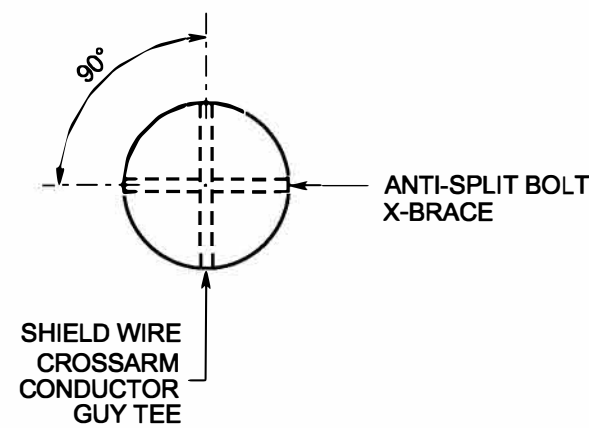
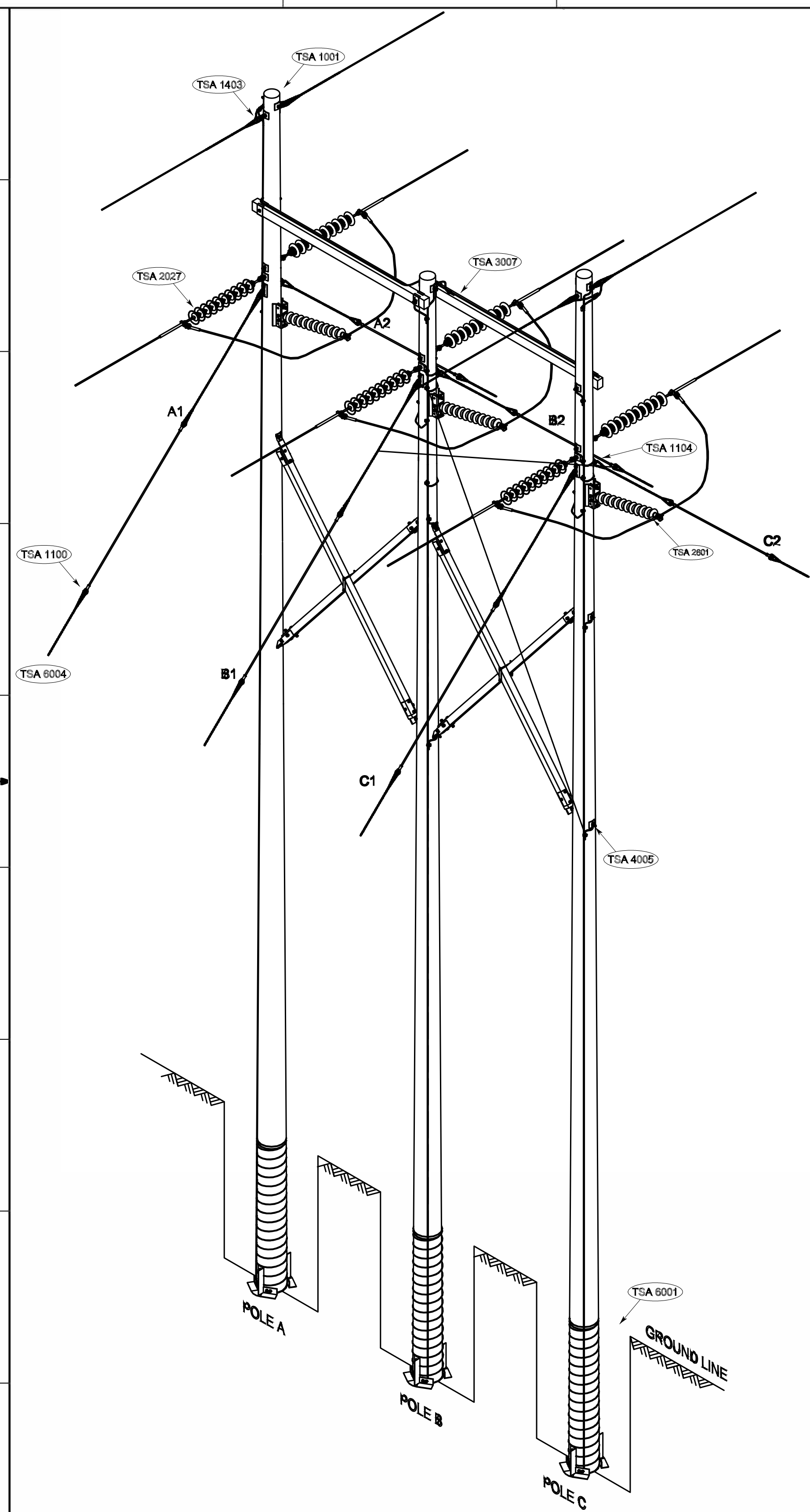
TRANSMISSION AND DISTRIBUTION ENGINEERING
TRANSMISSION LINE STANDARD STRUCTURE

STRUCTURE TYPE 138-DT-3 (LP)(2G)

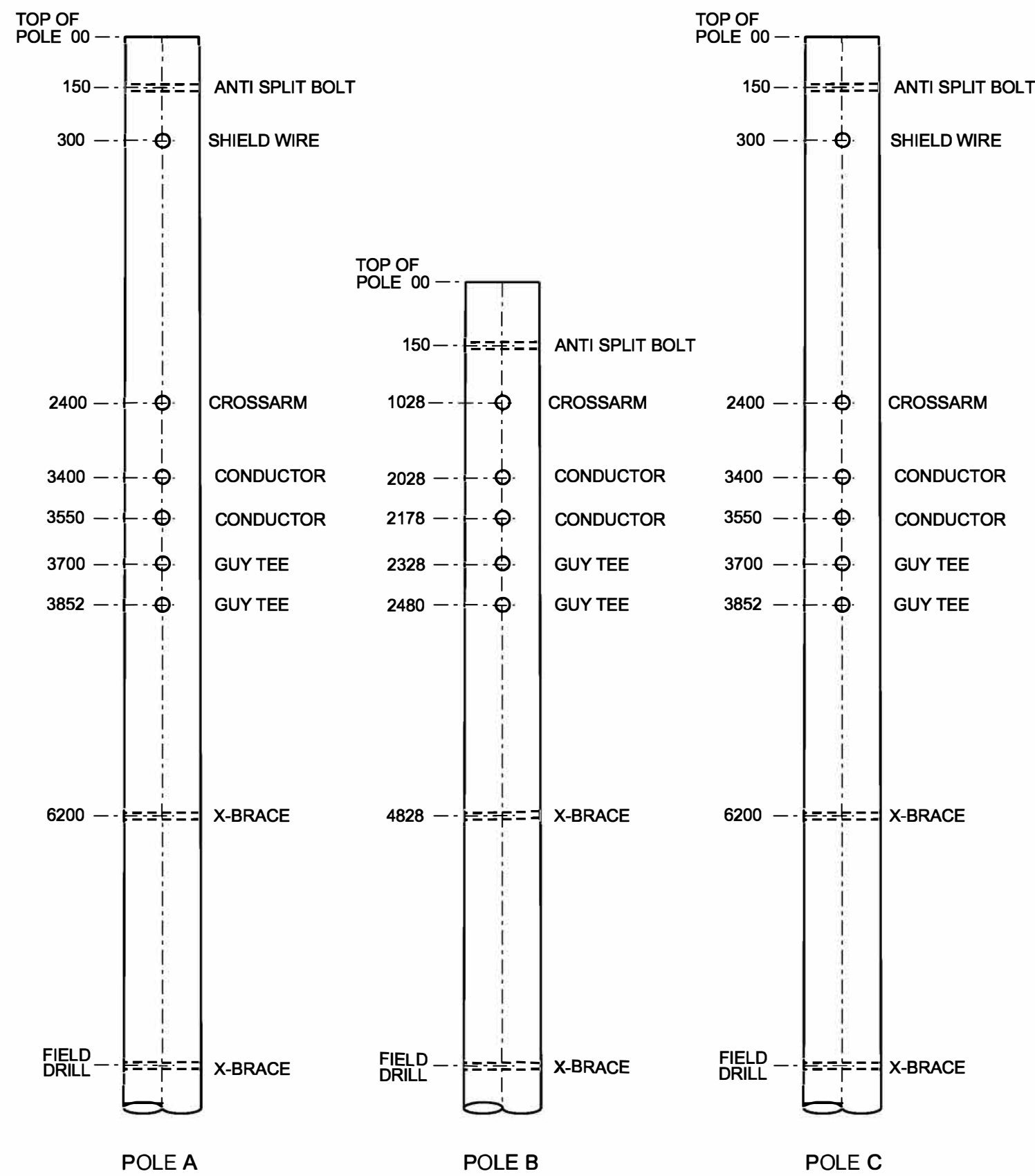
T-5031-1-511-01-002

REV: 0

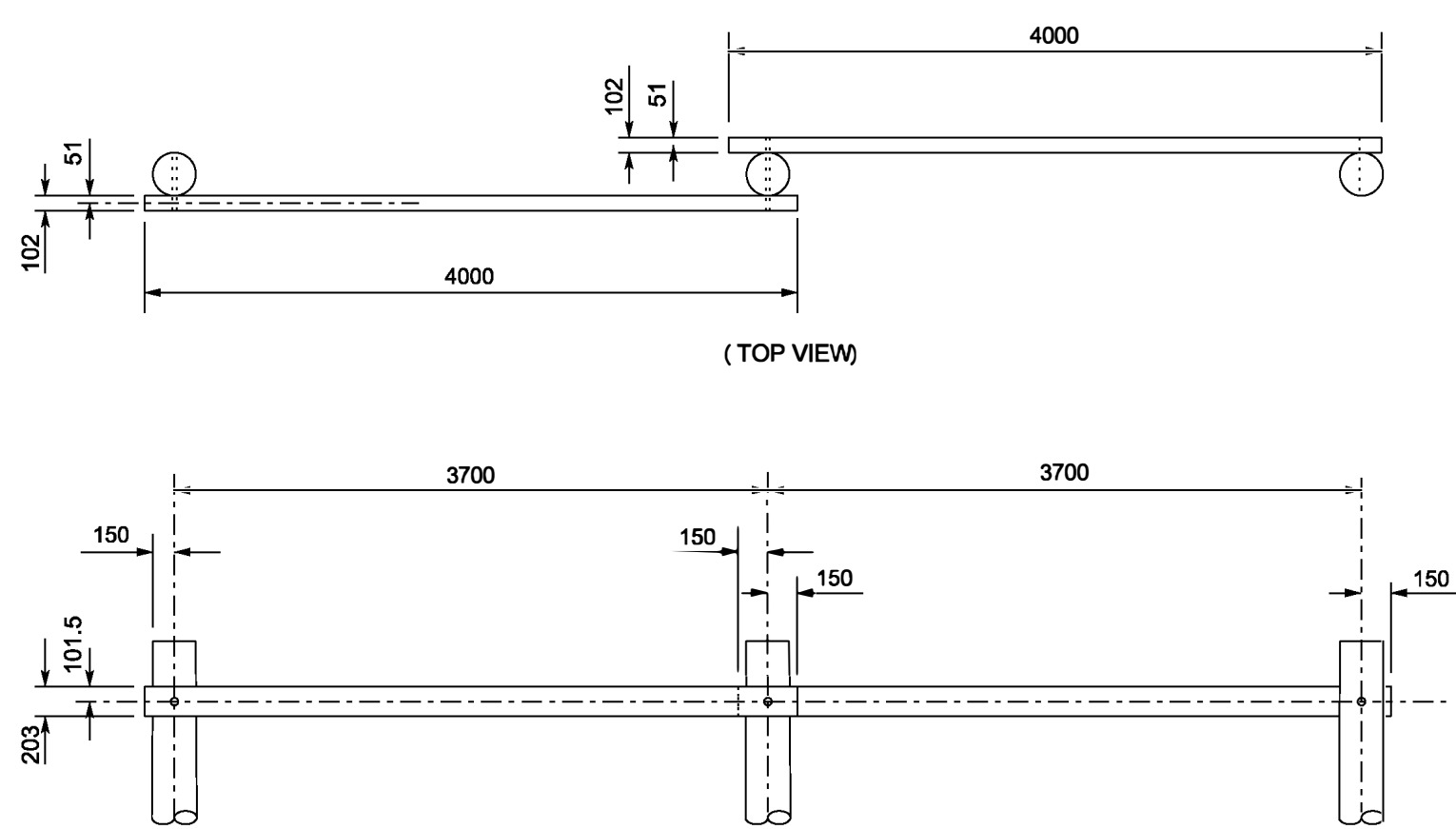
BORDER SIZE:



TOP VIEW
(BOLT DRILL DIRECTION)



POLE DRILLING DETAIL



(ELEVATION VIEW)

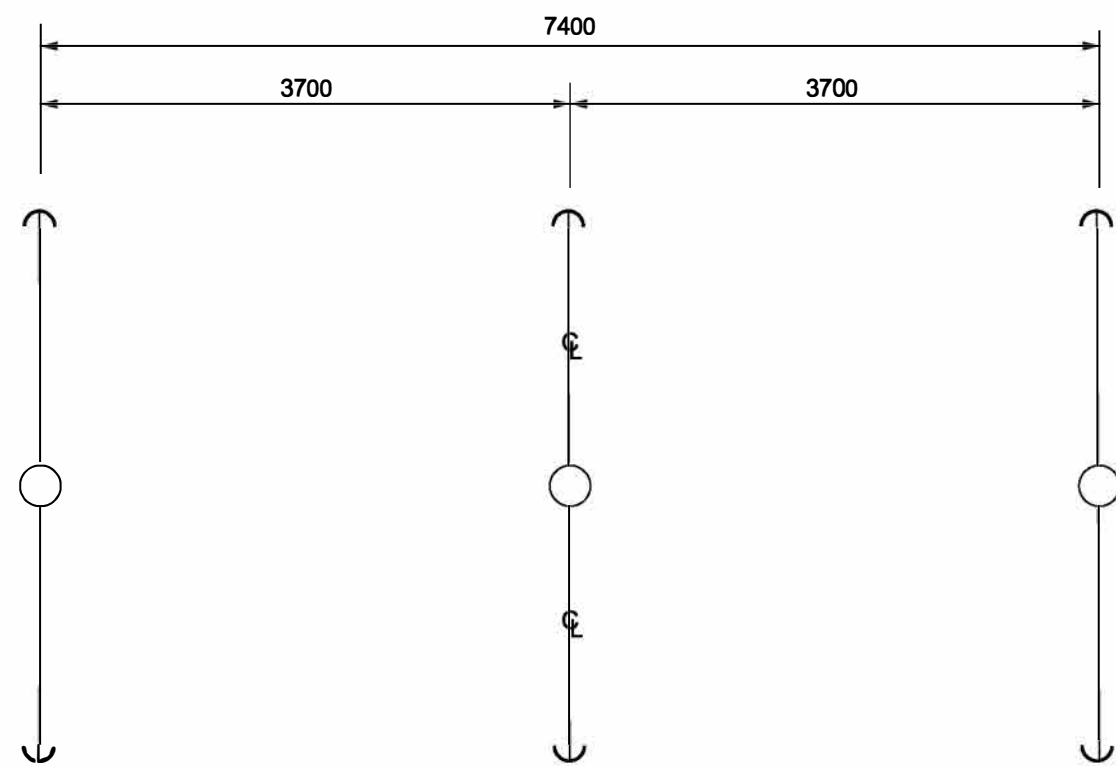
CROSSARM DRILLING



MATERIAL LIST

Transmission Line Structure Type: 138-DT-3(O)(LP)

Material quantity for .		1 Structure(s)
MAXIMO Item No.	QTY.	DESCRIPTION
100332	6	INSULATOR, GUY STRAIN, FIBREGLASS, 96" 21000LB, NSPI SPEC. D-2, 7/16" GUY WIRE
100383	6	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	4	CROSSARM-TIMBER-W:4inXL:17ftL:4in;DOUGLAS FIR,PENTA,NOT DRILLED
100661	AS REQD	WIRE GUY:DIA:5/16inXL:150m;160;GALVANIZED
100662	AS REQD	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	6	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105350	AS REQD	STAPLE INDUSTRIAL-GROUND WIRE MOLDING; W:11/16in;2in;GALVANIZED STEEL
105365	6	CLEVIS BALL .3";INSIDE LENGTH:2.06in;STEEL,GALVANIZED
105368	4	CONNECTOR OVERHEAD WEDGE,RUN CABLE SIZE 2/0AWG,AASC/ACSR,TAP CABLE SIZE 2/0AWG,AASC/ACSR
105416	3	BOLT MACHINE SQUARE;THREAD SIZE: 3/4in;9tpi;UNC,L: 12in;STEEL,GALVANIZED;CSA C83
105900	2	HARDWARE KIT: CROSS BRACING SET
112670	14	BOLT MACHINE SQUARE;THREAD SIZE: 3/4in;9tpi;UNC,L: 16in;STEEL,GALVANIZED;CSA C83
114900	28	GRIP;GUY/PREFORMED,7/16;GREEN GRIP LENGTH 38" - GDE 1108
116749	24	SCREW LAG,FETTER DRIVE/PILOT POINT,SQUARE;THREAD SIZE: 1/2in;L:4in;STEEL,GALVANIZED CSA C83. 101M
116750	6	SCREW LAG;HEXAGONAL;THREAD SIZE:3/4in;L:8in;STEEL,GALVANIZED
119245	32	NUT SQUARE: THREAD SIZE: 3/4in;STEEL, GALVANIZED
119903	6	FASTER, BOLT MACHINE HEAD GALVANIZED, SQUARE, 3/4" X 1/4", CSA STD. C83 ITEM B-3, 25 PER BOX
122273	6	WASHER ID:13/16in;OD 2in;ROUND;STEEL,GALVANIZED;CSA-C83-96
124113	18	CONNECTOR OVERHEAD SERVIT/SPLIT BOLT,RUN CABLE SIZE: 2/0-2AWG;ALUMINUM/COPPER;TAP CABLE SIZE:2/0-8AWG;COPPER
124442	48	CLIP BONDING;7/16in;CARBON STEEL,GALVANIZED
129261	30	WASHER CURVED;ID:13/16in;T:1/4in;W:3in;L:3in;SQUARE;STEEL,GALVANIZED
132350	4	PLATE, CROSSARM, 8" ARM (SET)
132380	3	WASHER-13/16in;T:1/4in;W:3in;L:3in;SQUARE;STEEL,GALVANIZED
137105	2	NUT EYE;OVAL; EYE SIZE: 3/4in;CSA C83;NSPI DRW 261
137106	6	CLEVIS INSULATOR;HOT LINE/SOCKET EXTENSION,INSIDE LENGTH:1-1/2in;PIN DIA: 5/8in;1-1/8in;DUCTILE IRON;HOT DIP GALVANIZED
137107	6	TEE: DEADEND/GUYING;HIGH STRENGTH STEEL
137119	4	SHELL/AMPACT SHELL/BLUE
138889	3	PLATE;POLE BEARING;W:4XL 4XT:1/4in;STEEL,GALVANIZED
138901	10	CLEVIS INSULATOR;DEAD END/THIMBLE;INSIDE LENGTH:2.19in;PIN DIA: 0.62in, 0.75in,24000lb;DUCTILE IRON; GALVANIZED;W/ COTTER BOLT
139206	6	BOLT EYE;SHOULDER;THREAD SIZE: 3/4in;L:14in;STEEL,GALVANIZED;CSA C83.67
139210	1	BOLT MACHINE SQUARE;THREAD SIZE: 3/4in;9tpi;UNC,L: 22in;STEEL,GALVANIZED;CSA C83
191203	6	INSULATOR LINE POST/HORIZONTAL,L CURVED BENDABLE GAIN BASE 1395mm SILICONE RUBBER,VOLTAGE:138kV,STL 22 KN; KL138ASH328
198962	2	LUMBER;DRILLED/CROSSARM;102mm;4000mm;203mm;DRAWING NO.: M2792 - C37
Project Specific Materials		
CUSTOM	6	WASHER, CURVED, RECTANGULAR 3 3/8" x 3 1/2" x 3/8", WITH 1" 3/8" DIAM. HOLE FOR 1" BOLT, HUBBELL CATAGOLD ID 400285029 OR EQUIVALENT
144098	6	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 1" X 10' -0"
177863	6	ANCHOR - LOG; DIA: 8inXL: 5ft CSA TREATED PINE; NOT DRILLED
101400	6	SLEEVE COMPRESSION;556.5MCM;STEEL/ALUMINUM;CABLE MATERIAL:ACSR;STRANDED
137419	60	INSULATOR SUSPENSION DIA:10XL:5-3/4in;GLASS;VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB
124176	3	CLAMP LINEPOST/INSULATOR;0.5-1.06in;ALUMINUM



POLE LAYOUT

NOTES:

1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
5. IF ANY DOUBLE GUYS ARE USED AT THIS STRUCTURE, INSTALL GUY WIRE SPACER CLAMPS ON ALL DOUBLE GUYS AT MIDPOINT BETWEEN GUY GRIPS.
6. GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

ANTI SPLIT BOLT ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	0	2
GUY STRAIN INSULATOR ASSEMBLY	T	5	0	3	1	1	5	5	1	0	1	0	0	1
SINGLE GUY TEE DOUBLE DEADEND ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	0	4
OHSW DEADEND TANGENT ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	1	0
DT-3 TANGENT DEADEND ASSEMBLY GROUNDED (MODIFIED - NO JUMPERS)	T	5	0	3	1	1	5	5	4	0	1	0	1	6
INSULATOR ASSEMBLY - LINE POST - GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	2	0
3 POLE SINGLE CROSS ARM ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	2	4
3 POLE CROSS BRACE ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	2	8
POLE SETTING DETAIL GROUNDED	T	5	0	3	1	1	5	5	3	0	1	0	0	2
LOG ANCHOR SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	3

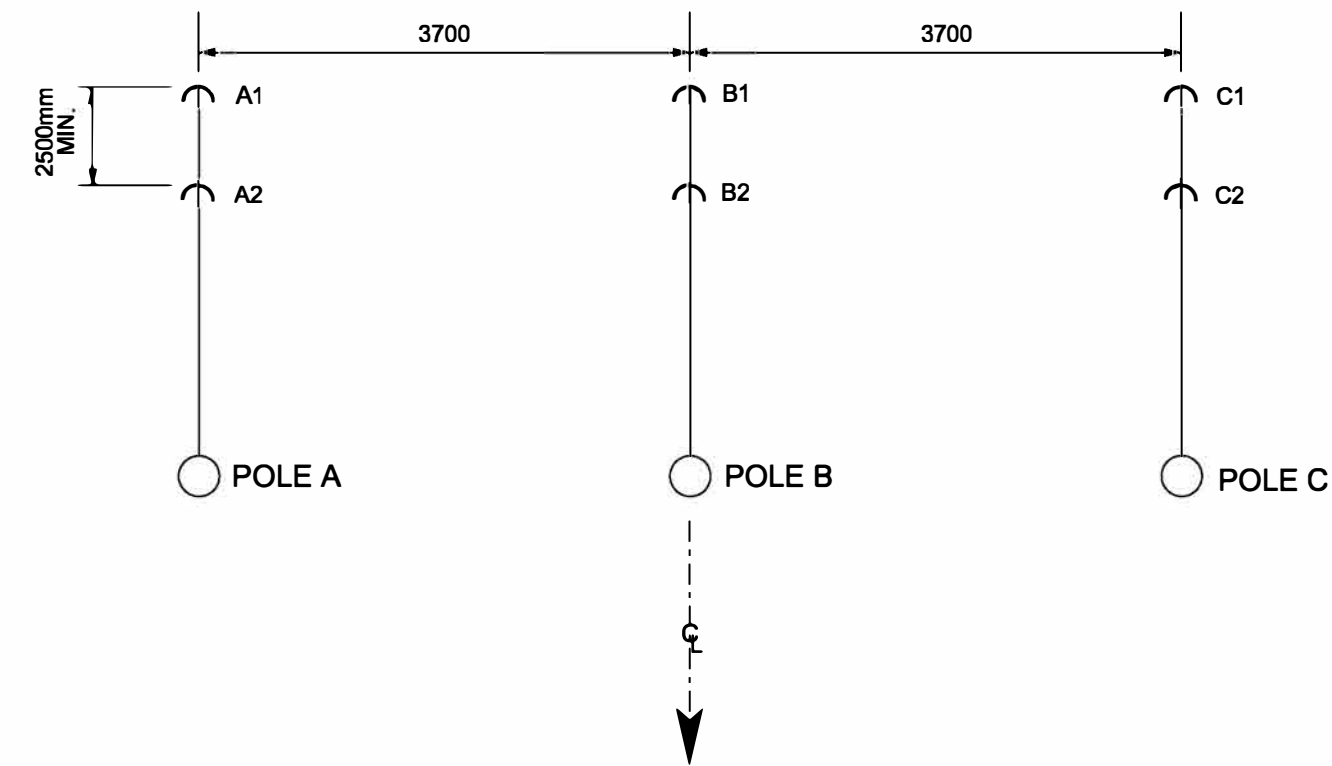
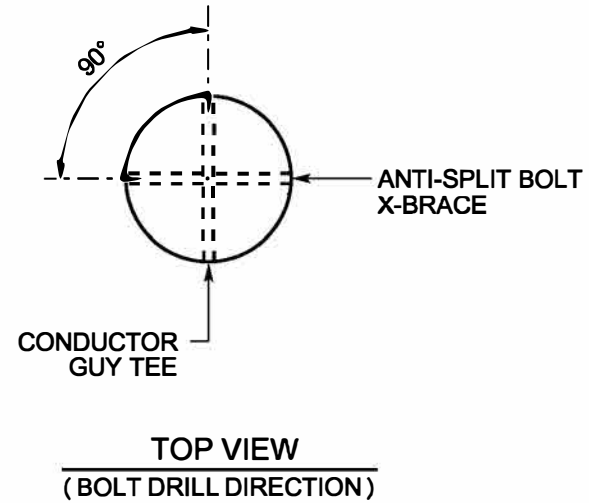
0	DATE: YYYY-MM-DD
REV	BY:
APPROVAL: WO:	
1	DATE: 2019-09-26
REV	BY: J. TUTTY
POLE DRILLING DETAIL PLUS GENERAL REVISIONS	
APPROVAL: WO:	



DEPARTMENTAL APPROVALS	
APPROVED	
DATE	
.....	

SCALE	1:1
UNITS	METRIC
DESIGNED	B. BILKHU
DRAWN	P. HUBLEY
DATE	2019-02-02
W.O.	

 Nova Scotia POWER An Emera Company	
TRANSMISSION AND DISTRIBUTION ENGINEERING	
TRANSMISSION LINE STANDARD STRUCTURE	
STRUCTURE TYPE 138-DT-3(O)(LP)	
T-5031-1-511-01-003	REV. 0

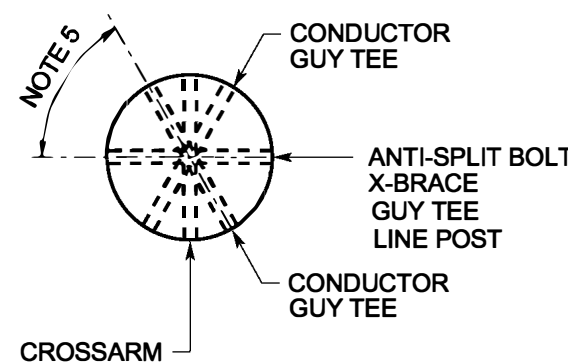
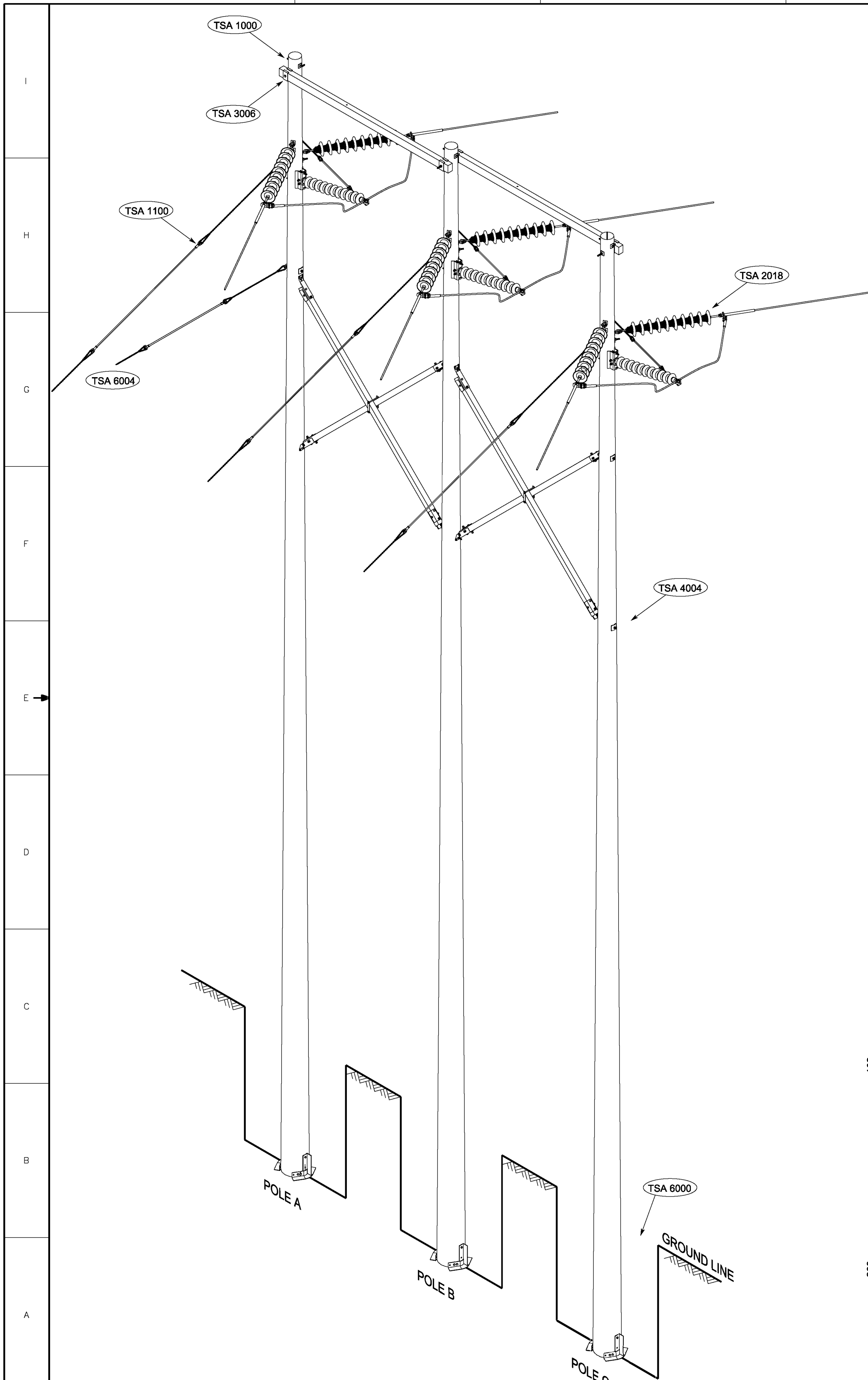


POLE LAYOUT

1. MATERIAL LIST IS BASED ON CLASS 1 POLES, FOR EACH INCREASE TO HIGHER CLASS POLES, INCREASE BOLT LENGTH BY 2 INCHES.
2. NO. OF INSULATOR BELLS AND TYPE OF SYNTHETIC INSULATOR TYPE WILL BE SPECIFIED BY DESIGNER.
3. ALL DRILLING HOLES TO BE 1/8" OVER SIZE NOTED.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
5. DRILLING ANGLE VARIES DEPENDING ON APPLICATION ANGLE TO BE SPECIFIED BY DESIGNER.
6. IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED ELEMENT.
7. GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND.

YY-MM-DD	SEAL	DEPARTMENTAL APPROVALS	SCALE 1:1	 Nova Scotia POWER An Emera Company	TRANSMISSION AND DISTRIBUTION ENGINEERING	TRANSMISSION LINE STANDARD STRUCTURE	STRUCTURE TYPE 138-DB-3 (2G)	T-5031-1-511-01-004	REV. 0
WO:	 133560516.007.21		UNITS						
			METRIC						
			DESIGNED B. BILKHU						
		APPROVED	DRAWN P. HUBLEY						
		DATE	DATE 2019-02-02						
		DATE	W.O.						

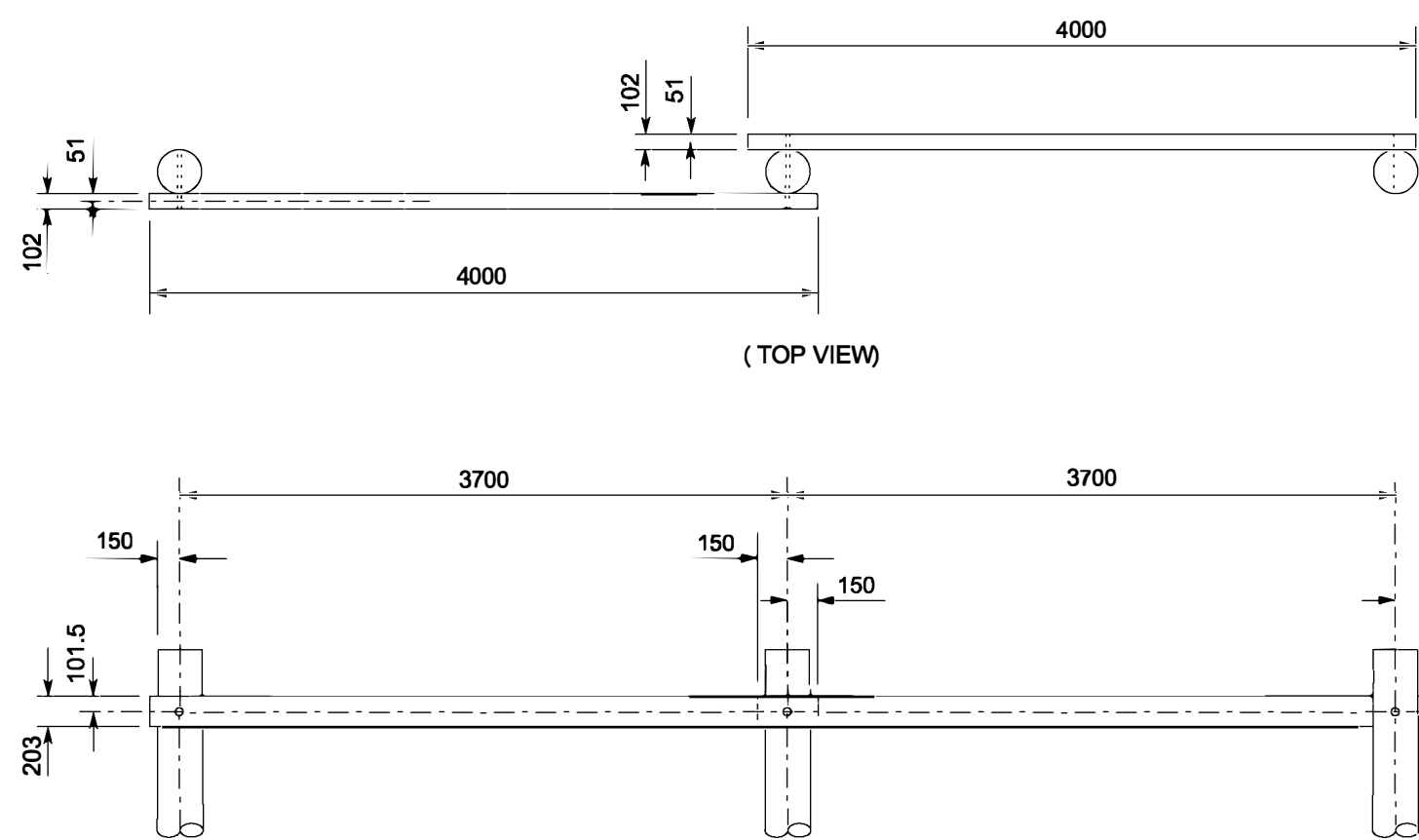
ANTI SPLIT BOLT ASSEMBLY	T	5	0	3	1		1	5	5	4	0	1	0	0	1
GUY STRAIN INSULATOR ASSEMBLY	T	5	0	3	1		1	5	5	1	0	1	0	0	1
INSULATOR DEADEND ASSMBLY (230KV)	T	5	0	3	1		1	5	5	4	0	1	0	1	4
3 POLE CROS BRACE ASSEMBLY	T	5	0	3	1		1	5	5	4	0	1	0	2	7
POLE SETTING DETIAL	T	5	0	3	1		1	5	5	3	0	1	0	0	1
LOG ANCHOR SETTING DETAIL	T	5	0	3	1		1	5	5	3	0	1	0	0	3
REFERENCE DRAWINGS							DWG.NO.								



TOP VIEW
(BOLT DRILL DIRECTION)

TOP OF POLE 00	TOP OF POLE 00	TOP OF POLE 00
150	150	150
300	300	300
1700	1700	1700
1852	1852	1852
2000	2000	2000
2152	2152	2152
2302	2302	2302
FIELD DRILL	FIELD DRILL	FIELD DRILL
4502	4502	4502
4654	4654	4654
FIELD DRILL	FIELD DRILL	FIELD DRILL
POLE A	POLE B	POLE C

POLE DRILLING DETAIL



(ELEVATION VIEW)

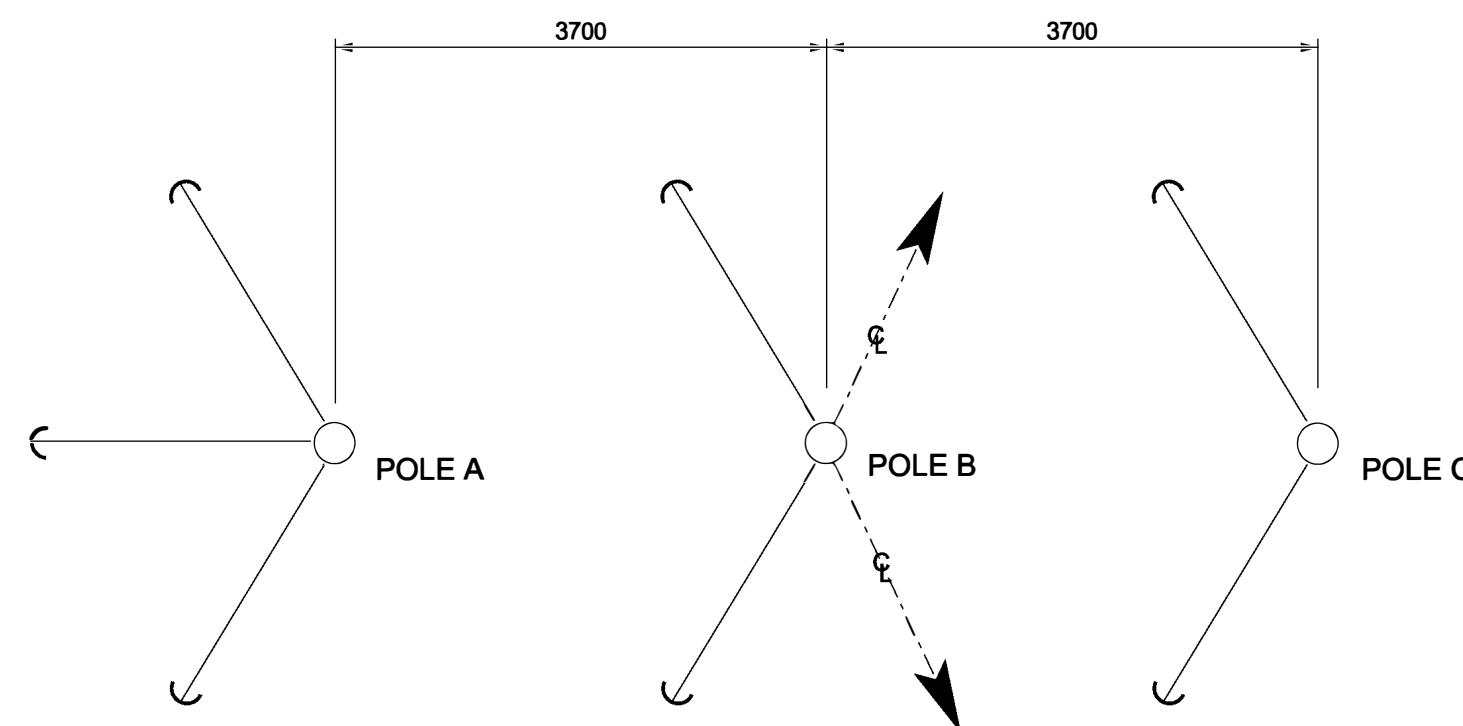
CROSSARM DRILLING



MATERIAL LIST
Transmission Line Structure Type: 138-DA-3(LP)

Material quantity for : 1 Structure(s)

MAXIMO Item No.	QTY.	DESCRIPTION
100332	7	INSULATOR, GUY STRAIN, FIBREGLASS, 96" 21000LB, NSPI SPEC, D-12, 7/16" GUY WIRE
100383	7	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	4	CROSSARM, TIMBER, W: 4in x L: 17ft, T: 4in, DOUGLAS FIR, PENTA, NOT DRILLED
100662	AS REQ'D	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	7	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105365	9	CLEVIS BALL, Y: INSIDE LENGTH: 2.06in, STEEL, GALVANIZED
105416	3	BOLT MACHINE, SQUARE, THREAD SIZE: 3/4in, 9tpi, UNC, L: 12in, STEEL, GALVANIZED, CSA C83
105900	2	HARDWARE KIT: CROSS BRACING SET
112670	9	BOLT MACHINE, SQUARE, THREAD SIZE: 3/4in, 9tpi, UNC, L: 16in, STEEL, GALVANIZED, CSA C83
114900	28	GRIP, GUY/PREFORMED, 7/16, GREEN GRIP LENGTH 38" - GDE 1108
114914	2	NUT SQUARE: THREAD SIZE: 1/2in, STEEL, GALVANIZED
116749	24	SCREW LAG, FETTER DRIVE/PILOT POINT, SQUARE, THREAD SIZE: 1/2in, L: 4in, STEEL, GALVANIZED CSA C83, 101M
116750	6	SCREW LAG, HEXAGONAL, THREAD SIZE: 3/4in, L: 8in, STEEL, GALVANIZED
119245	31	NUT SQUARE: THREAD SIZE: 3/4in, STEEL, GALVANIZED
119903	6	FASTENER, BOLT MACHINE HEAD GALVANIZED, SQUARE, 3/4" X 14", CSA STD. C83 ITEM B-3, 25 PER BOX
122273	6	WASHER, ID: 13/16in, OD: 2in, ROUND, STEEL, GALVANIZED, CSA-C83-96
129261	26	WASHER, CURVED, ID: 13/16in, T: 1/4in, W: 3in, L: 3in, SQUARE, STEEL, GALVANIZED
132350	4	PLATE, CROSSARM, 8" ARM (SET)
137106	6	CLEVIS INSULATOR, HOT LINE/SOCKET EXTENSION, INSIDE LENGTH: 1-1/2in, PIN DIA: 5/8in, 1-1/8in, DUCTILE IRON, HOT DIP GALVANIZED
137107	7	TEE: DEADEND/GUYING, HIGH STRENGTH STEEL
138889	3	PLATE, POLE BREARING, W: 4XL: 4XT: 1/4in, STEEL, GALVANIZED
138901	7	CLEVIS INSULATOR, DEAD END/THIMBLE, INSIDE LENGTH: 2.19in, PIN DIA: 0.62in, 0.75in, 24000lb, DUCTILE IRON, GALVANIZED, W/ COTTER BOLT
139206	6	BOLT EYE, SHOULDER, THREAD SIZE: 3/4in, L: 14in, STEEL, GALVANIZED, CSA C83, 67
139210	1	BOLT MACHINE, SQUARE, THREAD SIZE: 3/4in, 9tpi, UNC, L: 22in, STEEL, GALVANIZED, CSA C83
191203	3	INSULATOR, LINE POST/HORIZONTAL, L: CURVED BENDABLE GAIN BASE 1395mm SILICONE RUBBER, VOLTAGE: 138kV, STL 22.2 KN, KL 138ASHB328
198982	2	LUMBER, DRILLED/CROSSARM: 102mm, 4000mm, 203mm, DRAWING NO.: M279Z - C37
Project Specific Materials		
CUSTOM	7	WASHER, CURVED, RECTANGULAR 3 3/8" x 3 1/2" x 3/8", WITH 1 1/8" DIA. HOLE FOR 1" BOLT, HUBBELL CATAGOLD ID 400285029 OR EQUIVALENT
144098	7	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 1" X 10' -0"
101400	6	SLEEVE, COMPRESSION: 556.5MCM, STEEL/ALUMINUM, CABLE MATERIAL: ACSR, STRANDED
137419	60	INSULATOR, SUSPENSION, DIA: 10XL: 5-3/4in, GLASS, VOLTAGE: 130kV, ANSI 52-5, CAPACITY: 120KN/25000LB
124176	3	CLAMP, LINEPOST/INSULATOR, 0.5-1.06in, ALUMINUM
177863	7	ANCHOR : LOG, DIA: 8in x L: 5ft CCA TREATED PINE; NOT DRILLED



POLE LAYOUT

NOTES:

1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
5. IF DOUBLE GUYS ARE USED ON THIS STRUCTURE, INSTALL GUY WIRE SPACER CLAMPS ON ALL DOUBLE GUYS AT MIDPOINT BETWEEN GUY GRIPS.
6. GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

ANIT SPLIT BOLT ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	0	1
GUY STRAIN INSULATOR ASSEMBLY	T	5	0	3	1	1	5	5	1	0	1	0	0	1
DHA-3 DEADEND INSUTLATOR ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	1	1
3 POLE SINGLE CROSS ARM ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	2	3
3 POLE CROSS BRACE ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	2	7
POLE SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	1
LOG ANCHOR SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	3

REFERENCE DRAWINGS

DWG.NO.

DATE: YYYY-MM-DD
BY:

APPROVAL: WO:
1 REV: J. TUTTY
GENERAL REVISIONS

APPROVAL: WO:

SEAL



133560516.007.21

DEPARTMENTAL APPROVALS

APPROVED

DATE

SCALE

1:1

UNITS

METRIC

DESIGNED

B. BILKHU

DRAWN

P. HUBLEY

DATE

2019-02-02

W.O.



TRANSMISSION AND DISTRIBUTION ENGINEERING
TRANSMISSION LINE STANDARD STRUCTURE

STRUCTURE TYPE 138-DA-3(LP)

T-5031-1-511-01-005

REV. 0

BORDER SIZE:

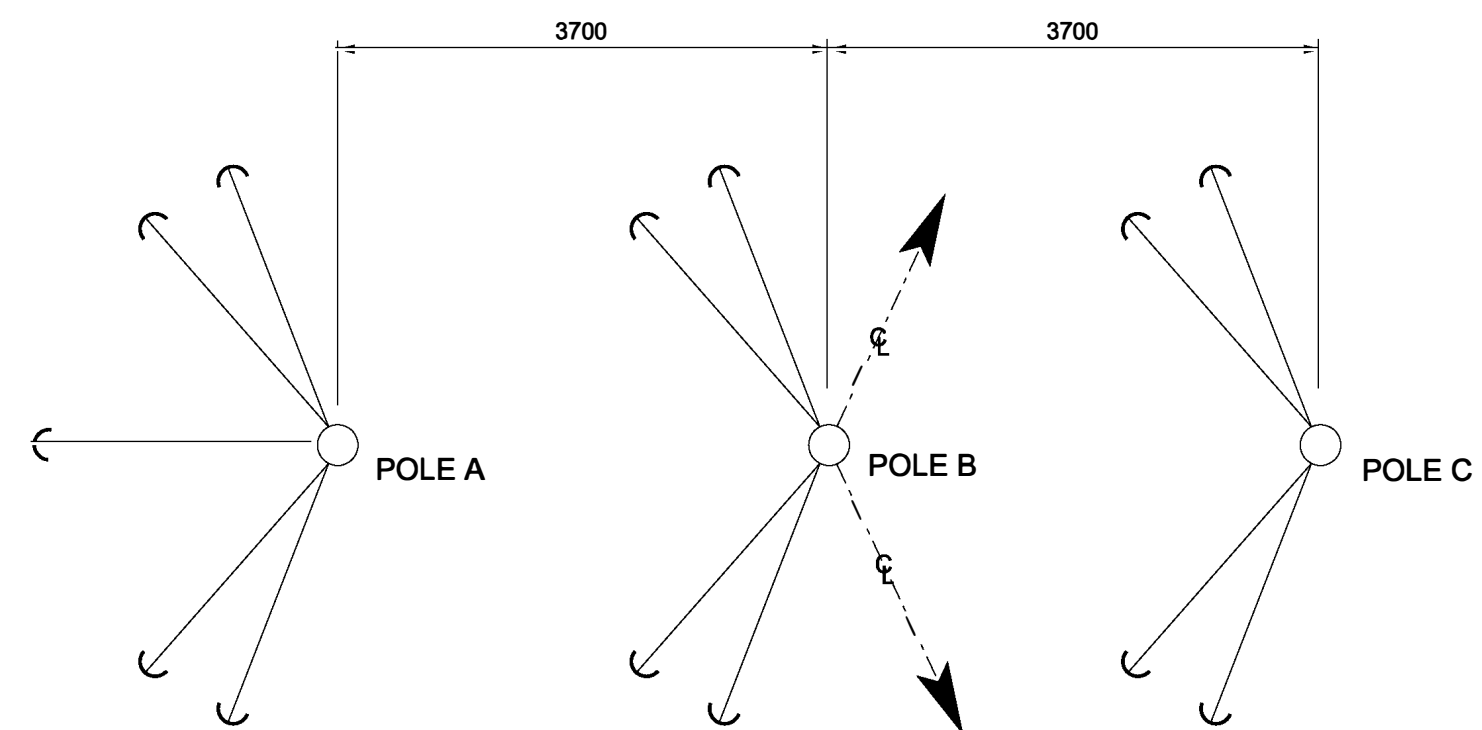


TOP OF POLE 00	POLE 00	TOP OF POLE 00	POLE 00	TOP OF POLE 00	POLE 00
150	ANTI SPLIT BOLT	150	ANTI SPLIT BOLT	150	ANTI SPLIT BOLT
300	CROSSARM	300	CROSSARM	300	CROSSARM
1700	CONDUCTOR	1700	CONDUCTOR	1700	CONDUCTOR
1852	GUY TEE	1852	GUY TEE	1852	GUY TEE
2000	CONDUCTOR	2000	CONDUCTOR	2000	CONDUCTOR
2152	GUY TEE	2152	GUY TEE	2152	GUY TEE
2302	LINE POST	2302	LINE POST	2302	LINE POST
FIELD DRILL	LINE POST	FIELD DRILL	LINE POST	FIELD DRILL	LINE POST
4502	GUY TEE	4502	GUY TEE	4502	GUY TEE
4654	X-BRACE TOP	4654	X-BRACE TOP	4654	X-BRACE TOP
FIELD DRILL	X-BRACE BOT	FIELD DRILL	X-BRACE BOT	FIELD DRILL	X-BRACE BOT
POLE A		POLE B		POLE C	

POLE DRILLING DETAIL



CROSSARM DRILLING



POLE LAYOUT

1. GUY STRAIN INSULATOR NOT REQUIRED AT MARKED LOCATION NEAR X-BRACE.
2. MATERIAL LIST IS BASED ON CLASS 1 POLES. LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
3. NO. OF INSULATOR BELLS AND TYPE OF SYNTHETIC INSULATOR TYPE WILL BE SPECIFIED BY DESIGNER.
4. DRILLING NOTES SHALL BE 12" MINIMUM UNLESS OTHERWISE NOTED.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
6. DRILLING ANGLE VARIES DEPENDING ON APPLICATION ANGLE TO BE SPECIFIED BY DESIGNER.
7. IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED AT THE FOLLOWING DISTANCE FROM THE GUY ATTACHMENT POINT.
8. GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

MATERIAL LIST
Transmission Line Structure Type: 138-DA-3(LP)(2G)

Material quantity for ,		1 Structure(s)
MAXIMO Item No.	QTY.	DESCRIPTION
100332	12	INSULATOR, GUY STRAIN, FIBREGLOSS, 96" 21000LB, NSPI SPEC. D-I-2, 7/16" GUY WIRE
100383	13	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	4	CROSSARM:TIMBER:W:4inXL:17ft:T:4inDOUGLAS FIR:PENTA:NOT DRILLED
100662	AS REQD	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	12	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105365	9	CLEVIS BALL :Y:INSIDE LENGTH:2.06in:STEEL:GALVANIZED
105416	3	BOLT MACHINE:SQUARE:THREAD SIZE :3/4in:9tpi:UNC:L: 12in:STEEL,GALVANIZED:CSA C83
105900	2	HARDWARE KIT: CROSS BRACING SET
112670	18	BOLT MACHINE:SQUARE:THREAD SIZE: 3/4in:9tpi:UNC:L: 16in:STEEL:GALVANIZED:CSA C83
114900	38	GRIP: GUY/PREFORMED, 7/16, GREEN GRIP LENGTH 38" - GDE 1108
114914	2	NUT SQUARE: THREAD SIZE: 1/2in:STEEL,GALVANIZED
116749	24	SCREW LAG:FETTER DRIVE/PILOT POINT:SQUARE:THREAD SIZE:1/2in:L:4in:STEEL:GALVANIZED CSA C83. 101M
116750	6	SCREW LAG: HEXAGONAL :THREAD SIZE: 3/4in:L: 8in:STEEL,GALVANIZED
119245	31	NUT SQUARE: THREAD SIZE: 3/4in: STEEL, GALVANIZED
119903	6	FASTENER, BOLT MACHINE HEAD GALVANIZED, SQUARE, 3/4" X 14", CSA STD. C83 ITEM B-3, 25 PER BOX
122273	6	WASHER ID: 13/16in:OD: 2in:ROUND:STEEL,GALVANIZED:CSA-C83-96
129261	28	WASHER CURVED :ID: 13/16in:T:1/4in:W: 3in:L: 3in: SQUARE:STEEL,GALVANIZED
132350	4	PLATE, CROSSARM, 8" ARM (SET)
137106	6	CLEVIS INSULATOR:HOT LINE/SOCKET EXTENSION;INSIDE LENGTH:1-1/2in:PIN DIA:5/8in;1-1/8in:DUCTILE IRON:HOT DIP GALVANIZED
177169	7	TEE: DOUBLE GUY
138889	3	PLATE:POLE BREARING:W:4XL:4XT:1/4in:STEEL,GALVANIZED
138901	7	CLEVIS INSULATOR:DEAD END/THIMBLE;INSIDE LENGTH:2.19in;PIN DIA:0.62in,0.75in,24000lb;DUCTILE IRON,GALVANIZED,W/ COTTTER BOLT
139206	6	BOLT EYE: SHOULDER:THREAD SIZE: 3/4in:L: 14in:STEEL,GALVANIZED:CSA C83 67
139210	1	BOLT MACHINE:SQUARE:THREAD SIZE: 3/4in:9tpi:UNC:L: 22in:STEEL,GALVANIZED:CSA C83
191203	3	INSULATOR:LINE POST/HORIZONTAL:L:CURVED BENDABLE GAIN BASE 1395mm SILICON RUBBER:VOLTAGE:138kV,STL 22 K; KL:138ASH328
198982	2	LUMBER:DRILLED/CROSSARM;102mm;4000mm;203mm;DRAWING NO.: M2792 - C37
Project Specific Materials		
CUSTOM	13	WASHER, CURVED, RECTANGULAR 3 3/8" x 3 1/2" x 3/8", WITH 1 1/8" DIAM. HOLE FOR 1" BOLT, HUBBELL CATAGOLD ID 400285029 OR EQUIVALENT
144098	13	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 1" x 10' -0"
104100	6	SLEEVE COMPRESSION:556.5MCM;STEEL/ALUMINUM;CABLE MATERIAL:ACSR,STRANDED
137419	60	INSULATOR:SUSPENSION;DIA:10XL:5-3/4in;GLASS;VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB
124176	3	CLAMP:LINEPOST/INSULATOR:0.5-1.06in;ALUMINUM
177863	7	ANCHOR : LOG; DIA: 8inXL: .5ft CCA TREATED PINE, NOT DRILLED

ANIT SPLIT BOLT ASSEMBLY	T 5 0 3 1	1 5 5 4	0 1 0 0 1
GUY STRAIN INSULATOR ASSEMBLY	T 5 0 3 1	1 5 5 1	0 1 0 0
INSULATOR ASSEMBLY DEADEND ANGLE - DOUBLE GUY TEE	T 5 0 3 1	1 5 5 4	0 1 0 0 5
INSULATOR ASSEMBLY - LINE POST	T 5 0 3 1	1 5 5 4	0 1 0 1 9
3 POLE SINGLE CROSS ARM ASSEMBLY	T 5 0 3 1	1 5 5 4	0 1 0 2 3
3 POLE CROSS BRACE ASSEMBLY	T 5 0 3 1	1 5 5 4	0 1 0 2 7
POLE SETTING DETAIL	T 5 0 3 1	1 5 5 3	0 1 0 0 1
LOG ANCHOR SETTING DETAIL	T 5 0 3 1	1 5 5 3	0 1 0 0 3

REFERENCE DRAWINGS	DWG.NO.
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0	DATE: YYYY-MM-DD
REV	BY:
APPROVAL: WO:	
1	DATE: 2019-10-30
REV	BY: J. TUTTY
GENERAL REVISIONS	
APPROVAL: WO:	



DEPARTMENTAL APPROVALS	
APPROVED	
DATE	
.....	

SCALE	1:1
UNITS	METRIC
DESIGNED	B. BILKHU
DRAWN	P. HUBLEY
DATE	2019-02-02
W.O.	

 Nova Scotia POWER An Emera Company	
TRANSMISSION AND DISTRIBUTION ENGINEERING	
TRANSMISSION LINE STANDARD STRUCTURE	
STRUCTURE TYPE 138-DA-3 (LP)(2G)	
T-5031-1-511-01-006	REV. 0



1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
5. IF DOUBLE GUYS ARE USED ON THIS STRUCTURE, INSTALL GUY WIRE SPACER CLAMPS ON ALL DOUBLE GUYS AT MIDPOINT BETWEEN GUY GRIPS.
6. GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

REFERENCE DRAWINGS

DWG.NO.

APPROVAL:	
1	DATE: 2019-10-30
REV	BY: J. TUTTY
GENERAL REVISIONS	

2021.09.27
B. Cristescu
20200301

APPROVED _____

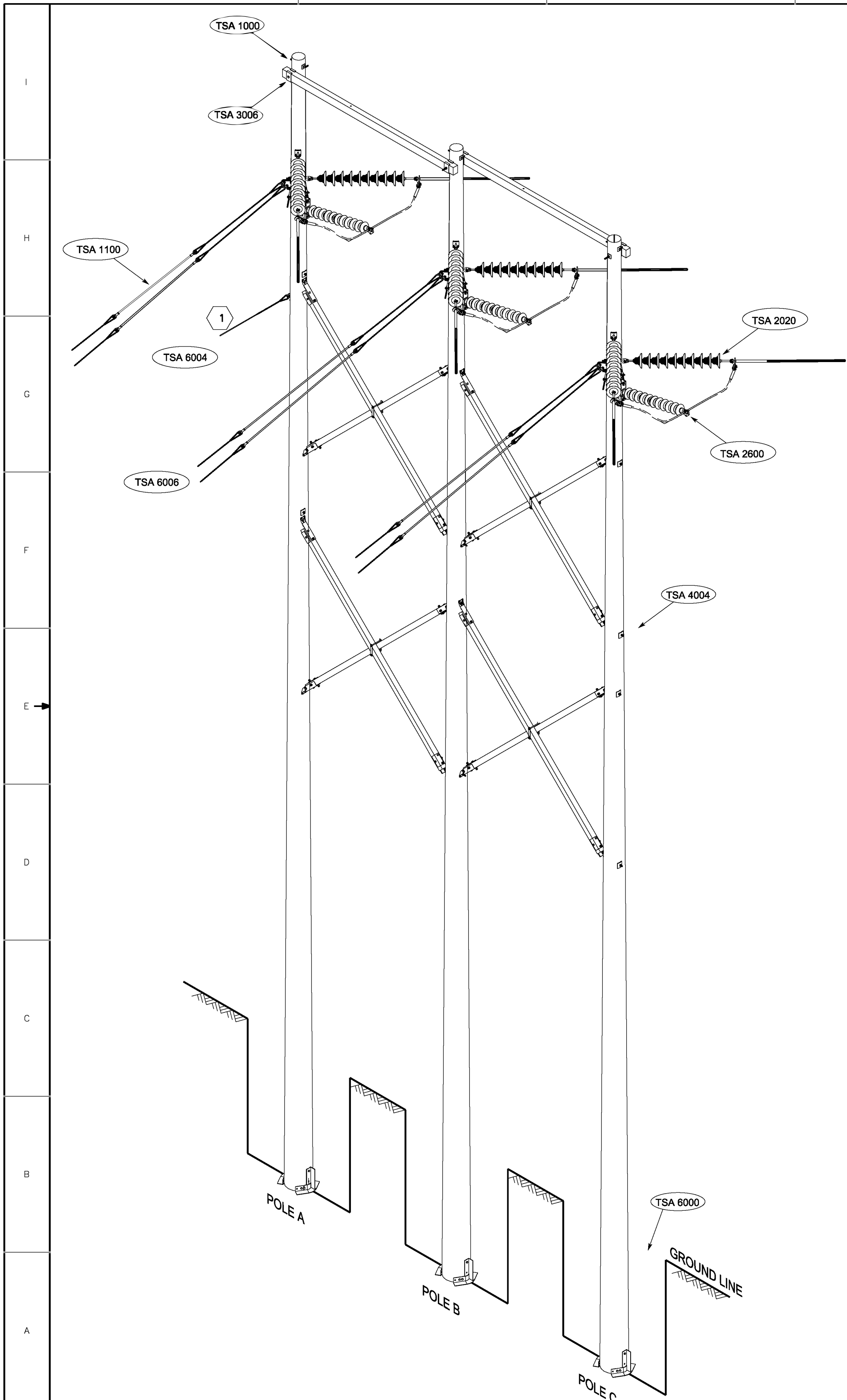
UNITS	
METRIC	
DESIGNED	B. BILK
DRAWN	P. HUB
DATE	2019-0
W.O.	

 Nova Scotia
POWER
An Emera Company

STRUCTURE TYPE 138-DA-3 (LP)(2XB)

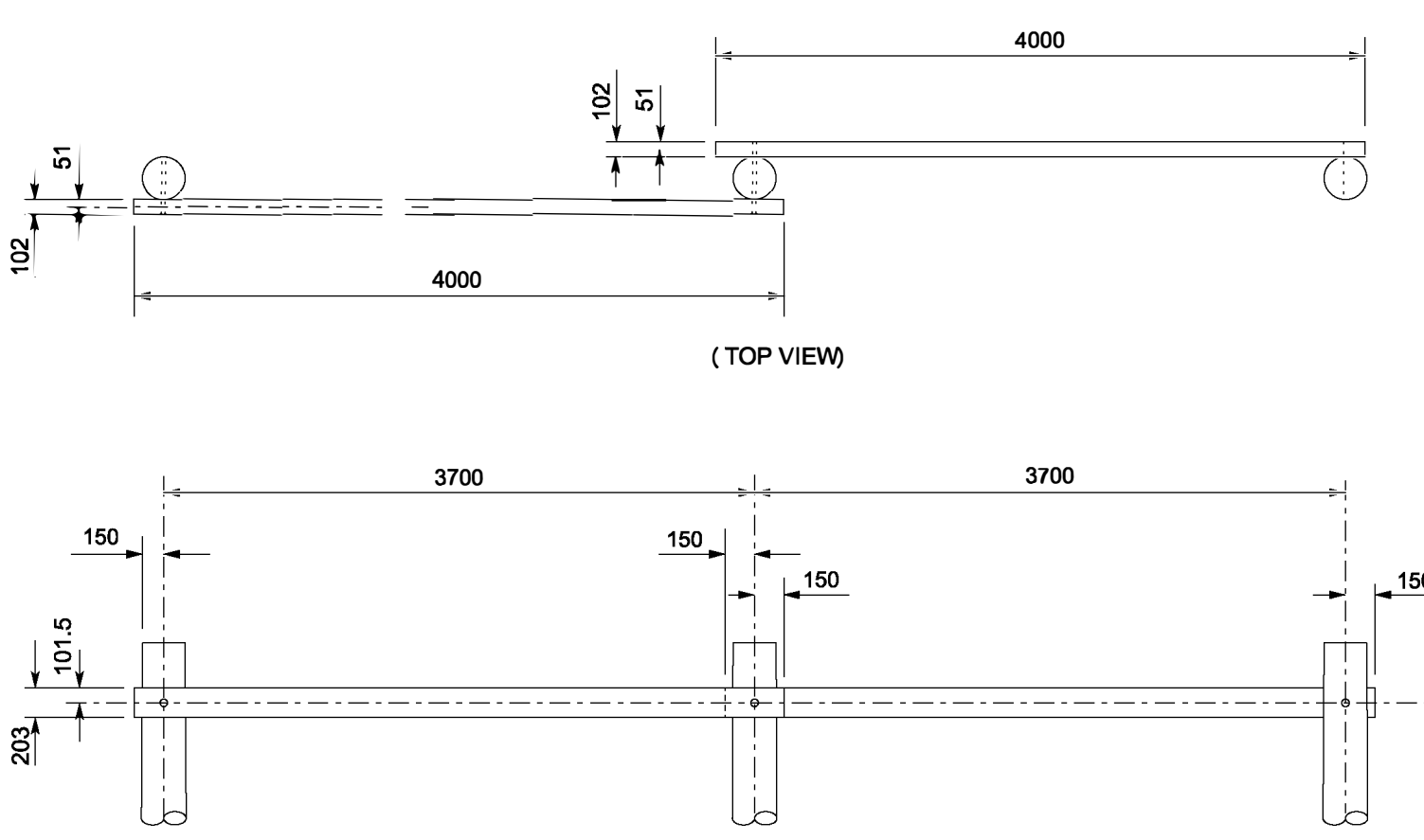
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REV. 0

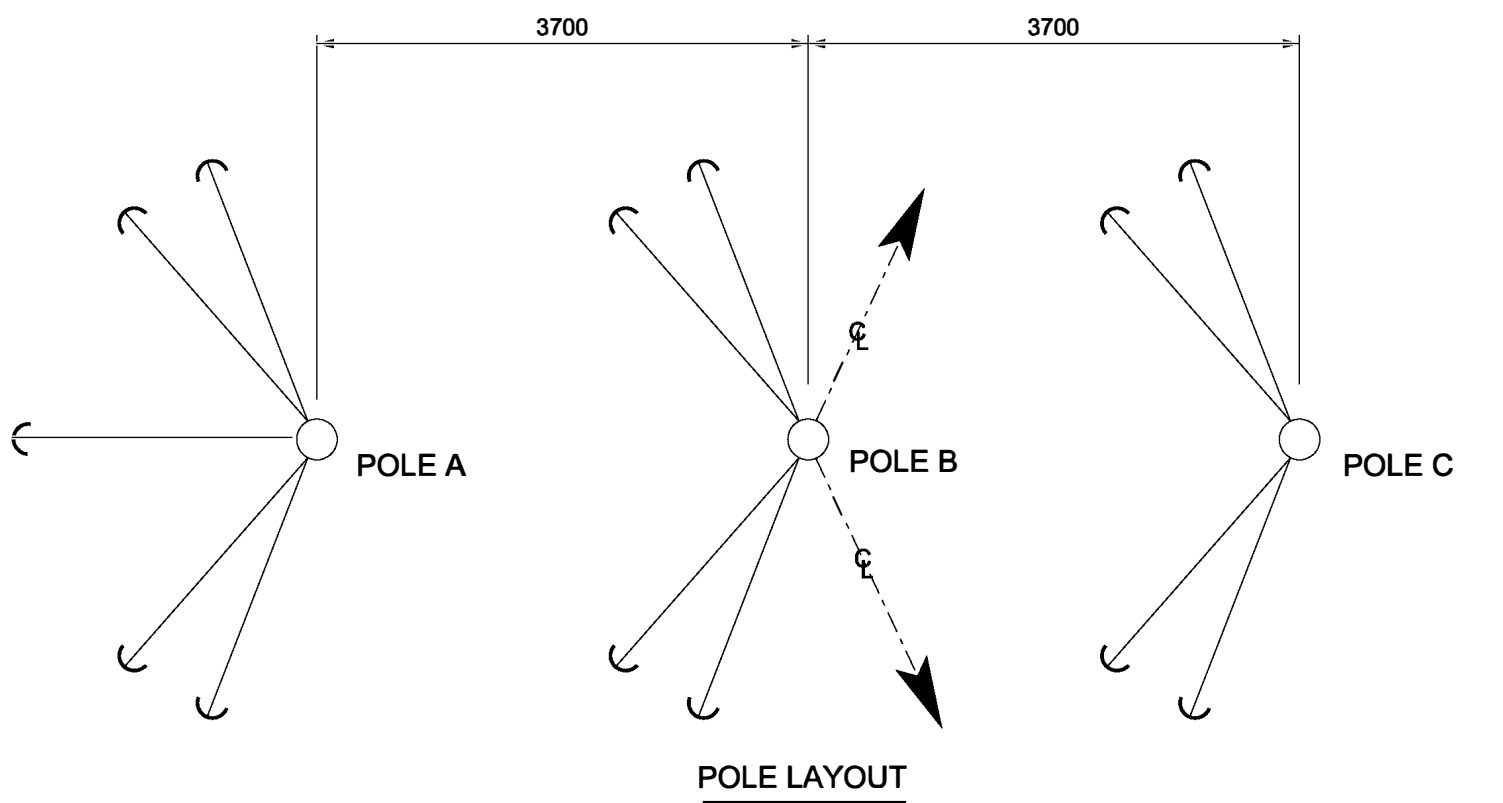
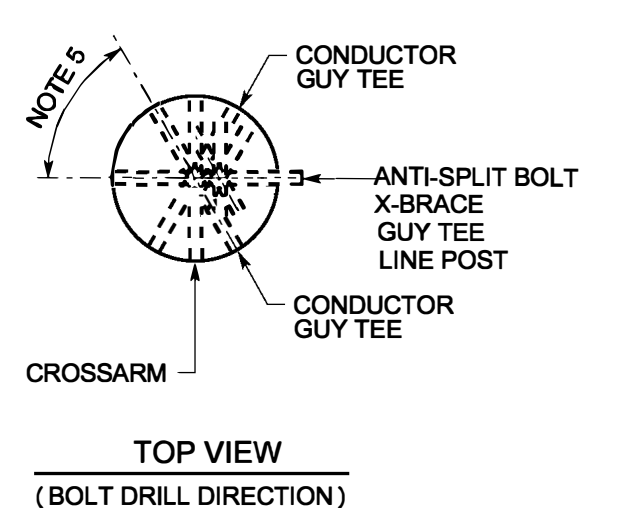


TOP OF POLE 00	TOP OF POLE 00	TOP OF POLE 00
150	150	150
300	300	300
1700	1700	1700
1852	1852	1852
2000	2000	2000
2152	2152	2152
2302	2302	2302
FIELD DRILL	FIELD DRILL	FIELD DRILL
4502	4654	4654
4654	4654	4654
FIELD DRILL	FIELD DRILL	FIELD DRILL
8654	8654	8654
FIELD DRILL	FIELD DRILL	FIELD DRILL
POLE A	POLE B	POLE C

POLE DRILLING DETAIL



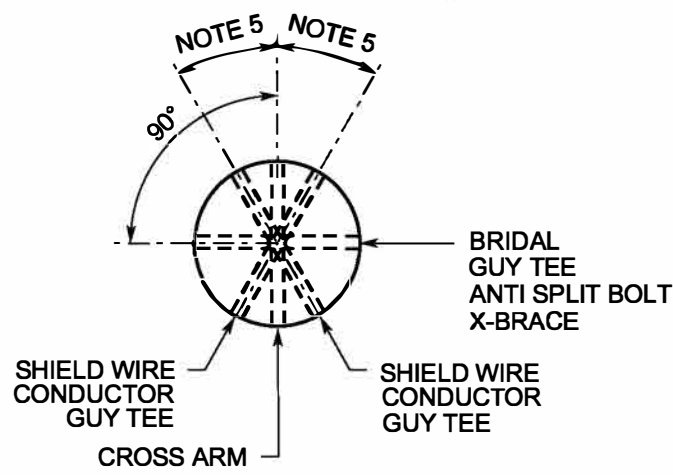
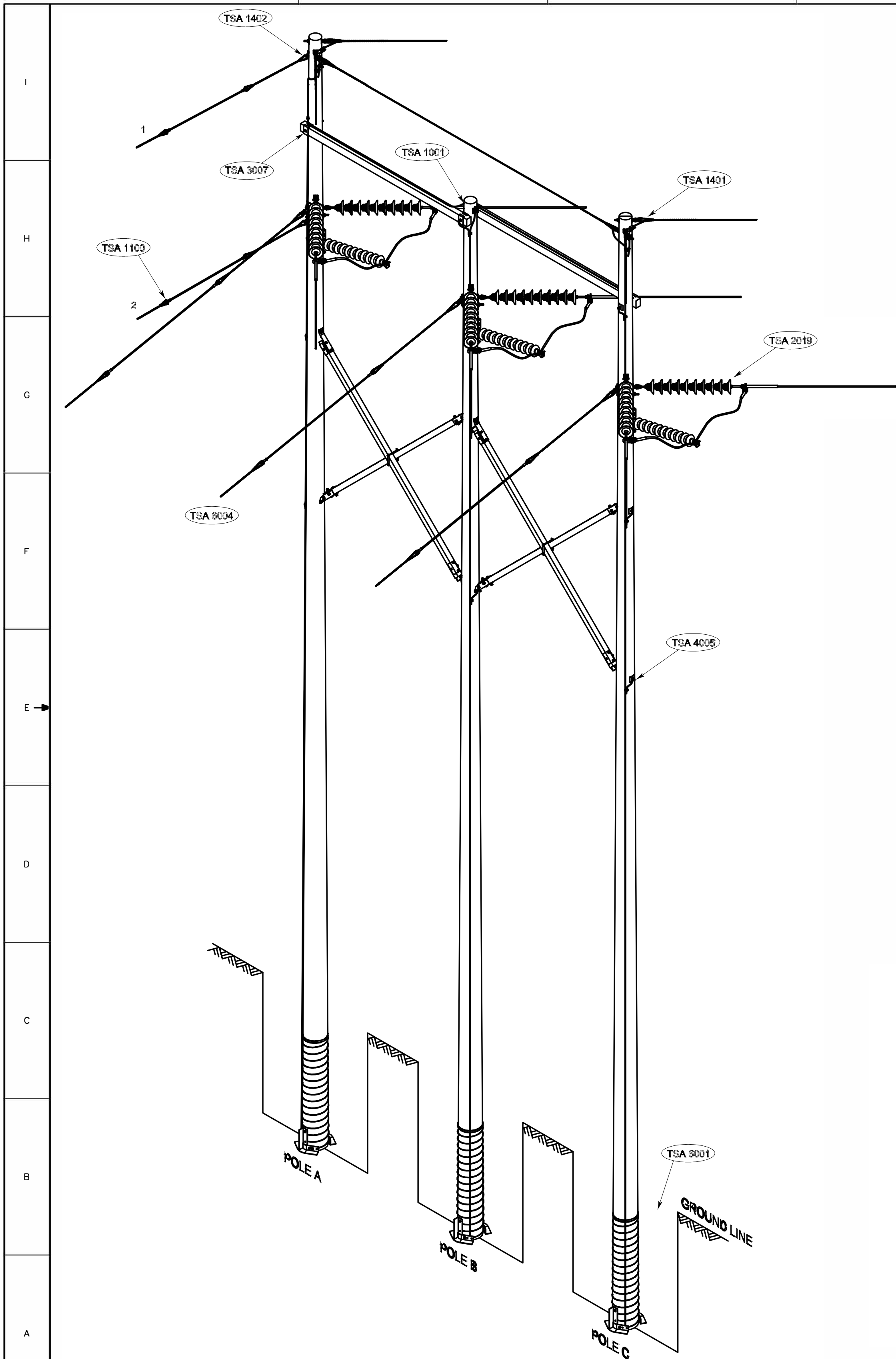
CROSSARM DRILLING



- NOTES:
- GUY STRAIN INSULATOR NOT REQUIRED AT MARKED LOCATION NEAR X-BRACE.
 - MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
 - NO. OF INSULATOR BELLS AND TYPE OF SYNTHETIC INSULATOR TYPE WILL BE SPECIFIED BY DESIGNER.
 - ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
 - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
 - DRILLING ANGLE VARIES DEPENDING ON APPLICATION ANGLE TO BE SPECIFIED BY DESIGNER.
 - IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
 - GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

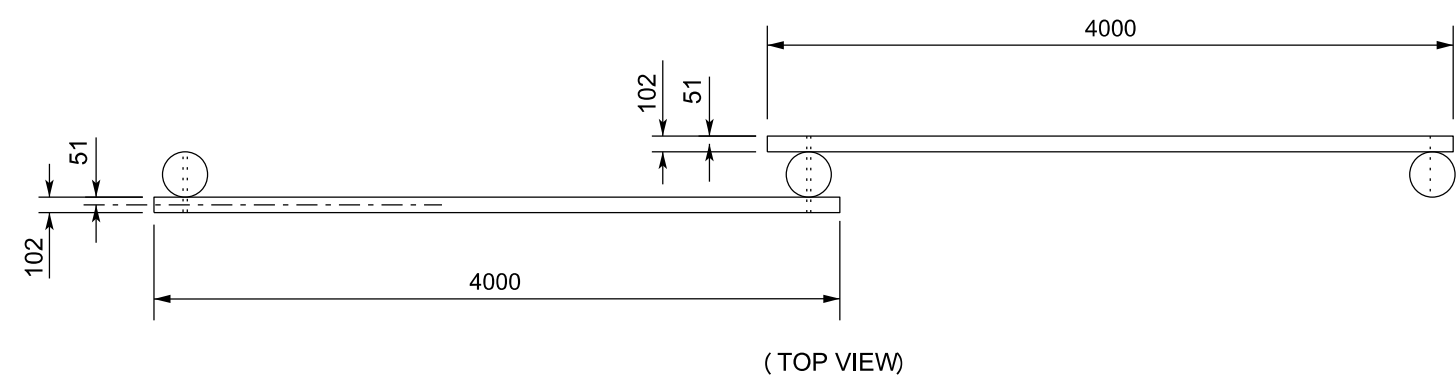
MATERIAL LIST		
Transmission Line Structure Type: 138-DA-3(LP)(2XB)(2G)		
Material quantity for : 1 Structure(s)		
MAXIMO Item No.	QTY.	DESCRIPTION
100332	12	INSULATOR, GUY STRAIN, FIBREGLASS, 96" 21000LB, NSPI SPEC. D-I-2, 7/16" GUY WIRE
100383	13	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	4	CROSSARM-TIMBER;W:4inXL:17ft,T:4in;DOUGLAS FIR,PENTA;NOT DRILLED
100662	AS REQ'D	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	12	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105365	9	CLEVIS BALL :Y;INSIDE LENGTH:2.06in;STEEL;GALVANIZED
105416	3	BOLT MACHINE-SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:12in;STEEL;GALVANIZED;CSA C83
105900	4	HARDWARE KIT: CROSS BRACING SET
112670	19	BOLT MACHINE-SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:16in;STEEL;GALVANIZED;CSA C83
114900	38	GRIP;GUY/PREFORMED,7/16,GREEN GRIP LENGTH 38" - GDE 1108
114914	2	NUT SQUARE: THREAD SIZE: 1/2in;STEEL;GALVANIZED
116749	24	SCREW LAG;FETTER DRIVE/PILOT POINT;SQUARE;THREAD SIZE:1/2in;L:4in;STEEL;GALVANIZED CSA C83.101M
116750	6	SCREW LAG;HEXAGONAL;THREAD SIZE:3/4in;L:8in;STEEL;GALVANIZED
119245	34	NUT SQUARE: THREAD SIZE: 3/4in;STEEL, GALVANIZED
119903	6	FASTENER, BOLT MACHINE HEAD GALVANIZED, SQUARE, 3/4" X 14", CSA STD. C83 ITEM B-3, 25 PER BOX
122273	6	WASHER;ID:13/16in;OD:2in;ROUND;STEEL;GALVANIZED, CSA-C83-96
129261	32	WASHER;CURVED;ID:13/16in;T:1/4in;W:3in;L:3in; SQUARE;STEEL; GALVANIZED
132350	4	PLATE, CROSSARM, 8" ARM (SET)
137106	6	CLEVIS INSULATOR;HOT LINE/SOCKET EXTENSION;INSIDE LENGTH:1-1/2in;PIN DIA:5/8in;1-1/8lin;DUCTILE IRON;HOT DIP GALVANIZED
177169	7	TEE: DOUBLE GUY
138889	3	PLATE;POLE BREARING;W:4XL:4XT:1/4in;STEEL; GALVANIZED
138901	7	CLEVIS INSULATOR;DEAD END/THIMBLE;INSIDE LENGTH:2.19in;PIN DIA:0.62in, 0.75in,24000lb;DUCTILE IRON; GALVANIZED;W/ COTTIER BOLT
139206	6	BOLT EYE-SHOULDER;THREAD SIZE:3/4in;L:14in;STEEL; GALVANIZED;CSA C83.67
139210	1	BOLT MACHINE-SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:22in;STEEL; GALVANIZED;CSA C83
191203	3	INSULATOR;LINE POST/HORIZONTAL;L:CURVED BENDABLE GAIN BASE 1395mm SILICONE RUBBER;VOLTAGE:138kV;STL 22.2 KN; KL138ASHB328
198982	2	LUMBER;DRILLED/CROSSARM;102mm;4000mm;203mm;DRAWING NO.: M279Z - C37
Project Specific Materials		
CUSTOM	13	WASHER, CURVED, RECTANGULAR 3 3/8" x 3 1/2" x 3/8", WITH 1 1/8" DIA. HOLE FOR 1" BOLT, HUBBELL CATAGOLD ID 400285029 OR EQUIVALENT
144098	13	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 1" X 10' -0"
101400	6	SLEEVE COMPRESSION:566.5MCM;STEEL/ALUMINUM;CABLE MATERIAL:ACSR;STRANDED
137419	60	INSULATOR:SUSPENSION;DIA:10XL:5-3/4in;GLASS;VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB
124176	3	CLAMP-LINEPOST/INSULATOR;0.5-1.06in;ALUMINUM
177864	7	ANCHOR : LOG; DIA: 8inXL: 8ft CCA TREATED PINE; NOT DRILLED

ANIT SPLIT BOLT ASSEMBLY		T	5	0	3	1	1	5	5	4	0	1	0	0	1	REFERENCE DRAWINGS	DWG.NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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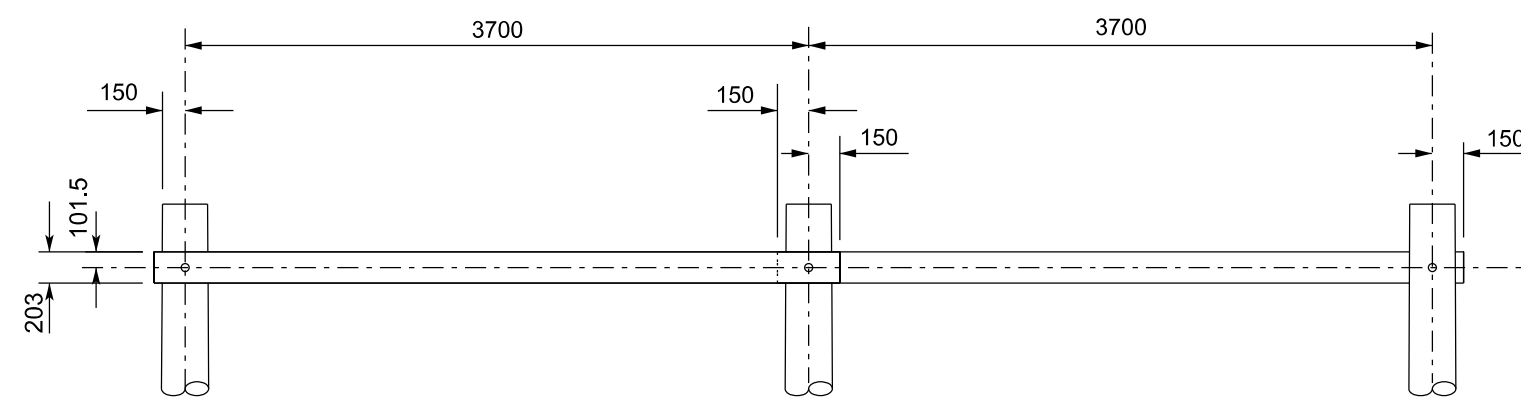
TOP VIEW
(BOLT DRILL DIRECTION)

TOP OF POLE 00	POLE A	POLE B	POLE C
150	SHIELD WIRE	SHIELD WIRE	SHIELD WIRE
300	SHIELD WIRE	SHIELD WIRE	SHIELD WIRE
450	BRIDAL	BRIDAL	BRIDAL
602	GUY TEE		
2400	CROSS ARM	CROSS ARM	CROSS ARM
3800	CONDUCTOR	CONDUCTOR	CONDUCTOR
4003	GUY TEE	GUY TEE	GUY TEE
4153	CONDUCTOR	CONDUCTOR	CONDUCTOR
4356	GUY TEE	GUY TEE	GUY TEE
4506	GUY TEE		
4658	GUY TEE		
6650	X-BRACE TOP	X-BRACE TOP	X-BRACE TOP
FIELD DRILL	X-BRACE BOT	X-BRACE BOT	X-BRACE BOT

POLE DRILLING DETAIL



(TOP VIEW)



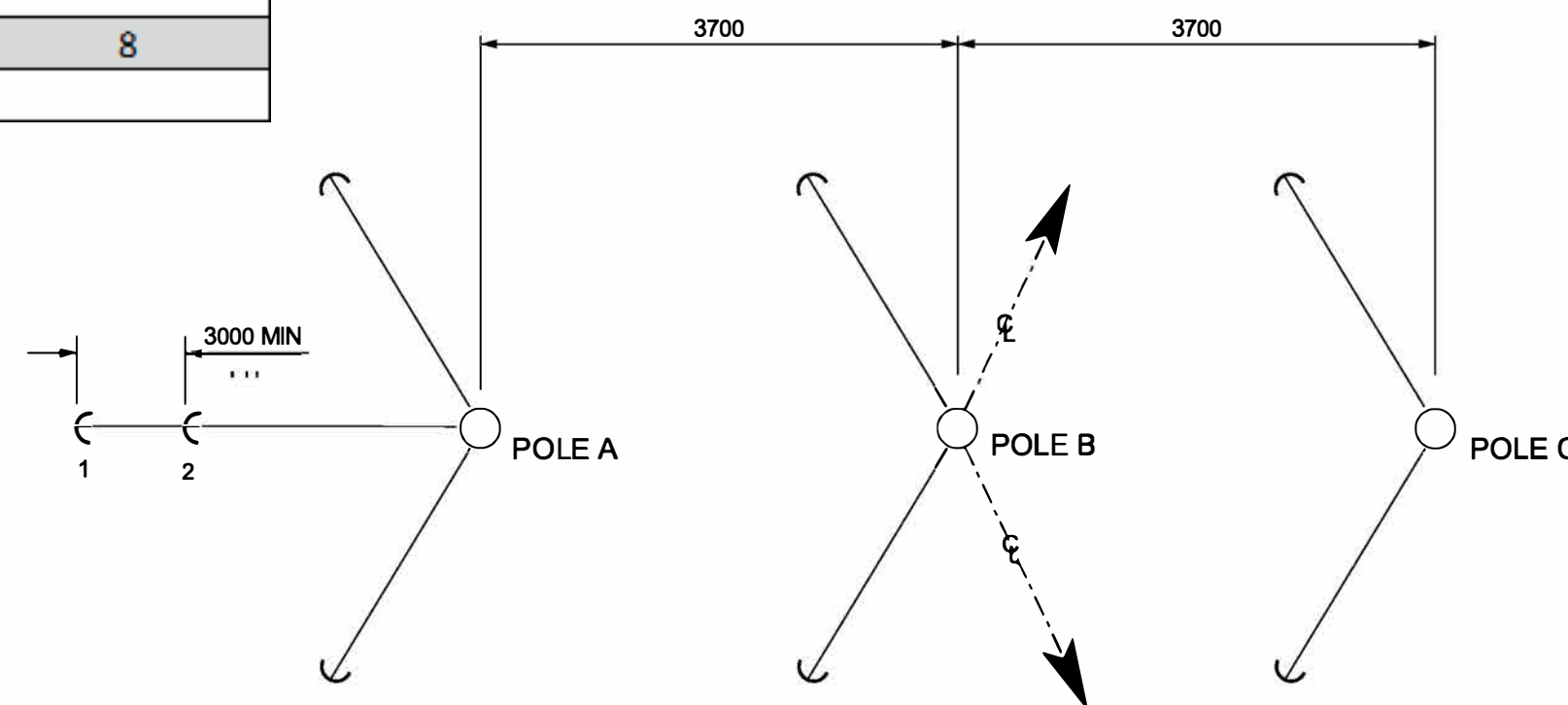
(ELEVATION VIEW)

CROSSARM DRILLING

MATERIAL LIST
Transmission Line Structure Type: 138-DA-3(O)(LP)

Material quantity for:		1 Structure(s)
MAXIMO Item No.	QTY.	DESCRIPTION
100332	8	INSULATOR, GUY STRAIN, FIBREGLASS, 96" 21000LB, NSPI SPEC. D-12, 7/16" GUY WIRE
100383	8	GUARD, GUY PLASTIC, 7 FT LONG ROUND YELLOW PVC, 5/16" GALVANIZED STEEL, C83.69M TYPE 2, STEEL CLAMPING BOLT NUT & WASHER FOR 5/16" GUY WIRE NSP TRANS DRW. #211
100636	4	CROSSARM:TIMBER;W:4inXL:17ft;T:4in;DOUGLAS FIR;PENTA;NOT DRILLED
100661	AS REQ'D	WIRE GUY:DIA:5/16inXL:150m;160;GALVANIZED
100662	AS REQ'D	WIRE/CABLE, GUY WIRE, GALVANIZED, 7/16" 50KG COILS, GRADE 180
105343	8	ROLLER, FOR 96" FIBERGLASS GUY STRAIN, STEEL
105350	AS REQ'D	STAPLE INDUSTRIAL-GROUND WIRE MOLDING;W:11/16in;2in;GALVANIZED STEEL
105365	9	CLEVIS BALL-Y;INSIDE LENGTH:2.06in;STEEL;GALVANIZED
105368	6	CONNECTOR OVERHEAD;WEDGE;RUN CABLE SIZE:2/0AWG;AASC/ACSR;TAP CABLE SIZE:2/0AWG;AASC/ACSR
105416	2	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:12in;STEEL;GALVANIZED;CSA C83
105900	2	HARDWARE KIT: CROSS BRACING SET
112670	8	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:16in;STEEL;GALVANIZED;CSA C83
114914	2	NUT SQUARE: THREAD SIZE: 1/2in;STEEL;GALVANIZED
116749	24	SCREW LAG;FETTER DRIVE/PILOT POINT;SQUARE;THREAD SIZE:1/2in;L:4in;STEEL;GALVANIZED CSA C83.101M
116750	6	SCREW LAG;HEXAGONAL;THREAD SIZE:3/4in;L:8in;STEEL;GALVANIZED
119245	35	NUT SQUARE: THREAD SIZE: 3/4in;STEEL, GALVANIZED
119903	6	FASTENER, BOLT MACHINE HEAD GALVANIZED, SQUARE, 3/4" X 14", CSA STD. C83 ITEM B-3, 25 PER BOX
122273	6	WASHER;ID:13/16in;OD:2in;ROUND;STEEL;GALVANIZED;CSA-C83-96
124113	15	CONNECTOR OVERHEAD: SERVIT/SPLIT BOLT;RUN CABLE SIZE:2/0-2AWG;ALUMINUM/COPPER;TAP CABLE SIZE:2/0-8AWG;COPPER
124442	38	CLIP:BONDING;7/16in;CARBON STEEL;GALVANIZED
129261	34	WASHER;CURVED;ID:13/16in;T:1/4in;W:3in;L:3in;SQUARE;STEEL;GALVANIZED
132350	4	PLATE, CROSSARM, 8" ARM (SET)
137106	6	CLEVIS INSULATOR;HOT LINE/SOCKET EXTENSION;INSIDE LENGTH:1-1/2in;PIN DIA:5/8in;1-1/8in;DUCTILE IRON;HOT DIP GALVANIZED
137107	8	TEE: DEADEND/GUYING;HIGH STRENGTH STEEL
137119	6	SHELL;IMPACT SHELL/BLUE
138889	3	PLATE;POLE BREARING;W:4XL:4XT:1/4in;STEEL;GALVANIZED
138901	14	CLEVIS INSULATOR;DEAD END/THIMBLE;INSIDE LENGTH:2.19in;PIN DIA:0.62in,0.75in;24000lb;DUCTILE IRON;GALVANIZED;W/ COTTTER BOLT
139206	6	BOLT EYE: SHOULDER;THREAD SIZE:3/4in;L:14in;STEEL;GALVANIZED;CSA C83.67
139210	1	BOLT MACHINE:SQUARE;THREAD SIZE:3/4in;9tpi;UNC;L:22in;STEEL;GALVANIZED;CSA C83
191203	3	INSULATOR;LINE POST/HORIZONTAL;L:CURVED BENDABLE GAIN BASE 1395mm SILICONE RUBBER;VOLTAGE:138kV;STL 22.2 KN; KL138ASHB328
198982	2	LUMBER;DRILLED/CROSSARM;102mm;4000mm;203mm;DRAWING NO.: M279Z - C37
Project Specific Materials		
CUSTOM	8	WASHER, CURVED, RECTANGULAR 3 3/8" x 3 1/2" x 3/8", WITH 1 1/8" DIAM. HOLE FOR 1" BOLT, HUBBELL CATAGOLD ID 400285029 OR EQUIVALENT
144098	8	ROD, ANCHOR DOUBLE THIMBLE EYE GALVANIZED, 1" X 10' -0"
101400	6	SLEEVE COMPRESSION:556.5MCM;STEEL/ALUMINUM;CABLE MATERIAL:ACSR;STRANDED
137419	60	INSULATOR:SUSPENSION;DIA:10XL:5-3/4in;GLASS;VOLTAGE:130kV;ANSI 52-5;CAPACITY: 120KN/25000LB
124176	3	CLAMP;LINEPOST/INSULATOR;0.5-1.06in;ALUMINUM

138-DA-3(O)(LP) LOG ANCHOR SCHEDULE		
STR	5ft LOG (177863)	8ft LOG (177864)
000	8	
001		8
006A	8	



POLE LAYOUT

NOTES:

1. MATERIAL LIST IS BASED ON CLASS 1 POLES, LONGER BOLTS MAY BE REQUIRED FOR HIGHER CLASS POLES.
2. ALL DRILLED HOLES TO BE 13/16" DIA UNLESS NOTED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. IN THE EVENT OF FAILURE AT THE GUY WIRE OR CONDUCTOR, THE GUY STRAIN INSULATOR SHALL BE LOCATED BELOW OTHER ENERGIZED EQUIPMENT.
5. IF DOUBLE GUYS ARE USED ON THIS STRUCTURE, INSTALL GUY WIRE SPACER CLAMPS ON ALL DOUBLE GUYS AT MIDPOINT BETWEEN GUY GRIPS.
6. GUY STRAIN INSULATORS SHALL BE LOCATED SUCH THAT UNDER FAILED CONDITIONS, IT IS NO CLOSER THAN 2.5m TO THE GROUND

ANTI SPLIT BOLT ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	0	2
GUY STRAIN INSULATOR ASSEMBLY	T	5	0	3	1	1	5	5	1	0	1	0	0	1
OHSW ANGLE DEADEND ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	0	6
OHSW DEADEND ASSEMBLY	T	5	0	3	1	1	5	5	4	0	1	0	0	7
D-A-3 DEADEND INSULATOR ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	1	2
3 POLE SINGLE CROSS ARM ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	2	4
3 POLE CROSS BRACE ASSEMBLY GROUNDED	T	5	0	3	1	1	5	5	4	0	1	0	2	8
POLE SETTING DETAIL GROUNDED	T	5	0	3	1	1	5	5	3	0	1	0	0	1
LOG ANCHOR SETTING DETAIL	T	5	0	3	1	1	5	5	3	0	1	0	0	3

0	DATE: YYYY-MM-DD
REV	BY:
APPROVAL:	WO:
1	DATE: 2019-10-30
REV	BY: J. TUTTY
GENERAL REVISIONS	
APPROVAL:	WO:



DEPARTMENTAL APPROVALS	
APPROVED	
DATE	
W.O.	

SCALE 1:1
UNITS METRIC
DESIGNED B. BILKHU
DRAWN P. HUBLEY
DATE 2019-02-02
W.O.

Nova Scotia POWER An Emera Company	
TRANSMISSION AND DISTRIBUTION ENGINEERING	
TRANSMISSION LINE STANDARD STRUCTURE	
STRUCTURE TYPE 138-DA-3(LP)(O)	
T-5031-1-511-01-009	REV. 0
BORDER SIZE:	