

## INSULATOR TIES

| DRAWING NUMBER | SHT.  | DRAWING TITLE  | DWG REV. | BOM REV. |
|----------------|-------|--|----------|----------|
| A-34-00        | 1 - 1 | GENERAL INFORMATION                                      | D        |          |
| A-34-01        | 1 - 2 | SUPER TOP-TIE ON SINGLE INSULATOR                        | A        | A        |
| A-34-02        | 1 - 1 | SUPER TOP-TIE ON DOUBLE INSULATOR                        | A        |          |
| A-34-03        | 1 - 1 | URBAN UNI-TIE FOR ALL TYPES OF BARE OR COVERED CONDUCTOR | C        |          |
| A-34-04        | 1 - 1 | SPOOL & UNI-MOUNT WIRE TIES                              | A        |          |
| A-34-05        | 1 - 1 | SECONDARY TIE ON SPREADER BRACKET                        | C        |          |
| A-34-06        | 1 - 1 | DEADEND TIES FOR SPOOL INSULATOR                         | 0        |          |
| A-34-07        | 1 - 3 | DISTRIBUTION TIE AND DOUBLE SUPPORT TIE                  | A/0/0    |          |
| A-34-08        | 1 - 1 | RURAL HAND TIE   | A        |          |

### *SaskPower* - DISTRIBUTION STANDARDS

|                                  |                |                               |               |
|----------------------------------|----------------|-------------------------------|---------------|
| APPROVAL                         | DESIGN CHK     | DRN. <b>LM</b>                | <b>INDEX</b>  |
| <b>L MOEN</b>                    | <b>P PATEL</b> | CHKD. <b>PP</b>               |               |
|                                  |                | <b>2021-08-19</b>             |               |
| DATE OF ISSUE: <b>2022-01-10</b> |                | DRAWING NO: <b>A-34-INDEX</b> |               |
|                                  |                | <b>SHEET 1 of 1</b>           | <b>REV. L</b> |

## GENERAL INFORMATION

1. **ARMOUR ROD AND TIE WIRE MATERIAL MUST MATCH. IE, STEEL WITH STEEL / ALUMINUM WITH ALUMINUM.**
2. **ALUMINUM ARMOUR ROD & TIE WIRE MUST BE USED WITH ALL ALUMINUM CONDUCTORS (DAISY, LEGACY TULIP AND LEGACY COSMOS). NEW INSTALLATIONS OF TULIP AND COSMOS SHALL USE ALUMINUM ARMOUR ROD AND LINE POST INSULATORS (2 20 00).**
3. **STEEL ARMOUR ROD & TIE WIRE IS THE STANDARD FOR TYING AND RE-TYING CONDUCTORS ON RURAL CIRCUITS (EXCLUDING ALL ALUMINUM CONDUCTORS). ALUMINUM ARMOUR ROD & TIE WIRE MAY BE USED ON URBAN CIRCUITS.**
4. **UNI-TIE (SYNTHETIC TIE) IS THE STANDARD FOR TYING AND RE-TYING CONDUCTORS ON URBAN CIRCUITS:**
  - A. **UNI-TIES CAN BE INSTALLED OVER ARMOURED OR JACKETED CONDUCTORS.**
  - B. **INSULATORS THAT ARE NOT 'F' NECK ARE TO BE CHANGED OUT WHEN RE-TYING. UNI-TIES ARE ONLY FOR 'F' NECK INSULATORS.**
  - C. **UNI-TIES ARE USED IN MISCELLANEOUS URBAN AND RURAL APPLICATIONS. AN EXAMPLE IS ON A PIN INSULATOR TO SUPPORT A LONG RISER.**
5. **SUPER TOP TIES ARE PERMITTED ON:**
  - A. **URBAN CIRCUITS (INCLUDING ARMOURED CONDUCTORS)**
  - B. **RURAL CIRCUITS OF #6 HICON, #6 HERRING AND #2 SPARROW**
  - C. **SPOOL SIDE TIES UP TO AND INCLUDING 1/0 RAVEN**

|   |                   |                            |                            |               |
|---|-------------------|----------------------------|----------------------------|---------------|
| <b>SaskPower</b> - DISTRIBUTION STANDARDS |                   |                            |                            |               |
| APPROVAL                                  | DESIGN CHK        | DRN. <b>LM</b>             | <b>GENERAL INFORMATION</b> |               |
| <b>L MOEN</b>                             | <b>P PATEL</b>    | CHKD. <b>PP</b>            |                            |               |
|   |                   | <b>2021-07-08</b>          |                            |               |
| DATE OF ISSUE:                            | <b>2021-08-16</b> | DRAWING NO: <b>A-34-00</b> | <b>SHEET 1 of 1</b>        | <b>REV. D</b> |

| TIE CODE NO. | TIE COLOR CODE | CONDUCTOR <sup>1</sup> | CONDUCTOR WITH ARMOUR ROD <sup>2</sup> |
|--------------|----------------|------------------------|--|
| 2-97-58      | NONE           | #6 ACSR SB HERRING     | -                                      |
| 2-97-60      | ORANGE         | #6 HICON               | -                                      |
| 2-97-62      | RED            | #2 ACSR SPARROW        | -                                      |
| 2-97-66      | YELLOW         | 1/0 ACSR RAVEN         | -                                      |
| 2-97-68      | BLACK          | 3/0 ACSR PIGEON        | #2 ACSR SPARROW                        |
| 2-97-69      | PINK           | 4/0 ACSR PENGUIN       | -                                      |
| 2-97-72      | GREEN          | 266.8 ACSR PARTRIDGE   | 1/0 ACSR RAVEN                         |

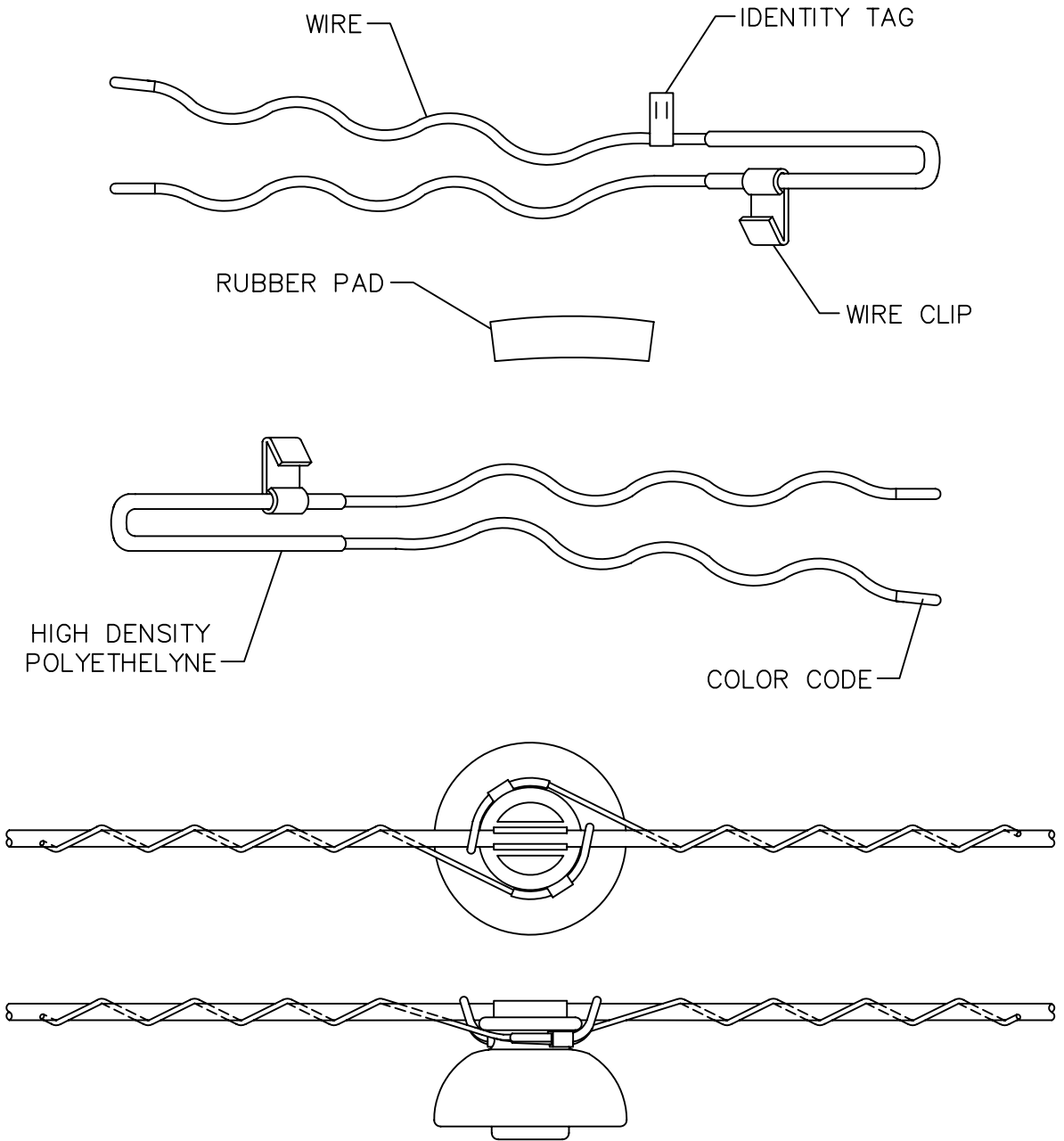
BACK TO INDEX PAGE

NOTE:

1. USE SUPER TOP-TIE ON THESE CONDUCTORS WITHOUT ARMOUR ROD.
2. USE SUPER TOP-TIE ON THESE CONDUCTORS WITH ARMOUR ROD. THESE CAN BE USED OVER STEEL ARMOUR ONLY.

SASKATCHEWAN POWER CORP. – DISTRIBUTION ENGINEERING STANDARDS

|                  |             |             |                     |                                      |        |
|------------------|-------------|-------------|---------------------|--------------------------------------|--------|
| DRN. <i>B</i>    | DESIGN CHK. | SAFETY APP. | APPROVAL            | SUPER TOP-TIE<br>ON SINGLE INSULATOR |        |
| CHKD. <i>FTK</i> |             |             |                     |                                      |        |
| DATE 89-01-04    | DATE        | DATE        | DATE                |                                      |        |
| DATE OF ISSUE    |             |             | DRAWING NO. A-34-01 | SHEET 1 OF 2                         | REV. A |

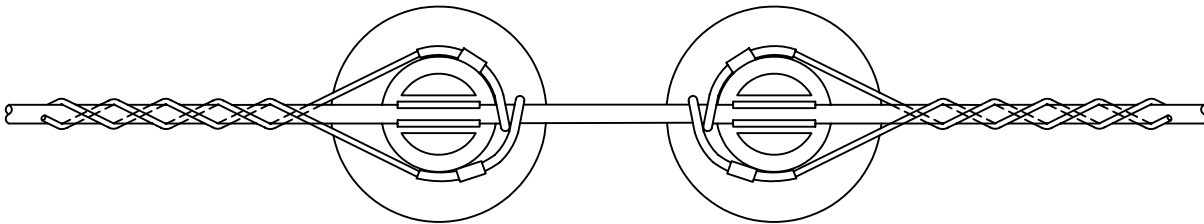


NOTE:

1. WIRE CLIPS MUST BE SNAPPED IN PLACE TO PREVENT THE TIE FROM SLIPPING OVER THE LIP OF THE INSULATOR.
2. NOT TO BE USED AS A SIDE TIE.
3. DO NOT USE TIES ON BARE COPPER CONDUCTOR.
4. FOR USE ON DEFLECTIONS UP TO 10° (CONDUCTOR IN TOP INSULATOR GROOVE).

SASKATCHEWAN POWER CORP. – DISTRIBUTION ENGINEERING STANDARDS

|                  |             |             |                     |                                      |        |
|------------------|-------------|-------------|---------------------|--------------------------------------|--------|
| DRN. <i>B</i>    | DESIGN CHK. | SAFETY APP. | APPROVAL            | SUPER TOP-TIE<br>ON SINGLE INSULATOR |        |
| CHKD. <i>FTK</i> | DATE        | DATE        | DATE                |                                      |        |
| DATE 89-01-04    | DATE        | DATE        | DATE                |                                      |        |
| DATE OF ISSUE    |             |             | DRAWING NO. A-34-01 | SHEET 2 OF 2                         | REV. A |



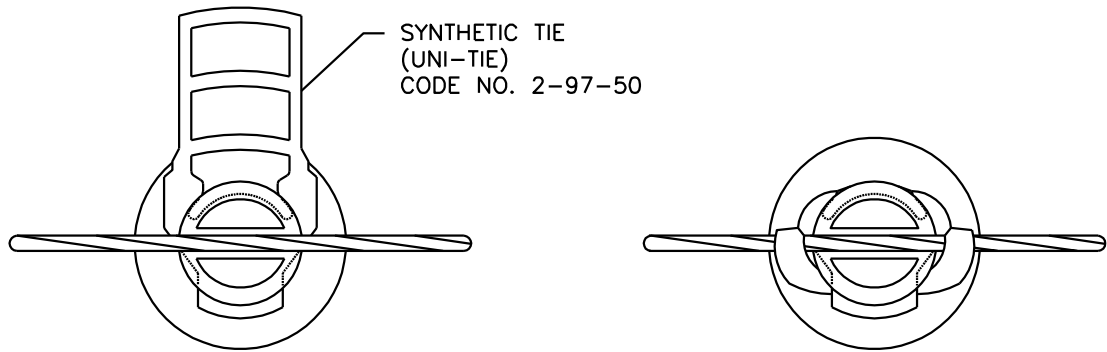
TIE PLACEMENT ON DOUBLE ARM STRAIGHT & ANGLE PINS

NOTE:

1. RUBBER PAD MUST BE USED WITH BOTH INSULATORS.
2. THE WIRE CLIP MUST BE REMOVED ON ONE HALF OF EACH SET AND PLACED ON THE OTHER LEG. THIS IS NECESSARY TO ENSURE THAT THE CLIPS ARE INSTALLED AS PER THE INSTRUCTIONS.
3. SEE DWG. A-34-01 SHEET 1 FOR SIZES AND STOCK CODES.

SASKATCHEWAN POWER CORP. – DISTRIBUTION ENGINEERING STANDARDS

|                  |             |             |                     |                                      |        |
|------------------|-------------|-------------|---------------------|--------------------------------------|--------|
| DRN. <i>B</i>    | DESIGN CHK. | SAFETY APP. | APPROVAL            | SUPER TOP-TIE<br>ON DOUBLE INSULATOR |        |
| CHKD. <i>FTK</i> | DATE        | DATE        | DATE                |                                      |        |
| DATE 89-01-04    | DATE        | DATE        | DATE                |                                      |        |
| DATE OF ISSUE    |             |             | DRAWING NO. A-34-02 | SHEET 1 OF 1                         | REV. A |

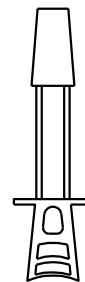


| CUT TIE AS SHOWN | OUTSIDE DIAMETER RANGE  | TYPE OF INSTALLATION   |
|------------------|---|------------------------|
| <b>A</b>         | -5mm TO 17mm<br>-NO. 4 TO NO. 336.4 kcmil (BARE CONDUCTOR).<br>-#2 AND SMALLER WITH ARMOUR ROD.                       | CABLE IN TOP POSITION  |
| <b>B</b>         | -5mm TO 17mm<br>-NO. 4 TO NO. 336.4 kcmil (BARE CONDUCTOR).<br>-#2 AND SMALLER WITH ARMOUR ROD.                       | CABLE IN SIDE POSITION |
| <b>C</b>         | -17mm TO 45.7mm<br>-NO. 336.4 TO NO. 1033 kcmil (BARE CONDUCTOR).<br>-1/0 RAVEN TO 477 kcmil PELICAN WITH ARMOUR ROD. | CABLE IN TOP POSITION  |
| <b>C</b>         | -17mm TO 45.7mm<br>-NO. 336.4 TO NO. 1033 kcmil (BARE CONDUCTOR).<br>-1/0 RAVEN TO 477 kcmil PELICAN WITH ARMOUR ROD. | CABLE IN SIDE POSITION |

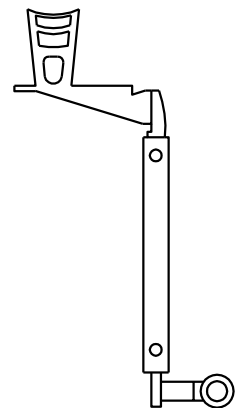
BEFORE TYING IN CONDUCTOR IN TOP OR SIDE, CUT THE TIE LOOPS WITH PLIERS AS SHOWN ABOVE.

NOTES:

- CAN BE USED OVER ARMOUR ROD.
- USE "F" NECK INSULATORS ONLY.
- MAXIMUM WIRE SIZE 1033 kcmil.
- ON PIN INSULATOR CONDUCTOR TO BE TOP TIED FOR UP TO 4° DEFLECTION AND SIDE TIED FOR 5° TO 10° DEFLECTION. INSTALL CONDUCTOR IN TOP GROOVE ON ANGLE PINS.
- STRIP JACKETED CONDUCTOR AT THE INSULATOR BEFORE INSTALLING UNI-TIE TO PREVENT RADIO INTERFERENCE.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.



CODE NO.  
51-495-904  
HAND TOOL

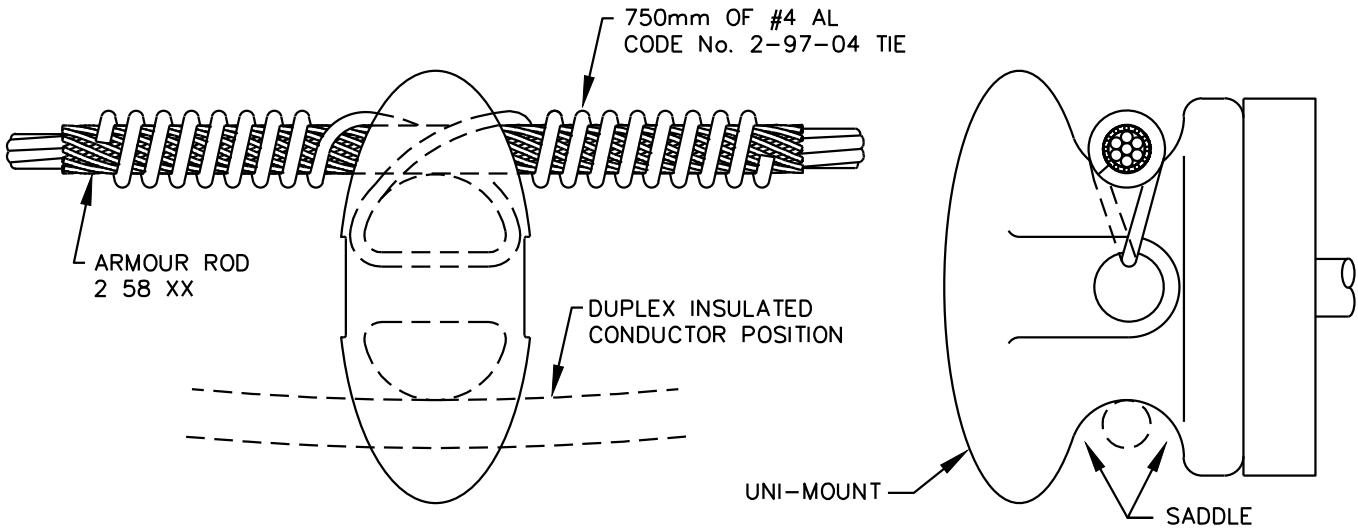


CODE NO.  
51-495-906  
HOT STICK EXTENSION

SCALE: N.T.S.

|   |                        |                       |  |              |
|---|------------------------|-----------------------|--|--------------|
| <b>SaskPower</b> – DISTRIBUTION STANDARDS |                        |                       |  |              |
| APPROVAL<br>L.MOEN                        | DESIGN CHK.<br>P.PATEL | DRN.E.GOTANA<br>CHKD. | URBAN UNI-TIE<br>FOR ALL TYPES OF BARE<br>OR COVERED CONDUCTOR |              |
|   |                        | 2021-09-28            |  |              |
| DATE OF ISSUE                             | 2022-01-10             | DRAWING NO.           | A-34-03  | SHEET 1 of 1 |
|   |                        |                       |  | REV. C       |

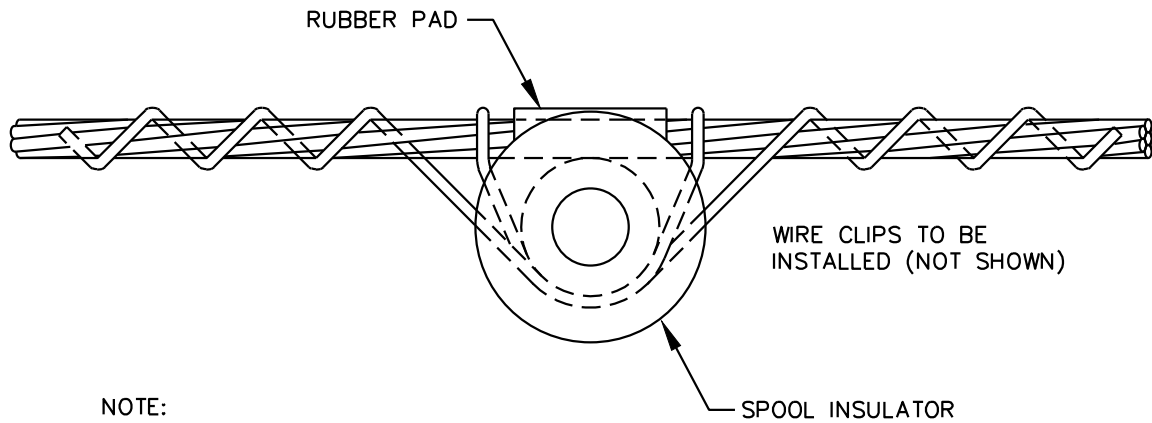
A



NOTE:

1. THERE SHALL BE AT LEAST FIVE TURNS EITHER SIDE OF THE INSULATOR.
2. DO NOT USE SUPER TOP-TIE ON UNI-MOUNT.

B



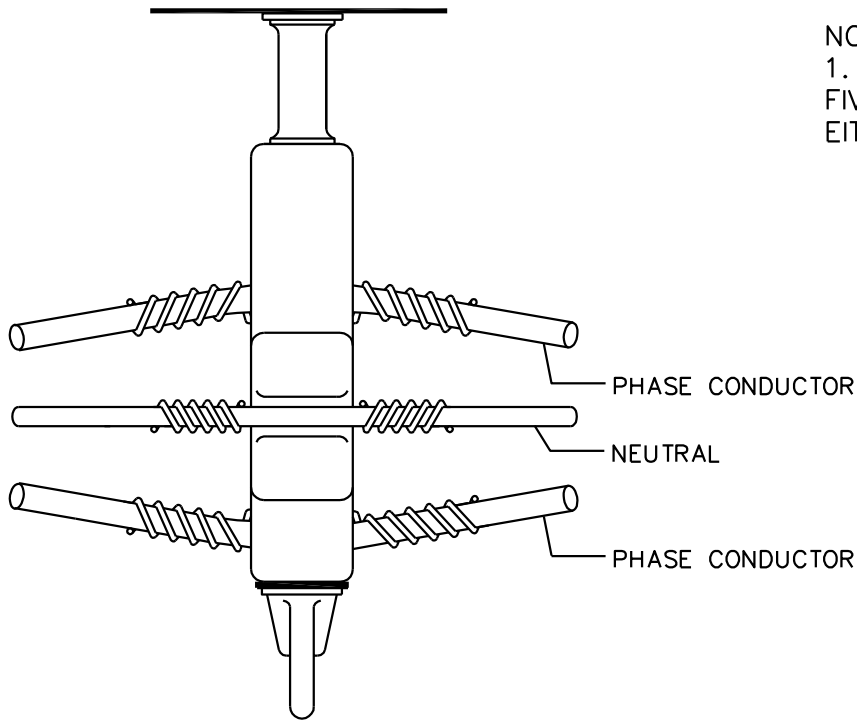
NOTE:

1. REFER TO DWG. A-34-01 SHT. 1 SUPER TOP-TIE CODE No. 2-97-XX.

BACK TO INDEX PAGE

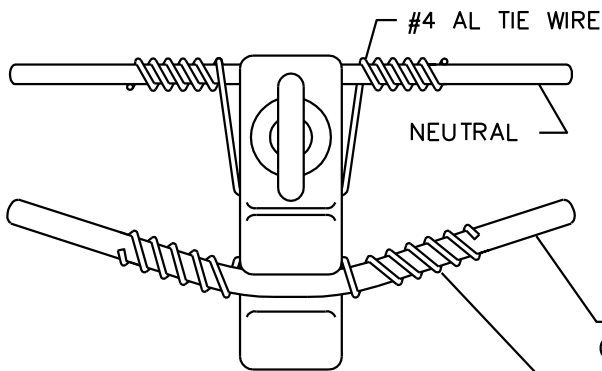
**SaskPower** – DISTRIBUTION STANDARDS

|                    |                         |                                      |                                |  |
|--------------------|-------------------------|--------------------------------------|--------------------------------|--|
| APPROVAL<br>L.MOEN | DESIGN CHK.<br>L.BAILEY | DRN. A.GATZKE<br>CHKD.<br>2014-08-27 | UNI-MOUNT & SPOOL<br>WIRE TIES |  |
| DATE OF ISSUE      | 2016/02/05              | DRAWING NO. A-34-04                  |                                |  |
|                    |                         |                                      | REV. A                         |  |

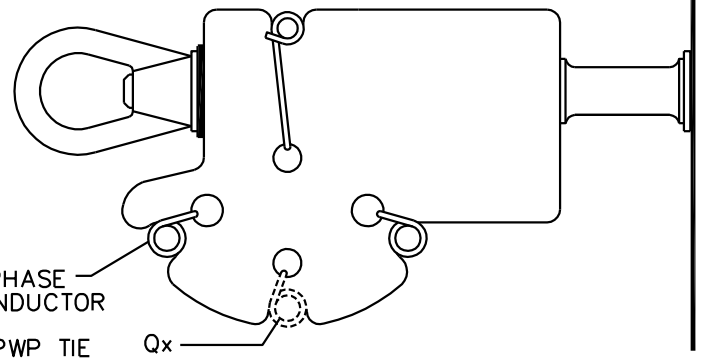


TOP VIEW

NOTE:  
1. THERE SHALL BE AT LEAST FIVE TURNS OF TIE WIRE ON EITHER SIDE OF THE BRACKET.



FRONT VIEW



SIDE VIEW

| CODE NO. | CONDUCTOR            | MESSENGER WIRE      |              | PHASE WIRE          |              |
|----------|----------------------|---------------------|--------------|---------------------|--------------|
|          |                      | TIE WIRE<br>2-97-04 | LENGTH<br>mm | TIE WIRE<br>2-84-08 | LENGTH<br>mm |
| 5 38 03  | 2 x #4 - 1 x #6 Tx   | #4 AL               | 500          | #8 PWP              | 300          |
| 5 38 17  | 2 x 1/0 - 1 x #2 Tx  | #4 AL               | 500          | #8 PWP              | 450          |
| 5 40 17  | 3 x 1/0 - 1 x #2 Qx  |                     |              |                     |              |
| 5 38 20  | 2 x 3/0 - 1 x 1/0 Tx | #4 AL               | 500          | #8 PWP              | 450          |
| 5 40 19  | 3 x 3/0 x 1 x 1/0 Qx |                     |              |                     |              |

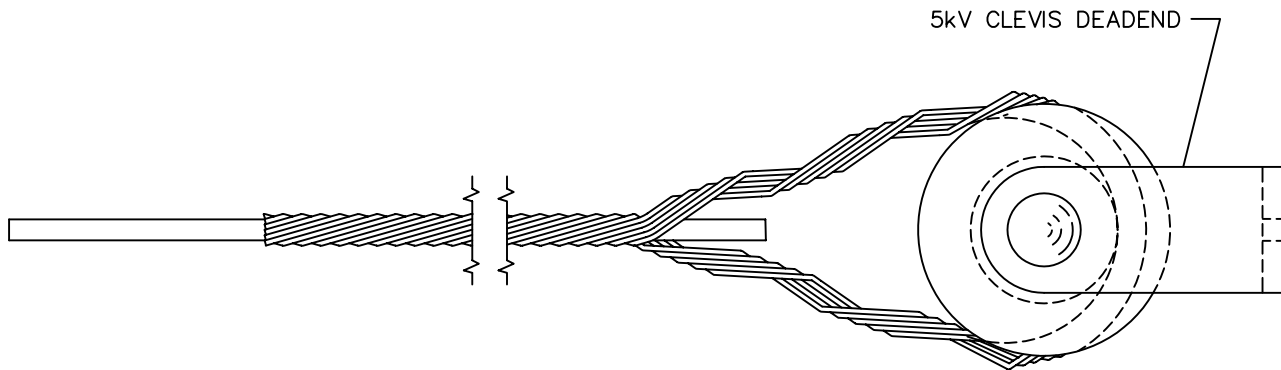
**SaskPower** – DISTRIBUTION STANDARDS

|                    |                        |  |
|--------------------|------------------------|--|
| APPROVAL<br>L.MOEN | DESIGN CHK.<br>A.UHREN | DRN. D.REDEKOPP<br>CHKD.<br>2016-06-08 |
|--------------------|------------------------|--|

SECONDARY TIE  
ON SPREADER BRACKET

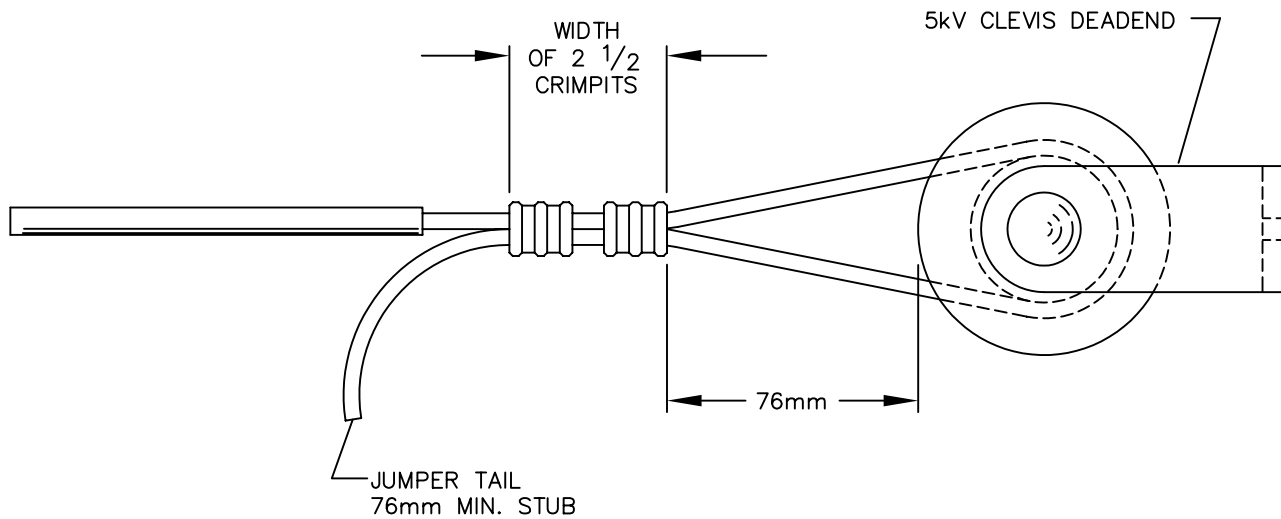


A



PREFORM FOR #2 ACSR AND LARGER

B



LOOP AND DOUBLE CRIMPIT DEADEND TIE FOR STRANDED COPPER

NOTE:

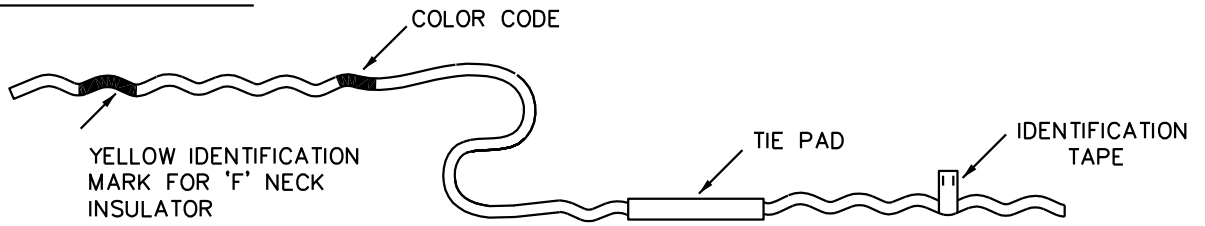
1. WHEN USING PWP, STRIP INSULATION TO PERMIT INSTALLATION OF CRIMPITS.
2. BOTH TIES ARE FOR MAINTENANCE ONLY, NOT FOR NEW CONSTRUCTION.

SCALE: N.T.S. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED

SASKATCHEWAN POWER CORP. – DISTRIBUTION ENGINEERING STANDARDS

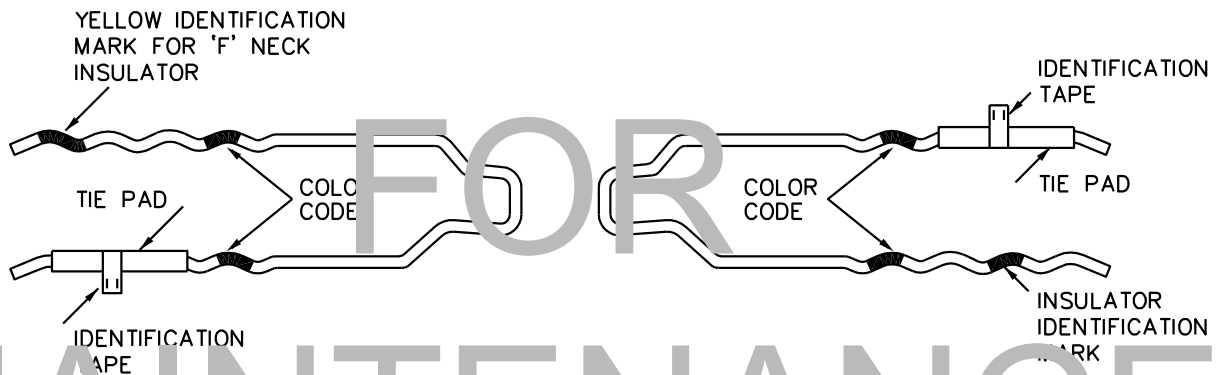
|                  |             |             |          |                                      |        |
|------------------|-------------|-------------|----------|--------------------------------------|--------|
| DRN. <i>DC</i>   | DESIGN CHK. | SAFETY APP. | APPROVAL | DEADEND TIES FOR SPOOL<br>INSULATORS |        |
| CHKD. <i>FTK</i> | DATE        | DATE        | DATE     |                                      |        |
| DATE 86-11-03    | DATE        | DATE        | DATE     |                                      |        |
| DATE OF ISSUE    | 87-02-01    | DRAWING NO. | A-34-06  | SHEET 1 of 1                         | REV. 0 |

DISTRIBUTION TIE



DOUBLE SUPPORT TIE

(THESE COMPONENTS MAKE ONE UNIT)



FOR MAINTENANCE ONLY

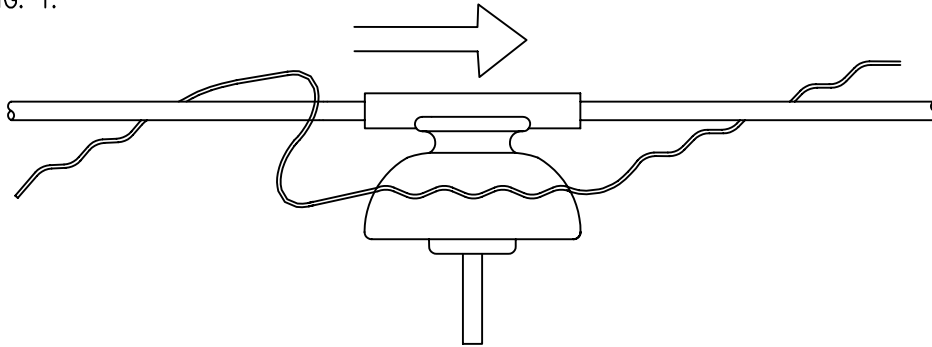
| COLOR CODE | CONDUCTOR |
|------------|-----------|
| RED        | #2 ACSR   |
| YELLOW     | 1/0 ACSR  |
| ORANGE     | 3/0 ACSR  |
| RED        | 4/0 ACSR  |
| PURPLE     | 266.8     |

BACK TO INDEX PAGE

|   |                     |                   |  |  |
|---|---------------------|-------------------|--|--|
| <b>SaskPower</b> – DISTRIBUTION STANDARDS |                     |                   |  |  |
| APPROVAL                                  | DESIGN CHK.         | DRN. HEM<br>CHKD. | DISTRIBUTION TIE AND<br>DOUBLE SUPPORT TIE |  |
|   |                     | DATE 89-01-16     |  |  |
| DATE OF ISSUE: 2011-04-01                 | DRAWING NO. A-34-07 | SHEET 1 of 3      | REV. A                                     |  |

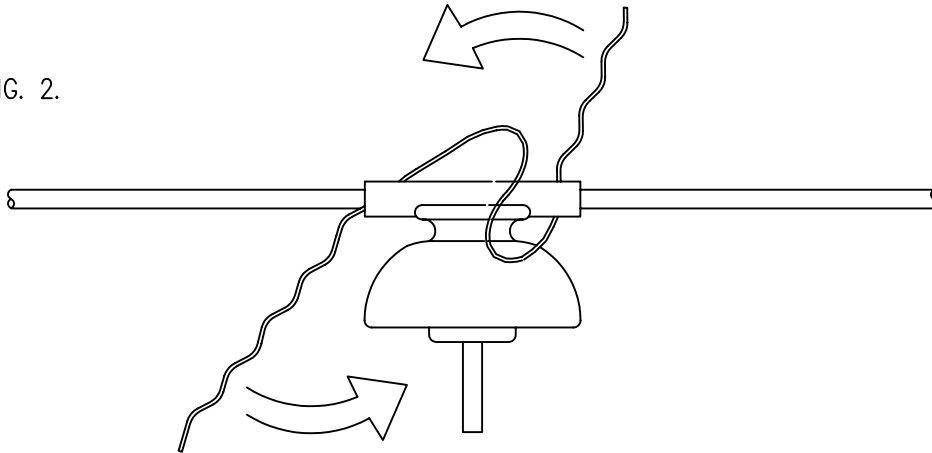
## DISTRIBUTION TIE INSTALLATION

FIG. 1.



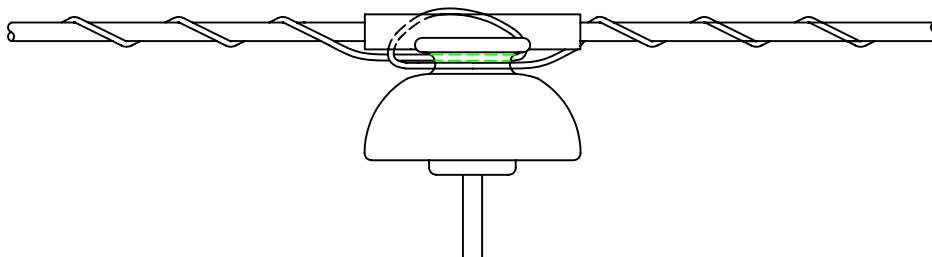
APPLY THE TIE PAD TO PREVENT CONTACT BETWEEN THE CONDUCTOR AND INSULATOR

FIG. 2.



ROTATE IN A COUNTER-CLOCKWISE DIRECTION, MAKING CERTAIN THAT BOTH LEGS GO UNDER THE CONDUCTOR

FIG. 3.



WRAP LEGS OF THE TIE AROUND THE CONDUCTOR AND SNAP THE ENDS INTO PLACE

BACK TO INDEX PAGE

SASKATCHEWAN POWER CORP. – DISTRIBUTION ENGINEERING STANDARDS

|               |             |             |                     |  |        |
|---------------|-------------|-------------|---------------------|--|--------|
| DRN. TmR      | DESIGN CHK. | SAFETY APP. | APPROVAL            | DISTRIBUTION TIE AND<br>DOUBLE SUPPORT TIE |        |
| CHKD.         |             |             |                     |  |        |
| DATE 89-01-13 | DATE        | DATE        | DATE                |  |        |
| DATE OF ISSUE |             |             | DRAWING NO. A-34-07 | SHEET 2 of 3                               | REV. 0 |

## DOUBLE SUPPORT INSTALLATION

FIG. 1.

APPLY THE TIE PADS SO THAT THE SPLIT OF THE PAD IS ON THE SIDE OF THE CONDUCTOR AND EXTEND THE PAD INWARD FROM THE INSULATOR.

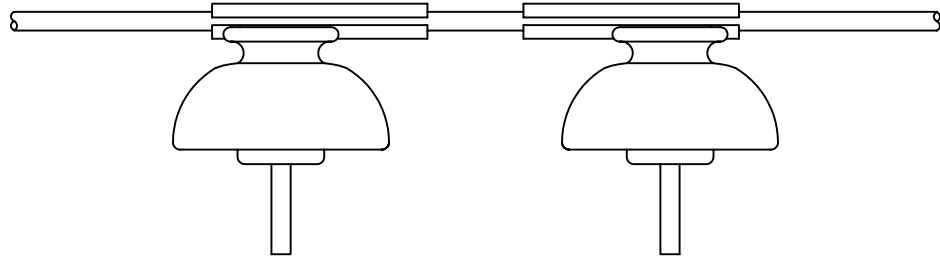


FIG. 2.

PLACE THE TIE OVER THE PAD ON THE INWARD SIDE WITH THE LEGS AROUND THE OUTSIDE OF THE INSULATOR NECK.

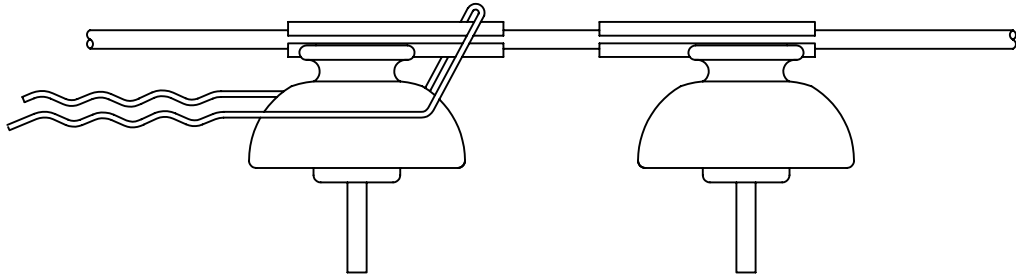
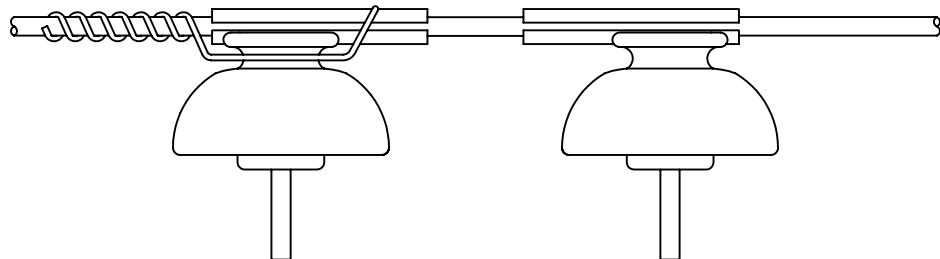


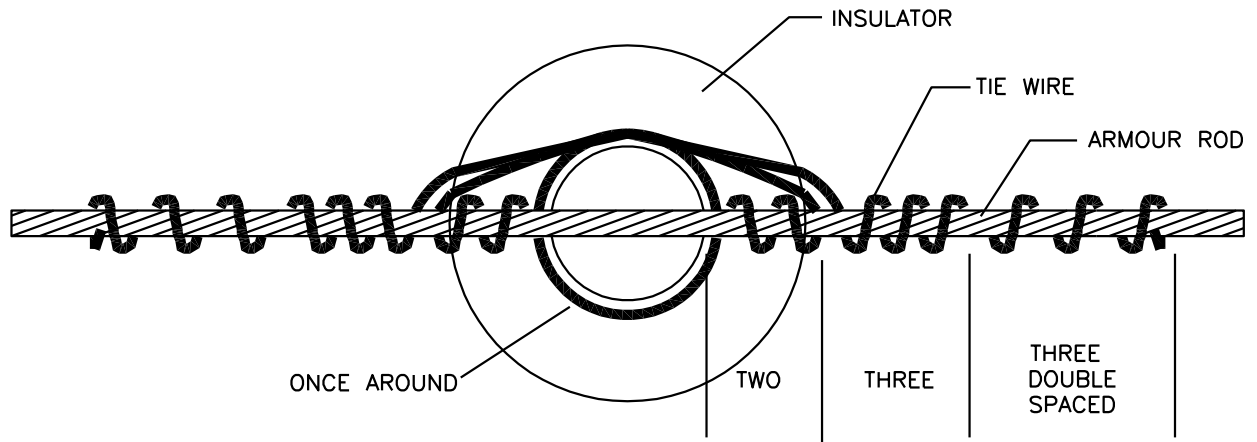
FIG. 3.

LIFT ONE LEG UP AND HOOK OVER THE CONDUCTOR WITH THE CROSSOVER MARK ON TOP. POSITION THE OTHER LEG OVER THE CONDUCTOR AT THE CROSSOVER MARK. WRAP BOTH LEGS AROUND THE CONDUCTOR AT THE SAME TIME AND SNAP THE ENDS IN PLACE. REPEAT FOR THE OTHER INSULATOR.



SASKATCHEWAN POWER CORP. – DISTRIBUTION ENGINEERING STANDARDS

|               |             |             |                     |  |
|---------------|-------------|-------------|---------------------|--|
| DRN. TmR      | DESIGN CHK. | SAFETY APP. | APPROVAL            | DISTRIBUTION TIE AND<br>DOUBLE SUPPORT TIE |
| CHKD.         |             |             |                     |  |
| DATE 89-01-16 | DATE        | DATE        | DATE                |  |
| DATE OF ISSUE |             |             | DRAWING NO. A-34-07 | SHEET 3 of 3                               |
|               |             |             |                     | REV. 0                                     |



TIE WIRE TURNS ARE TIGHTLY WRAPPED TO THE INSULATOR, EXCEPT FOR THE DOUBLE SPACED TURNS INDICATED.

FOR DOUBLE INSULATORS, ALL THE TURNS BETWEEN THE INSULATORS ARE TIGHTLY WRAPPED.

| STEEL TIE WIRE AND ARMOUR ROD           |                               |                               |                          |
|---|-------------------------------|-------------------------------|--------------------------|
| CONDUCTOR                               | ARMOUR ROD (SINGLE INSULATOR) | ARMOUR ROD (DOUBLE INSULATOR) | TIE WIRE (PER INSULATOR) |
| 1/0 ACSR RAVEN<br>2 78 10               | 47" STEEL<br>2-58-10 (BLUE)   | 59" STEEL<br>2-58-11 (BLUE)   | 1.5m #8 STEEL<br>2-97-28 |
| 3/0 ACSR PIGEON<br>2 78 30              | 56" STEEL<br>2-58-30 (GREY)   | 68" STEEL<br>2-58-31 (GREY)   | 1.7m #8 STEEL<br>2-97-28 |
| 4/0 ACSR PENGUIN<br>2 78 40             | 60" STEEL<br>2-58-40 (BLACK)  | 72" STEEL<br>2-58-41 (BLACK)  | 1.7m #8 STEEL<br>2-97-28 |
| 266.8KCMIL<br>ACSR-PARTRIDGE<br>2 78 50 | 64" STEEL<br>2-58-50 (GREEN)  | 64" STEEL<br>2-58-50 (GREEN)  | 1.8m #8 STEEL<br>2-97-28 |

| ALUMINUM TIE WIRE AND ARMOUR ROD        |                                 |                                 |                             |
|---|---------------------------------|---------------------------------|-----------------------------|
| CONDUCTOR                               | ARMOUR ROD (SINGLE INSULATOR)   | ARMOUR ROD (DOUBLE INSULATOR)   | TIE WIRE (PER INSULATOR)    |
| 1/0 ACSR RAVEN<br>2 78 10               | TBD                             | TBD                             | 1.5m #4 ALUMINUM<br>2-97-04 |
| 3/0 ACSR PIGEON<br>2 78 30              | 56" ALUMINUM<br>2-59-29 (GREY)  | 68" ALUMINUM<br>2-59-30 (GREY)  | 1.7m #4 ALUMINUM<br>2-97-04 |
| 4/0 ACSR PENGUIN<br>2 78 40             | 60" ALUMINUM<br>2-59-39 (BLACK) | 72" ALUMINUM<br>2-59-40 (BLACK) | 1.7m #4 ALUMINUM<br>2-97-04 |
| 266.8KCMIL<br>ACSR-PARTRIDGE<br>2 78 50 | 64" ALUMINUM<br>2-59-52 (GREEN) | 64" ALUMINUM<br>2-59-52 (GREEN) | 1.8m #4 ALUMINUM<br>2-97-04 |

NOTES:

1. TIE WIRE SHALL ONLY BE USED WITH ARMOUR RODS OF THE SAME MATERIAL TO AVOID DAMAGE AND/OR PREMATURE FAILURE.
2. COLOUR DENOTES THE COLOUR CODE FOUND ON THE ARMOUR ROD FOR IDENTIFICATION PURPOSES.

APPROVED FOR CONSTRUCTION

**SaskPower** – DISTRIBUTION STANDARDS

|                    |                         |  |
|--------------------|-------------------------|--|
| APPROVAL<br>L.MOEN | DESIGN CHK.<br>D.DONAIS | DRN. D.REDEKOPP<br>CHKD.<br>2018-11-22 |
|--------------------|-------------------------|--|

HAND TIE