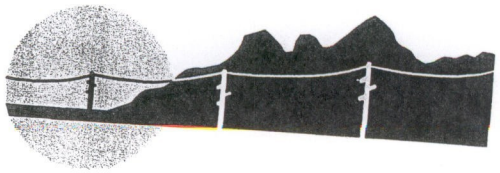
MONTANA ALBERTA TIE LTD



October 4, 2005

Ms. Ellen Russell
Senior Project Manager
U.S. Department of Energy
Office of Electricity Delivery
and Energy Reliability
1000 Independence Ave. SW
Room 6H-050
Washington, DC 20585 U.S.A.

Dear Ms. Russell:

Subject: Presidential Permit Application

Attached are an original and two copies of an Application for a Presidential Permit for the Montana Alberta Tie Ltd. Project 230 kV Power Transmission Line, Lethbridge, Alberta – Great Falls, Montana. Also attached are three original copies of the partial Major Facilities Siting Act application (MFSA) to the Montana Department of Environmental Quality. Montana Alberta Tie Ltd. (MATL) anticipates filing the outstanding portion of the MFSA application within the next two weeks and will also forward a copy of that application to the Department of Energy.

Also attached is a money order in the amount of $150.00 US for the filing fee.

In the event that you wish to contact me, my telephone number is (403) 264-4465 ext. 226 and my email is bob.williams@matl.ca.

Respectfully,

Robert L. Williams

Bob Williams
Vice President Regulatory

Enclosures (7)

cc: Patrick Farmer, Patrick Mullen

Suite 800, 615 Macleod Trail SE Calgary, Alberta T2G 4T8
Phone: (403) 264-4465 Fax: (403) 265-1299 Website: www.matl.ca

Table of Contents

UNITED STATES OF AMERICA
BEFORE THE
DEPARTMENT OF ENERGY
OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Montana Alberta Tie Ltd.
Docket No. PP-305.

APPLICATION FOR A PRESIDENTIAL PERMIT FOR THE MONTANA ALBERTA TIE LTD. PROJECT 230-kV POWER TRANSMISSION LINE LETHBRIDGE, ALBERTA – GREAT FALLS, MONTANA

Pursuant to Executive Order 10485, as amended by Executive Order 12038, and the United States Department of Energy's ("DOE") applicable administrative procedures (10 CFR §205.320 – 205.329), Montana Alberta Tie Ltd. ("MATL") hereby applies for a Presidential Permit authorizing it to construct, connect, operate and maintain facilities to transmit electric energy at the international border between the United States of America ("U.S.") and Canada. In support of this application, MATL states as follows:

I. Information Regarding the Applicant

A. Legal Name of the Applicant

The legal name of the applicant is Montana Alberta Tie Ltd. ("MATL"). MATL is incorporated under the Canadian Business Corporations Act #634471-2, headquartered at Rocky Mountain Plaza, Suite 800, 615 Macleod Trail SE, Calgary, Alberta, T2G 4T8, Canada.

B. Legal Name of All Partners

MATL is the sole applicant.

C. Communications and Correspondence

All communications and correspondence regarding this application should be addressed to:

Mr. Bob Williams
Vice President Regulatory
Montana Alberta Tie Ltd.
Rocky Mountain Plaza
Suite 800
615 Macleod Trail SE
Calgary, Alberta, Canada

T2G 4T8
Phone: (403) 264-4465
Fax: (403) 265-1299
Email: bob.williams@matl.ca

D. Foreign Ownership and Affiliations

Neither MATL nor its transmission facilities are owned wholly or in part by a foreign government or directly or indirectly assisted by a foreign government or instrumentality thereof; or whether the applicant has any agreement pertaining to such ownership by or assistance from any foreign government or instrumentality thereof.

E. Existing Foreign Contracts

MATL does not have any existing contracts with any foreign government, or any foreign private concerns, relating to any purchase, sale or delivery of electric energy. MATL does not intend to apply for an authorization to export electricity.

F. Compliance with Law

As set forth in an opinion of counsel attached as Exhibit 1, the construction, connection, operation and maintenance of the proposed project is within the corporate power of MATL, and MATL has complied with or will comply with all pertinent Federal and State laws.

II. Information Regarding the Proposed Transmission Facilities Subject to the Presidential Permit

A. Introduction

MATL proposes to construct and operate a 240/230-kV AC merchant transmission line between Great Falls, Montana and Lethbridge, Alberta. The approximate 200-mile line would connect the Alberta Interconnected Electrical System operated by the Alberta Electric System Operator ("AESO") and NorthWestern Energy's ("NWE") transmission system. The connections will be made at NorthWestern's 230 kV substation just north of Great Falls, at the Glacier Electric Cooperatives substation at Cut Bank, and a new substation North East of Lethbridge. Though both systems are part of the Western Interconnection, a phase shifting transformer will be installed at the Lethbridge substation to control power flows between the two regions. Figure 1 shows the location of the proposed project and key ancillary facilities.

The proposed project would be the U.S.' first power transmission interconnection with the Alberta Interconnected Electrical System and is expected to facilitate development of additional sources of generation (e.g., wind farms both in northern Montana and southern Alberta) and improve transmission system reliability in Montana, Alberta, and on a regional basis in both the U.S. and Canada. In addition, the project would promote increased trade in electrical energy across the international border, and provide a transmission route to balance energy surplus/shortage situations in an efficient and economic manner.

MATL commissioned detailed power system studies that indicated clear and significant benefits from the proposed project to transmission in both Alberta and Montana. These studies included modeling using Western Electrical Coordinating Council ("WECC") guidelines, and concluded that the proposed MATL project is technically feasible and would be capable of transferring 300 MW north to south, or 300 MW south to north, under steady state (all transmission in service) conditions. Some transfer limitations could occur during extreme Alberta-British Columbia counter flow situations because the limit of the phase shifting transformer would be reached. MATL has initiated the WECC path rating approved process and will forward the approval to the DOE upon receiving the document.

A more detailed description of the proposed project is provided in the application prepared for the State of Montana's Major Facility Siting Act ("MFSA") entitled *Montana Alberta Tie Ltd. Project,230-kV Power Transmission Line, Lethbridge, Alberta – Great Falls, Montana*, a preliminary copy of which is included with this report.

B. Technical Description

A technical description of the project is set forth in Table 1 in the form of specifications:

Table 1 - Technical Specifications

Item	Specification
Number of Circuits	Single circuit overhead
Operating Voltage and Frequency	240 kV/230 kV, 60 Hz
Conductor Size, Type and Number of Conductors per Phase	Curlew;1033.5 kcmil; aluminum with steel reinforcing strands (ACSR); one conductor per phase
Wind and Ice Loading Design Parameters	½ inch ice, with a wind pressure of 8.3 lb/ft^2
Description and Drawing of Typical Structure	Refer to Table Two: Structural Diagrams
Structure Spacing with Typical Ruling and Maximum Spans	Typical span: 788 feet, Maximum span: 906 feet
Conductor Phase Spacing	21 feet
Design Line to Ground & Conductor Side Clearances	21 feet for both clearances based on "H" frame structures

In Table 2 is a series of diagrams attached to this document in Exhibit 2 with more technical and structural details.

Table 2 - Structural Diagrams

240kV H-Frame Tangent STR. Type 1 and Type 2	MATLP-43-D1-0003
240kV H-Frame Tangent STR. Assemblies Type 1 and Type 2	MATLP-43-D1-0003
240kV H-Frame Tangent STR.	MATLP-43-D1-0004
240kV H-Frame Light Angle Assemblies	MATLP-43-D1-0004
Three Pole 240kV Medium Angle Structure with Two Overhead Shield Wires	MATLP-43-D1-0005
Three Pole 249kV Medium Angle Structure With 2 OHSW Assembly Drawings	MATLP-43-D1-0005
Three Pole 249kV Medium Angle Structure with 2 OHSW Assembly Drawings	MATLP-43-D1-0005
Three Pole 240kV Heavy Angle Structure with Two Overhead Shield Wires	MATLP-43-D1-0006
Assemblies	MATLP-43-D1-0006
Assemblies	MATLP-43-D1-0006
Three Pole 240kV Deadend Structure with Two Overhead Shield wires	MATLP-43-D1-0007
Assembly Drawings	MATLP-43-D1-0007
Assembly Drawings	MATLP-43-D1-0007
Standard Setting Method For Dead-Ends	MATLP-43-D1-0001
Steel Pipe Foundation	MATLP-43-D1-0002
Type SS Triple Helix Anchor	MATLP-43-D1-0001
Type SS Triple Helix Anchor	MATLP-43-D1-0002
Slug Anchor	MATLP-43-D1-0003

In Figure 1 the location of the MATL Line and Key Ancillary Facilities are represented.

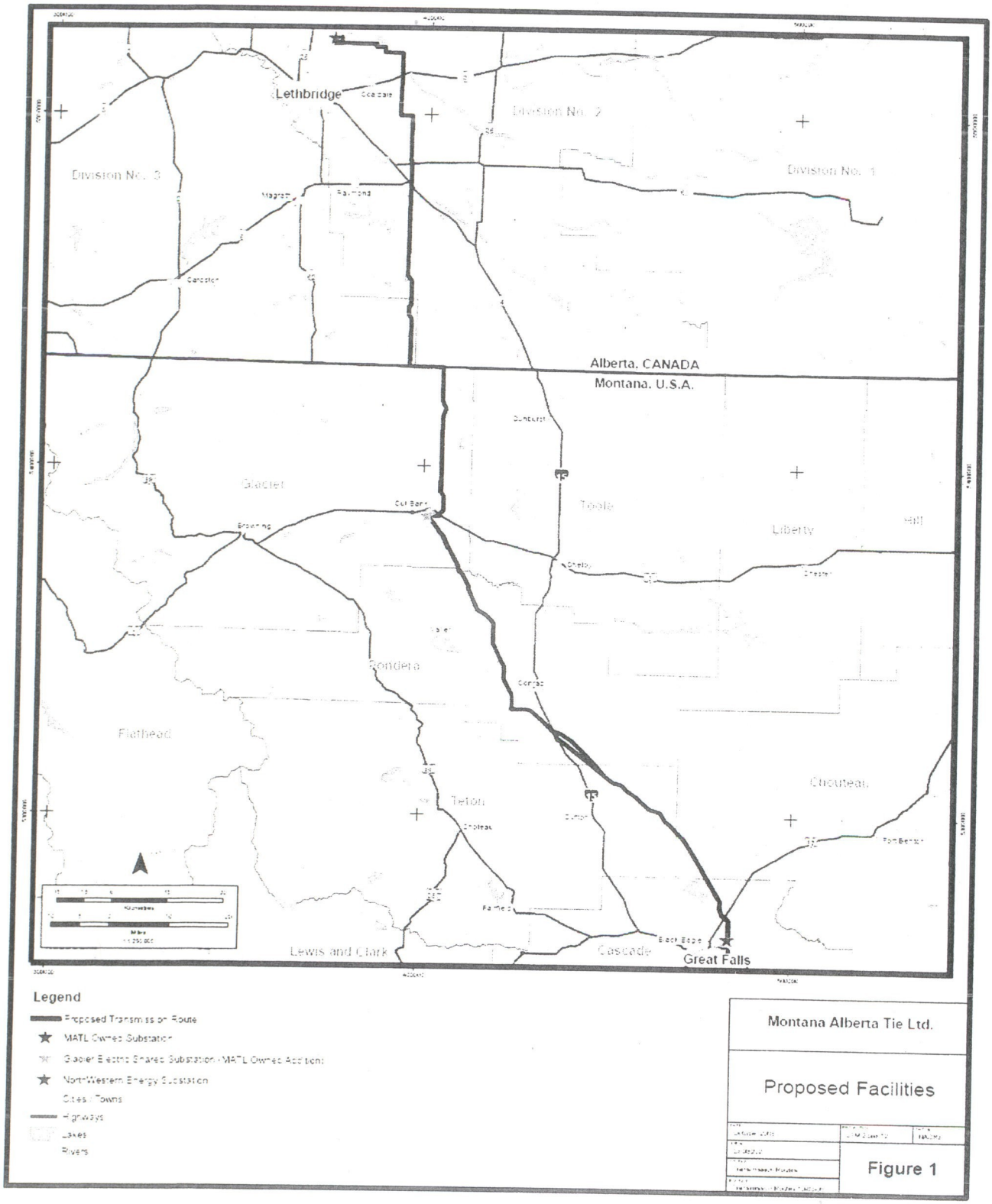


Figure 2 is the detailed map of the International Border Crossing.

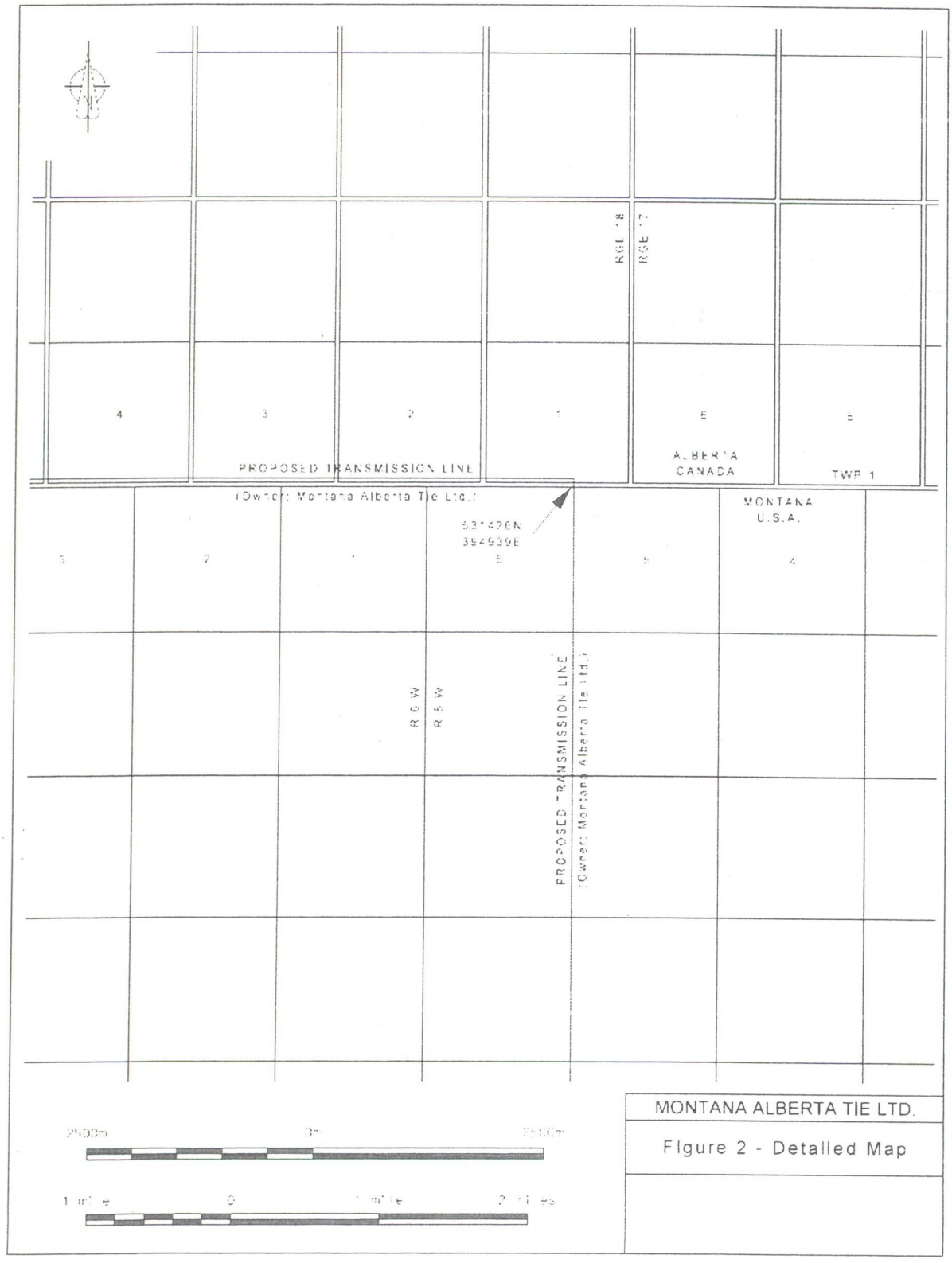


Table 3 – Bulk Power System Information

Expected Power Transfer	300 MW
Short Time Emergency Conductor Rating	- Normal rating is defined as summer and winter ratings, based on conductor configuration and temperature. - The emergency rating as 110% of the winter normal rating for a duration of 10 minutes
System Power Flow Plots	To be Addressed in 1) the WECC path rating process, which is underway and 2) NorthWestern Energy Systems Studies
Line Design Features for Minimizing Television and/or Radio Interference	The design shall comply with IEEE standard L50 for audible noise, TV and radio interference.
Relay Protection Scheme	The required protection scheme will be based on systems studies to be conducted by NorthWestern Energy in Montana and Alberta Electric System Operator in Alberta. The relay protection schemes will follow WECC reliability and local control area criteria.

C. Information Regarding Environmental Impacts

Environmental Impacts are being addressed in the Montana Major Facilities Siting Application. A partial application comprised of Sections 1.0, 2.0, and 3.0 is attached.

An assessment of the potential environmental impacts resulting from the construction, operation, maintenance and decommissioning of the proposed facilities is being prepared. This assessment will include, but not necessarily be limited to, comparison of each practical project alternative for:

navigable waterway crossings,
floodplains,
wetlands,
critical wildlife habitat,
threatened or endangered biota,
tribal lands; and
historic or recreational use sites.

The assessment will be prepared according to applicable DOE and National Environmental Policy Act ("NEPA") guidance documents and direction, and will include a comparison of practical alternatives, rationale for selection of right-of-way widths, and a general discussion of the environmental impact of each alternative.

D. Verification

This application has been verified by an officer of the applicant having knowledge of the matters set forth above, as provided in Exhibit 3.

E. Outstanding Information

The following Table 3 summarizes the information that will be provided at a later date.

Table 4 – Outstanding Information

Information	Anticipated Date of Filing
Montana Major Facilities Siting Application	October 2005
WECC Path Rating	May 2006
NorthWestern Energy Systems Study	December 2005

Respectfully submitted,

Lorry Wilson
Chief Executive Officer
Montana Alberta Tie Ltd.
Rocky Mountain Plaza
Suite 800
615 Macleod Trail SE
Calgary, Alberta, Canada
T2G 4T8
Phone: (403) 264-4465
Fax: (403) 265-1299
Email: lorry.wilson@matl.ca

Macleod Dixon LLP
Lawyers
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Toronto Caracas
Moscow Rio de Janeiro

3700 Canterra Tower
400 Third Avenue SW
Calgary, Alberta
Canada T2P 4H2

Main: (403) 267-8222
Fax: (403) 264-5973

www.macleoddixon.com

Our File: 194771

Your File:

John P. Carleton
Direct Phone: (403) 267-9406
E-mail: john.carleton@macleoddixon.com

Lynn Hardy
Assistant
Direct Phone: (403) 267-9456
E-mail: lynn.hardy@macleoddixon.com

September 30, 2005

U.S. Department of Energy
Office of Electricity Delivery and Energy Reliability
1000 Independence Ave. SW
Washington, D.C.

Dear Sir:

Re: Montana Alberta Tie Ltd. Application for a Presidential Permit

We are counsel to Montana Alberta Tie Ltd. ("MATL"). This opinion is delivered to you pursuant to 10 CFR 205.322(a)(6) which requires that an opinion of counsel be included in the Presidential Permit application in respect of the proposed Montana Alberta Tie Project.

We have reviewed the incorporation documents of MATL as contained in it's minute books as provided to us. We have also reviewed the draft of MATL's Application for a Presidential Permit to the U.S. Department of Energy dated September 30, 2005.

Based solely upon such reviews, we are of the opinion that the project proposed under MATL's Application for a Presidential Permit is within the corporate power of MATL.

The opinion expressed above is limited to the laws of the Province of Alberta and the federal laws of Canada applicable therein in force on the date hereof.

This opinion is provided solely for your benefit in connection with MATL's Application for a Presidential Permit and may not to be relied upon for any purpose or by any other person.

Yours very truly,

MACLEOD DIXON LLP

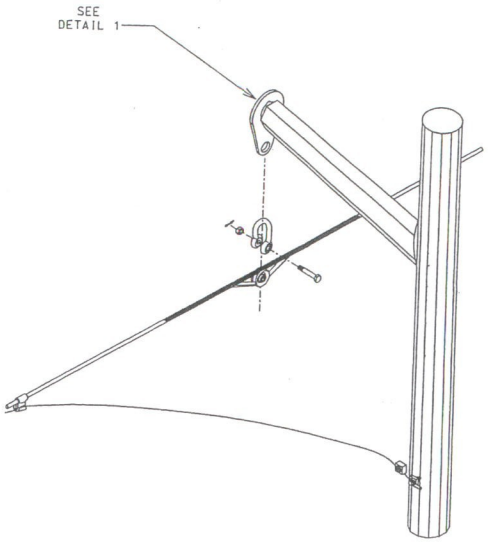
John P. Carleton
JPC/jfd

*Caracas - Despacho de Abogados miembros de Macleod Dixon, SC

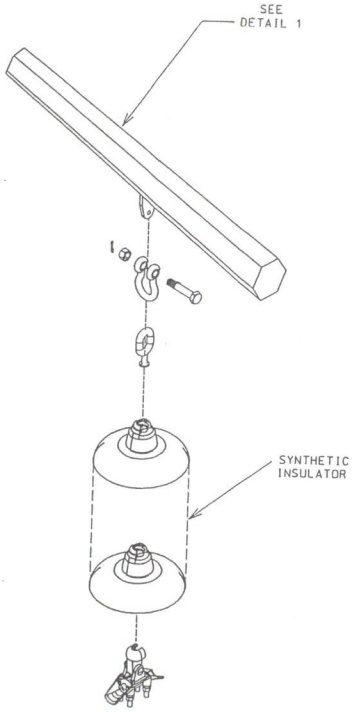
MATERIAL AND ITEM LIST FOR STRUCTURE SNC13		
QTY	ASSEMBLY	DESCRIPTION
1	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
1	SNC13	CONNECTOR, WEDGE-TYPE
1	SNC13	CARTRIDGE, COLOR CODE RED
1	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
1	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
1	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD

MATERIAL AND ITEM LIST FOR STRUCTURE SNC114		
QTY	ASSEMBLY	DESCRIPTION
1	SNC114	BALL-EYE, GLV. 50MM X25 MM OVAL. 111 KN
1	SNC114	CLAMP, SOCKET SUSPENSION
1	SNC114	SHACKLE, CHAIN W. BOLT , 90 kN
1	SNC114	INSULATOR, SYN, SOC-BALL, SIL, 240KV

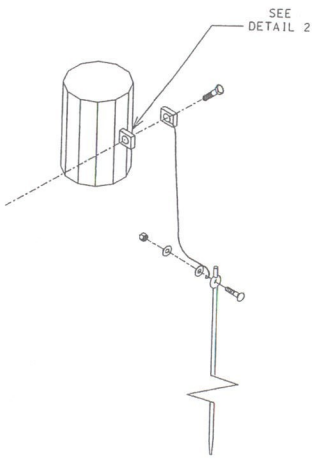
MATERIAL AND ITEM LIST FOR STRUCTURE SNC4		
QTY	ASSEMBLY	DESCRIPTION
1	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
3	SNC4	WIRE, CU, SOLID, SD BARE #4
1	SNC4	ROD, GROUND, 5/8" X 8', STEEL



ASSEMBLY SNC 13
STEEL ARM



ASSEMBLY SNC 114



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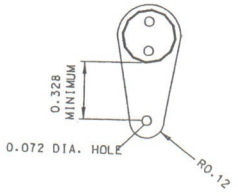
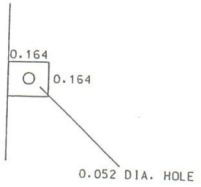


DETAIL 1
ATTACHMENT DETAIL



DETAIL 2
GROUNDING TAB

NOTE:
1. UNLESS OTHERWISE INDICATED, ALL DIMENSIONS ARE IN FEET.

ISSUE REGISTER					REVISION REGISTER				
ISSUE NO	REV.	DATE	PURPOSE OF ISSUE	TRANSMISSION LETTER No	No	REVISION DESCRIPTION	DATE	INITIALS	
1	A	05/02/18	ISSUED FOR BID		B	PRELIMINARY DESIGN	05/03/29	PG	
					A	ISSUED FOR BID	05/02/15	PG	

INITIALS: ▪ DESIGNED ▪▪ APPROVED

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2N4

PREPARATION		APPROVAL
DESIGNED	PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	J.GOROG	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-15	CLIENT
SCALE		SHEET 2 OF 2

CLIENT: MONTANA ALBERTA TIE LTD.

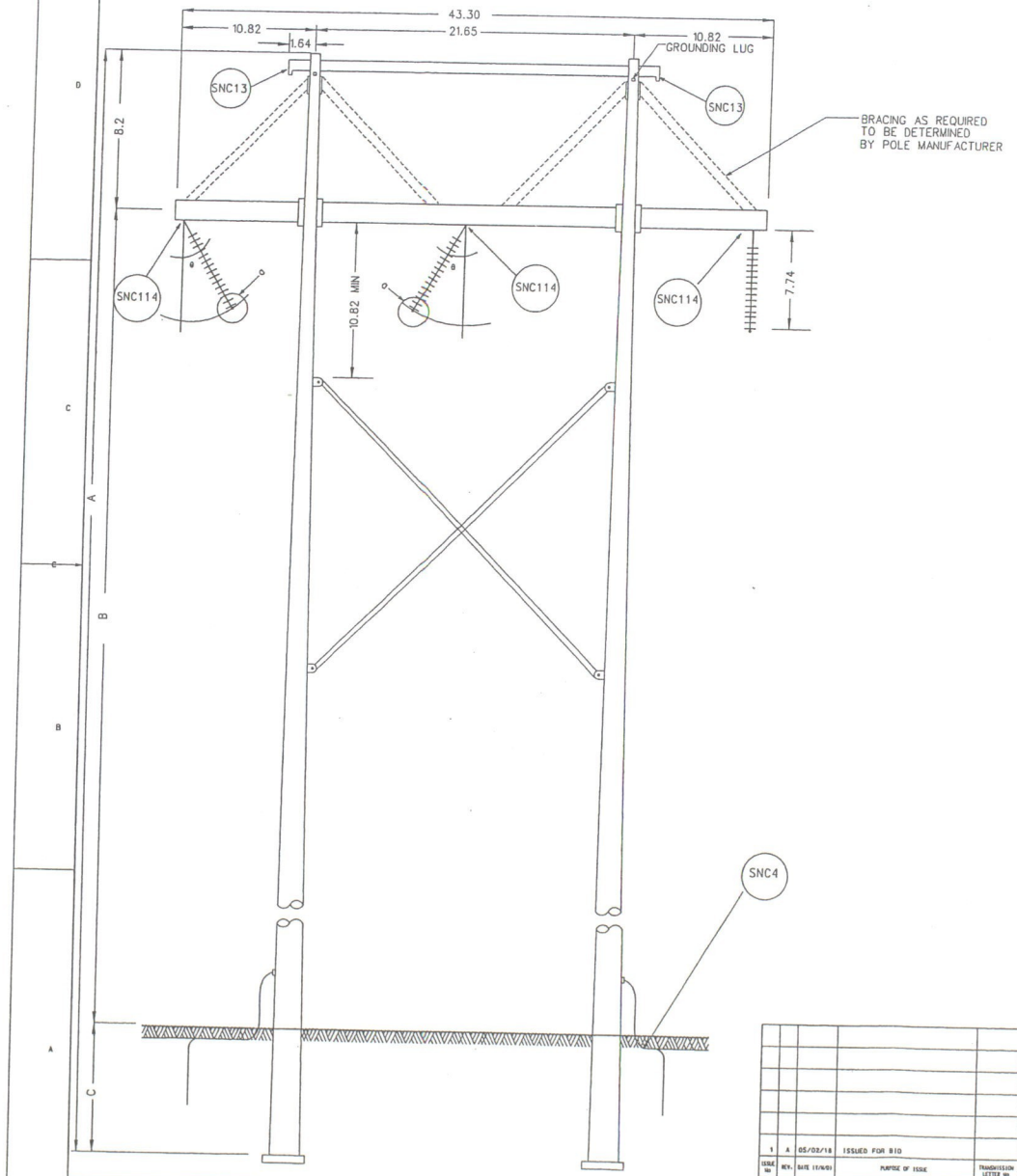
PROJECT: MONTANA-ALBERTA TIE LINE

TITLE: 240 kV H-FRAME TANGENT STR. ASSEMBLIES TYPE 1 AND TYPE 2

DOCUMENT No.: MATLP-43-D1-0003

REV: B

PROJECTION - FRAME AT HORIZONTAL ENGLISH



MATERIAL AND ITEM LIST FOR STRUCTURE MATL-43-D1-003		
QTY	ASSEMBLY	DESCRIPTION
3	SNC114	BALL-EYE, GLV. 50MM X25 MM OVAL 111 KN
2	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
6	SNC4	WIRE, CU, SOLID, SD BARE #4
2	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
2	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
2	SNC13	CONNECTOR, WEDGE-TYPE
2	SNC13	CARTRIDGE, COLOR CODE RED
3	SNC114	CLAMP, SOCKET SUSPENSION
2	SNC4	ROD, GROUND, 5/8" X 8', STEEL
2	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
2	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
3	SNC114	SHACKLE, CHAIN W. BOLT , 90 kN
3	SNC114	INSULATOR, SYN, SOC-BALL, SIL, 240KV

Structure: 240kV H-Frame Tangent Structure
Deflection : 1 Degree Line Angle
Conductor: 1033 kcmil ACSR Curlew
O.H.S.W.: 5/16" Steel Grade 220
OPGW: 16mm OPGW (To be determined)

Air Gap Requirements			
Temp.	Wind	Swing	Clearance
(oC)	(Pa)	θ	(a)ft
4	0	10	5.58
4	875	65	2.10
-30	500	50	2.76

Pole Dimensions					
A		B		C	
feet	m	feet	m	feet	m
55	16.76	37.3	11.37	9.5	2.90
60	18.29	41.8	12.74	10	3.05
65	19.81	46.3	14.11	10.5	3.20
70	21.34	50.8	15.48	11	3.35
75	22.86	55.3	16.86	11.5	3.51
80	24.38	59.8	18.23	12	3.66
85	25.91	64.3	19.60	12.5	3.81
90	27.43	68.8	20.97	13	3.96

General Notes:

1. Poles are to be designed and fabricated in accordance with ACSE Manuals and reports No. 72 - Design of Steel Transmission Pole Structures, Second Edition.
2. Base plates to be designed for 200 kPa soil.
3. Finish to be galvanized or weathering steel
4. Pole to direct embedded 10% of pole height plus 4 feet.
5. Stainless steel ground tab at pole top & near groundline are required
6. Ladder clips are required
7. Design calculations are to be included with bid for review by SNC-Lavalin ATP Inc.
8. All dimensions to the centre of vang.
9. All dimensions in feet.
10. For assembly drawings see sheet 2.
11. Pole fabrication shall be in accordance with SNC Lavalin ATP Specification #645-04 "Fabrication of Tubular Steel Transmission Structures".
12. Icing on the structure need not be considered in design.

ISSUE REGISTER				
ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER				
No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS: • DESIGNED ▪▪ APPROVED	
B	PRELIMINARY DESIGN	05/03/29	PG	
A	ISSUED FOR BID	05/02/15	PG	

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

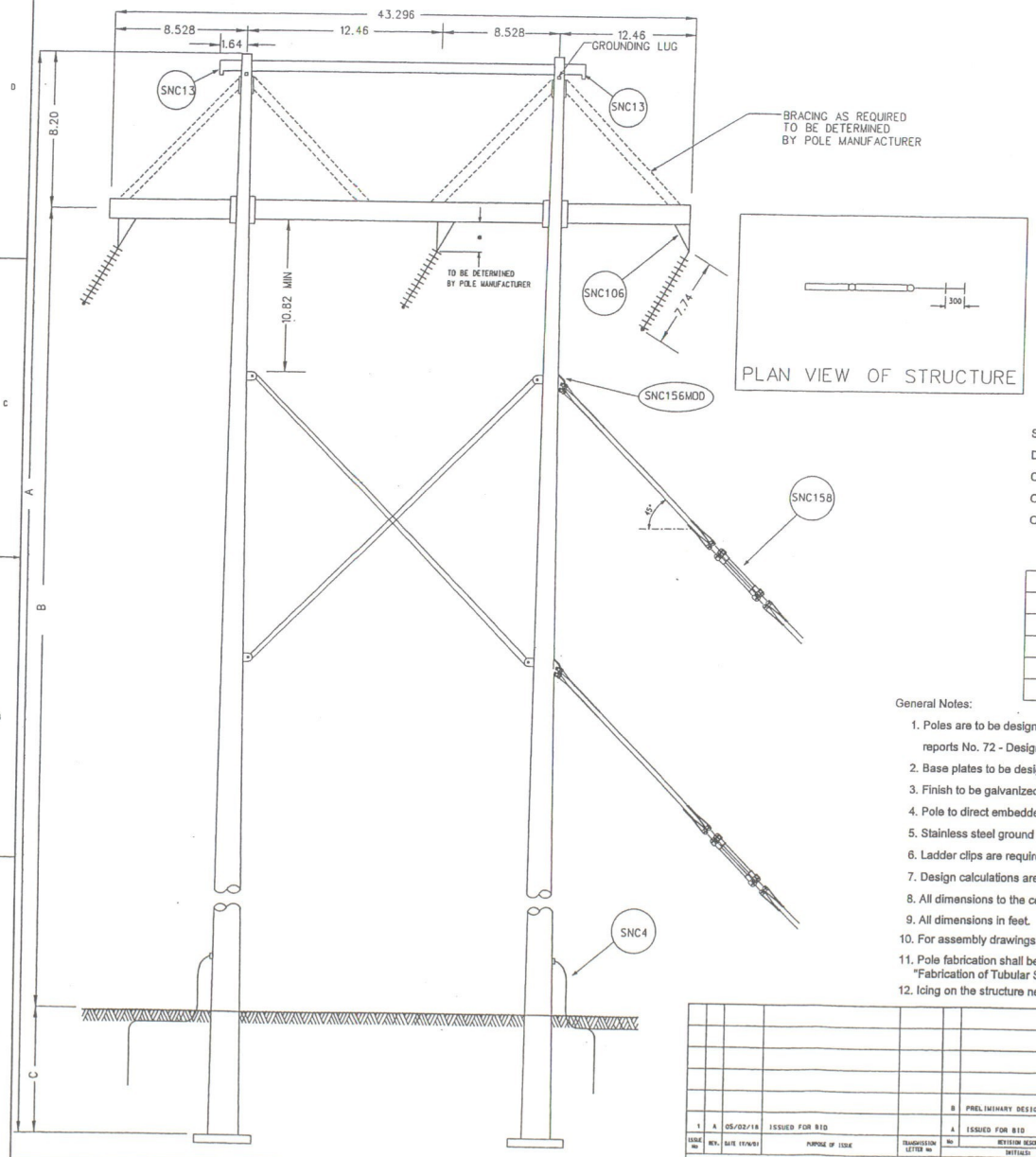
SNC-LAVALIN

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

PREPARATION		APPROVAL
DESIGNED	PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	J.GORGG	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-15	CLIENT
SCALE	NTS	SHEET 1 OF 2

CLIENT: MONTANA ALBERTA TIE LTD.
PROJECT: MONTANA-ALBERTA TIE LINE
TITLE: 240kV H-FRAME TANGENT STR. TYPE 1 AND TYPE2
DOCUMENT No.: MATLP-43-D1-0003
REV: B

PRELIMINARY - ISSUE AT HORIZONTAL ENDLINE



PLAN VIEW OF STRUCTURE

MATERIAL AND ITEM LIST FOR STRUCTURE MATL-43-D1-0004

QTY	ASSEMBLY	DESCRIPTION
4	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS
3	SNC114	INSULATOR, SYN, SOC-BALL, SIL, 240KV
3	SNC114	SHACKLE, CHAIN W. BOLT , 90 kN
2	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
2	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
2	SNC304	ROD, GROUND, 5/8" X 8', STEEL
3	SNC114	CLAMP, SOCKET SUSPENSION
8	SNC156	GRIP, PRFD 7/16 GUY 40, GREEN
8	SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
2	SNC13	CARTRIDGE, COLOR CODE RED
2	SNC13	CONNECTOR, WEDGE-TYPE
2	SNC304	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
140	SNC156	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.
2	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
6	SNC304	WIRE, CU, SOLID, SD BARE #4
2	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
3	SNC114	BALL-EYE, GLV. 50MM X25 MM OVAL. 111 KN
4	SNC156	CLEVIS, THIMBLE, GALV. 20MM SPREAD

Structure: 240kV H-Frame Light Angle Structure
Deflection : 5 Degree Line Angle
Conductor: 1033 kcmil ACSR Curlew
O.H.S.W.: 5/16" Steel Grade 220
OPGW: 16mm OPGW (To be determined)

Air Gap Requirements

Temp.	Wind	Swing		Clearance
(oC)	(Pa)	(q) - Degrees		(a) - ft
4	0	35	35	5.58
4	875	85	-65	2.10
-30	500	56	-35	2.76

Pole Dimensions

A		B		C	
feet	m	feet	m	feet	m
55	16.76	37.3	11.37	9.5	2.90
60	18.29	41.8	12.74	10	3.05
65	19.81	46.3	14.11	10.5	3.20
70	21.34	50.8	15.48	11	3.35
75	22.86	55.3	16.86	11.5	3.51
80	24.38	59.8	18.23	12	3.66
85	25.91	64.3	19.60	12.5	3.81
90	27.43	68.8	20.97	13	3.96

General Notes:

1. Poles are to be designed and fabricated in accordance with ACSE Manuals and reports No. 72 - Design of Steel Transmission Pole Structures, Second Edition.
2. Base plates to be designed for 200kPa soil.
3. Finish to be galvanized or weathering steel
4. Pole to direct embedded 10% of pole height plus 4 feet.
5. Stainless steel ground tab at pole top & near groundline are required
6. Ladder clips are required
7. Design calculations are to be included with bid for review by SNC-Lavalin ATP Inc.
8. All dimensions to the centre of vang.
9. All dimensions in feet.
10. For assembly drawings see sheet 2 and 3.
11. Pole fabrication shall be in accordance with SNC Lavalin ATP Specification #645-04 "Fabrication of Tubular Steel Transmission Structures".
12. Icing on the structure need not be considered in design.

ISSUE REGISTER

ISSUE No.	REV.	DATE YY/M/D	PURPOSE OF ISSUE	TRANSMISSION LETTER No.
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

No.	REVISION DESCRIPTION	DATE YY/M/D	*	**
	INITIALS: * DESIGNED ** APPROVED			
B	PRELIMINARY DESIGN	05/03/29	PD	
A	ISSUED FOR BID	05-02-17	PD	

PROFESSIONAL SEAL

SNC-LAVALIN

SNC-Lavalin ATP Inc.
1033 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

PREPARATION		APPROVAL
DESIGNED	PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	J.GORDG	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-15	CLIENT
SCALE	NTS	SHEET 1 OF 3

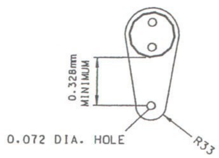
PERMIT TO PRACTICE STAMP

CLIENT: MONTANA ALBERTA TIE LINE LTD
PROJECT: MONTANA-ALBERTA TIE LINE
TITLE: 240kV H-FRAME TANGENT STR.
DOCUMENT No.: MATLP-43-D1-0004
REV: B

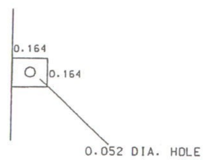
PROJECTION - FRAME AT HORIZONTAL ENGLISH

QTY	ASSEMBLY	DESCRIPTION
MATERIAL AND ITEM LIST FOR STRUCTURE SNC13		
1	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
1	SNC13	CONNECTOR, WEDGE-TYPE
1	SNC13	CARTRIDGE, COLOR CODE RED
1	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
1	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
1	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD

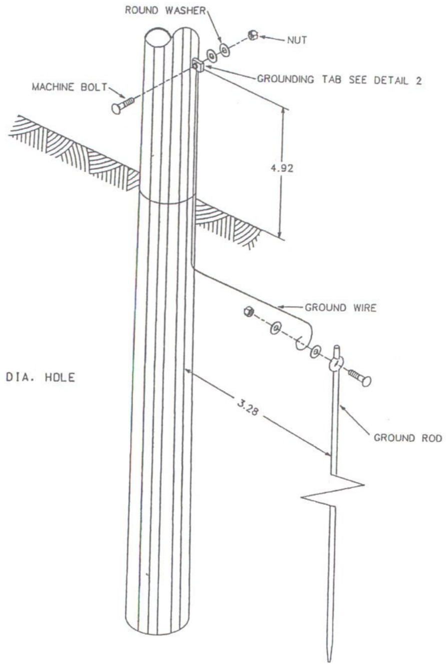
QTY	ASSEMBLY	DESCRIPTION
MATERIAL AND ITEM LIST FOR STRUCTURE SNC4		
1	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
3	SNC4	WIRE, CU, SOLID, SD BARE #4
1	SNC4	ROD, GROUND, 5/8" X 8', STEEL



DETAIL 1
ATTACHMENT DETAIL

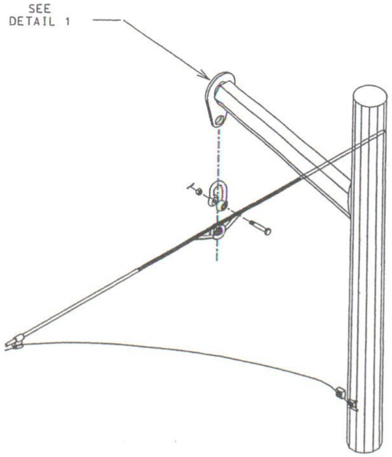


DETAIL 2
GROUNDING TAB



ASSEMBLY SNC 4

NOTE:
1. UNLESS OTHERWISE INDICATED, ALL DIMENSIONS ARE IN FEET.



ASSEMBLY SNC 13
STEEL ARM

ISSUE REGISTER

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	*	**
B	PRELIMINARY DESIGN	05/03/29	PD	
A	ISSUED FOR BID	05/02/15	PD	

INITIALS: * DESIGNED ** APPROVED

PROFESSIONAL SEAL

SNC·LAVALIN
SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

PREPARATION	APPROVAL
DESIGNED PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN J.GOROG	PROJECT ENGINEERING MANAGER
CHECKED	
DATE 05-02-15	CLIENT
SCALE	SHEET 2 OF 3

PERMIT TO PRACTICE STAMP

CLIENT: MONTANA ALBERTA TIE LTD.

PROJECT: MONTANA-ALBERTA TIE LINE

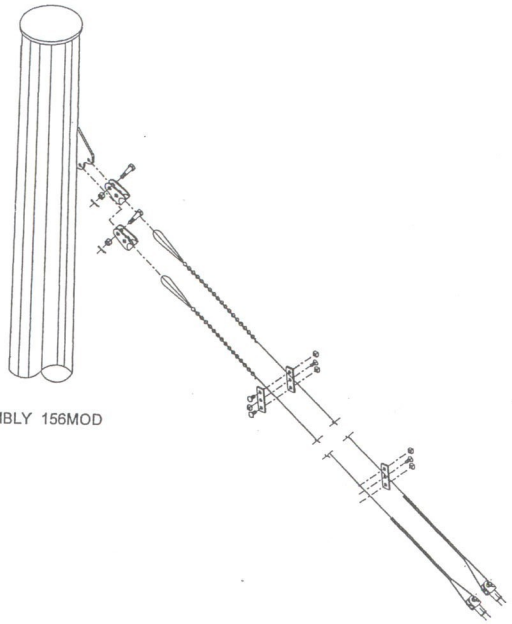
TITLE: 240 kV H-FRAME LIGHT ANGLE ASSEMBLIES

DOCUMENT No. MATLP-43-D1-0004 REV B

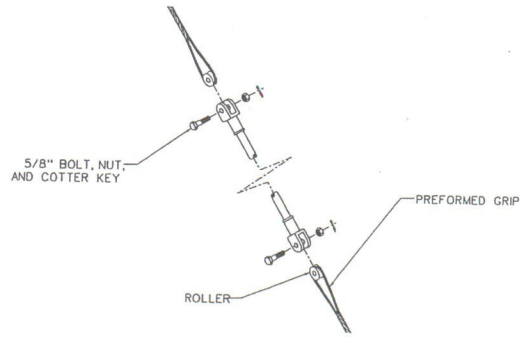
MATERIAL AND ITEM LIST FOR STRUCTURE SNC158		
QTY	ASSEMBLY	DESCRIPTION
4	SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
2	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS

MATERIAL AND ITEM LIST FOR STRUCTURESNC158		
QTY	ASSEMBLY	DESCRIPTION
2	SNC158	CLEVIS, THIMBLE, GALV. 20MM SPREAD
4	SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
70	SNC158	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.

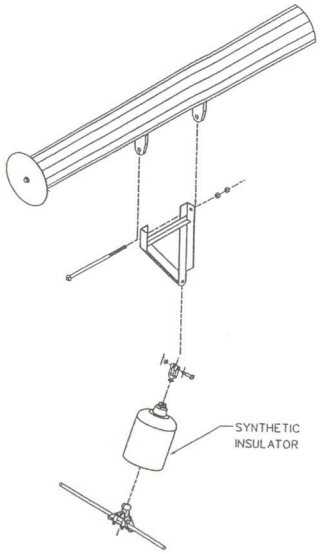
MATERIAL AND ITEM LIST FOR STRUCTURE SNC106		
QTY	ASSEMBLY	DESCRIPTION
1	SNC106	BALL-CLEVIS, GLV. 60MM D, 22MM S, M16 B
1	SNC106	INSULATOR, SYN, SOC-BALL, SIL, 240KV
1	SNC106	ROD, ARMOUR, PRFD AL, CURLEW(2.54)BLK 12
1	SNC106	CLAMP, ANGLE SUSP, SOCK, 1.40-2.18



ASSEMBLY 156MOD



ASSEMBLY 158



ASSEMBLY 106

ISSUE REGISTER					REVISION REGISTER				
ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No.	No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS: * DESIGNED ** APPROVED	
1	A	05/02/18	ISSUED FOR BID		B	PRELIMINARY DESIGN	05/03/29	PG	
					A	ISSUED FOR BID	05/02/15	PG	

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-LAVALIN

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2N4

PREPARATION		APPROVAL	
DESIGNED	PAUL DILLON	PROJECT DISCIPLINE ENGINEER	
DRAWN	J.GORCO	PROJECT ENGINEERING MANAGER	
CHECKED			
DATE	05-02-15	CLIENT	
SCALE		SHEET	3 OF 3

CLIENT: MONTANA ALBERTA TIE LTD.

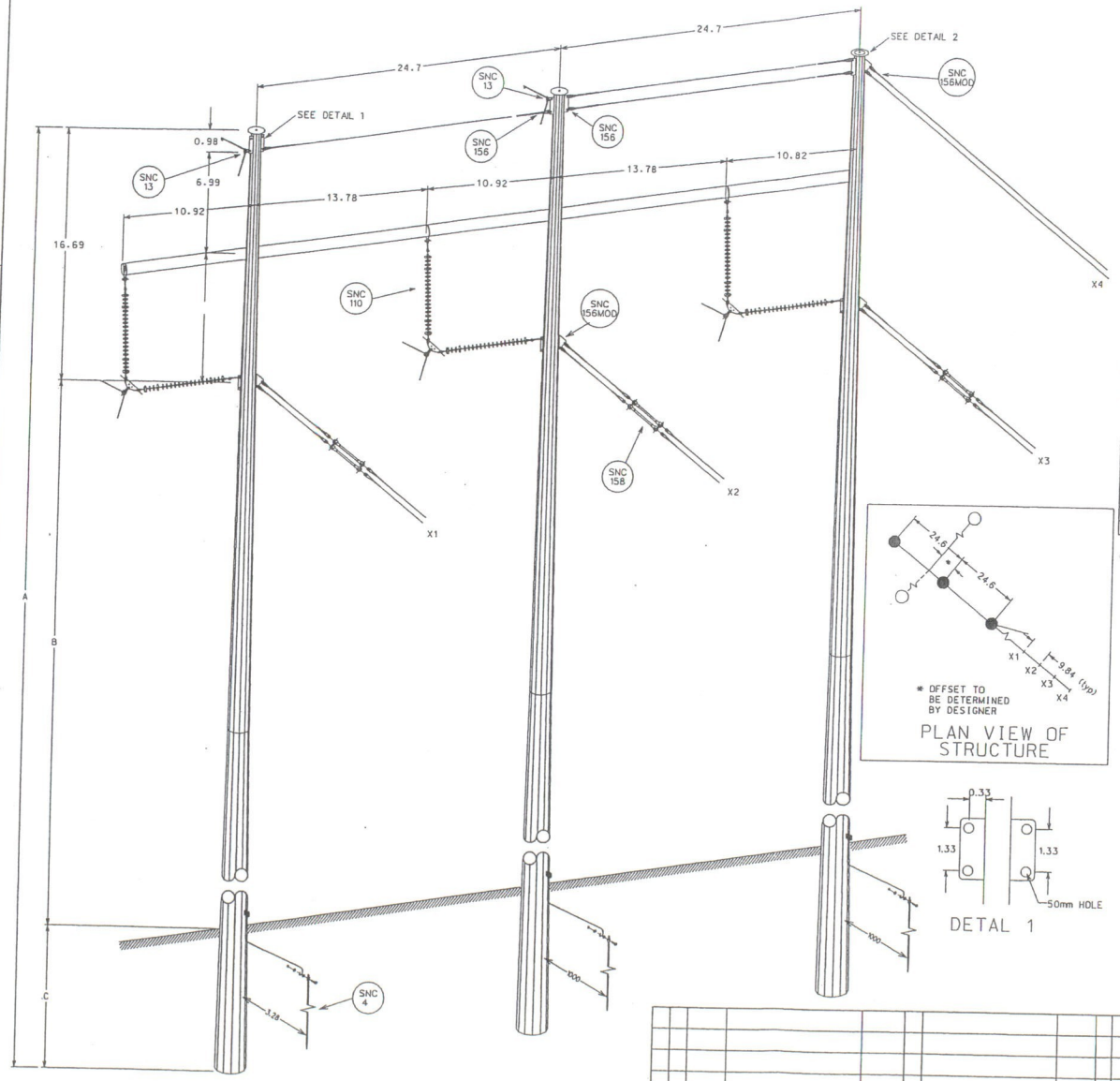
PROJECT: MONTANA-ALBERTA TIE LINE

TITLE: 240 kV H-FRAME LIGHT ANGLE ASSEMBLIES

DOCUMENT No.: MATLP-43-D1-0004

REV: B

PRINTPATHEN - FRAME A1 HORIZONTAL ENGLISH



MATERIAL AND ITEM LIST FOR STRUCTURE MATL-43-D1-005		
QTY	ASSEMBLY	DESCRIPTION
0	SNC110	SOCKET-CLEVIS, GLV, 38MM D, 22MM S, M16
0	SNC110	BALL-CLEVIS, GLV. 38MM D, 22MM S, M16 B
0	SNC156, MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
0	SNC110	BALL-EYE, GLV. 50MM X25 MM OVAL. 111 KN
0	SNC110	PLATE, YOKE, 16 SPACING
0	SNC110	BALL-Y-CLEVIS,GLV. H/L 680MM L, M20 BLT
0	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
0	SNC304	WIRE, CU, SOLID, SD BARE #4
0	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
0	SNC156, MOD	WIRE, GUY,7 STR, STL, GR.180,7/16"DIA.
0	SNC304	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
0	SNC13	CONNECTOR, WEDGE-TYPE
0	SNC13	CARTRIDGE, COLOR CODE RED
0	SNC156, MOD	GRIP, PRFD 7/16 GUY 40, GREEN
0	SNC110	ROD, ARMOUR, PRFD AL, CURLEW(2.54)BLK 12
0	SNC110	CLAMP, ANGLE SUSP, SOCK, 1.40-2.18
0	SNC304	ROD, GROUND, 5/8" X 8', STEEL
0	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
0	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
0	SNC110	SHACKLE, CHAIN W. BOLT , 90 kN
0	SNC110	INSULATOR, SYN, SOC-BALL, SIL, 240kV

Structure: 240kV Three Pole Medium Angle Structure
Deflection : 5 to 20 Degree Line Angle
Conductor: 1033 kcmil ACSR Curlew
O.H.S.W.: 5/16" Steel Grade 220
OPGW: 16mm OPGW (To be determined)

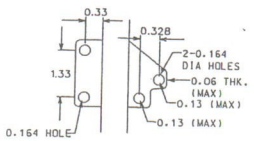
Pole Dimensions					
A		B		C	
feet	m	feet	m	feet	m
75	22.86	46.78	14.26	11.5	3.51
80	24.38	51.28	15.63	12	3.66
85	25.91	55.81	17.01	12.5	3.81
90	27.43	60.30	18.38	13	3.96

PLAN VIEW OF STRUCTURE

General Notes:

1. Poles are to be designed and fabricated in accordance with ACSE Manuals and reports No. 72 - Design of Steel Transmission Pole Structures, Second Edition.
2. Base plates to be designed for 200kPa soil.
3. Finish to be galvanized or weathering steel
4. Pole to direct embedded 10% of pole height plus 4 feet.
5. All dimensions are to the centre of the vang.
6. Stainless steel ground tab at pole top & near groundline are required
7. Ladder clips are required
8. Design calculations are to be included with bid for review by SNC-Lavalin ATP Inc.
9. Unless otherwise indicated, all dimensions are in feet.
10. For assembly drawings see sheets 2 and 3.
11. Pole fabrication shall be in accordance with SNC Lavalin ATP Specification #645-04 "Fabrication of Tubular Steel Transmission Structures".
12. Icing on the structure need not be considered in design.

DETAL 1



DETAL 2

NOTES:
1. OLF = 1.67
2. ULTIMATE STRENGTH OF GUY VANG = 30000 LBS. PER CONNECTION POINT.

ISSUE REGISTER					
ISSUE No.	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No.
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER					
No.	REVISION DESCRIPTION	DATE (Y/M/D)	*	**
B	PRELIMINARY DESIGN	05/03/29	PD	
A	PRELIMINARY DESIGN	05/02/16	PD	

INITIALS: * DESIGNED ** APPROVED

PROFESSIONAL SEAL

SNC-LAVALIN

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2M4

PREPARATION		APPROVAL	
DESIGNED	P.DILLON	PROJECT DISCIPLINE ENGINEER	
DRAWN	A.MAY	PROJECT ENGINEERING MANAGER	
CHECKED			
DATE	05-02-16	CLIENT	
SCALE	NTS	SHEET	1 OF 3

PERMIT TO PRACTICE STAMP

CLIENT: MONTANA ALBERTA TIE LTD.

PROJECT: MONTANA-ALBERTA TIE LINE

TITLE: THREE POLE 240kV MEDIUM ANGLE STRUCTURE WITH TWO OVERHEAD SHIELD WIRES

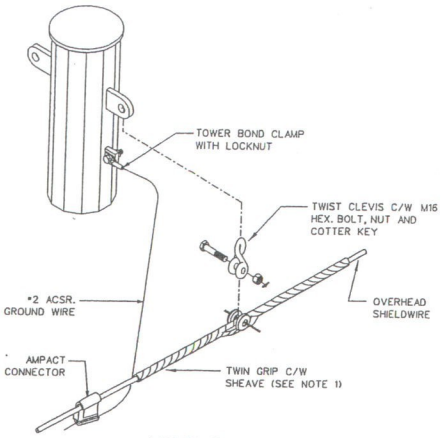
DOCUMENT No.: MATLP-43-D1-0005 REV: B

PRINTPAPER - FRAME AT HORIZONTAL ENGLISH

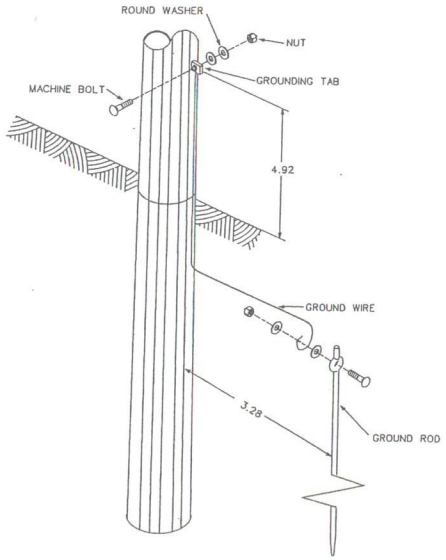
MATERIAL AND ITEM LIST FOR STRUCTURE SNC13		
QTY	ASSEMBLY	DESCRIPTION
1	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
1	SNC13	CONNECTOR, WEDGE-TYPE
1	SNC13	CARTRIDGE, COLOR CODE RED
1	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
1	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
1	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD

MATERIAL AND ITEM LIST FOR STRUCTURE SNC4		
QTY	ASSEMBLY	DESCRIPTION
1	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
3	SNC4	WIRE, CU, SOLID, SD BARE #4
1	SNC4	ROD, GROUND, 5/8" X 8', STEEL

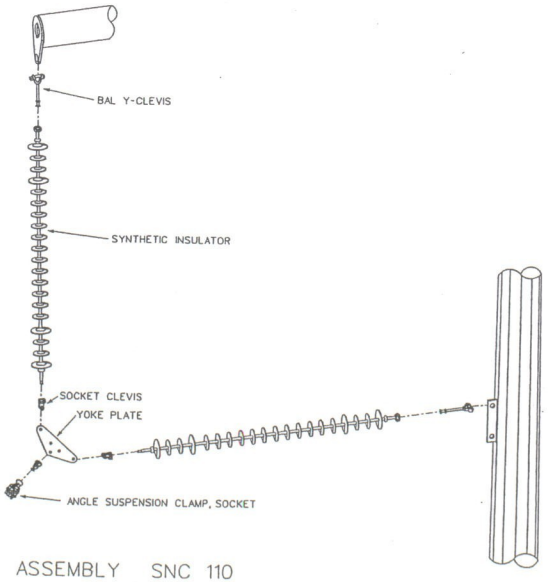
MATERIAL AND ITEM LIST FOR STRUCTURE SNC110		
QTY	ASSEMBLY	DESCRIPTION
2	SNC110	SOCKET-CLEVIS, GLV. 38MM D, 22MM S, M16
1	SNC110	BALL-CLEVIS, GLV. 38MM D, 22MM S, M16 B
1	SNC110	PLATE, YOKE, 16 SPACING
2	SNC110	BALL-Y-CLEVIS,GLV. H/L 680MM L, M20 BLT
1	SNC110	ROD, ARMOUR, PRFD AL, CURLEW(2.54)BLK 12
1	SNC110	CLAMP, ANGLE SUSP, SOCK, 1.40-2.18
2	SNC110	INSULATOR, SYN, SOC-BALL, SIL, 240kV



ASSEMBLY SNC 13



ASSEMBLY SNC 4



ASSEMBLY SNC 110

NOTE:
1. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN FEET.

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/16	ISSUED FOR BID	

ISSUE REGISTER

NO	REVISION DESCRIPTION	DATE (Y/M/D)	*	**
B	PRELIMINARY DESIGN	05/03/29	PD	
A	ISSUED FOR BID	05/02/16	PD	

INITIALS: * DESIGNED ** APPROVED

REVISION REGISTER

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-LAVALIN

SNC-Lavalin ATP Inc.
1035 – 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

PREPARATION		APPROVAL
DESIGNED	PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	R. BROUILLETTE	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-16	CLIENT
SCALE	NTS	SHEET 2 OF 3

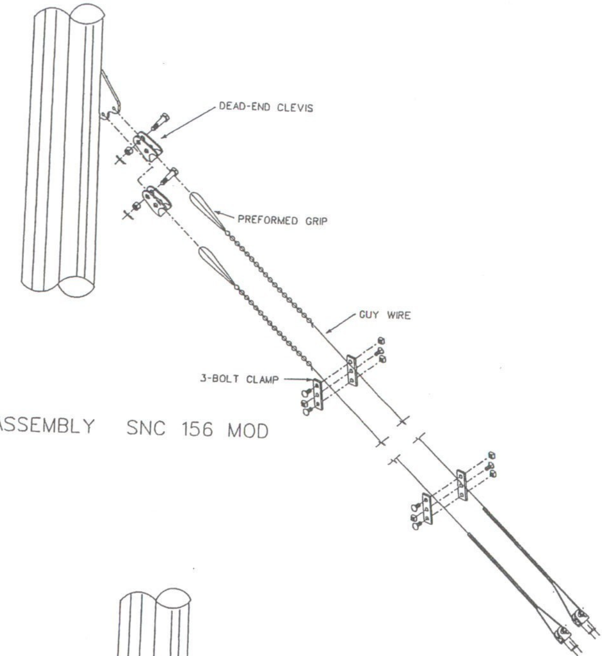
CLIENT: MONTANA ALBERTA TIE LTD.

PROJECT: MONTANA-ALBERTA TIE LINE

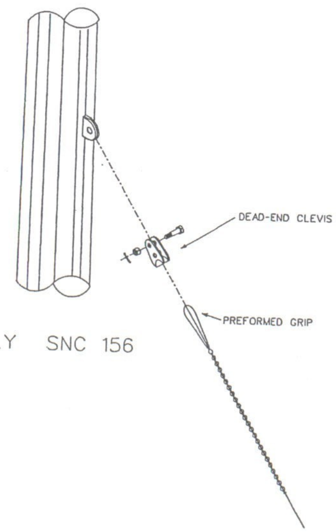
TITLE: THREE POLE 249kV MEDIUM ANGLE STRUCTURE WITH 2 OHSW ASSEMBLY DRAWINGS

DOCUMENT No.: MATLP-43-D1-0005 REV: B

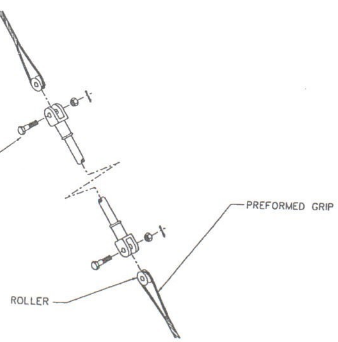
PRINTPAINTER - FRAME 41 HORIZONTAL ENGLISH



ASSEMBLY SNC 156 MOD



ASSEMBLY SNC 156



ASSEMBLY SNC 158

MATERIAL AND ITEM LIST FOR STRUCTURE SNC156

QTY	ASSEMBLY	DESCRIPTION
1	SNC156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
2	SNC156MOD	GRIP, PRFD 7/16 GUY 40, GREEN
20	SNC156MOD	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.

MATERIAL AND ITEM LIST FOR STRUCTURE SNC158

QTY	ASSEMBLY	DESCRIPTION
2	SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
1	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS

MATERIAL AND ITEM LIST FOR STRUCTURE SNC156MOD

QTY	ASSEMBLY	DESCRIPTION
2	SNC156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
4	SNC156MOD	GRIP, PRFD 7/16 GUY 40, GREEN
50	SNC156MOD	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.
2	SNC156MOD	CLAMP,GUY,GALV.5/8"BOLT,3 BOLT STRAIGHT

NOTE:
1. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN FEET.

ISSUE REGISTER

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	*	**
B	PRELIMINARY DESIGN	05/03/29	PD	
A	ISSUED FOR BID	05/02/16	PD	

*INITIALS: * DESIGNED ** APPROVED

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-LAVALIN
SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2M4

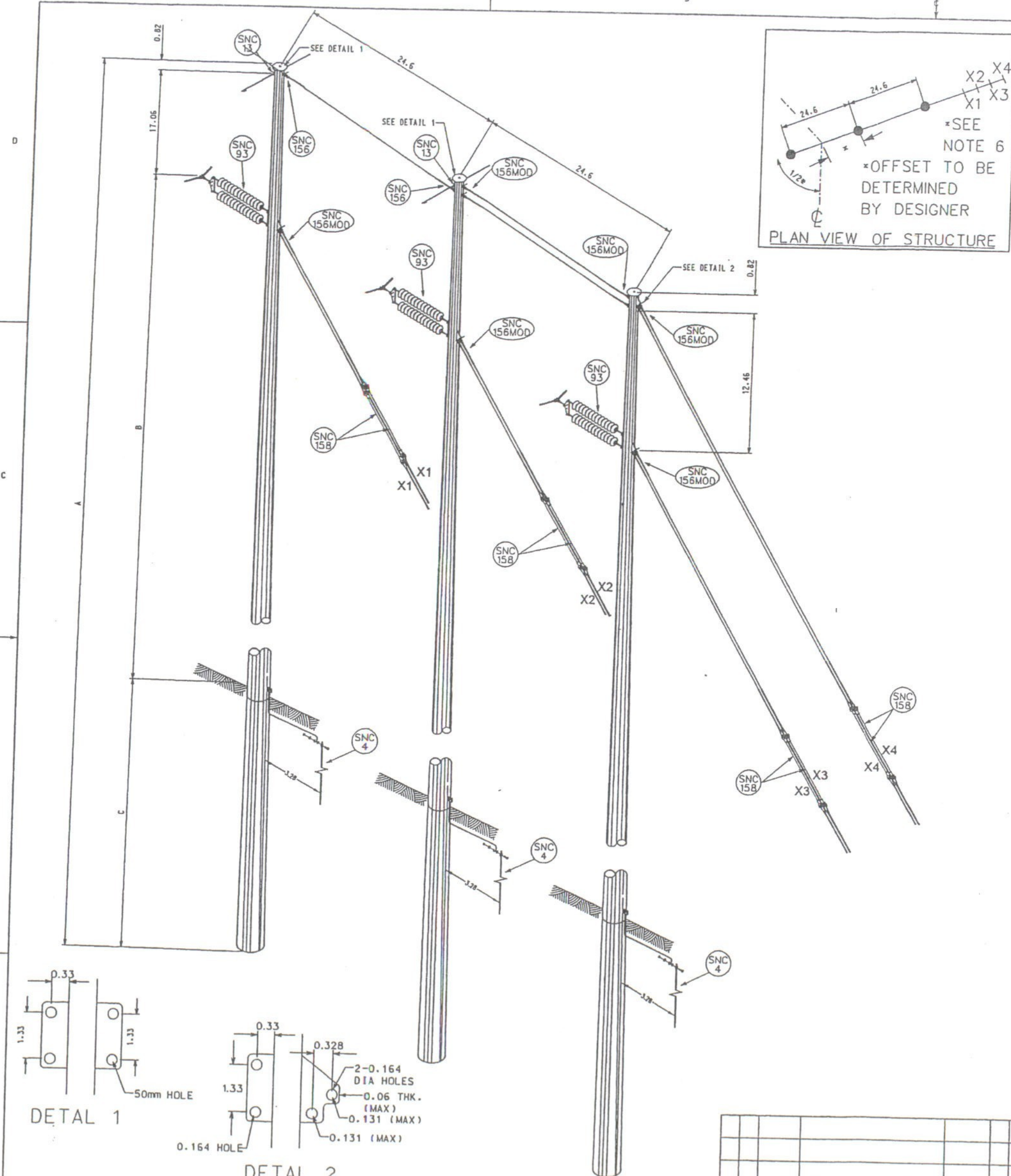
PREPARATION	APPROVAL
DESIGNED PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN R. BROUILLETTE	PROJECT ENGINEERING MANAGER
CHECKED	
DATE 05-02-16	CLIENT
SCALE NTS	SHEET 3 OF 3

CLIENT: MONTANA ALBERTA TIE LTD.

PROJECT: MONTANA-ALBERTA TIE LINE

TITLE: THREE POLE 249kV MEDIUM ANGLE STRUCTURE WITH 2 OHSW ASSEMBLY DRAWINGS

DOCUMENT No.: MATLP-43-D1-0005 REV: B



NOTES:
1. OLF = 1.67
2. ULTIMATE STRENGTH OF GUY VANG - 30000 LBS. PER CONNECTION POINT.

MATERIAL AND ITEM LIST FOR STRUCTURE MATL-43-D1-006

QTY	ASSEMBLY	DESCRIPTION
2	SNC93	SOCKET-CLEVIS, GLV. 38MM D, 22MM S, M16
1	SNC93	BALL-CLEVIS, GLV. 38MM D, 22MM S, M16 B
14	SNC156 , 156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
1	SNC93	PLATE, YOKE, 16 SPACING
2	SNC93	BALL-Y-CLEVIS,GLV. H/L 680MM L, M20 BLT
12	SNC156MOD	CLAMP,GUY,GALV.5/8"BOLT,3 BOLT STRAIGHT
2	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
9	SNC4	WIRE, CU, SOLID, SD BARE #4
2	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
300	SNC156 , 156MOD	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.
3	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
2	SNC13	CONNECTOR, WEDGE-TYPE
2	SNC13	CARTRIDGE, COLOR CODE RED
44	SNC156 , 156MOD, SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
1	SNC93	ROD, ARMOUR, PRFD AL, CURLEW(2.54)BLK 12
1	SNC93	CLAMP, ANGLE SUSP, SOCK, 1.40-2.18
3	SNC4	ROD, GROUND, 5/8" X 8', STEEL
2	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
2	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
2	SNC93	INSULATOR, SYN, SOC-BALL, SIL, 240kV
8	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS

Structure: 240kV 3 Pole Heavy Angle Structure
Deflection : 20 to 45 Degree Line Angle
Conductor: 1033 kcmil ACSR Curlew
O.H.S.W.: 5/16" Steel Grade 220
OPGW: 16mm OPGW (To be determined)

Air Gap Requirements

Temp. (oC)	Wind (Pa)	Swing θ - Degrees		Clearance (a) - mm
4	0	79	67	5.58
4	875	81	40	2.1
-30	500	82	64	2.76

Pole Dimensions

A		B		C	
feet	m	feet	m	feet	m
65	19.81	36.62	11.16	10.5	3.20
70	21.34	41.12	12.53	11	3.35
75	22.86	45.62	13.91	11.5	3.51
80	24.38	50.12	15.28	12	3.66
85	25.91	54.62	16.65	12.5	3.81

General Notes:
1. Poles are to be designed and fabricated in accordance with ACSE Manuals and reports No. 72 - Design of Steel Transmission Pole Structures, Second Edition.
2. Base plates to be designed for 200kPa soil.
3. Finish to be galvanized or weathering steel
4. Pole to direct embedded 10% of pole height plus 4 feet.
5. All dimensions are to the centre of the vang.
6. Stainless steel ground tab at pole top & near groundline are required
7. Ladder clips are required
8. Design calculations are to be included with bid for review by SNC-Lavalin ATP Inc.
9. All dimensions are in feet.
10. For assemblies see sheet 2 and 3.
11. Outside pole is 5 feet shorter.
12. Pole fabrication shall be in accordance with SNC Lavalin ATP Specification #645-04 "Fabrication of Tubular Steel Transmission Structures".
13. Icing on the structure need not be considered in design.

ISSUE REGISTER

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS: DESIGNED	APPROVED
B	PRELIMINARY DESIGN	05/23/29	PD	
A	PRELIMINARY DESIGN	05-02-16	PD	

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-LAVALIN
SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

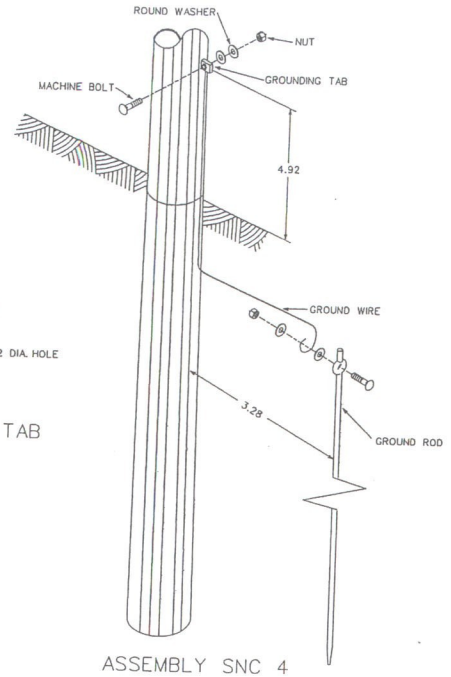
PREPARATION	APPROVAL
DESIGNED P.DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN A.MAY	PROJECT ENGINEERING MANAGER
CHECKED	
DATE 05-02-16	CLIENT
SCALE NTS	SHEET 1 OF 3

CLIENT

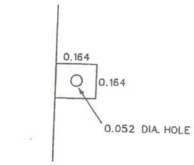
PROJECT

TITLE THREE POLE 240kV HEAVY ANGLE STRUCTURE WITH TWO OVERHEAD SHIELD WIRES

DOCUMENT No. MATLP-43-31-0006 REV B



ASSEMBLY SNC 4

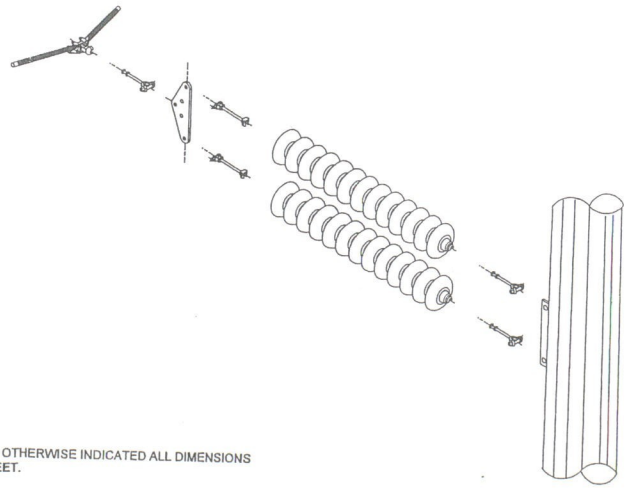


DETAIL 1
GROUNDING TAB

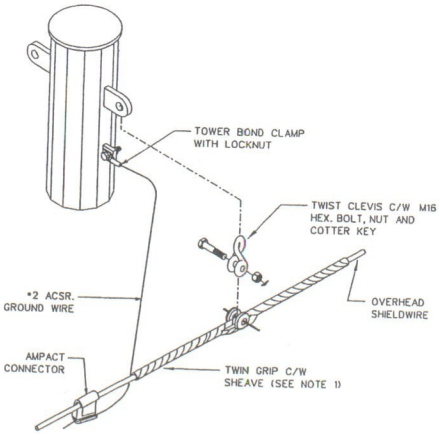
MATERIAL AND ITEM LIST FOR STRUCTURE SNC13		
QTY	ASSEMBLY	DESCRIPTION
1	SNC13	SUSPEN, PRFD TWIN:GRIP TWRS. 5/16"
1	SNC13	CONNECTOR, WEDGE-TYPE
1	SNC13	CARTRIDGE, COLOR CODE RED
1	SNC13	SHACKLE, TWISTED W/BOLT, 90 kN
1	SNC13	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
1	SNC13	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD

MATERIAL AND ITEM LIST FOR STRUCTURE SNC4		
QTY	ASSEMBLY	DESCRIPTION
1	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
3	SNC4	WIRE, CU, SOLID, SD BARE #4
1	SNC4	ROD, GROUND, 5/8" X 8', STEEL

MATERIAL AND ITEM LIST FOR STRUCTURE SNC93		
QTY	ASSEMBLY	DESCRIPTION
2	SNC93	SOCKET-CLEVIS, GLV. 38MM D, 22MM S, M16
1	SNC93	BALL-CLEVIS, GLV. 38MM D, 22MM S, M16 B
1	SNC93	PLATE, YOKE, 16 SPACING
2	SNC93	BALL-Y-CLEVIS,GLV. H/L 680MM L, M20 BLT
1	SNC93	ROD, ARMOUR, PRFD AL, CURLEW(2.54)BLK 12
1	SNC93	CLAMP, ANGLE SUSP, SOCK, 1.40-2.18
2	SNC93	INSULATOR, SYN, SOC-BALL, SIL, 240kV



ASSEMBLY SNC 93



ASSEMBLY SNC 13

NOTE:
1. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN FEET.

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/16	ISSUED FOR BID	

ISSUE REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	P	M
B	PRELIMINARY DESIGN	05/03/29	PD	
A	PRELIMINARY DESIGN	05-02-16	PD	

INITIALS: P DESIGNED MM APPROVED

REVISION REGISTER

PROFESSIONAL SEAL

SNC-LAVALIN

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2J4

PREPARATION		APPROVAL
DESIGNED	P.DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	A.MAY	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-16	CLIENT
SCALE	NTS	SHEET 2 OF 3

PERMIT TO PRACTICE STAMP

CLIENT

PROJECT

TITLE: ASSEMBLIES

DOCUMENT No.: MATLP-43-D1-0006

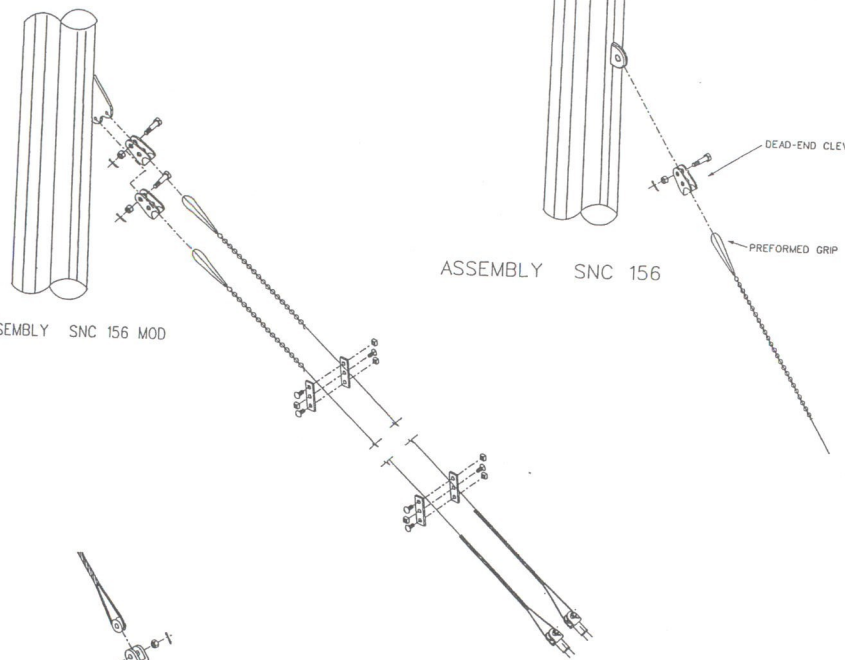
REV: B

PROJECTVIEW - FRAME 11 HORIZONTAL ENGLISH

MATERIAL AND ITEM LIST FOR STRUCTURE SNC156		
QTY	ASSEMBLY	DESCRIPTION
1	SNC156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
2	SNC156MOD	GRIP, PRFD 7/16 GUY 40, GREEN
20	SNC156MOD	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.

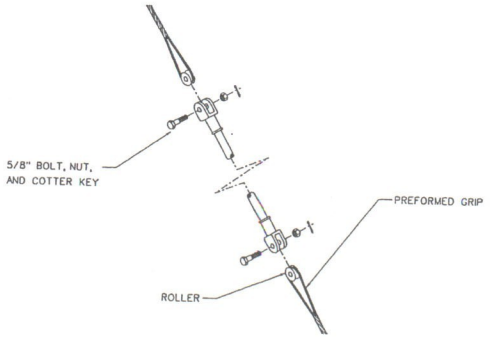
MATERIAL AND ITEM LIST FOR STRUCTURE SNC158		
QTY	ASSEMBLY	DESCRIPTION
2	SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
1	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS

MATERIAL AND ITEM LIST FOR STRUCTURE SNC156MOD		
QTY	ASSEMBLY	DESCRIPTION
2	SNC156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
4	SNC156MOD	GRIP, PRFD 7/16 GUY 40, GREEN
50	SNC156MOD	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.
2	SNC156MOD	CLAMP,GUY,GALV.5/8"BOLT,3 BOLT STRAIGHT



ASSEMBLY SNC 156

ASSEMBLY SNC 156 MOD



ASSEMBLY SNC 158

ISSUE REGISTER					
ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No	
1	A	05/02/18	ISSUED FOR BID		

REVISION REGISTER					
No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS		
			DESIGNED	DRAWN	APPROVED
B	PRELIMINARY DESIGN	05/03/29	PD		
A	PRELIMINARY DESIGN	05-02-16	PD		

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-Lavalin ATP Inc.
1035 – 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

PREPARATION	APPROVAL
DESIGNED P.DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN A.MAY	PROJECT ENGINEERING MANAGER
CHECKED	
DATE 05-02-16	CLIENT
SCALE NTS	SHEET 3 OF 3

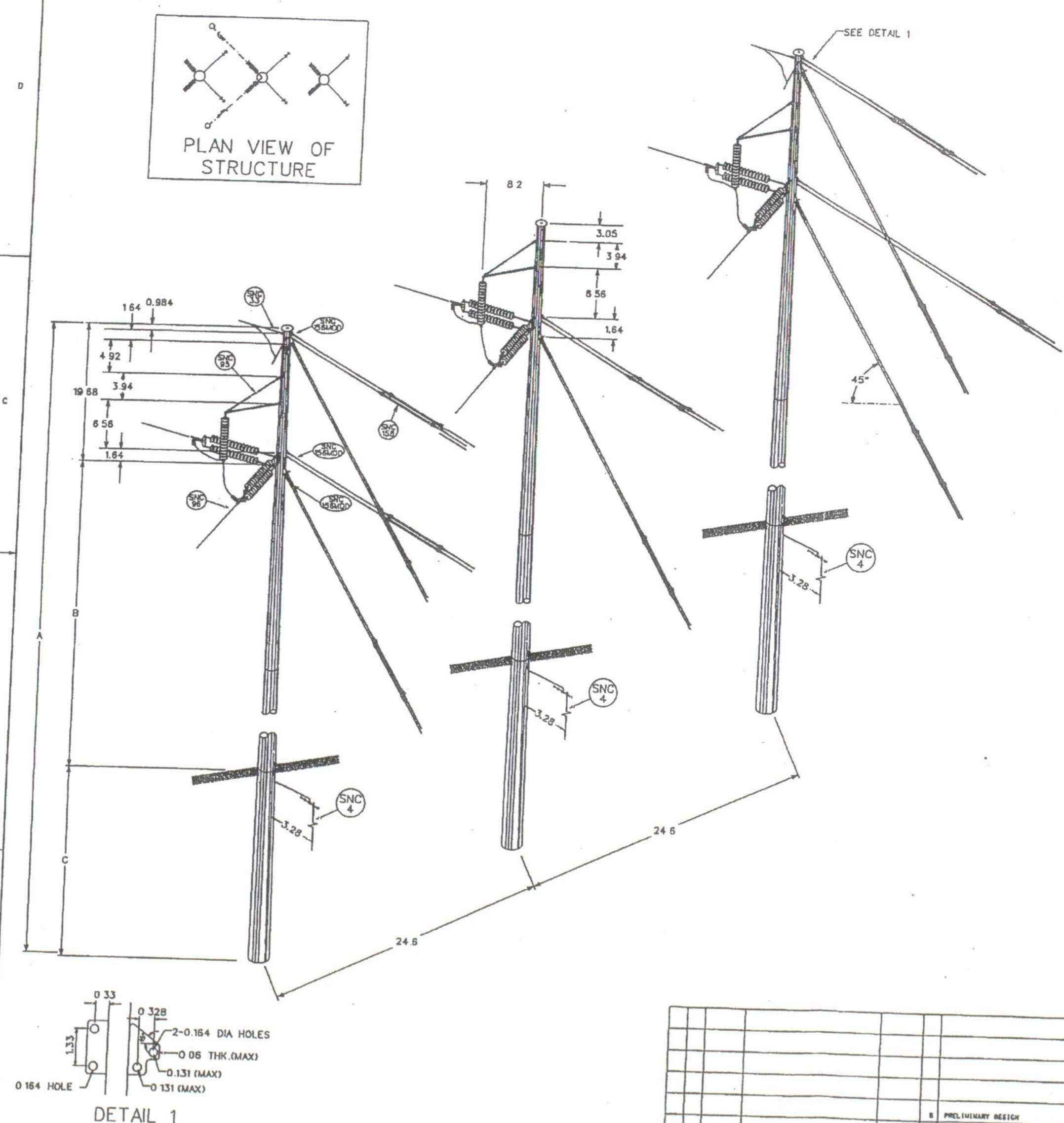
CLIENT

PROJECT

TITLE
ASSEMBLIES

DOCUMENT No. MATLP-43-01-0006 REV B

PRINTPATHEW - FRAME A1 HORIZONTAL ENGLISH



QTY	ASSEMBLY	DESCRIPTION
12	SNC96	SOCKET-CLEVIS, GLV. 38MM D, 22MM S, M16
30	SNC33, SNC95, SNC156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
3	SNC95	BALL-EYE, GLV. 50MM X25 MM OVAL 111 KN
3	SNC95	SHACKLE, ANCHOR, STRENGTH 90 kN
12	SNC96	SHACKLE, ANCHOR, STRENGTH 222 kN
6	SNC96	PLATE, YOKE, 18 SPACING
12	SNC96	BALL-Y-CLEVIS,GLV. H/L 680MM L, M20 BLT
20	SNC156MOD	CLAMP,GUY,GALV.5/8"BOLT,3 BOLT STRAIGHT
2	SNC33	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
9	SNC4	WIRE, CU, SOLID, SD BARE #4
2	SNC33	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
550	SNC95, SNC156MOD	WIRE, GUY,7 STR. STL, GR.180,7/16"DIA.
3	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
2	SNC33	CONNECTOR, WEDGE-TYPE
3	SNC95	CONNECTOR, WEDGE-TYPE [AMP #602180]
2	SNC33	CARTRIDGE, COLOR CODE RED
3	SNC96	CARTRIDGE, COLOR CODE YELLOW
6	SNC96	DEADEND, 2 COMP. CONN, 1033.5 ACSR CURL
40	SNC156MOD	GRIP, PRFD 7/16 GUY 40, GREEN
40	SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
4	SNC33	GRIP, GUY, PRFD, GALV STEEL, 5/16
6	SNC95	GRIP, GUY, PRFD, GALV STEEL, 5/16
3	SNC95	CLAMP, SOCKET SUSPENSION
3	SNC4	ROD, GROUND, 5/8" X 8', STEEL
42	SNC95	INSULATOR, SUSP, SOS, 15000# PORC
12	SNC96	INSULATOR, SYN, SOC-BALL, BIL, 240KV
20	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS

Table title: MATERIAL AND ITEM LIST FOR STRUCTURE MATL-43-D1-006

Structure: 240kV Three Pole Dead-End Structure
Deflection: 45 to 90 Degree Line Angle
Conductor: 1033 kcmil ACSR Curlew
OPGW: 16mm OPGW (To be determined)

Pole Dimensions					
A		B		C	
feet	m	feet	m	feet	m
60	18.29	30.32	9.24	10	3.05
65	19.81	34.82	10.61	10.5	3.20
70	21.34	39.32	11.98	11	3.35
75	22.86	43.82	13.36	11.5	3.51
80	24.38	48.32	14.73	12	3.66

General Notes:

1. Poles are to be designed and fabricated in accordance with ACSE Manuals and reports No. 72 - Design of Steel Transmission Pole Structures. Second Edition.
2. Base plates to be designed for 200kPa soil.
3. Finish to be galvanized or weathering steel
4. Pole to direct embedded 10% of pole height plus 4 feet.
5. All dimensions are to the centre of the vang.
6. All Dimensions in feet.
7. For Assemblies refer to sheets 2 and 3.
8. Design calculations are to be included with bid for review by SNC-Lavalin ATP Inc.
9. Stainless steel ground tab at pole top & near groundline are required
10. Ladder clips are required
11. Middle pole is 5 feet shorter
12. Pole fabrication shall be in accordance with SNC Lavalin ATP Specification #645-04 "Fabrication of Tubular Steel Transmission Structures".
13. Icing on the structure need not be considered in design.

ISSUE No.	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No.
1	A	05/02/18	ISSUED FOR BID	

ISSUE REGISTER

No.	REVISION DESCRIPTION	DATE (Y/M/D)	DETAILED	CHECKED	APPROVED
B	PRELIMINARY DESIGN	05/03/29	PD		
A	ISSUED FOR BID	05/02/17	PD		

REVISION REGISTER

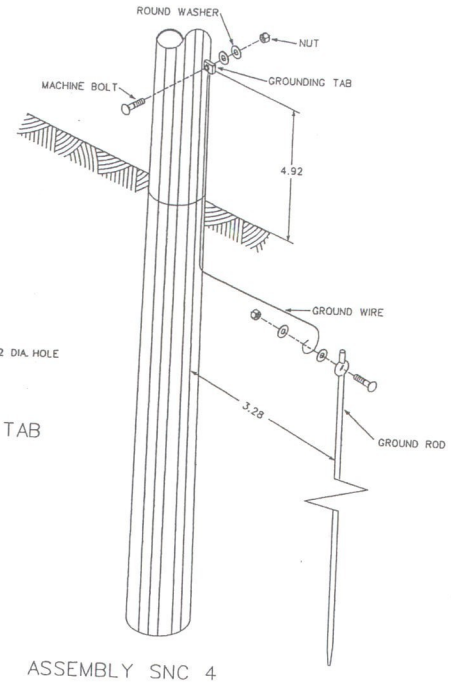
PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

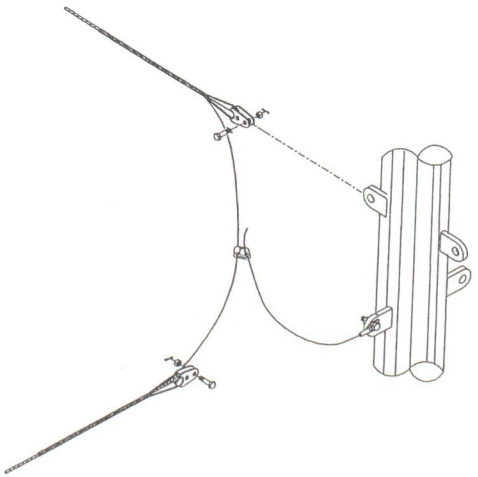
SNC-LAVALIN
SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 3E4

PREPARATION		APPROVAL
DESIGNED	P.DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	A.MAY	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-17	CLIENT
SCALE	NTS	SHEET 1 OF 3

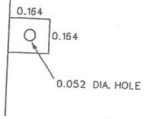
CLIENT: MONTANA ALBERTA TIE LTD.
PROJECT: MONTANA-ALBERTA TIE LINE
TITLE: THREE POLE 240KV DEADEND STRUCTURE WITH TWO OVERHEAD SHIELD WIRES
DOCUMENT No.: MATLP-43-D1-0007
REV: B



ASSEMBLY SNC 4



ASSEMBLY SNC33



DETAIL 1
GROUNDING TAB

MATERIAL AND ITEM LIST FOR STRUCTURE SNC4		
QTY	ASSEMBLY	DESCRIPTION
1	SNC4	CONNECTOR, #2/0 OR #4/0 TO FLAT SURFACE
3	SNC4	WIRE, CU, SOLID, SD BARE #4
1	SNC4	ROD, GROUND, 5/8" X 8', STEEL

MATERIAL AND ITEM LIST FOR STRUCTURE SNC33		
QTY	ASSEMBLY	DESCRIPTION
2	SNC33	CLEVIS, THIMBLE, GALV. 20MM SPREAD
1	SNC33	CLAMP, GROUND, BRZ. 1/2 H.H. BOLT LW&NUT
1	SNC33	WIRE, #2ACSR STD OR SB FOR GND DOWNLEAD
1	SNC33	CONNECTOR, WEDGE-TYPE
1	SNC33	CARTRIDGE, COLOR CODE RED
2	SNC33	GRIP, GUY, PRFD, GALV STEEL, 5/16

MATERIAL AND ITEM LIST FOR STRUCTURES SNC96		
QTY	ASSEMBLY	DESCRIPTION
4	SNC96	SOCKET-CLEVIS, GLV. 38MM D, 22MM S, M16
4	SNC96	SHACKLE, ANCHOR, STRENGTH 222 kN
2	SNC96	PLATE, YOKE, 16 SPACING
4	SNC96	BALL-Y-CLEVIS,GLV. H/L 680MM L, M20 BLT
1	SNC96	CONNECTOR, WEDGE:TYPE [AMP #602180]
1	SNC96	CARTRIDGE, COLOR CODE YELLOW
2	SNC96	DEADEND, 2 COMP. CONN, 1033.5 ACSR CURL
4	SNC96	INSULATOR, SYN, SOC-BALL, SIL, 240KV

NOTE:
1. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN FEET.

ISSUE No.	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No.
1	A	05/02/18	ISSUED FOR BID	

ISSUE REGISTER

No.	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS: ▫ DESIGNED ▫▫ APPROVED
B	PRELIMINARY DESIGN	05/03/29	PD
A	ISSUED FOR BID	05/02/17	PD

REVISION REGISTER

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

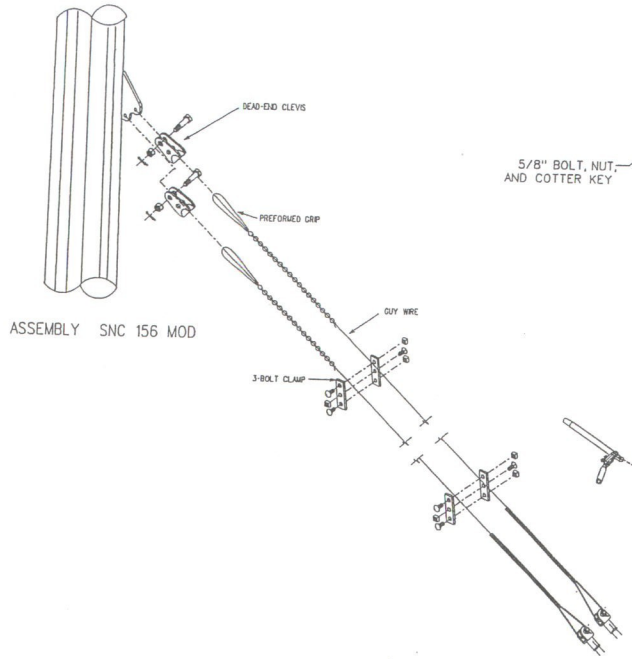
SNC-Lavalin

SNC-Lavalin ATP Inc.
1035 – 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2N4

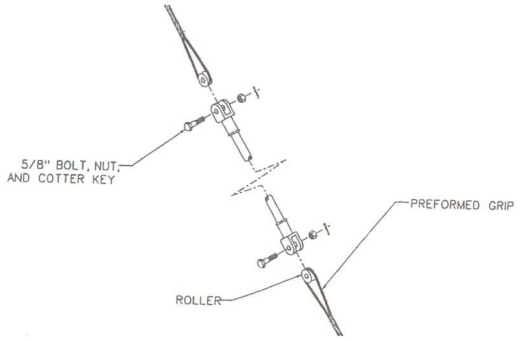
PREPARATION		APPROVAL
DESIGNED	PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	J.GORDO	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-17	CLIENT
SCALE	NTS	SHEET 2 OF 3

CLIENT: MONTANA ALBERTA TIE LTD.
PROJECT: MONTANA-ALBERTA TIE LINE
TITLE: ASSEMBLY DRAWINGS
DOCUMENT No.: MATLP-43-01-0007
REV: B

PROJECTMAN – PRIME AT HORIZONTAL ENGLISH



ASSEMBLY SNC 156 MOD

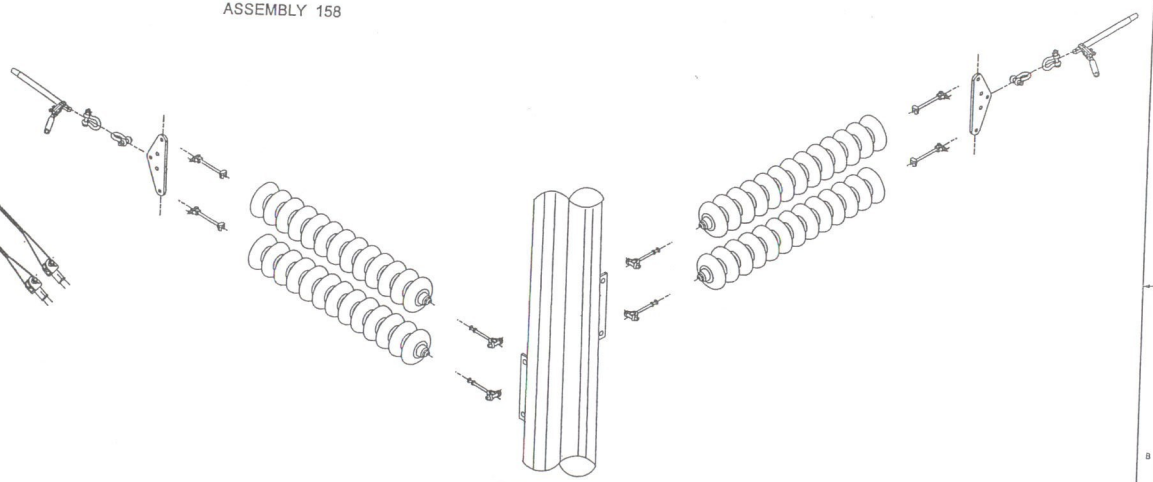


ASSEMBLY 158

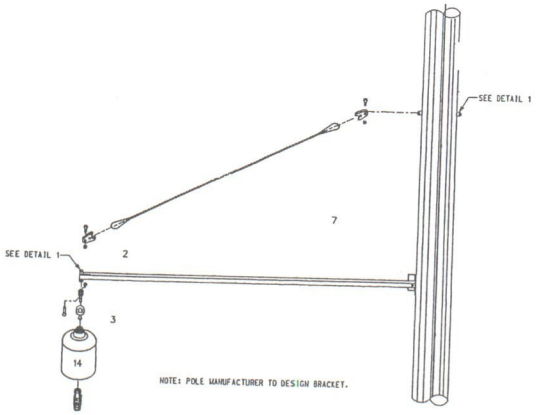
MATERIAL AND ITEM LIST FOR STRUCTURE SNC158		
QTY	ASSEMBLY	DESCRIPTION
2	SNC158	GRIP, PRFD 7/16 GUY 40, GREEN
1	SNC158	GUY STRAIN INSULATOR, 240KV, 100KN UTS

MATERIAL AND ITEM LIST FOR STRUCTURE SNC156MOD		
QTY	ASSEMBLY	DESCRIPTION
2	SNC156MOD	CLEVIS, THIMBLE, GALV. 20MM SPREAD
4	SNC156MOD	GRIP, PRFD 7/16 GUY 40, GREEN
50	SNC156MOD	WIRE, GUY, 7 STR. STL, GR.180, 7/16"DIA.
2	SNC156MOD	CLAMP, GUY, GALV. 5/8"BOLT, 3 BOLT STRAIGHT

MATERIAL AND ITEM LIST FOR STRUCTURE SNC95		
QTY	ASSEMBLY	DESCRIPTION
2	SNC95	CLEVIS, THIMBLE, GALV. 20MM SPREAD
1	SNC95	BALL-EYE, GLV. 50MM X25 MM OVAL. 111 KN
1	SNC95	SHACKLE, ANCHOR, STRENGTH 90 kN
5	SNC95	WIRE, GUY, 7 STR. STL, GR.180, 7/16"DIA.
2	SNC95	GRIP, GUY, PRFD, GALV STEEL, 5/16
1	SNC95	CLAMP, SOCKET SUSPENSION
14	SNC95	INSULATOR, SUSP, BOS, 15000# PORC



ASSEMBLY SNC 96



ASSEMBLY 95

NOTE:
1. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN FEET.

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

ISSUE REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS: D DESIGNED	AP APPROVED
B	PRELIMINARY DESIGN	05/03/29	PG	
A	ISSUED FOR BID	05/02/17	PG	

REVISION REGISTER

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-LAVALIN

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 3G4

PREPARATION	APPROVAL
DESIGNED: PAUL DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN: J. GORDO	PROJECT ENGINEERING MANAGER
CHECKED	
DATE: 05-02-17	CLIENT
SCALE: NTS	SHEET: 3 OF 3

CLIENT: MONTANA ALBERTA TIE LTD.

PROJECT: MONTANA-ALBERTA TIE LINE

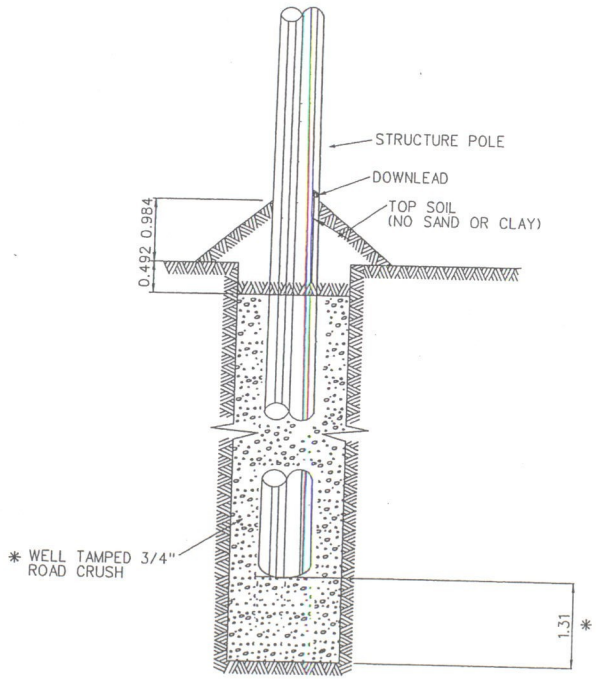
TITLE: ASSEMBLY DRAWINGS

DOCUMENT No.: MATLP-43-D1-0007

REV: B

PRINTPAPHEM - FRAME A1 HORIZONTAL ENGLISH

PLAN



ELEVATION

NOTES:

1. DEPTH = LENGTH OF POLE X 10% +1.2m, UNLESS SPECIFIED ON STRUCTURE LIST.
2. BACKFILL IS TO HAVE A SLOPE @ 45° +5° FROM THE OUTSIDE OF THE POLE TO THE EDGE OF THE ORIGINAL GROUND SURFACE AND IS TO BE TAMPED TO 85% PROCTOR. BENTONITE MAY BE USED IN WET AREAS.
3. AUGER SIZE TO BE 36" OR 42", DETERMINED BY POLE DIAMETER.
4. ALL DIMENSIONS ARE IN FEEET UNLESS OTHERWISE INDICATED.

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

ISSUE REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS * DESIGNED ** APPROVED
B	PRELIMINARY DESIGN	05/03/29	PD
A	PRELIMINARY DESIGN	05/02/17	PD

REVISION REGISTER

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC·LAVALIN

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

PREPARATION	APPROVAL
DESIGNED P. DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN A. MAY	PROJECT ENGINEERING MANAGER
CHECKED	
DATE 05-02-17	CLIENT
SCALE NTS	SHEET 1 OF 1

CLIENT

PROJECT

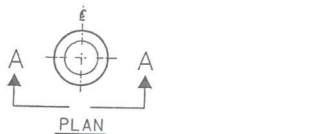
TITLE
STANDARD SETTING METHOD
FOR DEAD-ENDS

DOCUMENT No. MATLP-43-D2-0001 REV B

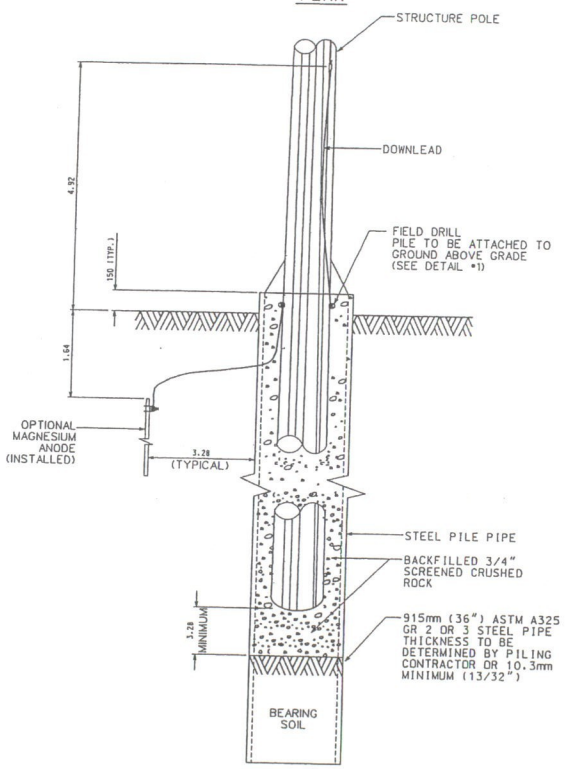
PRINTED/PLOTTED - FRAME A1 HORIZONTAL ENGLISH

MATERIAL LIST

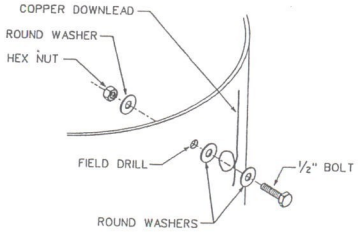
ITEM	QTY.	DESCRIPTION
	1	20' PILE, STEEL PIPE (36" DIAMETER)
513-2402	1	BOLT 1/2" x 2"
514-2102	3	WASHER RD 1-3/8", 9/16" HOLE
531-0102	2m	WIRE, COOPER #4 SOLID BARE



PLAN



SECTION A-A



DETAIL #1

NOTES:

1. POLE TO BE SET TO STANDARD SETTING DEPTH + 10% + 1.2m, UNLESS SPECIFIED OTHERWISE BY DESIGNER.
2. BACKFILL TO HAVE SLOPE @ 45° FROM THE OUTSIDE OF THE POLE TO THE EDGE OF STEEL POLE AND IS TO BE TAMPED TO 85% . PROCTOR BENTONITE MAY BE USED IN WET AREAS.
3. OPTIONAL MAGNESIUM ANODE TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS.
4. ANY SPLICING REQUIRED SHALL HAVE FULL PENERATION WELDS BY CWB WELDERS CONFORMING TO CSA W59, VISUAL INSPECTION ONLY REQUIRED.
5. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
6. PIPE TO BE DRIVEN FULL 20' LENGTH.

ISSUE REGISTER

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR CONSTRUCTION	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	I	D	AR
B	PRELIMINARY DESIGN	05/03/29	PD		
A	PRELIMINARY DESIGN	05/02/17	PD		

I=INITIALED D=DESIGNED AR=APPROVED

PROFESSIONAL SEAL

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2N4

PREPARATION		APPROVAL
DESIGNED	P. DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN	A. MAY	PROJECT ENGINEERING MANAGER
CHECKED		
DATE	05-02-17	CLIENT
SCALE	NTS	SHEET 1 OF 1

PERMIT TO PRACTICE STAMP

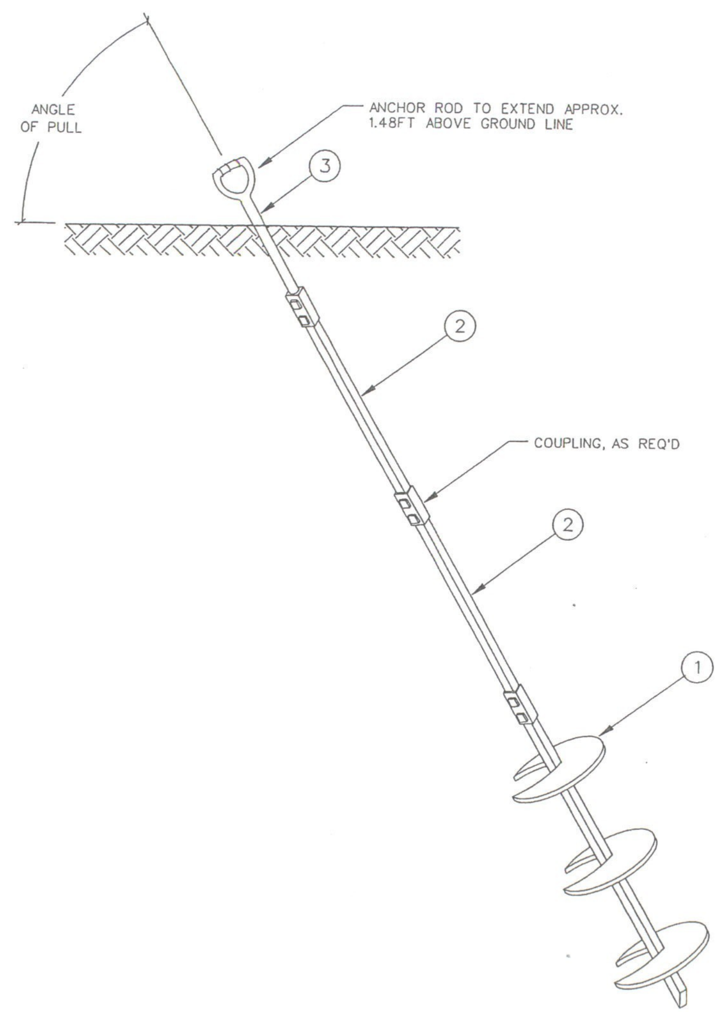
CLIENT

PROJECT

TITLE: STEEL PIPE FOUNDATION

DOCUMENT No. MATLP-43-D2-0002 REV B

PROJECTION - FRAME 31 HORIZONTAL ENGLISH



MATERIAL LIST		
MARK No.	QUANT.	DESCRIPTION
1	1	ANCHOR, POWER INSTALLED SCREW TYPE, TRIPLE HELIX 10", 11-5/16", 13-1/2"
2	2	ROD EXTENSION, 1-1/2" x 1-1/2" x 7'-0" C/W COUPLING
3	1	TRIPLE EYE NUT

NOTE:

1. THIS ANCHOR MUST BE INSTALLED TO A TORQUE OF 6.3 kN.m (4670 FT-LB). ADDITIONAL EXTENSIONS AND COUPLINGS MUST BE ADDED UNTIL SPECIFIED TORQUE IS REACHED. IF THE ANCHOR STOPS SUDDENLY WHILE BEING INSTALLED, IT MUST BE ASSUMED THAT A ROCK OR OTHER HARD OBJECT WAS STRUCK AND THE ANCHOR SHOULD BE RE-INSTALLED ELSEWHERE, OR A DIFFERENT TYPE USED.
2. A COMPLETE ANCHOR REQUIRES THE ABOVE MENTIONED ITEMS. DESIGNER TO DETERMINE WHAT EXTENSIONS REQUIRED.

ISSUE REGISTER

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

No	REVISION DESCRIPTION	DATE (Y/M/D)	*	**
B	PRELIMINARY DESIGN	05/03/29	PD	
A	PRELIMINARY DESIGN	05/02/17	PD	

INITIALS: * DESIGNED ** APPROVED

PROFESSIONAL SEAL

SNC·LAVALIN
SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2W4

PREPARATION	APPROVAL
DESIGNED P.DILLON	PROJECT DISCIPLINE ENGINEER
DRAWN A.MAY	PROJECT ENGINEERING MANAGER
CHECKED	
DATE 05-02-17	CLIENT
SCALE NTS	SHEET 1 OF 1

PERMIT TO PRACTICE STAMP

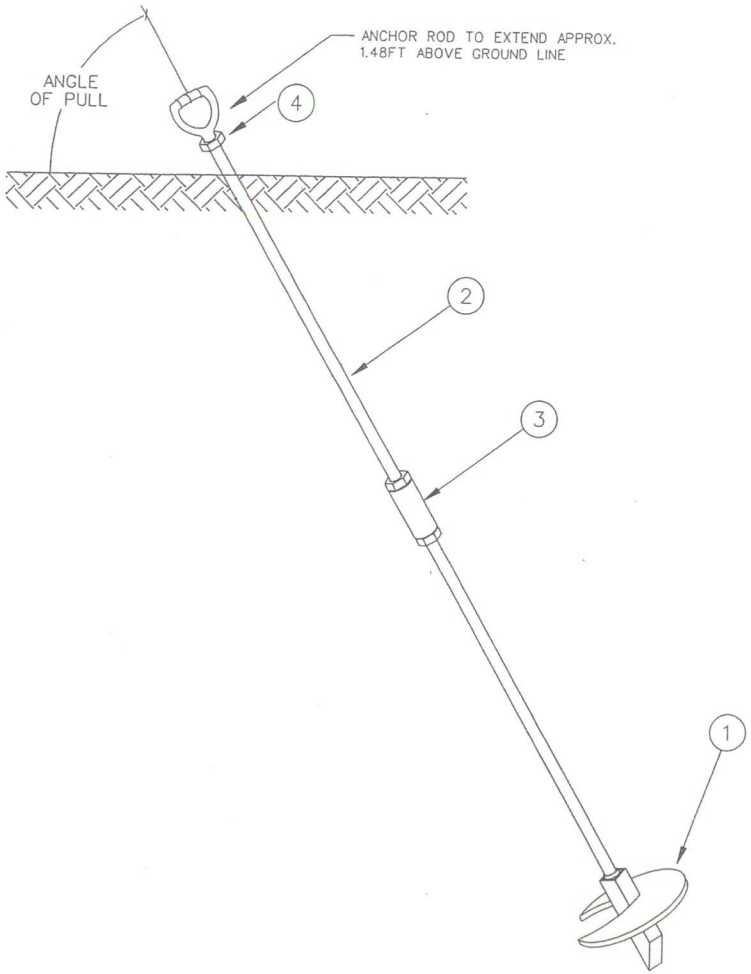
CLIENT

PROJECT

TITLE
TYPE SS TRIPLE HELIX ANCHOR

DOCUMENT No. MATLP-43-D3-0001 REV B

PRJATPAINEN - FRAME A1 HORIZONTAL ENGLISH



MATERIAL LIST		
MARK No.	QUANT.	DESCRIPTION
1	1	ANCHOR, POWER INSTALLED SCREW TYPE, HIGH INSTALLATION TORQUE, 14" SINGLE HELIX
2	2	ROD EXTENSION, 1" x 7'-0"
3	1	COUPLING, FOR 3/4" AND 1" DIA. EXTENSION ROD
4	1	TWIN EYE NUT FOR 3/4" AND 1" DIA. ANCHOR RODS

NOTE:

1. THIS ANCHOR MUST BE INSTALLED TO A TORQUE OF 9.0 kN.m (6670 FT-LB). ADDITIONAL EXTENSIONS AND COUPLINGS MUST BE ADDED UNTIL SPECIFIED TORQUE IS REACHED. IF THE ANCHOR STOPS SUDDENLY WHILE BEING INSTALLED, IT MUST BE ASSUMED THAT A ROCK OR OTHER HARD OBJECT WAS STRUCK AND THE ANCHOR SHOULD BE RE-INSTALLED ELSEWHERE, OR A DIFFERENT TYPE USED.
2. A COMPLETE ANCHOR REQUIRES THE ABOVE MENTIONED ITEMS. DESIGNER TO DETERMINE WHAT EXTENSIONS REQUIRED.

ISSUE REGISTER

ISSUE NO	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No.
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REVISION REGISTER

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INITIALS: D DESIGNED AN APPROVED

PROFESSIONAL SEAL

SNC·LAVALIN

SNC-Lavalin ATP Inc.
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2M4

PREPARATION		APPROVAL	
DESIGNED	P.DILLON	PROJECT DISCIPLINE ENGINEER	
DRAWN	A.WAY	PROJECT ENGINEERING MANAGER	
CHECKED			
DATE	05-02-17	CLIENT	
SCALE	NTS	SHEET	1 OF 1

PERMIT TO PRACTICE STAMP

CLIENT

PROJECT

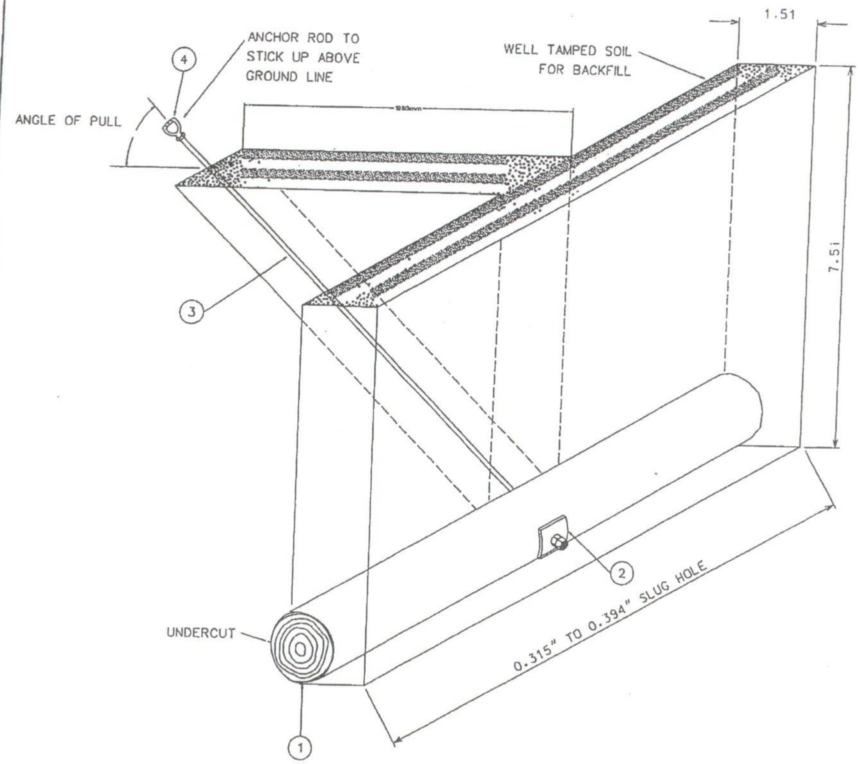
TITLE: TYPE SS TRIPLE HELIX ANCHOR

DOCUMENT No.: MATLP-43-D3-0002

REV: B

PRELIMINARY - FRAME AT HORIZONTAL ENDLESS

MATERIAL AND ITEM LIST FOR STRUCTURE 8161		
PART #	QTY	DESCRIPTION
1	1	ANCHOR LOG, 14 DIAM. X 8'
2	1	WASHER, SQ, CURVED, 8:1/2 X 8:1/2 X 1/2
3	1	ROD PISA 1"x10FT, GALV, C/W NUT 36KIP
4	1	NUT, TWIN EYE, GLV, FOR 3/4" OR 1" ROD



SOIL PRESSURE

A SOIL PRESSURE OF 182 kPa IS DEVELOPED WHEN THIS ANCHOR IS AT FULL LOAD AND SET AS PER THE ABOVE SKETCH. A CHANCE EARTH PROBE READING OF 26 N.m OR HIGHER IS REQUIRED AT THE BOTTOM OF THE HOLE FOR FULL STRENGTH.

ISSUE REGISTER

ISSUE No	REV.	DATE (Y/M/D)	PURPOSE OF ISSUE	TRANSMISSION LETTER No
1	A	05/02/18	ISSUED FOR BID	

REVISION REGISTER

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INITIALS: * DESIGNER ** APPROVED

PROFESSIONAL SEAL

PERMIT TO PRACTICE STAMP

SNC-LAVALIN
SNC-Lavalin ATP Inc
1035 - 7 Ave. S.W.
Calgary, Alberta
Canada T2P 2M4

PREPARATION		APPROVAL	
DESIGNED	P.DILLON	PROJECT DISCIPLINE ENGINEER	
DRAWN	A.WAY	PROJECT ENGINEERING MANAGER	
CHECKED			
DATE	05-02-17	CLIENT	
SCALE	NTS	SHEET	1 OF 1

CLIENT

PROJECT

TITLE: SLUG ANCHOR

DOCUMENT No. MATLP-43-03-0003 REV B

In the matter of an Application by Montana Alberta Tie Ltd. for a Presidential Permit pursuant to 10 CFR 205.322

Affidavit of Lorry Wilson

I, Lorry Wilson of Calgary, Alberta, Canada, make oath and say as follows:

1. I am the Chief Executive Officer of Montana Alberta Tie Ltd. and make this affidavit as such.

2. I have reviewed the Application for a Presidential Permit made by Montana Alberta Tie Ltd. under 10 CFR 205.322 and I have knowledge of the matters set forth in this Application, and that such Application is, to be best of my knowledge and belief, accurate and true.

Sworn before me at the City of Calgary, in the Province of Alberta, this 30th day of September, 2005.

John P. Carleton,
A Notary Public in and for the Province of Alberta

Lorry Wilson
Chief Executive Officer of Montana Alberta Tie Ltd.