**MMTP Final Inspection V1**

**Submitted By: ${Creator}**

**Submitted Time: ${CreationDate | format:"MM/DD/YYYY h:mm A"}**

**Inspection Overview**

**MB-MN Transmission Project (MMTP)**

${generated\_note\_name\_3}

**Final Inspection**

${generated\_note\_name\_4}

**Published Date: 2020-02-27**

${generated\_note\_name\_5}

**Version: 1f**

${generated\_note\_name\_6}

${generated\_note\_name\_7}

**ForceOverwrite**

${ForceOverwrite}

**Identification**

**formType**

${formType}

**organization**

${organization}

**project**

${project}

**Line Section**

${locSection}

**collective**

${collective}

**contractTitle**

${contractTitle}

**contractor**

${contractor}

**subcontractor**

${subcontractor}

**Tower**

${locTower}

**Tower Type**

${locTowerType}

**Foundation-Anchor Type**

${locFdnType}

**Inspection Date**

${inspectionDate}

**Sketches**

${imageSketch | size:460:0}

**GPS Location - press and hold target to get averaged location**

${locTowerPoint}

**Mandatory Photos (starting back to source)**

**locConstType**

${locConstType}

**TowerNumber**

${TowerNumber | size:460:0}

**TowerNumberDate**

${TowerNumberDate}

**TowerNumberLat**

${TowerNumberLat}

**TowerNumberLon**

${TowerNumberLon}

**TowerNumberAlt**

${TowerNumberAlt}

**TowerNumberDir**

${TowerNumberDir}

**OverallStructure**

${OverallStructure | size:460:0}

**FullTowerFace2-3**

${FullTowerFace2-3 | size:460:0}

**CondHardwareLeftBackToSource**

${CondHardwareLeftBackToSource | size:460:0}

**CondHardwareRightBackToSource**

${CondHardwareRightBackToSource | size:460:0}

**CondHardwareCentreBackToSource**

${CondHardwareCentreBackToSource | size:460:0}

**TowerDiagonalLeg3OrAnc3**

${TowerDiagonalLeg3OrAnc3 | size:460:0}

**OPGWHardware**

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**FullTowerFace3-4**

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**TowerDiagonalLeg4OrAnc4**

${TowerDiagonalLeg4OrAnc4 | size:460:0}

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**TowerDiagonalLeg1OrAnc1**

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**FullTowerFace1-2**

${FullTowerFace1-2 | size:460:0}

**TowerDiagonalLeg2OrAnc2**

${TowerDiagonalLeg2OrAnc2 | size:460:0}

**GWHardware**

${GWHardware | size:460:0}

**FdnLeg2OrAnc2**

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**FdnLeg2OrAnc2Date**

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${FdnLeg2OrAnc2Alt}

**FdnLeg2OrAnc2Dir**

${FdnLeg2OrAnc2Dir}

**SSTowerLegAndFdn2**

${SSTowerLegAndFdn2 | size:460:0}

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**FdnLeg3OrAnc3Date**

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**FdnLeg4OrAnc4Dir**

${FdnLeg4OrAnc4Dir}

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**FdnLeg1OrAnc1Date**

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**FdnLeg1OrAnc1Alt**

${FdnLeg1OrAnc1Alt}

**FdnLeg1OrAnc1Dir**

${FdnLeg1OrAnc1Dir}

**SSTowerLegAndFdn1**

${SSTowerLegAndFdn1 | size:460:0}

**SSCentreLookingUp**

${SSCentreLookingUp | size:460:0}

**GuyedFoundation**

${GuyedFoundation | size:460:0}

**GuyedFoundationDate**

${GuyedFoundationDate}

**GuyedFoundationLat**

${GuyedFoundationLat}

**GuyedFoundationLon**

${GuyedFoundationLon}

**GuyedFoundationAlt**

${GuyedFoundationAlt}

**GuyedFoundationDir**

${GuyedFoundationDir}

**Foundations**

**Inspect Foundations?**

${inspFoundations}

**Foundations Inspection**

**Steel Pile Caps**

**No noticeable cracking in steel cap plates**

${SteelPileCap\_noCrackInCap}

**Failure Comments If deficiency, also log in Deficiency Section**

${SteelPileCap\_noCrackInCapFail}

**Welds are in good condition (no cracks)**

${SteelPileCap\_noCrackWelds}

**Failure Comments If deficiency, also log in Deficiency Section**

${SteelPileCap\_noCrackWeldsFail}

**Piles to pile caps continuously welded to underside of cap**

${SteelPileCap\_pilesFullWelded}

**Failure Comments If deficiency, also log in Deficiency Section**

${SteelPileCap\_pilesFullWeldedFail}

**Stub Angle**

**Pre-cast foundations only Edge distance on stub angles is min. 70mm (A-550 Only)**

${stubAng\_preCastEdgeDist}

**Failure Comments If deficiency, also log in Deficiency Section**

${stubAng\_preCastEdgeDistFail}

**Welds are in good condition (no cracks)**

${stubAng\_noCrackWelds}

**Failure Comments If deficiency, also log in Deficiency Section**

${stubAng\_noCrackWeldsFail}

**Securely fastened to the tower – no missing, loose, or overtightened bolts**

${stubAng\_noMissLooseOverTightBolt}

**Failure Comments If deficiency, also log in Deficiency Section**

${stubAng\_noMissLooseOverTightBoltFail}

**Holes in the stub angle based plate have been capped and cold galvanized**

${stubAng\_baseHolesFilled}

**Failure Comments If deficiency, also log in Deficiency Section**

${stubAng\_baseHolesFilledFail}

**Anchor Bolts**

**Pre-cast foundations only gap between top of concrete to bottom of stub angle baseplate does not exceed specified maximum (65mm for A-550/B-550, 100mm for C-550/D-550)**

${ancBolt\_preCastGapNotExceed}

**Failure Comments If deficiency, also log in Deficiency Section**

${ancBolt\_preCastGapNotExceedFail}

**Bolts are plumb and all nuts are tight**

${ancBolt\_boltsPlumb}

**Failure Comments If deficiency, also log in Deficiency Section**

${ancBolt\_boltsPlumbFail}

**Proper hardware installed (CIP Foundations: 2 washers, 1 hex nut, 1 lock nut. For pre-cast foundations: A-550: 1 washer and 1 nut underneath stub angle, 2 washers and 2 nuts above stub angle. B-550/C-550/D-550: 2 washers and 1 nut underneath stub angle, 2 washers and 2 nuts above stub angle.**

${ancBolt\_propHWInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${ancBolt\_propHWInstalledFail}

**CIP Piles**

**Pile stickup is min 150mm and max 600mm**

${cipPile\_pileStickup}

**Failure Comments If deficiency, also log in Deficiency Section**

${cipPile\_pileStickupFail}

**Bolt projections within +/- 5mm tolerance for CIP foundations (A-550 = 180mm, B-550 = 145mm, C-550/D-550 = 200mm**

${cipPile\_boltProjection}

**Failure Comments If deficiency, also log in Deficiency Section**

${cipPile\_boltProjectionFail}

**Permanent steel sleeve sharp edges are smooth**

${cipPile\_sleeveEdgeSmooth}

**Failure Comments If deficiency, also log in Deficiency Section**

${cipPile\_sleeveEdgeSmoothFail}

**No damaged/chipped concrete edges**

${cipPile\_noConcEdgeDamage}

**Failure Comments If deficiency, also log in Deficiency Section**

${cipPile\_noConcEdgeDamageFail}

**Smooth & level finish, no water pooling**

${cipPile\_smoothLevelNoPool}

**Failure Comments If deficiency, also log in Deficiency Section**

${cipPile\_smoothLevelNoPoolFail}

**Surface of concrete is free of cracks (micro-cracking, spalling, thermal cracking**

${cipPile\_noConcSurfCrack}

**Failure Comments If deficiency, also log in Deficiency Section**

${cipPile\_noConcSurfCrackFail}

**Pre-Cast Foundations**

**No damaged/chipped concrete edges**

${preCastFdn\_edgeNoDamage}

**Failure Comments If deficiency, also log in Deficiency Section**

${preCastFdn\_edgeNoDamageFail}

**Backfill and Mounding**

**No voids or settlement around foundations**

${backMounding\_backNoVoids}

**Failure Comments If deficiency, also log in Deficiency Section**

${backMounding\_backNoVoidsFail}

**Proper mounding and sloped away from foundations**

${backMounding\_propMounding}

**Failure Comments If deficiency, also log in Deficiency Section**

${backMounding\_propMoundingFail}

**Foundations Deficiencies and Additional Photos**

**Foundations Deficiency/Photos**

${#rptFDN}

**Status**

${fdnStatus}

**Type**

${fdnType}

**Deficiency / Observation Comments**

${fdnComments}

**Photo 1**

${fdnPhoto1 | size:460:0}

**Photo 2**

${fdnPhoto2 | size:460:0}

**Markup**

${fdnMarkup1 | size:460:0}

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${/rptFDN}

**Tower**

**Inspect Tower?**

${inspTower}

**Tower Inspection**

**Tower type and extension**

**Correct type/extension used**

${twrExt\_corrTypeExt}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrExt\_corrTypeExtFail}

**Tower members**

**No bent/damaged members**

${twrMemb\_noBentDam}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrMemb\_noBentDamFail}

**No missing members**

${twrMemb\_noMissingMemb}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrMemb\_noMissingMembFail}

**No damaged galvanizing**

${twrMemb\_noGalDam}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrMemb\_noGalDamFail}

**D-550 only: D89/D90 angles installed on inside cross-arm (see ref. dwg)**

${twrMemb\_D550AngleD89D90Install}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrMemb\_D550AngleD89D90InstallFail}

**Tower Bolts**

**No missing bolts**

${twrBolt\_noMissing}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrBolt\_noMissingFail}

**No loose bolts**

${twrBolt\_noLoose}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrBolt\_noLooseFail}

**No overtightened bolts**

${twrBolt\_noOvertight}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrBolt\_noOvertightFail}

**Bolt heads against thinner member**

${twrBolt\_headThinner}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrBolt\_headThinnerFail}

**Cross-arm tip A325 bolts have cotter pins installed and fully seated.**

${twrBolt\_crossTipA325PropInstall}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrBolt\_crossTipA325PropInstallFail}

**Step Bolts**

**No missing bolts**

${StepBolt\_noMissing}

**Failure Comments If deficiency, also log in Deficiency Section**

${StepBolt\_noMissingFail}

**No loose bolts**

${StepBolt\_noLoose}

**Failure Comments If deficiency, also log in Deficiency Section**

${StepBolt\_noLooseFail}

**No bent bolts**

${StepBolt\_noBent}

**Failure Comments If deficiency, also log in Deficiency Section**

${StepBolt\_noBentFail}

**Properly installed bolts (10 ft above ground, no inverted)**

${StepBolt\_propInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${StepBolt\_propInstalledFail}

**Tower Position**

**Tower is plumb**

${twrPosition\_Plumb}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrPosition\_PlumbFail}

**No noticeable twist or deflection**

${twrPosition\_NoTwist}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrPosition\_NoTwistFail}

**Guy Tower Convex Plate and Cap**

**Convex plate installed under tower**

${guyTwr\_convexPlateInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${guyTwr\_convexPlateInstalledFail}

**Convex pin tight and not bent**

${guyTwr\_convexPinInstalledNoBent}

**Failure Comments If deficiency, also log in Deficiency Section**

${guyTwr\_convexPinInstalledNoBentFail}

**One threaded rod installed per mast cap with 2 nuts and 1 lock washer per end, nuts are tight, lock washer flattened**

${guyTwr\_capThreadedRod}

**Failure Comments If deficiency, also log in Deficiency Section**

${guyTwr\_capThreadedRodFail}

**SF Bridging**

**Threaded rod hardware installed and tight (2 nuts and 2 flat washers per end)**

${sfBridge\_propHWInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${sfBridge\_propHWInstalledFail}

**1" diameter bolts on inside of SF bridges (Qty 1 per SF3, Qty 2 per SF4 only) have 2 nuts and 1 lockwasher installed and tightened**

${sfBridge\_oneInchBoltHWinstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${sfBridge\_oneInchBoltHWinstalledFail}

**Each bolt in channel-to-HSS connection has 1 lockwasher installed underneath nut and lockwasher is flattened (32 locations per pile)**

${sfBridge\_channelBoltsTight}

**Failure Comments If deficiency, also log in Deficiency Section**

${sfBridge\_channelBoltsTightFail}

**Each pile cap tack welded to pile (cannot be lifted off)**

${sfBridge\_capTackWelded}

**Failure Comments If deficiency, also log in Deficiency Section**

${sfBridge\_capTackWeldedFail}

**Grounding**

**Grounding hardware is installed**

${twrGrounding\_GroundHWInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrGrounding\_GroundHWInstalledFail}

**Tower Deficiencies and Additional Photos**

**Tower Deficiency/Photos**

${#rptTWR}

**Status**

${twrStatus}

**Type**

${twrType}

**Deficiency / Observation Comments**

${twrComments}

**Photo 1**

${twrPhoto1 | size:460:0}

**Photo 2**

${twrPhoto2 | size:460:0}

**Markup**

${twrMarkup1 | size:460:0}

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${/rptTWR}

**Anchors**

**Inspect Anchors?**

${inspAnchors}

**Anchors inspection**

**Guy Wires**

**Guy wires are crossing without touching**

${guyWire\_noTouchCrossing}

**Failure Comments If deficiency, also log in Deficiency Section**

${guyWire\_noTouchCrossingFail}

**Anchor and guywire are in alignment**

${guyWire\_ancGuyWireAllign}

**Failure Comments If deficiency, also log in Deficiency Section**

${guyWire\_ancGuyWireAllignFail}

**Guy Shields**

**Guy shields installed**

${guyShield\_installed}

**Failure Comments If deficiency, also log in Deficiency Section**

${guyShield\_installedFail}

**Lower Guy Hardware**

**Adjustable anchorage oriented horizontally**

${lowGuyHW\_adjAncOrienHor}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_adjAncOrienHorFail}

**Guy wire extends completely through Salvi stay clamp assembly**

${lowGuyHW\_extendThroughSalvi}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_extendThroughSalviFail}

**Salvi stay clamp has overlapped compressions at anchor connections**

${lowGuyHW\_salviOverlapCompAtAnc}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_salviOverlapCompAtAncFail}

**Salvi stay clamp assembly out-of-straightness is within acceptable limit (less than 7/16" for 7/8" guywire at anchor connections)**

${lowGuyHW\_salviWithinLimit}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_salviWithinLimitFail}

**10 nuts installed per adjustable guy hardware assembly with 1 washer beneath double nuts and are all tight**

${lowGuyHW\_nutsInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_nutsInstalledFail}

**Upper anchorage is positioned approximately at mid-length of stay bolt (8" minimum adjustability either way)**

${lowGuyHW\_ancInstallMidLength}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_ancInstallMidLengthFail}

**Threaded rods are straight. No noticeable bowing**

${lowGuyHW\_threadedRodsStraight}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_threadedRodsStraightFail}

**Shackle cotter pins are installed, seated, and open end is facing down on all shackles anchor side**

${lowGuyHW\_shackFaceDown}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_shackFaceDownFail}

**2 shackles have been installed per adjustable assembly**

${lowGuyHW\_shackInstallPerAnc}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowGuyHW\_shackInstallPerAncFail}

**Upper Guy Hardware**

**Guy wire extends completely through Salvi assembly (visible through inspection window)**

${upGuyHW\_extendThroughSalvi}

**Failure Comments If deficiency, also log in Deficiency Section**

${upGuyHW\_extendThroughSalviFail}

**Salvi stay clamp has overlapped compressions at tower connections**

${upGuyHW\_salviOverTwrCompress}

**Failure Comments If deficiency, also log in Deficiency Section**

${upGuyHW\_salviOverTwrCompressFail}

**Salvi stay clamp assembly out-of-straightness is within acceptable limit (less than 7/16" for 7/8" guywire at tower connections)**

${upGuyHW\_salviWithinLimit}

**Failure Comments If deficiency, also log in Deficiency Section**

${upGuyHW\_salviWithinLimitFail}

**Shackle cotter pins are installed, seated, and open end is facing down on all shackles tower side. Also on guy sheave tower side (B-551 only)**

${upGuyHW\_shackFacedDown}

**Failure Comments If deficiency, also log in Deficiency Section**

${upGuyHW\_shackFacedDownFail}

**B-551 only: Guy Sheave oriented horizontally, 2 Shackles and 1 link installed**

${upGuyHW\_sheaveOrientation}

**Failure Comments If deficiency, also log in Deficiency Section**

${upGuyHW\_sheaveOrientationFail}

**Anchor Stickup**

**600-1100mm of anchor projecting above grade**

${ancStickup\_ancProjAboveGrade}

**Failure Comments If deficiency, also log in Deficiency Section**

${ancStickup\_ancProjAboveGradeFail}

**Deadman /Overburden Grouted Anchors**

**Take-off plate oriented vertically**

${deadOver\_PlateOrienVert}

**Failure Comments If deficiency, also log in Deficiency Section**

${deadOver\_PlateOrienVertFail}

**Take-off plate set screw tight and not sheared off**

${deadOver\_plateSetScrewTight}

**Failure Comments If deficiency, also log in Deficiency Section**

${deadOver\_plateSetScrewTightFail}

**Cut end of anchor rod has been cold galvanized, anchor rod is not bent, there are no couples above grade**

${deadOver\_ancRodGalNoBent}

**Failure Comments If deficiency, also log in Deficiency Section**

${deadOver\_ancRodGalNoBentFail}

**One hex nut, one lock nut installed on threadbar in take-off plate window and both are tight; lock nut is fully threaded onto anchor rod, set screw installed and tightened**

${deadOver\_nutScrewInstall}

**Failure Comments If deficiency, also log in Deficiency Section**

${deadOver\_nutScrewInstallFail}

**Helical Anchors**

**Helical anchor cap centered on pile cap (vertical and horizontal plane)**

${heliAnc\_capCenteredOnPile}

**Failure Comments If deficiency, also log in Deficiency Section**

${heliAnc\_capCenteredOnPileFail}

**Each helical anchor cap secured with 2 threaded rods. 2 nuts (tightened) and 1 lockwasher (flattened) per side. Rods must be centered on pile.**

${heliAnc\_rodCenteredHardware}

**Failure Comments If deficiency, also log in Deficiency Section**

${heliAnc\_rodCenteredHardwareFail}

**Tandem helical anchor has yoke plate and 4 shackles. Yoke plate installed to equally load piles**

${heliAnc\_yokePlateInstall}

**Failure Comments If deficiency, also log in Deficiency Section**

${heliAnc\_yokePlateInstallFail}

**Anchors Deficiencies and Additional Photos**

**Anchors Deficiency/Photos**

${#rptANC}

**Status**

${ancStatus}

**Type**

${ancType}

**Deficiency / Observation Comments**

${ancComments}

**Photo 1**

${ancPhoto1 | size:460:0}

**Photo 2**

${ancPhoto2 | size:460:0}

**Markup**

${ancMarkup1 | size:460:0}

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${/rptANC}

**Insulator Strings**

**Inspect Insulator Strings?**

${inspInsulStrings}

**Insulator Strings inspection**

**Correct number of Insulators**

**26 insulators for I-Strings, 2x26 insulators for V-Strings, 3x28 insulators for Dead-End Strings**

${insulCorrectNumb\_corrNumb}

**Failure Comments If deficiency, also log in Deficiency Section**

${insulCorrectNumb\_corrNumbFail}

**Condition**

**Insulators are clean and free from damages**

${insulCond\_cleanDamFree}

**Failure Comments If deficiency, also log in Deficiency Section**

${insulCond\_cleanDamFreeFail}

**Position (Suspension and Jumper Strings Only)**

**Insulator strings are plumb**

${insulPos\_stringPlumb}

**Failure Comments If deficiency, also log in Deficiency Section**

${insulPos\_stringPlumbFail}

**All cotter pins fully seated**

${insulPos\_cottpinsInPlace}

**Failure Comments If deficiency, also log in Deficiency Section**

${insulPos\_cottpinsInPlaceFail}

**Cotter Pins**

**The cotter pins on suspension clamp facing towards tower**

${insulPos\_cottPinsTowards}

**Failure Comments If deficiency, also log in Deficiency Section**

${insulPos\_cottPinsTowardsFail}

**Corona Rings**

**One corona ring for I-string and two corona rings for V-string and three corona rings for deadend string**

${coronaRing\_propInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${coronaRing\_propInstalledFail}

**Counterweight**

**Standard 80kg counterweight installed on all jumpers strining except for C-550-0 with 20 degree or less line angle. For C-550-0 with 20 degree or less line angle, 180kg counterweight installed on central phase jumper instead of 80kg**

${counterweight\_propInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${counterweight\_propInstalledFail}

**Insulator Strings Deficiencies and Additional Photos**

**Insulator Strings Deficiency/Photos**

${#rptINSUL}

**Status**

${insulStatus}

**Type**

${insulType}

**Deficiency / Observation Comments**

${insulComments}

**Photo 1**

${insulPhoto1 | size:460:0}

**Photo 2**

${insulPhoto2 | size:460:0}

**Markup**

${insulMarkup1 | size:460:0}

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${/rptINSUL}

**Phase Conductor**

**Inspect Phase Conductor?**

${inspPhaseConductor}

**Phase Conductor inspection**

**Conductor Condition**

**No scuff marks, bird-caging, popped strands**

${condCondition\_noDamage}

**Failure Comments If deficiency, also log in Deficiency Section**

${condCondition\_noDamageFail}

**No burn marks (approx. 20ft near suspension clamps) for span between tower 1 and 55 only)**

${condCondition\_noBurnDamage}

**Failure Comments If deficiency, also log in Deficiency Section**

${condCondition\_noBurnDamageFail}

**Conductor Jumpers (DE Towers Only)**

**Evenly sagged**

${condJumper\_evenSag}

**Failure Comments If deficiency, also log in Deficiency Section**

${condJumper\_evenSagFail}

**Implosive Sleeves**

**Sleeves straight, no cracks, gauging or necking**

${condImpSleeve\_sleeveGood}

**Failure Comments If deficiency, also log in Deficiency Section**

${condImpSleeve\_sleeveGoodFail}

**No black markings on implosive**

${condImpSleeve\_noBlackMarks}

**Failure Comments If deficiency, also log in Deficiency Section**

${condImpSleeve\_noBlackMarksFail}

**No gauging**

${condImpSleeve\_noGauging}

**Failure Comments If deficiency, also log in Deficiency Section**

${condImpSleeve\_noGaugingFail}

**No gap between marker line and sleeve**

${condImpSleeve\_noMarkerLineGap}

**Failure Comments If deficiency, also log in Deficiency Section**

${condImpSleeve\_noMarkerLineGapFail}

**Splices**

**Splices installed greater than 10m away from suspension clamps**

${splices\_spliceInstall}

**Failure Comments If deficiency, also log in Deficiency Section**

${splices\_spliceInstallFail}

**Hardware**

**All hardware in place, cotter pins seated**

${condHW\_pinsInPlace}

**Failure Comments If deficiency, also log in Deficiency Section**

${condHW\_pinsInPlaceFail}

**Hardware is not binding at the tower attachment point or along the hardware string (Suspension Strings only)**

${condHW\_notBinding}

**Failure Comments If deficiency, also log in Deficiency Section**

${condHW\_notBindingFail}

**No damaged galvanizing**

${condHW\_NoGalDam}

**Failure Comments If deficiency, also log in Deficiency Section**

${condHW\_NoGalDamFail}

**Nuts and Cotter Pins**

**Facing tower, where applicable**

${condNutCotPin\_pinsFaceTwr}

**Failure Comments If deficiency, also log in Deficiency Section**

${condNutCotPin\_pinsFaceTwrFail}

**Nuts at end of U-bolt thread**

${condNutCotPin\_nutsUBoltEnd}

**Failure Comments If deficiency, also log in Deficiency Section**

${condNutCotPin\_nutsUBoltEndFail}

**Vibration Dampers**

**2 dampers per span, per phase**

${condVibDamp\_2DampPerSpan}

**Failure Comments If deficiency, also log in Deficiency Section**

${condVibDamp\_2DampPerSpanFail}

**Dampers in vertical position**

${condVibDamp\_dampVertical}

**Failure Comments If deficiency, also log in Deficiency Section**

${condVibDamp\_dampVerticalFail}

**Spacer Dampers**

**Spacer-damper installed with alternating orientation.**

${spacerDamp\_alternatingOrient}

**Failure Comments If deficiency, also log in Deficiency Section**

${spacerDamp\_alternatingOrientFail}

**Phase Conductor Deficiencies and Additional Photos**

**Phase Conductor Deficiency/Photos**

${#rptCOND}

**Status**

${condStatus}

**Type**

${condType}

**Deficiency / Observation Comments**

${condComments}

**Photo 1**

${condPhoto1 | size:460:0}

**Photo 2**

${condPhoto2 | size:460:0}

**Markup**

${condMarkup1 | size:460:0}

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${/rptCOND}

**OPGW**

**Inspect OPGW?**

${inspOPGW}

**OPGW inspection**

**OPGW Condition**

**No scuff marks, bird-caging, popped strands, broken or damaged Steel Wire strands, burn damage, Sharp Bends**

${opgwCondition\_noDamage}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwCondition\_noDamageFail}

**No risk of abrasion (OPGW clear of tower members for routing at tower peaks or down structures)**

${opgwCondition\_noAbrasion}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwCondition\_noAbrasionFail}

**Suspension Clamps**

**Suspension clamps are plumb at tower peak (N/A for splice locations)**

${opgwSusClamp\_clampPlumb}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwSusClamp\_clampPlumbFail}

**Hardware**

**All hardware (including vibration dampers) in place, cotter pins seated**

${opgwHW\_condHWPins}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwHW\_condHWPinsFail}

**Preformed hardware is fully wrapped (not splayed out) with ends aligned (within 1"maximum)**

${opgwHW\_preHWWrapped}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwHW\_preHWWrappedFail}

**Current transfer tab**

**Short leg of current transfer tab positioned against the isolator inserts (Suspension grips)**

${opgwCurTrans\_currTabPosOK}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwCurTrans\_currTabPosOKFail}

**Current transfer lug and lead installed with tab oriented downwards (all grips)**

${opgwCurTrans\_lugLeadDown}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwCurTrans\_lugLeadDownFail}

**Ground wire Downlead**

**Ground wire (tinned copper) curved without being too tight**

${opgwGndWireDwn\_cabNotTooTight}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwGndWireDwn\_cabNotTooTightFail}

**Ground wire lug terminal**

**Ground wire lug terminal pointing downwards at the point of attachment to Ground Clamp to create small drip loop and to reduce risk of freeze/thaw cycling on the terminal.**

${opgwGndWireTerm\_lugPointDown}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwGndWireTerm\_lugPointDownFail}

**Routing**

**OPGW is routed down outside the structure and away from the climbing leg.**

${opgwRoute\_routedOK}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwRoute\_routedOKFail}

**OPGW is routed through conductor zone with no reduction in clearance tower to phase (tangential faces of the structure to the running line).**

${opgwRoute\_routeClearance}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwRoute\_routeClearanceFail}

**Coil**

**The first coil is to be placed on the structure in clamped or storage format with the remainder of the spare coiled and secured at the base of the structure.**

${opgwCoil\_storageCoil}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwCoil\_storageCoilFail}

**Direction Identification Tags**

**OPGW Direction Identification Tags are installed at splice location.**

${opgwTags\_installed}

**Failure Comments If deficiency, also log in Deficiency Section**

${opgwTags\_installedFail}

**OPGW Deficiencies and Additional Photos**

**OPGW Deficiency/Photos**

${#rptOPGW}

**Status**

${opgwStatus}

**Type**

${opgwType}

**Deficiency / Observation Comments**

${opgwComments}

**Photo 1**

${opgwPhoto1 | size:460:0}

**Photo 2**

${opgwPhoto2 | size:460:0}

**Markup**

${opgwMarkup1 | size:460:0}

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${/rptOPGW}

**Ground Wire**

**Inspect Ground Wire?**

${inspGroundWire}

**Ground Wire inspection**

**GW Condition**

**All components installed with no risk of abrasion**

${gwCondition\_noRiskAbrais}

**Failure Comments If deficiency, also log in Deficiency Section**

${gwCondition\_noRiskAbraisFail}

**Hardware**

**All hardware (including vibration dampers) in place, cotter pins seated**

${gwHW\_pinsInPlace}

**Failure Comments If deficiency, also log in Deficiency Section**

${gwHW\_pinsInPlaceFail}

**Suspension clamps**

**Clamps are plumb**

${gwSusClamps\_clampPlumb}

**Failure Comments If deficiency, also log in Deficiency Section**

${gwSusClamps\_clampPlumbFail}

**Cotter pins facing towards tower**

${gwSusClamps\_cottPinsTowards}

**Failure Comments If deficiency, also log in Deficiency Section**

${gwSusClamps\_cottPinsTowardsFail}

**U-bolt**

**Nuts at the end of the U-bolt thread**

${gwUBolt\_nutsUboltEnd}

**Failure Comments If deficiency, also log in Deficiency Section**

${gwUBolt\_nutsUboltEndFail}

**Ground Wire Deficiencies and Additional Photos**

**Ground Wire Deficiency/Photos**

${#rptGW}

**Status**

${gwStatus}

**Type**

${gwType}

**Deficiency / Observation Comments**

${gwComments}

**Photo 1**

${gwPhoto1 | size:460:0}

**Photo 2**

${gwPhoto2 | size:460:0}

**Markup**

${gwMarkup1 | size:460:0}

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${/rptGW}

**Tower Mounted Signs**

**Inspect Tower Mounted Signs?**

${inspTwrMountedSigns}

**Tower Mounted Signs inspection**

**Tower Number**

**Marked on the tower foundation**

${twrNum\_signFdnTwrNum}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrNum\_signFdnTwrNumFail}

**Line Designation Signs**

**Installation required**

${lineDesigSign\_signInstalled}

**Properly installed**

${lineDesigSign\_signProper}

**Failure Comments If deficiency, also log in Deficiency Section**

${lineDesigSign\_signProperFail}

**Aerial Approach Signs:**

**Installation required**

${arielAppSign\_appSignInstalled}

**Properly installed**

${arielAppSign\_appSignProper}

**Failure Comments If deficiency, also log in Deficiency Section**

${arielAppSign\_appSignProperFail}

**Danger High Voltage Sign**

**Installation required**

${dangHighVol\_dangInstalled}

**Properly installed**

${dangHighVol\_dangProper}

**Failure Comments If deficiency, also log in Deficiency Section**

${dangHighVol\_dangProperFail}

**Lower Tower Number Sign**

**Installation required**

${lowTwrNumbSign\_lowTwrInstalled}

**Properly installed**

${lowTwrNumbSign\_lowTwrProper}

**Failure Comments If deficiency, also log in Deficiency Section**

${lowTwrNumbSign\_lowTwrProperFail}

**Tower Mounted Signs Deficiencies and Additional Photos**

**Tower Mounted Signs Deficiency/Photos**

${#rptSIGN}

**Status**

${signStatus}

**Type**

${signType}

**Deficiency / Observation Comments**

${signComments}

**Photo 1**

${signPhoto1 | size:460:0}

**Photo 2**

${signPhoto2 | size:460:0}

**Markup**

${signMarkup1 | size:460:0}

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${/rptSIGN}

**Tower Site and Ahead Span**

**Inspect Tower Site and Ahead Span?**

${inspTwrSiteAheadSpan}

**Tower Site and Ahead Span inspection**

**Condition**

**No construction equipment, materials, loose debris/garbage**

${twrSiteCond\_noConstEquipDeb}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrSiteCond\_noConstEquipDebFail}

**No oil spills**

${twrSiteCond\_noOilSpill}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrSiteCond\_noOilSpillFail}

**No rutting or soil disturbance**

${twrSiteCond\_noRuttSoilDist}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrSiteCond\_noRuttSoilDistFail}

**No evidence of hazardous material spill (stains or smell)**

${twrSiteCond\_noHazMatSpill}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrSiteCond\_noHazMatSpillFail}

**Borrow pits**

**Borrow pits are sloped so that no hazards exist**

${twrBorrowPit\_borrowNoHaz}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrBorrowPit\_borrowNoHazFail}

**Danger trees**

**No danger trees**

${twrDangTree\_noDangTree}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrDangTree\_noDangTreeFail}

**Aerial Marker Cones**

**Installed**

${twrAerialMarkCone\_aerInstalled}

**Correct spacing and pattern**

${twrAerialMarkCone\_aerProper}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrAerialMarkCone\_aerProperFail}

**Bird Diverters**

**Installed**

${twrBirdDiv\_birdDiveInstalled}

**Correct spacing and pattern**

${twrBirdDiv\_birdDiveProper}

**Failure Comments If deficiency, also log in Deficiency Section**

${twrBirdDiv\_birdDiveProperFail}

**Surge Arresters**

**Arrester on outer phase conductor installed near the road or field access. The arrester on central phase shall be installed on opposite side of the tower**

${surgeArrester\_propInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${surgeArrester\_propInstalledFail}

**Down lead of arrester installed at same elevation of discounter (outer phase only). For central phase, down lead shall be installed at girder adjacent to the plate at bottom of tower window**

${surgeArrester\_downleadElev}

**Failure Comments If deficiency, also log in Deficiency Section**

${surgeArrester\_downleadElevFail}

**Monitor installed facing to the tower**

${surgeArrester\_monitor}

**Failure Comments If deficiency, also log in Deficiency Section**

${surgeArrester\_monitorFail}

**8 ground rods installed on each arrester site**

${surgeArrester\_groundRod}

**Failure Comments If deficiency, also log in Deficiency Section**

${surgeArrester\_groundRodFail}

**Tower Site And Ahead Span Deficiencies and Additional Photos**

**Tower Site And Ahead Span Deficiency/Photos**

${#rptSPAN}

**Status**

${spanStatus}

**Type**

${spanType}

**Deficiency / Observation Comments**

${spanComments}

**Photo 1**

${spanPhoto1 | size:460:0}

**Photo 2**

${spanPhoto2 | size:460:0}

**Markup**

${spanMarkup1 | size:460:0}

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${/rptSPAN}

**Wire Fences**

**Inspect Wire Fences?**

${inspWireFences}

**Wire Fences inspection**

**Wire Fences**

**Wire fences within ROW**

${wireFence\_withinROW}

**Energized Fence**

**Fence Installed**

${wireEngFence\_fenInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${wireEngFence\_fenInstalledFail}

**Filter Installed**

${wireEngFence\_filterInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${wireEngFence\_filterInstalledFail}

**Non-energized Fence**

**Fence Installed**

${wireNonEngFence\_fenInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${wireNonEngFence\_fenInstalledFail}

**Copper bonding Installed**

${wireNonEngFence\_bondInstalled}

**Failure Comments If deficiency, also log in Deficiency Section**

${wireNonEngFence\_bondInstalledFail}

**Bonding location**

**Bonding location description (i.e. 15m from Twr. 20 towards Twr.21)**

${wireBondLoc\_bondLocation}

**Clearance**

**No steel post within 15m from tower**

${wireClear\_noSteelPost}

**Failure Comments If deficiency, also log in Deficiency Section**

${wireClear\_noSteelPostFail}

**Fence does not touch tower**

${wireClear\_noTouchTwr}

**Failure Comments If deficiency, also log in Deficiency Section**

${wireClear\_noTouchTwrFail}

**Access**

**Access to tower exists**

${wireAccess\_accToTwrExists}

**Wire Fences Deficiencies and Additional Photos**

**Wire Fences Deficiency/Photos**

${#rptWIRE}

**Status**

${wireStatus}

**Type**

${wireType}

**Deficiency / Observation Comments**

${wireComments}

**Photo 1**

${wirePhoto1 | size:460:0}

**Photo 2**

${wirePhoto2 | size:460:0}

**Markup**

${wireMarkup1 | size:460:0}

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${/rptWIRE}

**Complete Inspection**

**Final Comments**

${appFinalComments}

**Inspection Team**

${appTeam}

**List Additional Team Members not in List**

${appTeamOther}

**Signatures**

${#rptSignature}

**Inspector Signature**

${appMHInspSign | size:300:0}

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${/rptSignature}

**Inspection Complete**

${appComplete}