

Reasons for STA Extension Request

WTPM respectfully requests extension of its Engineering Special Temporary Authority (File No. BSTA-20171113AAT) (“STA”). Although the most recent extension of the STA (File No. BESTA-20211105AAB) does not expire until June 21, 2022, LMS categorizes that authorization as inactive and Licensee is therefore unable to directly file for an extension. Licensee respectfully requests that the FCC accept this application as a request to extend the existing, unexpired STA.

WTPM’s antenna and tower were destroyed during Hurricane Maria. The Station received Special Temporary Authority for reduced-power operation using a Scala Da Cpol Composite antenna mounted to the tower of nearby station WFDT. Since the most recent extension, Licensee has made significant progress towards returning to licensed operations. Licensee paid for its first and second of two payments for the WTPM tower equipment on March 14 and March 28, 2022, respectively.¹ By April 20, 2022, Valmont Industries produced construction plans and specifications attached to the May 27, 2022 contract for tower installation services between 3A and Licensee.² Licensee signed the contract, received its first invoice from 3A for tower construction services on June 6, 2022, and is prepared for tower installation as soon as 3A completes the manufacturing process and ships the final product to Puerto Rico.³ As soon as the tower is installed, WTPM plans to resume licensed operations and will no longer need this STA. WTPM respectfully requests six months to complete installation.

¹ See Exhibits A, B.

² See Exhibit C at 14, 20.

³ See Exhibit D.

EXHIBIT A



Payment Confirmation

The CCD Payment request below has been transmitted successfully.

Template Information

Template Name: Pagos
Request Type: CCD Payment
Company Name/ID: ASOC ADVENTISTA / P660314073
Template Description: Pagos
Debit Account: NON PROFIT CHECKING - *0015
Effective Date: 03/14/2022
Transmit Status: Transmitted
Confirmation Number: 4226153126
Status: Transmitted

Credit/Destination Accounts

ABA/TRC	Account	Account Type	Name	Detail ID	Amount
021502011	*1141	Checking	3A GROUP, LLC		\$151,250.00
Additional information: PROJECT- WTPM TOWER -INVOICE# 21010322-001					
				Total:	\$151,250.00

Approval History Information

Approval Status : 1 of 1 Received

Action	User ID	Date
Enter Request	ADMIN	03/10/2022 08:21:51 AM (ET)
Approve/Transmit Request	ADMIN	03/10/2022 08:21:51 AM (ET)

EXHIBIT B



Payment Confirmation

The CCD Payment request below has been transmitted successfully.

Template Information

Template Name: Pagos
Request Type: CCD Payment
Company Name/ID: ASOC ADVENTISTA / P660314073
Template Description: Pagos
Debit Account: NON PROFIT CHECKING - *0015
Effective Date: 03/28/2022
Transmit Status: Transmitted
Confirmation Number: 2249304249
Status: Transmitted

Credit/Destination Accounts

ABA/TRC	Account	Account Type	Name	Detail ID	Amount
021502011	*1141	Checking	3A GROUP, LLC		\$151,250.00
Additional information: PROJECT- WTPM TOWER -INVOICE# 21010322-002					
				Total:	\$151,250.00

Approval History Information

Approval Status : 1 of 1 Received

Action	User ID	Date
Enter Request	ADMIN	03/23/2022 04:08:12 PM (ET)
Approve/Transmit Request	ADMIN	03/23/2022 04:08:12 PM (ET)

EXHIBIT C

CONTRATO DE OBRA

En la ciudad de Mayagüez, Puerto Rico, a los 27 días del mes de mayo de 2022.

COMPARECEN

DE LA PRIMERA PARTE: la Corporación de los Adventistas del Séptimo Día del Oeste de Puerto Rico, Corp., una corporación sin fines de lucro organizada bajo las leyes del Estado Libre Asociado de Puerto Rico con número de registro 9932 ante el Departamento de Estado del Estado Libre Asociado de Puerto Rico, y representada en este acto por su Presidente, Héctor Acevedo Irizarry, quien es mayor de edad, casado, y vecino de Aguada, Puerto Rico. En adelante se denominará a esta parte como el CONTRATANTE o el DUEÑO. (Se acompaña resolución corporativa firmar este contrato).

DE LA SEGUNDA PARTE, 3A Group LLC., una corporación inscrita en el Departamento de Estado con número de registro 425437 y que hace negocios en el Estado Libre Asociado de Puerto Rico, con número de Seguro Social Patronal EIN 66-0920261, número de Registro de Comerciante 1098229-0024, representada en este acto por su presidente Ernie X. Albino Rodríguez, quien es mayor de edad, estado civil casado, ejecutivo y vecino de San Juan, Puerto Rico, en adelante denominado el CONTRATISTA o CONSTRUCTOR. El carácter representativo de la Segunda Parte y su autorización para comparecer a este acto surgen de la Resolución Corporativa, documento que se aneja a este contrato. La Corporación certifica que es una corporación debidamente organizada y vigente con "good standing" en el Estado Libre Asociado, y que ha de probar ese hecho como parte de esta contratación.

Las partes aseguran tener la capacidad legal necesaria para llevar a efecto el otorgamiento del presente contrato bajo las siguientes:

CLAUSULAS Y CONDICIONES

A. Descripción General:

Este contrato contiene el acuerdo entre las partes para los servicios de construcción requeridos para la Torre de Radio de WTPM, incluyendo todo lo requerido de acuerdo con los planos y especificaciones preparados por Valmont Structures, Inc.¹, mano de obra, equipo, material, herramientas, supervisión y seguros todos los demás costos requeridos para el siguiente trabajo como se detalla a continuación:

B. Términos y condiciones:

1. Certificación:

El CONTRATISTA certifica que se dedica a realizar trabajos de construcción y tiene experiencia en la construcción de torres de telecomunicaciones y sus cimientos como lo es requerido por el DUEÑO y que, Conforme a su experiencia y conocimientos en el campo, tiene la capacidad para cumplir sus obligaciones objeto de este contrato contando con el personal suficiente y debidamente capacitado, así como los recursos necesarios para realizar las obras en su totalidad y entregarlas conforme al programa de trabajo definido, listo para uso inmediato y libre de defectos e imperfecciones en la obra según lo acordado y diseñado, de conformidad a lo pedido por el DUEÑO.

A esos efectos con anterioridad a la firma de este contrato, y previo a que se le autorice por escrito a comenzar las labores o a la compra de materiales para la obra, el Contratista proveyó al Dueño los planos, diseños y toda la documentación y datos de la torre de telecomunicaciones y de su fundación necesarios para ser evaluados. El Dueño a su vez los consultó con un ingeniero estructural independiente, pagado por el Dueño. Este deberá certificar por escrito si estos planos cumplen o no con la obra tal como es requerida. De cumplir con los estándares requeridos el Dueño procederá a autorizar el comienzo de las labores de compra de la torre y de la construcción de la obra. De no cumplir con los estándares según certificación a esos efectos, entonces a opción

¹ Valmont Structures, Inc., 1545 Pidco Drive, Plymouth, IN 46533

del Dueño el contratista realizará aquellos ajustes necesarios en los planos para que cumpla con lo requerido en un término no mayor de 30 días o se rescindirá el contrato entre las partes. En esta etapa, cualquier pago al Contratista está condicionado a la certificación de corrección de los planos. De certificarse como correctos entonces el Dueño emitirá una carta de "Order to Proceed" en la que se procederá con la autorización para comienzo de labores, compra y gestiones correspondientes a la construcción, y se pagará de conformidad a lo establecido en el presente contrato.

2. Evidencia de cumplimiento:

El CONTRATISTA tendrá a disposición del DUEÑO toda la documentación que acredite el cumplimiento de su parte de todas las leyes y reglamentos federales y estatales que les apliquen a las actividades que realizará producto de este contrato. Limitándose única y exclusivamente al diseño y construcción de una torre de telecomunicaciones y su fundación. El diseño de los cimientos y estructura de la torre es realizado por Valmont Structures, Inc.

El Contratista afirma que sus empleados están entrenados y certificados en la utilización y manejo correcto de la técnicas, equipo y materiales que han de usarse para realizar la obra pactada y de cualquier otro material que se ha de usar en la labor cuya exposición pudiera representar un riesgo para la salud. El CONTRATISTA, en caso de requerírsele por el DUEÑO, probará a su satisfacción que ha sido adiestrado y certificado para utilizar los equipos, productos y materiales que se requieren para completar la Obra y que conoce el procedimiento para realizar dicha actividad.

3. La Obra:

El CONTRATISTA se compromete al desarrollo y realización de las obras de construcción de una nueva torre para antena de telecomunicaciones, según solicitado por el DUEÑO. Esto incluye toda labor, maquinarias, y materiales para completar la misma. Incluye:

a. Cimientos:

1. Movilización y desmovilización de todos los equipos necesarios para los trabajos de barrenado, disposición de material sobrante, colocación de varilla y vaciado de hormigón.
2. Barrenado en suelo de siete pies de diámetro por ochenta pies de profundidad (7'-0" x 80'-0").
3. Disposición del material de excavación.
4. Fabricación e instalación de acero de refuerzo vertical y horizontal.
5. Vaciado de hormigón con resistencia de 4,500psi.
6. Instalación de pernos de anclaje de la torre.
7. Pruebas de hormigón (ASTM C-31 & C-39).

b. Ensamblar e instalar la torre:

1. Organizar los elementos estructurales de la torre en el estacionamiento de Iglesia Adventista Tres Hermanos en PR-401, La Playa, Añasco PR.
2. Transportar los elementos estructurales de la torre en camiones plataforma hacia el sitio de instalación en Bo. Atalaya, Rincón, PR.
3. Movilización de desmovilización de grúas de puntal necesarias para la instalación de la torre.
4. Erigir torre autoportante de 328'-0".
5. Instalación de escalerilla de cables.
6. Instalación de cable de seguridad.
7. Instalación de pararrayos.
8. Instalación de 'Beacon Mount'.
9. Instalación de sistema de 'ground'.

4. Aclaraciones generales:

- a. La propuesta para el contrato ha sido elaborada de acuerdo con la información proporcionada por el Pr. Héctor Acevedo y todos los documentos preparados por Valmont



Structures, Inc.

- b. Entendemos que cualquier información adicional que sea pertinente al Contratista del proyecto se nos proporcionará de manera expedita.
- c. Todos los Permisos y Tarifas de Endoso del Gobierno serán pagados por la Corporación de los Adventistas del Séptimo Día del Oeste de Puerto Rico (Dueño).
- d. Se incluye el Impuesto IVU en los materiales de construcción.
- e. Lámpara de Seguridad de la Torre y sus accesorios, será suministrado por el Dueño para ser instalado por el contratista. De acuerdo con los requerimientos de FAA.
- f. 3A Group, LLC, proporcionará todo el equipo y los esfuerzos necesarios para completar el trabajo, pero el cliente es consciente de que existen condiciones en el proceso convencional de perforación con barrena no funciona. El costo acordado no considera la ejecución de la obra con ningún otro método que no sea el de barrena rotativa. En el caso de que las condiciones del subsuelo se encuentren fuera del alcance de esta propuesta, se notificará al Dueño de inmediato para definir el curso de acción.
- g. Las partes reconocen que es posible que el equipo de perforación dañe el pavimento de asfalto, especialmente en los lugares donde gira. El Contratista y subcontratistas tendrán el máximo cuidado para reducir estos daños. Sin embargo, la reparación de estos daños NO está incluida en este contrato.
- h. Para llevar a cabo las actividades de construcción antes mencionadas, el Dueño coordinará con el municipio y/o agencia del gobierno Puerto Rico pertinentes el cierre de calles, control de tráfico y coordinación de vía libre eléctrica con LUMA y la Autoridad de Energía Eléctrica.
- i. Para llevar a cabo las actividades de construcción y uso de grúa, el Dueño coordinará con el propietario del lote frente a las instalaciones de la antena para obtener autorización para ubicar grúas y sus equipos auxiliares. De igual manera, coordinar la remoción de vehículos abandonados frente a la entrada del site. (Véase imagen aérea que se aneja) De no poder obtener autorización de uso del lote frente al área de construcción se revisará el impacto en costo de acuerdo con los accesos que se puedan obtener.
- j. Operaciones de movimiento de tierras más allá del alcance de trabajo de este acuerdo no están incluidas.

5. Anejos:

Los detalles de la obra a construirse se desprenden de los anejos del presente contrato, los cuales forman parte integral del mismo, y de los planos provistos al Dueño según se especifica en este contrato. El CONTRATISTA, entre otras cosas construirá la antena de acuerdo a las especificaciones y planos estructurales preparados por Valmont Structures, Inc.² También construirá una fundación (base) para la antena, según descrito en los anejos y planos y, que cumpla con todos los parámetros y especificaciones para soportar la estructura (torre).

6. Costo:

Por los servicios descritos en este contrato, el DUEÑO pagará al CONTRATISTA un total de ~~SEICIENTOS VEINTIOCHO MIL DOLARES~~ (\$646,365.00).

SEICIENTOS CUARENTA Y SEIS MIL TRECIENTOS SESENTA Y CINCO DOLARES

El DUEÑO de la obra admite de forma inequívoca que cuenta con los fondos requeridos para la susodicha obra. El DUEÑO certifica al contratista que los fondos se encuentran depositados en una institución bancaria regulada por la FDIC y que el balance a la fecha de firmar el presente acuerdo, contiene al menos la cantidad de \$646,365.00 y que la razón única y exclusiva para la cual están reservados los fondos, es para la obra en cuestión.

Las cantidades han de ser pagadas de la manera estipulada en este contrato. Para el trámite de desembolso se requiere la presentación de facturas acompañadas de certificaciones.

La certificación de culminación de una etapa que emita el Contratista vendrá acompañada junto con las correspondientes certificaciones de cumplimiento de obra las cuales tendrán que ser presentadas y aprobadas para pago por el Ingeniero u otro personal a cargo del proyecto así designado por el DUEÑO y un representante del CONTRATISTA. El DUEÑO contratará una firma externa para la inspección. Las certificaciones de trabajo completado requeridas para pago, serán presentadas acompañadas de los siguientes documentos:

² Según los diseños de Valmont Structures, Inc., la torre resiste vientos de hasta 233 mph.

- Copia de programa revisado de obra con porcentaje de cumplimiento de la obra (Project Schedule).
- 7. Términos de pago: 7 días laborables contados a partir de la entrega de la factura con la certificación correspondiente.

a. Aplicación de pago No. 1:

25% a ser facturado después de recibida la orden de compra.

\$161,591.25

b. Aplicación de pago No. 2:

25% al completar los trabajos de cimientos en hormigón.

\$161,591.25

c. Aplicación de pago No. 3:

25% antes de comenzar los trabajos de ensamblaje e instalación de la torre.

\$161,591.25

d. Aplicación de pago No. 4:

25% al completar los trabajos de ensamblaje e instalación de la torre.

\$161,591.25

Total: **\$646,365.00**

8. Exclusiones:

1. Servicio de inspección por ingeniero licenciado en Puerto Rico, será responsabilidad del dueño.
2. Excavación en roca, de encontrarse esta condición se evaluará en su momento para determinar el curso a seguir.
3. 'Builders Risk', seguro de riesgo de construcción, será responsabilidad del dueño.
4. Rotulación de seguridad y del proyecto.
5. Verjas y/o barreras temporeras.
6. Plan de Control de Erosión y Sedimentación (CES), implementación, monitoreo e informes.
7. Control de polvo fugitivo.
8. Servicio temporero de energía y agua, será responsabilidad del dueño.
9. Trabajos mecánicos, plomería y eléctricos.
10. Cualquier condición imprevista.
11. Reparaciones a cualquier propiedad del propietario, en el sitio, áreas adyacentes y fuera del sitio.
12. Renovación del permiso de construcción de la FAA y FCC.
13. Cualquier permiso del gobierno local y federal.
14. Cualquier Otro Requerimiento o Coordinación con la FCC, Gobierno Federal o Local.
15. Horas extra.
16. Arbitrio Municipal de Construcción, de ser requerido será pagado por el dueño.

9. Suministrados por el Dueño:

Los servicios de agua y electricidad serán provistos por el Dueño.

10. Inspección y Pruebas:

Todos los productos solicitados en virtud del presente estarán sujetos a inspección y prueba por parte del Dueño, en cualquier momento y lugar (en la medida de lo posible), incluso durante el período de fabricación y, en cualquier caso, antes de la aceptación. El contratista acepta permitir el acceso a las instalaciones del contratista y subcontratistas en todo momento razonable para que el agente o los empleados del Dueño inspeccionen los bienes y proporcionará todas las herramientas, las instalaciones y la asistencia razonablemente necesarias para dicha inspección, sin costo adicional para el Dueño. Dichos bienes estarán sujetos a inspección final y aceptación por parte del Dueño después de la entrega al Dueño. Se acuerda expresamente que las inspecciones y/o pagos previos a la entrega no constituirán la aceptación definitiva. Si los bienes entregados no cumplen con las especificaciones, o no cumplen con los requisitos de este pedido, el Dueño tendrá derecho a rechazar dichos bienes. Los bienes, que han sido entregados y rechazados en su totalidad o en parte, pueden, a opción del Dueño, devolverse al contratista o retenerse para su disposición por cuenta y riesgo del contratista.

Revisión de Dibujos y Especificaciones:

Si durante el plazo de este contrato, los representantes del Dueño revisan dibujos, especificaciones u otros datos desarrollados por el contratista en relación con el pedido y hacen sugerencias o comentarios o aprueban dichos documentos y datos, tal acción es solo una expresión de opinión por parte del Dueño y no servirá para eximir al contratista de sus representaciones y garantías hechas en este documento o de cualquier responsabilidad por la confiabilidad, calidad, tasa de producción, costo, entrega, desempeño o cualquier otro requisito de este contrato.

11. Ordenes de cambio:

Las partes acuerdan que no se permitirá ordenes de cambio sin acuerdo previo escrito al afecto entre las partes, conteniendo dicho acuerdo y cambio los términos específicos que se pretenden cambiar y su costo si alguno adicional. El CONTRATISTA se compromete a llevar a una contabilidad separada, detallada y documentada que permita auditar o confirmar todos los costos relacionados con el cambio de órdenes, información que hará disponible al DUEÑO de éste solicitarla.

Las partes acuerdan y así reconocen, que de aprobarse y aceptarse ordenes de cambio por mutuo acuerdo previo su realización, bajo ningún concepto los mismos implicaran o resultaran en costos adicionales para el DUEÑO por concepto de "extended overhead costs" siempre y cuando el DUEÑO actúe de forma razonable durante la fase de aprobación de remisiones y/o solicitudes de información. El periodo de aprobación de órdenes de cambios debe ser dentro de un término de cinco (5) días.

12. Dibujos y Datos:

El contratista mantendrá confidencial toda la información, dibujos o datos proporcionados al contratista en relación con la ejecución de este contrato, y no divulgará ni utilizará dicha información, dibujos, especificaciones o datos en beneficio de ninguna otra parte. Salvo que sea necesario para la ejecución eficiente de este contrato, el contratista no hará copias ni permitirá que se hagan copias de dicha información sin el consentimiento previo por escrito del Dueño. El contratista no utilizará, directa o indirectamente, dichos datos o información derivada de los mismos para ningún otro propósito que no sea el de realizar este contrato, sin obtener primero el consentimiento por escrito del Dueño.

13. Uso de la Información:

El contratista acepta que toda la información proporcionada o divulgada al Dueño por el contratista en relación con la colocación o el cumplimiento de este contrato se proporciona o divulga como parte de la contraprestación de este contrato y que dicha información es no, a menos que el Dueño acuerde lo contrario por escrito, será tratado como confidencial o patentado, y el contratista no hará valer ningún reclamo (excepto por infracción de patente) por el uso o divulgación de dicha información por parte del Dueño, sus cesionarios o sus clientes.

14. Publicidad; No Divulgación:

El contratista no anunciará ni publicará de ninguna manera el hecho de que ha proporcionado o contratado para proporcionar al Dueño los bienes o servicios mencionados en este documento, sin obtener el consentimiento previo por escrito del Dueño. El contratista no divulgará ningún detalle en relación con este contrato a ninguna de las partes, excepto que se estipule lo contrario en el presente.

15. Contratista Independiente:

El contratista acepta y reconoce que es un contratista independiente. Nada en este Acuerdo se interpretará como una concesión al contratista como empleado del Dueño. El contratista es el único responsable de la ejecución completa y satisfactoria del trabajo, que es objeto de este contrato. El contratista es el único responsable de sus propias acciones y omisiones, así como de las de sus empleados, subcontratistas y otros que actúen en su nombre (en adelante, los Agentes del Contratista). El contratista también es responsable del pago de los sueldos, salarios, comisiones y beneficios de sus Agentes, y de pagar todos los impuestos que se deriven de este contrato.

16. Salud, Seguridad, Protección:

El Contratista será responsable de cumplir con las Reglas de Seguridad del Dueño incluidas en el presente contrato. El contratista autoriza al Gerente del Proyecto, al Oficial de Seguridad del Propietario o al Dueño a prohibir la entrada al área de trabajo si no lo hace cumplir con todos los equipos de seguridad requeridos hasta que sean corregidos. El Dueño autoriza al contratista a realizar pruebas de drogas a sus supervisores y operadores de equipos antes de que inicien el trabajo contratado. El contratista deberá entender que estas acciones no son responsabilidades u obligaciones del Dueño, el contratista es totalmente responsable del bienestar de sus empleados.

Cualquier sanción impuesta por OSHA, PROSHA, DRNA, JCA, EPA, el Departamento del Trabajo, el Dueño, el contratista o cualquier otra agencia o agente autorizado debido a la falta de cumplimiento del contratista con cualquiera de los requisitos de las agencias anteriores o debido a que su personal trabaja en las áreas inseguras o las condiciones inseguras correrán por cuenta y pago del contratista o se deducirán de su acuerdo si el Dueño se ve obligado a pagar por las mismas. El contratista cumplirá con todos los requisitos del Departamento de Medio Ambiente, Salud y Seguridad para garantizar un entorno de trabajo seguro. El contratista es responsable de que sus empleados, así como los de los subcontratistas y otros que actúen en su nombre, cumplan con la Política del Dueño relacionada con el uso de alcohol y cualquier otra sustancia controlada. Por lo tanto, es fundamental que, como Dueño, el contratista comprenda la política de este sobre el uso de alcohol, drogas y sustancias controladas, y cómo se aplica al contratista y sus empleados. Nuestra política prohíbe expresamente la posesión, el uso, la transferencia, la fabricación o la venta de alcohol, drogas ilegales o medicamentos recetados no autorizados en las instalaciones del proyecto. Además, el Dueño prohíbe expresamente que los contratistas, subcontratistas o sus empleados permanezcan dentro de nuestras instalaciones si se encuentran bajo la influencia de drogas, alcohol o sustancias controladas. El Dueño puede exigir que los contratistas, subcontratistas y sus empleados se sometan a pruebas de laboratorio antes de trabajar dentro de las instalaciones del proyecto. El Dueño también puede exigir el retiro de las instalaciones de la Compañía de los contratistas, subcontratistas o empleados de la misma, que violen la política de drogas, alcohol y sustancias controladas del Dueño y condicionar aún más cualquier reingreso posterior a nuestras instalaciones a la detección de drogas, alcohol y sustancias controladas y /o pruebas. Además, al ingresar a las instalaciones del Dueño, los contratistas, subcontratistas y empleados de los mismos, automáticamente dan su consentimiento para que se registren sus artículos personales. Todos los contratistas, subcontratistas o empleados de los mismos que infrinjan esta política o se nieguen a permitir el registro de sus artículos personales serán expulsados de las instalaciones del Dueño.

Se entiende que la obra esta sustancialmente completada cuando se alcance el noventa (90%) del mediante itinerario de trabajo sometido, cumplido y certificado.

El costo total de las obras objeto del presente contrato antes definido (\$646,365.00), incluye todos los costos necesarios para realizar las mismas en especial todo el costo a ser incurrido por concepto de mano de obra, la totalidad del costo de todos los materiales y equipos necesarios

para realizar las obras como pactado, así como los costos de la adquisición de todos los seguros según dispuestos en el presente contrato y costos relacionados a los cuales se vea obligado a incurrir el CONTRATISTA para el desarrollo de las obras. Los arbitrios de construcción serán costeados por el DUEÑO, de igual forma cualquier otro aditamento y/u objeto que no forme parte integral de la torre incluyendo, pero sin limitarse a transmisores, antenas, repetidores entre otros.

17. Calidad:

El CONTRATISTA se compromete a utilizar en todo momento en la obra objeto del presente contrato, mano de obra y materiales de primera calidad y cumpliendo a cabalidad con los códigos de construcción y manejo de materiales, estatales y federales aplicables que regulan la construcción de la torre, cumplir con las recomendaciones del manufacturero, además de cumplir con los términos, condiciones y requisitos de la obra especificados y detallados en los documentos de cotización que se acompañan que se hacen formar parte de este contrato, identificados como Anejos, y en los planos.

Las partes aceptan y hacen formar parte de este contrato como Anejos y fuente obligatoria entre las partes, las propuestas o cotizaciones presentadas por el CONTRATISTA al DUEÑO para la realización de la obra objeto del presente contrato, y las especificaciones generales definidas para el desarrollo del proyecto. No obstante, las partes aceptan y entienden claramente que el contenido de este contrato, su definición, intención y su alcance prevalecen sobre dichas propuestas, en caso de que hubiera conflicto entre estos anejos y el contenido de este contrato. Dichas propuestas con las tareas a realizarse que incluyen se verifican a modo de complementar la intención aquí contenida de la obra a realizarse. El CONTRATISTA construirá la obra de acuerdo con los documentos anejados a este contrato, sometidos por la corporación Valmont Structures, Inc.

Anejos:

1. 3A Group, LLC. Propuesta de construcción de cimientos e instalación de la torre, ~~fecha 14 de abril de 2022.~~ **Revisión #1, fecha 27 de mayo de 2022.**
2. Valmont Structures drawing No. 293001T Pages 1-20, signed by Joseph Pachicarah Jacobs, P.E. Lic. #23077, dated April 20, 2022.
3. Valmont Structures Tower Calculations, Job. 510330, Pages 1-110, signed by Joseph Pachicarah Jacobs, P.E. Lic. #23077, dated April 20, 2022.
4. Valmont Structures Self-Support Tower Foundation Design Summary, Job. 510330, Pages 1 – 8, signed by Joseph Pachicarah Jacobs, P.E. Lic. #23077, dated April 20, 2022.
5. Geotechnical Report prepared by Super Foundation Specialist, Corp., 27 Pages, dated August 21., 2018, signed by Juan F. Mejías López, P.E., Lic. #21417.
6. AW Solutions Preliminary Submittal Drawing Set, dated 9/6/2018, 9 pages, For Reference Only.

18. Término:

El CONTRATISTA certifica que ha realizado una evaluación minuciosa y detallada del predio del DUEÑO que se le ha requerido para el desarrollo de la obra, garantizando que ha de cumplir con el tiempo pactado para la entrega de la obra el cual se indica más adelante, comprometiéndose a entregar una obra completada para uso inmediato en el plazo programado. Garantiza, que como parte de su obligación y responsabilidad contractual el cumplimiento de alguna otra obligación contractual no ha de afectar el programa de realización y terminación de las obras en proceso del DUEÑO si alguna. El termino pactado para la terminación total de la obra será de CIENTO VEINTE (120) días calendarios a partir del inicio de la construcción, acto el cual comenzará en o antes de quince (15) días luego del DUEÑO emitir una carta de "Order to Proceed", término dentro del cual debe tener y proveer al DUEÑO con la póliza de la Corporación del Fondo del Estado, previo a comenzar los trabajos de construcción.

De acontecer que el CONTRATISTA no cumpla como pactado con la terminación y entrega a satisfacción del DUEÑO de la obra objeto del presente contrato como antes definido, entonces el CONTRATISTA se obliga a pagar al DUEÑO una penalidad como definida en la cláusula DECIMO NOVENA de este contrato por cada día de retraso hasta la entrega de la obra terminada y aceptada por el DUEÑO.

19. Terminación:

El Dueño puede rescindir la ejecución del trabajo bajo este contrato en su totalidad en cualquier momento, o de vez en cuando en parte, mediante notificación por escrito al contratista. Al recibir dicha notificación, el contratista deberá, a menos que la notificación indique lo contrario, discontinuar inmediatamente todo el trabajo y la realización de pedidos de materiales, instalaciones y suministros, en relación con la ejecución de este pedido y procederá a cancelar de inmediato todos los pedidos existentes y terminar todos subcontratos, en la medida en que tales pedidos o subcontratos estén a cargo de este contrato.

20. Área libre de riesgos:

El CONTRATISTA se compromete a mantener durante todo el tiempo de desarrollo de la obra a su cargo y respecto a la misma el área de realización de la obra libre de riesgos, limpia y organizada de manera que de ninguna manera afecte la actividad normal y seguridad del DUEÑO. La responsabilidad antes definida del CONTRATISTA se refiere al área y trabajos que realice éste, su personal, personal subcontratado, agentes o invitados de éste.

El CONTRATISTA se compromete a retirar y disponer de manera periódica durante el desarrollo de la obra de todo desecho, basura y/o escombros que genere la misma, así como entregar la obra libre de todo desecho, basura y/o escombros. El CONTRATISTA será el responsable de disponer de la basura generada antes referida. El contratista será responsable de la limpieza y eliminación adecuada de todos sus materiales, excedentes y productos de desecho en todo momento y lugar dentro del sitio y deberá disponerlos y retirarlos del sitio o área designada de acuerdo con el Dueño, y mantener todas sus áreas de trabajo limpias en todo momento. Si el contratista no cumple con los requisitos de limpieza, el Dueño procederá a realizar dicho trabajo y se le descontarán los costos (incluyendo la supervisión) al contratista. El área del contratista para el almacenamiento de su material estará a disposición del Dueño.

21. Supervisión:

El contratista deberá mantener en su obra en todo momento su avance; un supervisor competente y los asistentes necesarios que representarán al contratista y todas las instrucciones que se le den serán tan vinculantes como si se hubieran dado al contratista. El Dueño mantendrá un representante en el sitio supervisando el trabajo del contratista en todo momento.

22. Requisitos del Equipo de Elevación:

El siguiente documento debe ser presentado por el contratista o proveedor antes de comenzar con el trabajo subcontratado:

- Seguro de Responsabilidad Civil General Comercial
- Póliza de Seguro Estatal de Accidentes de Trabajo
- Certificación de inspección anual de grúas, para grúas torre, se deben enviar dos inspecciones, la certificación después y una vez que esté completamente instalada y funcionando.
- Gráficos de capacidad, gráficos de carga.
- Certificación del operador
- Evidencia de prueba de drogas del operador si el contratista o proveedor no tiene un programa de prueba de drogas debe cumplir con el programa del contratista.
- Plan de Rigging antes de iniciar el trabajo.
- Inspección diaria de la grúa aplicable a este equipo en particular.
- Evidencia de la pericia o experiencia del Rigger (si corresponde).
- Cumplir siempre con las regulaciones de OSHA.

23. Certificación:

Como parte de sus obligaciones el Contratista reconoce su obligación, entre otras, de cumplir con los requisitos de información y certificaciones de cumplimiento con las leyes aplicables en parte del Dueño. Como parte de ese deber contractual, certifica que no hay ningún empleado contratado por mi empresa actualmente (ni en el futuro) trabajando en el proyecto que no esté

legalmente autorizado para trabajar. Certifica el contratista que todos los empleados son ciudadanos de los Estados Unidos o residentes en los Estados Unidos o residentes en Puerto Rico que están autorizados para trabajar. Certifica además que no hay inmigrante ilegal ninguno autorizado para trabajar. Certifica que verificó en caso de algún no ciudadano, el cumplimiento y que todos tengan la forma de inmigración I-9.

24. Acceso:

El DUEÑO se compromete a dar acceso al CONTRATISTA a las facilidades o predios objeto del desarrollo de la obra de manera que le permita completar la misma según pactado.

25. Obligaciones fiscales, legales y gubernamentales:

El CONTRATISTA reconoce y acepta que es de su entera y exclusiva responsabilidad cumplir con todas las obligaciones fiscales y/o gubernamentales y legales respecto a los servicios que ha de realizar, incluyendo sin limitarse, pago de obligación patentes municipales, obligaciones de todo patrono respecto a nóminas de pago tales como FICA, FUTA, contribución sobre ingreso, seguro por desempleo y/o SINOT, vacaciones regulares y licencia por enfermedad de sus agentes o empleados conforme a la ley.

Será obligación del CONTRATISTA, cuando así le sea requerido por el DUEÑO, presentar a éste toda la evidencia pertinente y necesaria para demostrar que ha cumplido y continúa cumpliendo durante el desarrollo y final entrega de la obra, con todas sus obligaciones legales, fiscales y gubernamentales antes descritas respecto a la obra y sus empleados. El CONTRATISTA releva de toda responsabilidad al DUEÑO por cualquier incumplimiento de su parte de las obligaciones antes definidas en la eventualidad de que éste sea encontrado incurso en alguna violación o incumplimiento de dichas obligaciones única y exclusivamente relacionadas al presente contrato.

26. Responsabilidad por sus empleados:

El CONTRATISTA acepta que en su función contratada para el DUEÑO, es el patrono de todos los empleados que traerá a prestar sus servicios en las obras a realizar en el predio del DUEÑO y será el único responsable ante cualquier daño, pérdida o reclamación que pueda surgir o sufrir cualquiera de sus empleados, visitantes o terceros en las actividades objeto de este contrato, relevando de toda responsabilidad por tal concepto al DUEÑO, excepto que resulten o hayan sido causados por la negligencia exclusiva de este último. El DUEÑO proveerá, según surja la necesidad, una bitácora o listado de todo inquilino que actualmente visite las facilidades de la obra para dar mantenimiento y/o realizar mejoras.

27. Seguros:

El CONTRATISTA deberá proporcionar las siguientes coberturas de seguro y presentar una copia de cada certificado de seguro antes del inicio de los TRABAJOS:

El CONTRATISTA se compromete y obliga a presentar al DUEÑO antes de comenzar la obra objeto del presente contrato, evidencia de suscripción de las pólizas que se detallan a continuación para cubrir las actividades y el objeto del presente contrato, pólizas las cuales incluirán al DUEÑO como co-asegurado o beneficiario junto al CONTRATISTA (También son requisito para la subcontratación.):

- Póliza de Responsabilidad General Comercial, la cual tendrá un límite de cubierta no menor de \$1,000,000 (Principal) y \$3,000,000 (Agregado). El CONTRATISTA procurará el endoso a favor del DUEÑO en dicha póliza como co-asegurado, con un Hold Harmless Agreement
- Póliza del Fondo del Seguro del Estado. La póliza debe estar escrita por el valor total del contrato.
- Payment and Performance Bond (100%)

- Responsabilidad del Empleador (Stop Gap)³:
Cada Empleado, por accidente o enfermedad \$ 500,000.
Cada Accidente, por accidente \$1,000,000.
Cada Póliza, por enfermedad \$1,000,000.

Dichas pólizas estarán en vigor durante todo el término de este Contrato. El CONTRATISTA se compromete a suministrar al DUEÑO un certificado de sus correspondientes pólizas al momento de otorgarse este Contrato. Durante la vigencia del presente contrato ninguna de las partes podrá cancelar o actuar de manera que le sean revocadas o canceladas sus pólizas de seguro, tanto la del Fondo del Seguro del Estado como aquella de responsabilidad pública aquí requeridas. La cancelación o pérdida de vigencia de la póliza de seguro de responsabilidad pública o la del Fondo del Seguro del Estado será causa suficiente para que la otra parte pueda cancelar de inmediato el presente contrato. La póliza no puede cancelarse ni modificarse sin una notificación por escrito al Dueño con sesenta (60) días de anticipación. El asegurado se compromete a informar al contratante cualquier cambio material o cancelación del seguro. Esta póliza de seguro debe cubrir todas y cada una de las reclamaciones, acciones y/o quejas contra el Dueño que resulten de cualquier acción u omisión del contratista.

Se entiende y acepta que la póliza del CONTRATISTA se considerará como Primaria para cualquier accidente o suceso que sea causado en todo o en parte por el CONTRATISTA.

Renuncia o liberación de Subrogación: Por la presente se entiende y acuerda que el CONTRATISTA y el Asegurador renuncian y liberan sus derechos de subrogación sobre el DUEÑO, su corporación o entidades afiliadas, asociadas y subsidiarias y sus agentes, funcionarios y empleados.⁴

28. Fondo del Seguro del Estado:

El CONTRATISTA se compromete a adquirir y mantener durante todo el término de desarrollo de la obra una póliza del Fondo del Seguro del Estado que cubra a todos sus empleados y sub-contratistas que traiga a trabajar en la misma. Copia de la póliza de Fondo de Seguro del Estado del CONTRATISTA que cubrirá a los empleados que lleve a realizar la obra será entregada al DUEÑO en un término no mayor de cinco días contados a partir de la firma del contrato. El CONTRATISTA no comenzará la obra sin haber antes cumplido a cabalidad con su obligación aquí detallada.

El DUEÑO no será bajo ningún concepto, responsable por lesiones o daños causados al CONTRATISTA, sus agentes, producto de sus actividades, a personas particulares, a sus empleados, propiedad de éste, empleados del DUEÑO o a sus visitantes de sus facilidades excepto que resulten o hayan sido causadas por la negligencia del DUEÑO. A esos efectos el CONTRATISTA otorga el más completo relevo y se compromete a responder como se establece en el presente acuerdo en cuanto a relevos de responsabilidad.

29. Relevo/indemnización por el Dueño:

El DUEÑO se compromete a indemnizar y salvaguardar al CONTRATISTA respecto de cualquier reclamación, demanda, acción o petición que se radique o haga en contra del CONTRATISTA y que surja exclusivamente de los actos u omisiones, negligentes o intencionales, del DUEÑO, sus agentes o empleados. En la eventualidad de que el CONTRATISTA reciba tal reclamación, demanda, acción o petición, le notificará inmediatamente al DUEÑO quien procederá entonces a tomar todas las medidas necesarias para defender y salvar al CONTRATISTA, incluyendo la selección de representación legal adecuada. El DUEÑO mantendrá al CONTRATISTA regularmente informado del trámite procesal, y no tomará acción material alguna, incluyendo la transacción del caso, sin consultar primero con el CONTRATISTA.

30. Relevo/Indemnización por el Contratista:

³ El seguro Stop Gap es una cobertura requerida por las empresas para cubrir la responsabilidad adicional que surge de las lesiones de los trabajadores. Stop gap y la responsabilidad de los empleadores cubren los posibles juicios que enfrentan los empleadores. Estos pueden ser juicios de terceros, peligro intencional, reclamos por daños públicos, reclamos de doble capacidad y reclamos de salud y lesiones no cubiertos por el programa de compensación laboral de la Corporación del Fondo del Seguro del Estado.

⁴ El asegurado y su Asegurador acuerdan renunciar y liberar sus derechos de subrogación frente al DUEÑO.

El CONTRATISTA se compromete a indemnizar y salvaguardar al DUEÑO respecto de cualquier reclamación, demanda, acción o petición que se radique o haga en contra del DUEÑO y que surja exclusivamente de los actos u omisiones, negligentes o intencionales, del CONTRATISTA, sus agentes o empleados. En la eventualidad de que el DUEÑO reciba tal reclamación, demanda, acción o petición, le notificará inmediatamente al CONTRATISTA quien procederá entonces a tomar todas las medidas necesarias para defender y salvaguardar al DUEÑO, incluyendo la selección de representación legal adecuada. El CONTRATISTA mantendrá al DUEÑO regularmente informado del trámite procesal, y no tomará acción material alguna, incluyendo la transacción del caso, sin consultar primero con el DUEÑO.

31. Responsabilidad por empleados o subcontractados:

El CONTRATISTA se compromete y será responsable en todo momento de que los empleados o terceros subcontractados, que lleven a las facilidades del DUEÑO a trabajar, actúen de manera responsable, respetuosa y exhibiendo en todo momento comportamiento similar a un buen padre de familia. El CONTRATISTA exigirá a todo ente subcontractado para la obra que cuente con la Póliza del Fondo del Seguro del Estado pertinente y con una cubierta de seguro por responsabilidad igual o mejor a la del CONTRATISTA para la presente obra.

El CONTRATISTA se compromete durante la vigencia de este contrato a prestar sus servicios de manera responsable, con prudencia, respeto y competencia profesional, protegiendo adecuadamente en todo momento los intereses e imagen del DUEÑO. El CONTRATISTA se obliga también a dedicar su mayor tiempo y esfuerzo al cumplimiento de las responsabilidades y servicios de construcción objeto de este contrato. Cualquier violación a esta cláusula será causa suficiente para la terminación inmediata de este contrato, previo a que se le notifique al Contratista y se le provea un tiempo razonable para corregir cualesquiera deficiencias.

32. Cancelación:

Serán causales para la cancelación inmediata del presente contrato de parte del DUEÑO, siempre y cuando exista notificación previa y otorgándole al CONTRATISTA tiempo razonable para que corrija cualquier deficiencia señalada, sin derecho del CONTRATISTA a ser indemnizado por el DUEÑO y sin que la enumeración sea taxativa, las siguientes situaciones:

- a. Si el CONTRATISTA, por causa que le sea imputable, interrumpe el desarrollo de la obra y tal situación persistiese por un período superior a 20 días calendario. De igual forma, si luego de la firma del presente contrato y de la emisión del "Order to Proceed", éste no iniciare la ejecución de obras dentro del plazo máximo de 20 días calendario hábiles a partir de esa fecha. Como excepción a lo anterior, está clausula no aplicará en caso de emergencia nacional, emergencia de salubridad nacional y/o que mediante orden ejecutiva emitida válidamente por el estado.
- b. Para dicha obra, se requiere del CONTRATISTA una fianza de "Payment Bond". Si el CONTRATISTA no cumple oportunamente con mantener vigentes la póliza del Fondo de Seguro del Estado que cubra todos los empleados o agentes que traiga al predio del DUEÑO a desarrollar la obra o no cumpla con presentar la fianza de "Payment Bond" que ha de garantizar el fiel cumplimiento de contrato y correcta ejecución de las obras, así como mantener vigente su póliza de responsabilidad según requerida en el presente contrato, y esta situación persistiese por más de 20 días calendarios, contado a partir la fecha en que contractualmente debían ser presentados estos documentos.
- c. Ante el incumplimiento de parte del CONTRATISTA de desarrollar la obra de conformidad con las leyes, reglas y reglamentos vigentes que regulan y aplican a la obra a ser desarrollada si alguna.
- d. Si por error en el desarrollo de la obra ésta quedase con defectos que no pudiesen ser reparados y comprometieran la seguridad y operación de la misma.
- e. Si el CONTRATISTA abandona la ejecución de obras por quince o más días hábiles consecutivos, sin causa justificada alguna.

- f. Si se detectan defectos en la ejecución de obras, en el proceso de desarrollo de las mismas y estas no son subsanadas en el plazo pactado para su corrección a satisfacción del DUEÑO.
- g. Si el CONTRATISTA se acoge a quiebra voluntaria o involuntaria.
- h. Si el CONTRATISTA no cumple con lo estipulado en el presente contrato y sus anexos.
- i. Si el CONTRATISTA no cumple con el itinerario de construcción. Excepto que se deba a caso fortuito o por emergencia nacional, emergencia de salubridad nacional y/o que mediante orden ejecutiva emitida válidamente por el estado

Lo aquí dispuesto de ninguna forma se interpreta como una renuncia por parte del Dueño de reclamar por la vía judicial la cuantía en daños correspondiente y/o aquella cantidad que pueda ser reclamada por motivo del incumplimiento.

El DUEÑO podrá resolver este contrato antes de su vencimiento sin justa causa, mediante notificación escrita a la otra parte, con treinta (30) días de antelación a la fecha en que se interesa la resolución. El CONTRATISTA no tendrá derecho a compensación adicional alguna excepto a lo devengado bajo el Contrato al momento de la Resolución sujeto a lo dispuesto en este contrato.

33. Obligaciones y responsabilidades del CONTRATISTA:

- a) El CONTRATISTA estará obligado a cumplir con lo estipulado en el presente contrato y sus documentos anexos, por lo cual toda obra que presente fallas o vicios deberá ser reparada por su cuenta y cargo.
- b) El CONTRATISTA será el único responsable de la obra frente al DUEÑO ~~y a terceros~~.
- c) El CONTRATISTA será responsable del cuidado y vigilancia única y exclusivamente por los materiales y equipos del CONTRATISTA, incluidos los materiales necesarios para la construcción de la torre, sus piezas, equipos, y aquellos para construir la fundación. Los materiales de la torre almacenados en los predios de la Iglesia Tres Hermanos en la Playa de Añasco, estarán bajo la custodia y responsabilidad del Dueño.
- d) Todos los materiales, herramientas y maquinarias necesarios para el desarrollo de las obras objeto del presente contrato serán proporcionados por el CONTRATISTA.

34. Daños Líquidos:

El CONTRATISTA se obliga a pagar al DUEÑO los siguientes daños líquidos que a continuación se detallan, en caso de producirse las siguientes situaciones:

- a) Si finalmente la obra termina atrasada, el CONTRATISTA se obliga a pagar al DUEÑO el daño líquido equivalente a \$200.00 diarios por cada día de atraso. Esta cantidad deberá computarse a partir de la fecha del término de entrega de la obra completada a satisfacción del DUEÑO según definida en este contrato y hasta la fecha en que el CONTRATISTA entregue a satisfacción del DUEÑO la obra totalmente completada de conformidad a los términos y condiciones detallados en este contrato.

35. Discrimen en la prestación de servicios:

El CONTRATISTA se compromete a no discriminar en la contratación y durante la vigencia de este contrato con el DUEÑO por razones de índole política, religiosa, de raza, condición social, sexo y/o nacionalidad.

36. Interpretación:

Este contrato estará sujeto en todo momento a las Leyes del Estado Libre Asociado de Puerto Rico y será interpretado de acuerdo a las mismas.

37. Indelegabilidad:

Los servicios a prestarse en virtud de este contrato por el CONTRATISTA de ninguna manera podrán ser delegados su cumplimiento a un tercero excepto luego de obtener la autorización escrita al efecto de la otra parte.

38. Relación entre contratantes:

Los comparecientes certifican que la relación contractual contenida en este documento bajo ningún concepto define relación obrero patronal alguna entre las partes incluyendo respecto a sus empleados o agentes, el CONTRATISTA, sus empleados o agentes en todo momento comparecerán y actuarán como contratistas independientes.

39. Notificaciones:

Cualquier notificación requerida se entenderá debidamente hecha y recibida si se envía por correo certificado, con acuse de recibo o correo electrónico a las direcciones que aparecen más adelante o a cualesquiera otras que las partes notifiquen en el futuro:

3A GROUP LLC

PO Box 9497

Caguas, Puerto Rico 00926-9497

exa@3agpr.com

CORPORACION DE LOS ADVENTISTAS DEL

SEPTIMO DIA DEL OESTE

DE PUERTO RICO, CORP.

PO Box Apartado 1629

Mayagüez, Puerto Rico 00681

hacevedo@wtpm.org

40. Selección de Foro:

Las partes acuerdan que de surgir alguna controversia que requiera la intervención de un tribunal, la misma será dilucidada ante el Tribunal de Primera Instancia Sala Superior de Mayagüez.

41. Fuerza Mayor:

En la eventualidad de ocurrir algún caso fortuito o de fuerza mayor ninguna de las partes será responsable por el retraso en la obra que causen las mismas. De ocurrir un evento de tal naturaleza, las partes realizarán las contraprestaciones correspondientes exigibles y/o vencidas. No obstante, le corresponderá al CONTRATISTA responder por los daños si alguno, que puedan causar, sus materiales, equipo, maquinas o cualquier objeto que sea parte del desarrollo de la obra y que por motivo del evento natural provoque daños a terceros o a la obra misma.

42. Responsabilidad hasta el momento de la entrega:

El CONTRATISTA es responsable de la Obra hasta el momento de la entrega de ésta a satisfacción del DUEÑO, excepto por aquellos actos que se determine sean por la culpa o negligencia del DUEÑO.

43. Garantías:

El Contratista por virtud de este contrato se obliga a la siguiente garantía del producto y obra realizada:

Los trabajos a realizarse por el Contratista en la Obra tendrán una garantía por un periodo de un (1) año. Según el estándar del mercado, contados a partir de la entrega de la obra. El Contratista garantiza que todos los materiales y equipo provisto, será nuevo a menos que se especifique lo contrario, y toda la Obra será de buena calidad, libre de defectos e imperfecciones y de acuerdo a los planos y especificaciones incluidas aquellas del manufacturero. Todo trabajo que no cumpla con estos requisitos, incluyendo las sustituciones que no hayan sido debidamente autorizadas por

el DUEÑO, podrán presumirse que están defectuosas. Si el DUEÑO lo requiere, el Contratista proveerá evidencia satisfactoria sobre la calidad de los materiales y el equipo. Esta garantía cubrirá bajo las condiciones normales en el uso de la estructura. De haber situaciones donde la pintura sea removida, rayada, manchada o dañada, mediando negligencia, la garantía no aplicará. Los productos a ser utilizados serán garantizados de acuerdo a la garantía del fabricante.

44. Retroactividad:

Las partes aquí comparecientes acuerdan que cualquier parte de la obra realizada antes de la firma de este contrato se ha realizado bajo las mismas condiciones aquí contenidas y el contrato aplicará a éstas con el mismo vigor y rigurosidad.


45. No Colusión:

El abajo firmante asegura que está autorizado para ejecutar este contrato junto con sus términos y condiciones, que los precios ofrecidos por el contratista no se realizaron en colusión con ningún otro tercero, y que el contenido de este contrato y las gestiones para ejecutar la obra no han sido (ni será) comunicado a ningún tercero que se dedique a este tipo de negocios.

ACEPTACION

Los comparecientes aceptan este contrato en todas sus partes por estar conforme a su voluntad, haciendo constar que no existen acuerdos verbales o escritos fuera de los aquí contenidos. Las partes expresan también que han tenido la oportunidad suficiente de presentar este contrato para su revisión y aprobación sus respectivos asesores legales, quienes le han certificado su corrección.

TAL ES EL CONTRATO que suscriben las partes en Mayagüez, Puerto Rico, hoy 27 de mayo de 2022.


Héctor Acevedo Irizarry
EN REPRESENTACION
DEL DUEÑO


Ernie X. Albino Rodríguez
EN REPRESENTACION
DEL CONTRATISTA



U-38 X 330' Torre Autoportante
Propuesta de Construcción de
Cimientos e Instalación de la Torre
Revision #1 – Fianza y Aumento en
Materiales de Construcción

Presentado a:
Corporación de los Adventistas del
Septimo Dia del Oeste de Puerto Rico
PO Box 1629, Mayaguez, PR 00681



Presentado por:
3A GROUP, LLC
PO BOX 9497
Caguas, PR 00726

ORIGINAL



27 de mayo de 2022.

Pr. Héctor Acevedo Irizarry

Presidente

Corporación de los Adventistas del Séptimo Día del Oeste de Puerto Rico

PO BOX 1629

Mayagüez, PR 00681

RE: WTPM 92.9FM Radio – U-38 X 330' Torre Autoportante – Propuesta de Construcción de Cimientos e Instalación de la Torre. Revisión #1 – Fianza y Aumento en Materiales de Construcción

Estimado Pr. Acevedo,

Agradecemos la oportunidad de presentar nuestra propuesta de construcción de cimientos en hormigón e instalación de la torre U-38 X 330' Torre Autoportante requeridos para el proyecto de WTPM 92.9FM Radio de la Corporación de los Adventistas del Séptimo Día del Oeste de Puerto Rico (Dueño). Brindaremos un servicio de construcción completo según su solicitud. Consideramos proporcionar toda la mano de obra, materiales, equipos y supervisión para completar el alcance de los trabajos que se describen a continuación.

Alcance de los trabajos:

Cimientos

1. Movilización y desmovilización de todos los equipos necesarios para los trabajos de barrenado, disposición de material sobrante, colocación de varilla y vaciado de hormigón.
2. Barrenado en suelo de 84" ancho x 81'-0" profundidad.
3. Disposición del material de excavación.
4. Fabricación e instalación de canastos de acero de refuerzo vertical y horizontal.
5. Vaciado de hormigón con resistencia de 4,500psi.
6. Instalación de pernos de anclaje de la torre.
7. Pruebas de hormigón (ASTM C-31 & C-39).

Ensamblar e Instalación de Torre

1. Organizar los elementos estructurales de la torre en el estacionamiento de Iglesia Adventista Tres Hermanos en PR-401, La Playa, Añasco PR.
2. Transportar los elementos estructurales de la torre en camiones plataforma hacia el sitio de instalación en Bo. Atalaya, Rincón, PR.
3. Movilización de desmovilización de grúas de puntal necesarias para la instalación de la torre.
4. Erigir torre autoportante de 328'-0".
5. Instalación de escalerilla de cables.
6. Instalación de cable de seguridad.
7. Instalación de pararrayos.
8. Instalación de 'Beacon Mount'.
9. Instalación de sistema de 'ground'.

TOTAL PROPUESTA CONSTRUCCIÓN CIMIENTOS E INSTALACIÓN: **\$628,000.00**

TOTAL DE COSTOS ADICIONALES:

FIANZA: **\$9,865.00**
(Payment & Performance Bond 100%)

AUMENTO EN MATERIALES DE CONSTRUCCIÓN: **\$8,500.00**
(Hormigón & Acero de Refuerzo)

TOTAL DE PROPUESTA DE CONSTRUCCIÓN REVISADA: **\$646,365.00**

Aclaraciones Generales:

- Esta propuesta ha sido elaborada de acuerdo con la información proporcionada por el Pr. Héctor Acevedo y dibujos de ingeniería preparados por Valmont Industries.
- Entendemos que cualquier información adicional que sea pertinente a nuestra parte del proyecto se nos proporcionará de manera expedita.
- Se incluyen Seguros de Responsabilidad Pública y de la Corporación del Fondo del Seguro del Estado. Cualquier requerimiento de seguros adicionales será cotizado de acuerdo con los requerimientos específicos.
- Todos los Permisos y Tarifas de Endoso del Gobierno serán pagados por la Corporación de los Adventistas del Séptimo Día del Oeste de Puerto Rico (Dueño).
- Se incluye el Impuesto IVU (11.5%) en los materiales de construcción.

Aclaraciones generales:

- **Propuesta válida por 15 días. Debido a la volatilidad actual en los mercados de los materiales de construcción y el sector del transporte marítimo, no podemos garantizar los precios de estos artículos para esta propuesta después de 15 días de la fecha de la propuesta. Cualquier aumento de precio en estos artículos se someterá a una evaluación adecuada y el Dueño debe considerarlo para un aumento de precio del contrato.**
- Kit de Lámpara de Seguridad de la Torre, será suministrado por el Dueño para ser instalado por el contratista. De acuerdo a los requerimientos de FAA.
- 3A Group, LLC proporcionará todo el equipo y los esfuerzos necesarios para completar el trabajo, pero el cliente es consciente de que existen condiciones en las que la tecnología convencional de perforación con barrena no funciona. Esta propuesta de costo no considera la ejecución de la obra con ningún otro método que no sea el de barrena rotativa. En el caso de que las condiciones del subsuelo se encuentren fuera del alcance de esta propuesta, se notificará al cliente de inmediato para definir el curso de acción.
- Es probable que la plataforma de perforación de cajones dañe el pavimento de asfalto, especialmente en los lugares donde gira. Tendremos el máximo cuidado para reducir estos daños. Sin embargo, la reparación de estos daños NO está incluida en esta propuesta.
- Para llevar a cabo las actividades de construcción arriba mencionadas el Dueño coordinará con el municipio y/o agencia del gobierno Puerto Rico pertinente, cierre de calles, control de tráfico, y coordinación de vía libre con LUMA y la Autoridad de Energía Eléctrica.
- Para llevar a cabo las actividades de construcción y uso de grúa el Dueño coordinará con el propietario del lote frente a las instalaciones de la antena para obtener autorización para ubicar grúas y sus equipos auxiliares. De igual manera coordinar la remoción de vehículos abandonados frente a la entrada del site. (Véase imagen aérea) De no poder obtener autorización de uso del lote frente al área de construcción se revisará el impacto en costo de esta propuesta de acuerdo con los accesos que se puedan obtener.
- Operaciones de movimiento de tierras más allá del alcance de trabajo de esta propuesta, no están incluidas.
- Términos de Pago (Neto 7días):
 - 25% primer pago a ser facturado después de recibida la orden de compra.
 - 25% segundo pago, al completar los trabajos de cimientos en hormigón.
 - 25% tercer pago, antes de comenzar los trabajos de ensamblaje e instalación de la torre.
 - 25% pago final, al completar los trabajos de ensamblaje e instalación de la torre.

Los siguientes artículos están **excluidos** de nuestra propuesta:

- Servicio de inspección por ingeniero licenciado en Puerto Rico.
- Excavación en roca, de encontrarse esta condición se evaluará en su momento para determinar el curso a seguir.
- 'Builders risk', seguro de riesgo de construcción. Será pagado por el dueño.
- Rotulación de seguridad y del proyecto.
- Verjas y/o barreras temporeras.

Los siguientes artículos están **excluidos** de nuestra propuesta:

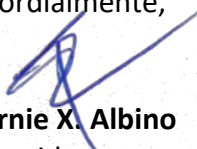
- Control de polvo fugitivo.
- Servicio temporero de energía y agua.
- Trabajos mecánicos, plomería y eléctricos.
- Cualquier condición imprevista.
- Reparaciones a cualquier propiedad del propietario, en el sitio y fuera del sitio.
- Renovación del permiso de construcción de la FAA y FCC.
- Cualquier permiso del gobierno local y federal.
- Cualquier Otro Requerimiento o Coordinación con la FCC, Gobierno Federal o Local.
- Horas extra.
- Arbitrio Municipal de Construcción, no está incluido en esta propuesta, de ser requerido será pagado por el Dueño.

3A Group ofrece soluciones completas de construcción para los sectores comercial, institucional, industrial, farmacéutico, de fabricación, energético, de comunicaciones, hospitalario y hotelero.

Certificamos que nuestra empresa está legalmente autorizada para realizar negocios en el Gobierno de Puerto Rico y está comprometida a lograr la excelencia en todos nuestros servicios.

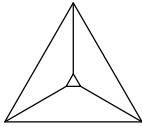
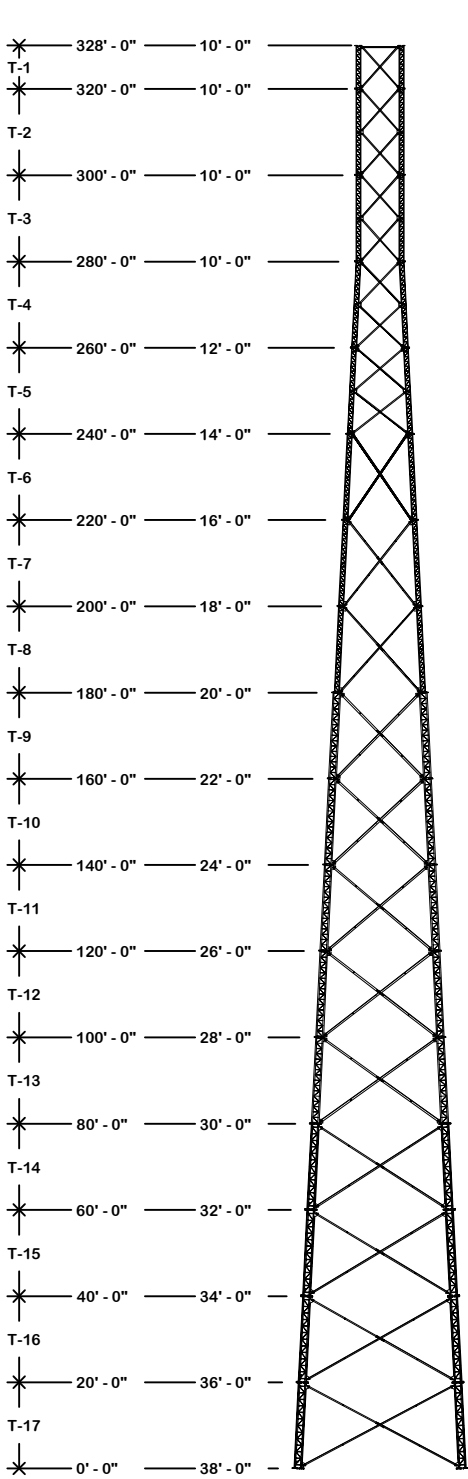
Gracias por considerar a 3A Group, LLC para todas sus necesidades de construcción. Por favor, no dude en ponerse en contacto con nosotros con cualquier pregunta que pueda tener con respecto a esta propuesta.

Cordialmente,



Ernie X. Albino
Presidente

SEE PAGE 2 FOR
APPURTENANCES



TOWER DESIGN CRITERIA

Design Standard: TIA-222-H*
Design Wind Speeds: 233 mph (3-second gust) basic wind speed
Service Wind Speed: 60 mph (deflection only)
Risk Category: III
Exposure Category: C
Topographic Category: 1
Crest Height: 0 ft.
Site Elevation: 1121 (NAVD 88)

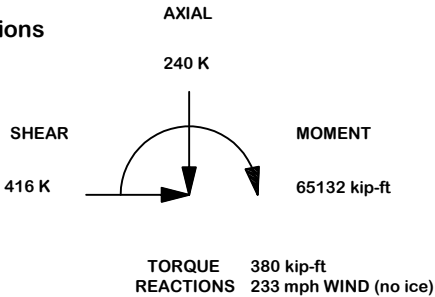
MATERIAL STRENGTHS

Solid Rod A36 (rod dia. <3/4")
A572 Gr. 50 (3/4" thru 1" dia.)
A572 Gr. 58 (>1" dia.)
Pipe A500 Gr. B (antenna pipes)
A500 Gr. B/C (tower legs min. Fy 50 ksi)
Angle A572 Gr. 50
Plate A572 Gr. 50
Bolts A-325/A-449 (leg & angle)
Anchor Bolt F 1554 Grade 105 or A687

Finish: Tower & Hardware are hot dip galvanized

- ALL STRUCTURAL HARDWARE IS GALVANIZED IN ACCORDANCE WITH ASTM A-153 (HDG). TOWER SECTIONS & ASSOCIATED STRUCTURAL COMPONENTS ARE GALVANIZED IN ACCORDANCE WITH ASTM A-123 (HDG).
- ALL BOLTS & NUTS MUST BE IN PLACE BEFORE ADJOINING SECTION(S) ARE INSTALLED.
- ALL STRUCTURAL BOLTS ARE TO BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED BY AISC & RCSC SPECIFICATION FOR STRUCTURAL JOINTS UNLESS NOTED OTHERWISE.
- ALL WELDING TO CONFORM TO AWS D1.1 SPECIFICATION. 5/16" MINIMUM WELD SIZE UNLESS NOTED OTHERWISE.
- MATERIAL LABELED AS ASTM A-572 GR. 58 OR 58 KSI YIELD STRENGTH ALSO CONFORMS TO ASTM A-572 GR. 50.
- ANALYSIS PERFORMED USING STEEL GRADES LISTED UNDER MATERIALS STRENGTHS SHOWN ON THIS PAGE.
- THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, SEQUENCES AND PROCEDURES.
- (VIBRATION DISCLAIMER) ALTHOUGH RARE, VIBRATIONS SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN STRUCTURES OF ALL TYPES, BECAUSE THEY ARE INFLUENCED BY MANY INTERACTING VARIABLES. VIBRATIONS ARE GENERALLY UNPREDICTABLE. THE USER'S MAINTENANCE PROGRAM SHOULD INCLUDE OBSERVATION FOR EXCESSIVE VIBRATION AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING. THE VALMONT WARRANTY SPECIFICALLY EXCLUDES FATIGUE FAILURE OR SIMILAR PHENOMENA RESULTING FROM INDUCED VIBRATION, HARMONIC OSCILLATION OR RESONANCE ASSOCIATED WITH MOVEMENT OF AIR CURRENTS AROUND THE PRODUCT.

Maximum Base Reactions



MAX. LEG REACTIONS:
DOWN: 2059 K
UPLIFT: -1817 K
SHEAR: 251 K

*Factored Reactions provided per ANSI/TIA-222 Design Criteria & Load Combinations

TOWER COLUMN										
SECTION	ELEVATION	FACE WIDTH	PANELS	LEG SIZE	LEG STYLE	LEG BOLT QTY & DIA	DIAGONAL BRACING SIZE	HORIZONTAL BRACING SIZE	BRACING BOLT QTY & DIA	SECTION WEIGHT
T1	320' - 328'	10.0'	1	1.25"	12BDFH	6 x 1"	3/16" x 2-1/2" x 2-1/2"	3/16" x 3" x 3"	1 x 1 "	1160.16
T2	300' - 320'	10.0'	2	1.25"	12BDFH	6 x 1"	1/4" x 2-1/2" x 2-1/2"		1 x 1 "	2191.23
T3	280' - 300'	10.0'	2	1.25"	12BDFH	6 x 1"	5/16" x 3-1/2" x 3-1/2"		1 x 1 "	2710.59
T4	260' - 280'	12.0'	2	1.50"	12BDFH	6 x 1"	5/16" x 3" x 3"		1 x 1 "	2877.36
T5	240' - 260'	14.0'	2	1.75"	12BDFH	6 x 1 1/4"	5/16" x 3" x 3"		1 x 1 "	3454.95
T6	220' - 240'	16.0'	1	2.00"	12BDH2	12 x 1"	1/4" x 3-1/2" x 3-1/2"		1 x 7/8 "	4702.50
T7	200' - 220'	18.0'	1	2.75"	12BDH2D	12 x 1 1/4"	1/4" x 4" x 4"		2 x 7/8 "	7040.88
T8	180' - 200'	20.0'	1	3.50"	12BDH2D	18 x 1 1/4"	1/4" x 4" x 4"		2 x 7/8 "	10180.35
T9	160' - 180'	22.0'	1	3.50"	18BD	22 x 1 1/4"	3/8" x 4" x 4"		2 x 1 "	12606.27
T10	140' - 160'	24.0'	1	3.50"	18BD	22 x 1 1/4"	3/8" x 4" x 4"		2 x 1 "	12259.29
T11	120' - 140'	26.0'	1	3.50"	18BD	22 x 1 1/4"	3/8" x 4" x 4"		2 x 1 "	12776.37
T12	100' - 120'	28.0'	1	3.50"	18BD	22 x 1 1/4"	3/8" x 4" x 4"		2 x 1 "	12812.01
T13	80' - 100'	30.0'	1	3.50"	18BD	28 x 1 1/4"	3/8" x 5" x 5"		2 x 1 "	14175.90
T14	60' - 80'	32.0'	1	3.00"	18BD	30 x 1 1/4"	3/8" x 5" x 5"		2 x 1 "	19162.23
T15	40' - 60'	34.0'	1	3.00"	18BD	30 x 1 1/4"	3/8" x 5" x 5"		2 x 1 "	20961.39
T16	20' - 40'	36.0'	1	3.50"	18BD	30 x 1 1/4"	3/8" x 5" x 5"		2 x 1 "	21365.61
T17	0' - 20'	38.0'	1	3.50"	18BD	12 x 2 1/4"	3/8" x 5" x 5"		2 x 1 "	21876.65



Joseph Pachicarrah Jacobs

@A

REVISED LEG P/N'S

SAN

4/20/2022

REV

DESCRIPTION OF REVISIONS

CPD

BY

DATE

REVISION HISTORY

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

Tower View Page 1

STRUCTURE APPROVAL
SAN 4/20/2022

FOUNDATION APPROVAL

valmont

1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.
510330

DWG. NO.
293001T

1 OF 19
PAGE

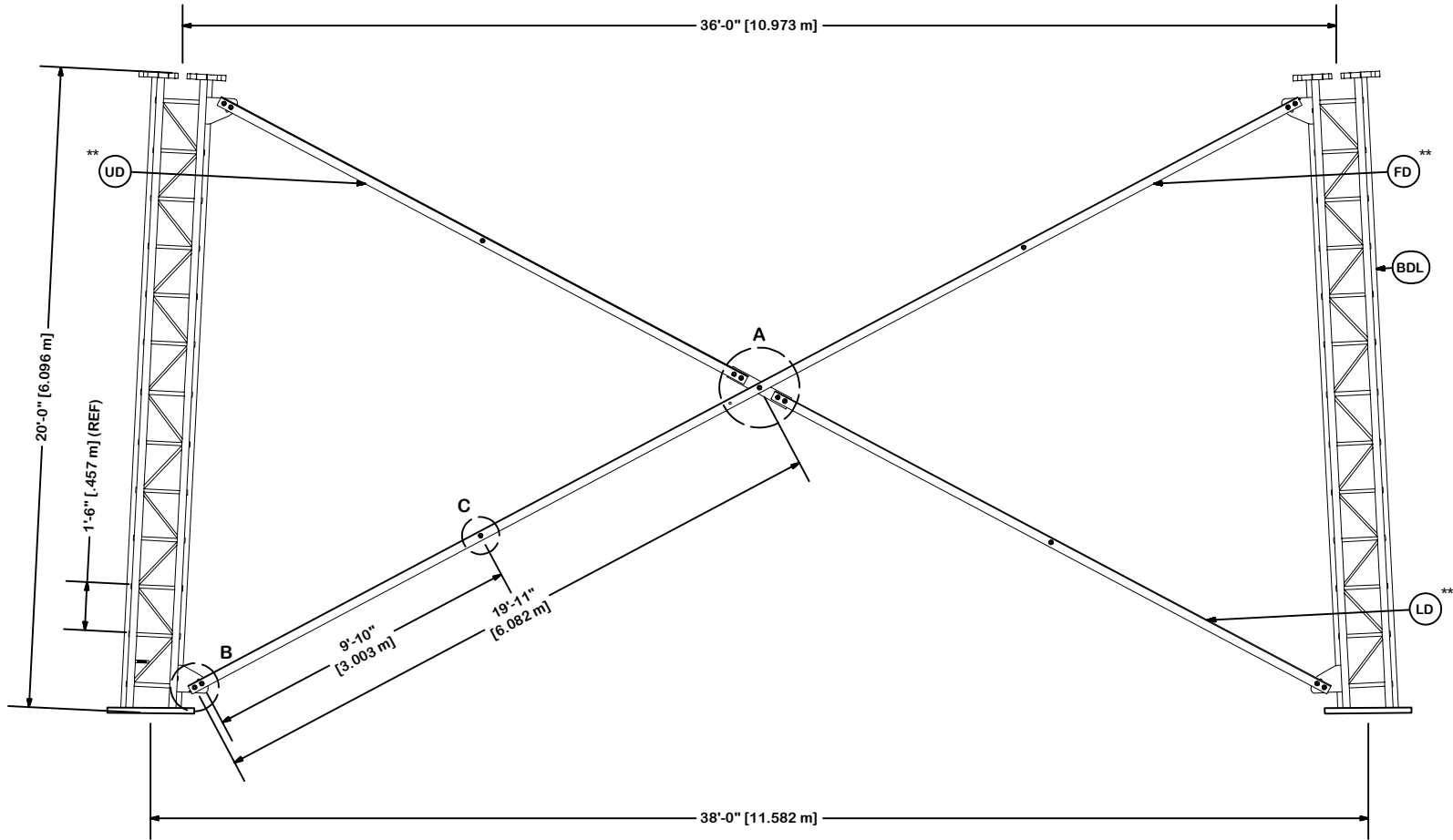
DESIGNED APPURTENANCE LOADING	
TYPE	ELEVATION
(1) 5/8" X 10' LIGHTNING ROD	330.0000'
(1) BEACON	330.0000'
(1) 3" X 30' SCH. 80	292.0000'
(1) DCR- C10 (INSTALLED ABOVE 292')	292.0000'
(1) AL8 W LEG MOUNTED	277.0000'
(2) 2.375 X 19.5' HUSLTER HX6-1448 OMNI	235.0000'
(3) 6' BOGNER MOUNT HEAVY DUTY	235.0000'
(1) RFI BA160-67-T3 OMNI	235.0000'
(5) L COM HG5829EG GRID	220.0000'
(6) SP1 R5 (INCLUDES 4.5"X72" PIPE)	220.0000'
(3) OB LIGHT	200.0000'
(2) 2.375 X 19.5' HUSLTER HX6-1448 OMNI	180.0000'
(3) 6' BOGNER MOUNT HEAVY DUTY	180.0000'
(1) RFI OA40-41 DIPOLE	180.0000'
(12) 2-1/2" X 72" SCH. 40	169.0000'
(6) 72" X 22" PANELS QD66512-2	169.0000'
(3) RRU 4415 B30	169.0000'
(3) RRU 4426 B66	169.0000'
(3) RRU 4449 B5/B12	169.0000'
(3) RRU 4478 B14	169.0000'
(3) RRU 8843 B2/B66	169.0000'
(3) SP1 VFA10-HD-S	169.0000'
(3) SQUID DC9 (27.4 X 16.7)	169.0000'
(1) HPS-6.4 (6' HP) (120 DEG AZIMUTH)	156.0000'
(1) HPS-6.4 (6' HP) (0 DEG AZIMUTH)	153.0000'
(1) SP1 HS6-K	153.0000'
(1) SP1 R5 (INCLUDES 4.5"X72" PIPE)	153.0000'
(1) MWAVE P-9A72GN-S 6' GRID DISH (120 DEG AZIMUTH)	150.0000'
(1) MWAVE P-9A72GN-S 6' GRID DISH (0 DEG AZIMUTH)	147.0000'
(1) SP1 HS6-K	147.0000'
(1) SP1 R5 (INCLUDES 4.5"X72" PIPE)	147.0000'
(1) RFI RDA6-99 UHF YAGI	40.0000'

					<div>SITE</div> <div>WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'</div> <div>COPYRIGHT 2013</div>		<div>DESCRIPTION</div> <div>Tower View Page 2</div>		<div><div>valmont</div><div>1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR</div><div>STRUCTURES</div></div>		<div>PAGE 2 OF 19</div>	
							ENG. FILE NO. 510330					
							DWG. NO. 293001T					
@A	REVISED LEG P/N'S		SAN	4/20/2022	PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.		STRUCTURE APPROVAL SAN 4/20/2022		FOUNDATION APPROVAL			
REV		DESCRIPTION OF REVISIONS		CPD	BY	DATE	REVISION HISTORY					

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

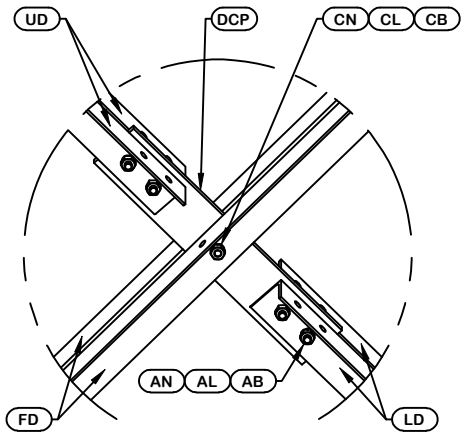
** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP.

* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES

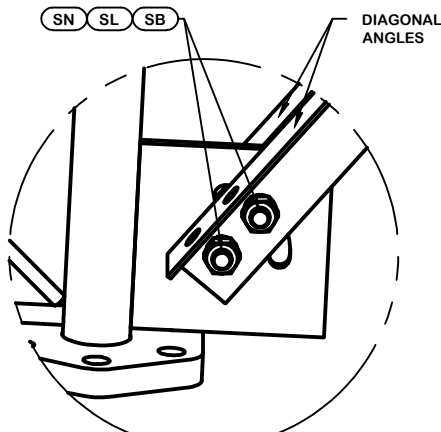


PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	282974	#18 DOUBLE ROD BASE SECTION (58 KSI) - 3 1/2" LEGS	5534.600	16603.800
UD	6	270614	U-38 UPPER DIAGONAL - 5" x 5" x 3/8" ANGLE (A572 G	242.670	1456.020
LD	6	270613	U-38 LOWER DIAGONAL - 5" x 5" x 3/8" ANGLE (A572 G	256.250	1537.500
FD	6	270612	U-38 LONG DIAGONAL - 5" x 5" x 3/8" ANGLE (A572 GR	513.350	3080.100
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	281082	CENTER CONNECTION PLATE - 1" BOLTS - 50 KSI FOR #1	43.820	131.460
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
Total Wt				21876.65 lb	[9923.08 kg]

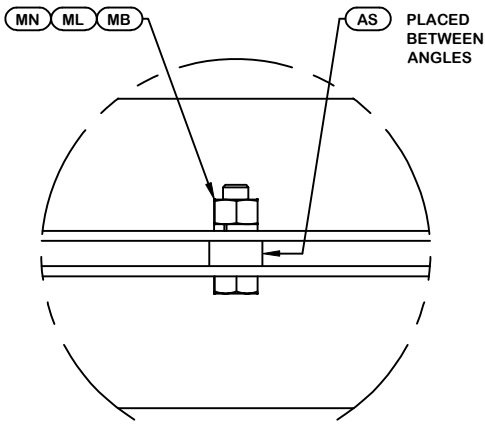
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



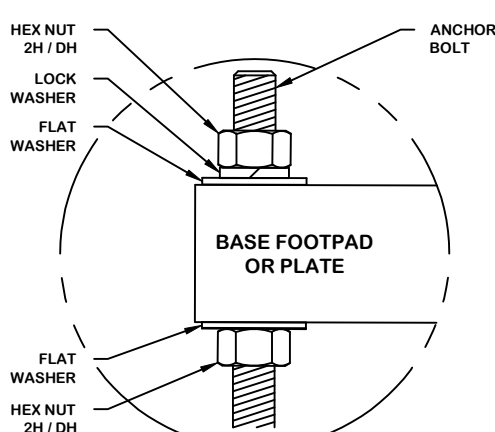
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION




ANCHOR BOLT ASSY. (TYP)
SEE FOUNDATION DRAWING FOR DETAILS

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

SITE	WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'
COPYRIGHT 2013	PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

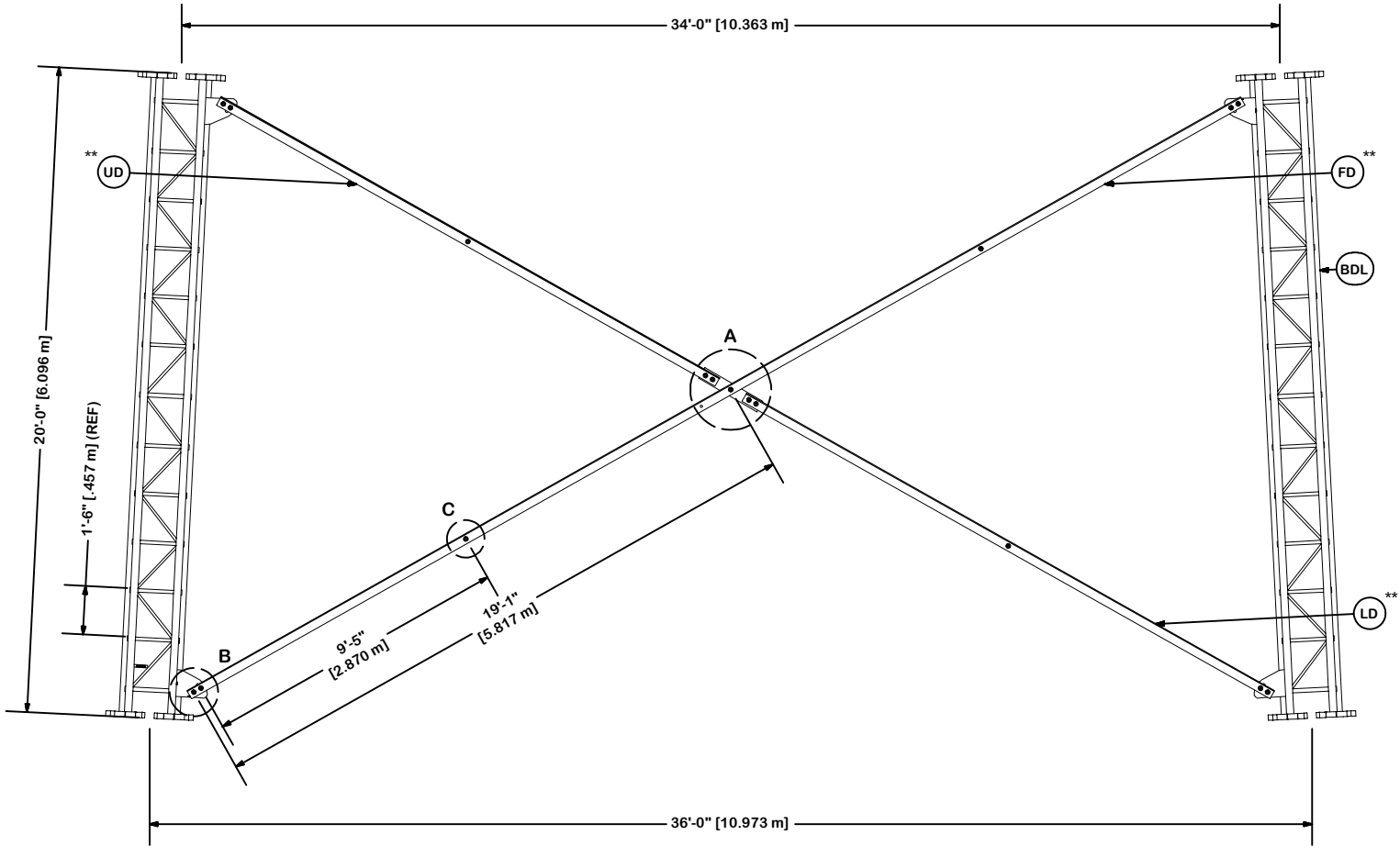
DESCRIPTION	SECTION U-38.0 (0' - 20' ELEVATION)
STRUCTURE APPROVAL	SAN 4/20/2022
FOUNDATION APPROVAL	

valmont  1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR STRUCTURES	
ENG. FILE NO.	510330
DWG. NO.	293001T
PAGE	3 OF 19

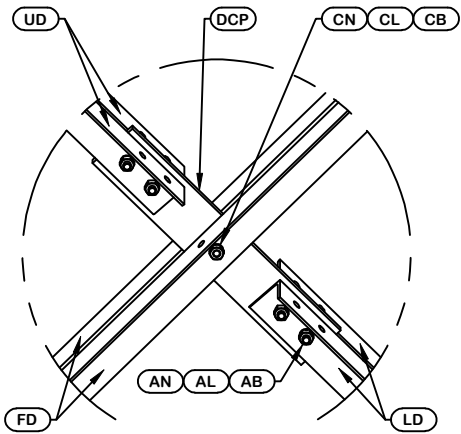
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP,

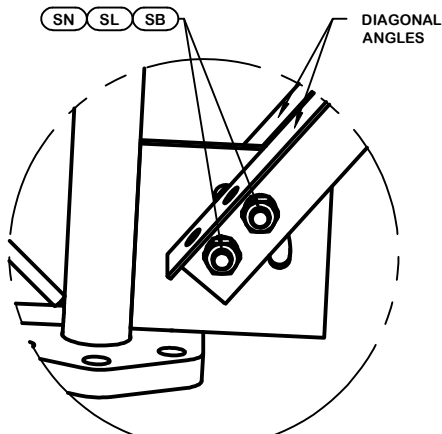
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



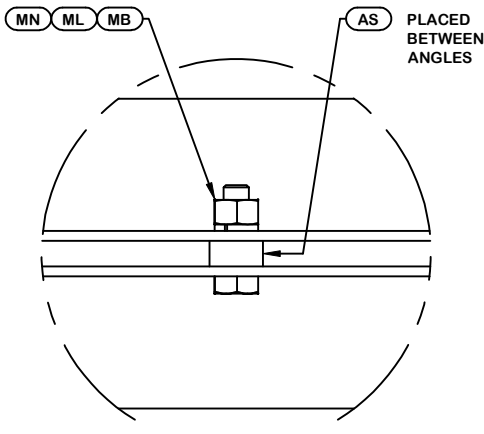
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



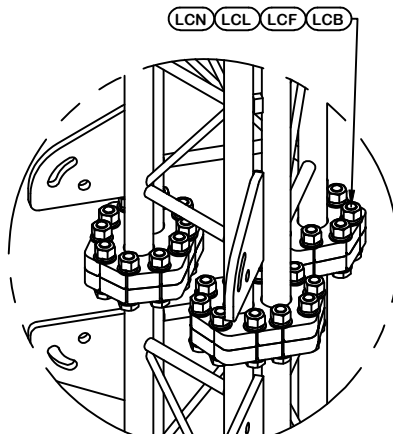
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	244114	#18 DOUBLE LEG SECTION (58 KSI) 3 1/2" LEGS 20' LENGTH	4996.000	14988.000
UD	6	270619	U-36 UPPER ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR.	229.950	1379.700
LD	6	270618	U-36 LOWER ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR.	243.590	1461.540
FD	6	270617	U-36 LONG ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR. 5	486.750	2920.500
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	281082	CENTER CONNECTION PLATE - 1" BOLTS - 50 KSI FOR #1	43.820	131.460
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
LCB	90	230161	1-1/4"-7 X 6-1/2" A-325 BOLT WITH 2" THREAD	2.900	261.000
LCF	180	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	23.400
LCL	90	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	13.500
LCN	90	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	65.700

Total Wt 21365.61 lb [9691.28 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VAL MONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-36.0 (20' - 40' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 

1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

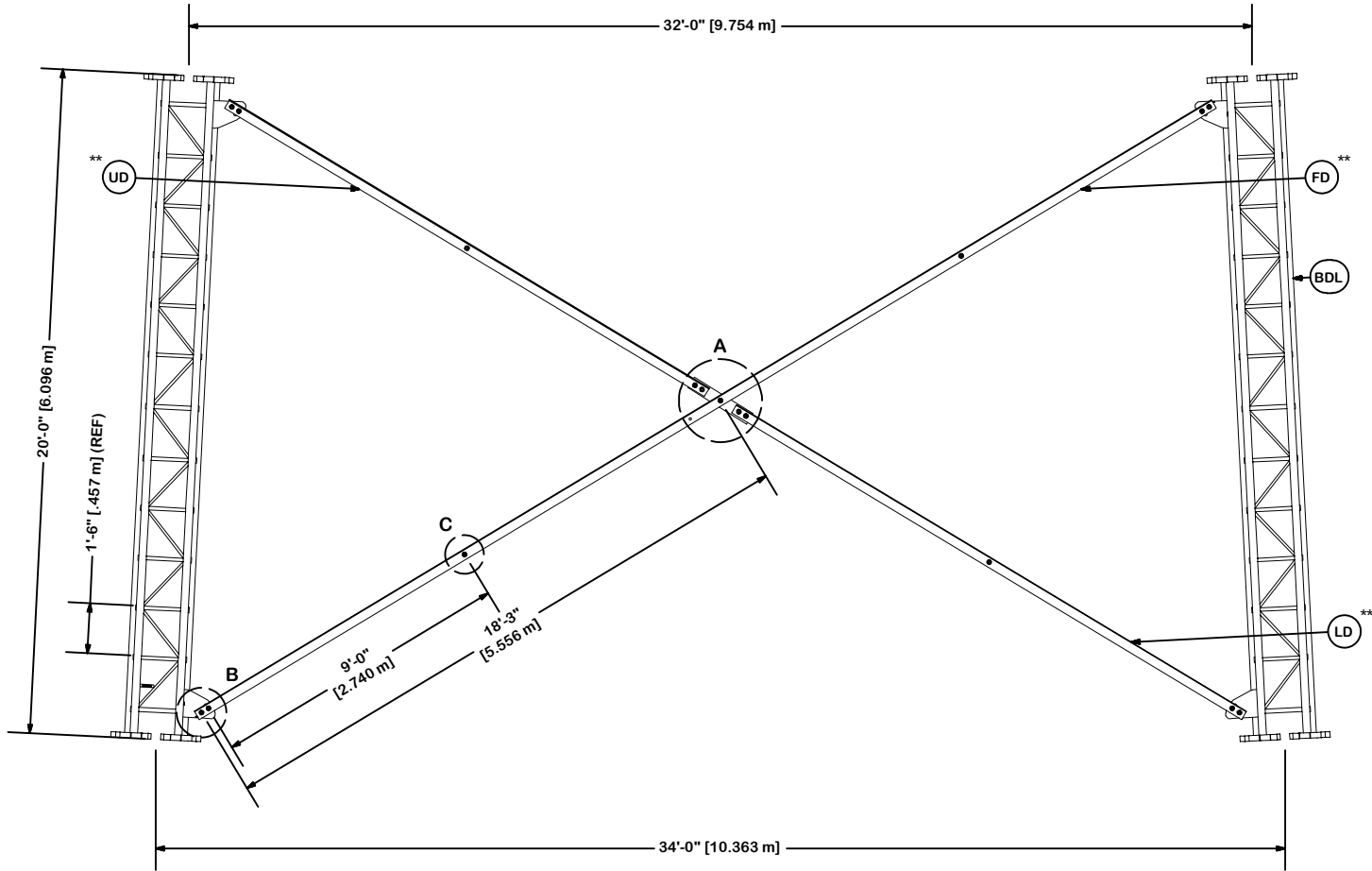
PAGE
4 OF 19

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

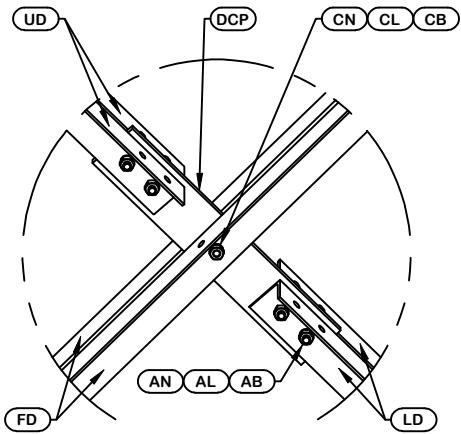
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP, 

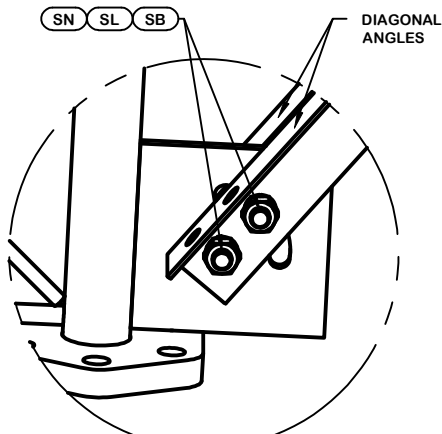
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



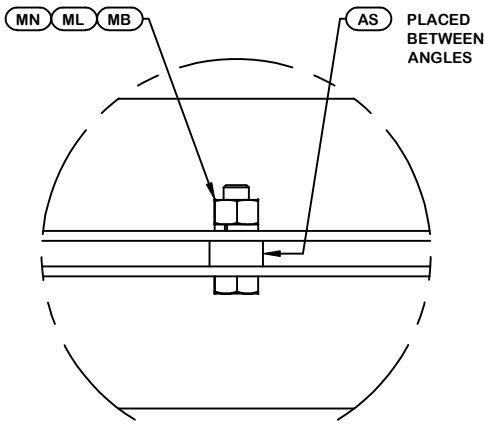
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



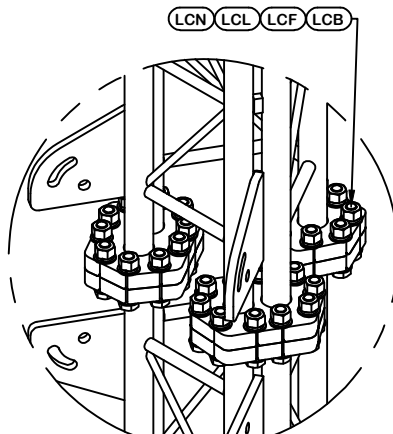
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	244015	#18 DOUBLE LEG SECTION (58 KSI) 3" LEGS 20' LENGTH	3923.610	11770.830
UD	6	281006	U-34 UPPER ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR.	218.590	1311.540
LD	6	281005	U-34 LOWER ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR.	232.450	1394.700
FD	6	281004	U-34 LONG ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR. 5	464.250	2785.500
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	281082	CENTER CONNECTION PLATE - 1" BOLTS - 50 KSI FOR #1	43.820	131.460
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
LCB	90	230161	1-1/4"-7 X 6-1/2" A-325 BOLT WITH 2" THREAD	2.900	261.000
LCF	180	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	23.400
LCL	90	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	13.500
LCN	90	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	65.700

Total Wt 20961.39 lb [9507.93 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-34.0 (40' - 60' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 

1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

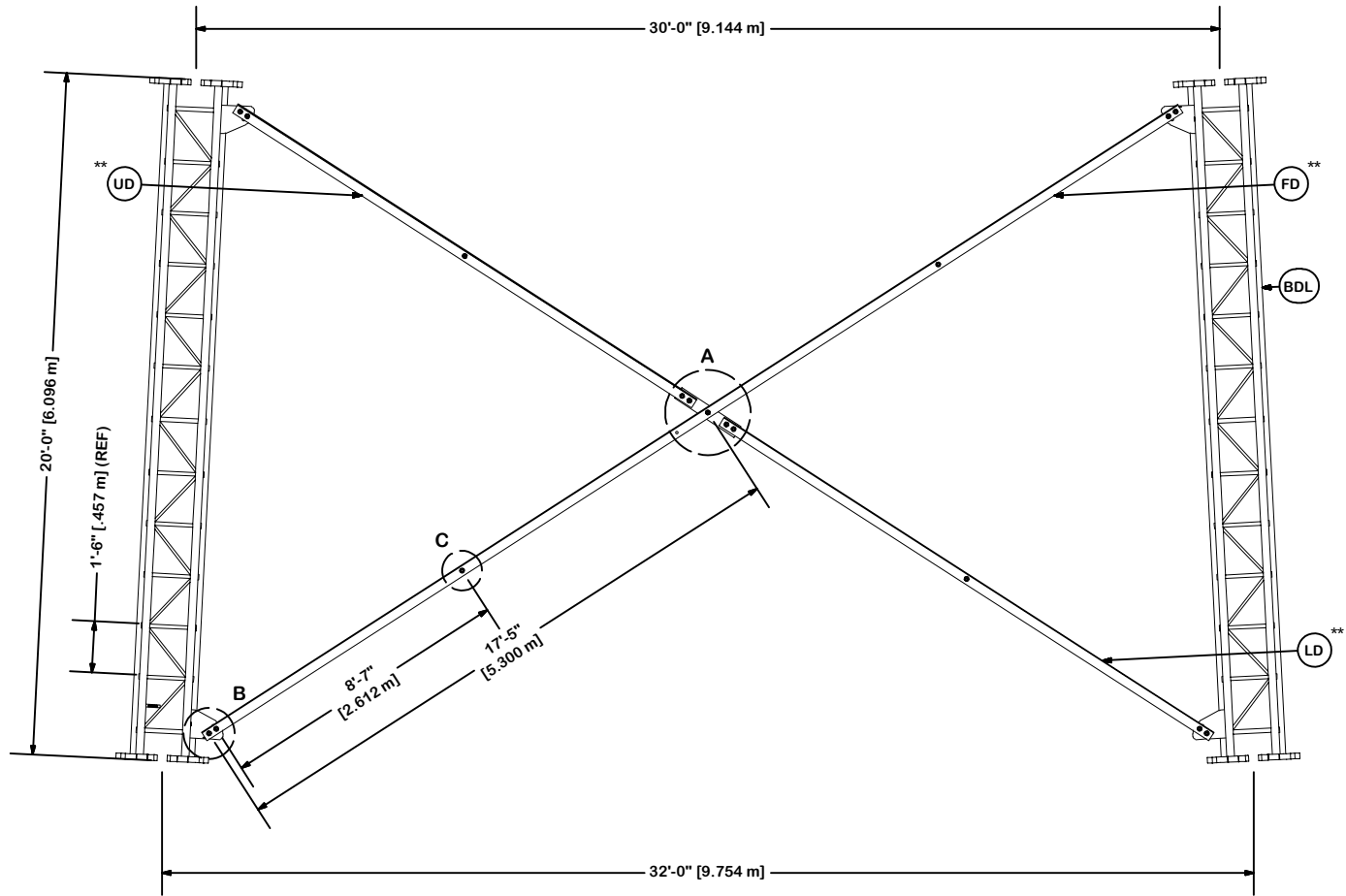
PAGE
5 OF 19

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

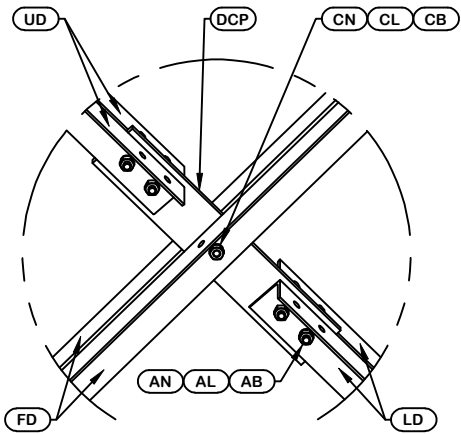
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP,

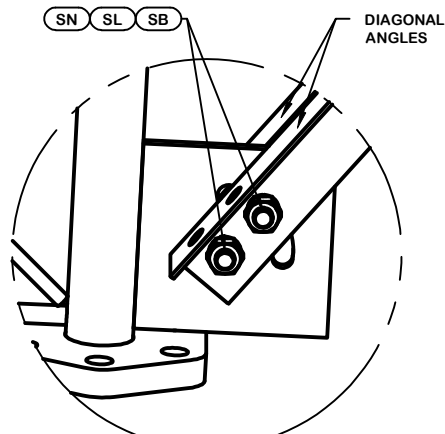
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



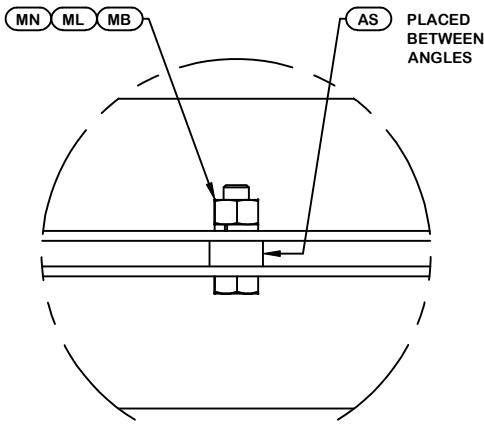
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



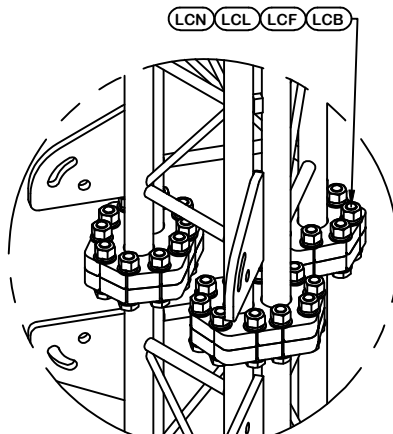
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	244015	#18 DOUBLE LEG SECTION (58 KSI) 3" LEGS 20' LENGTH	3923.610	11770.830
UD	6	270352	U-32 UPPER ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR.	207.400	1244.400
LD	6	270351	U-32 LOWER ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR.	221.520	1329.120
FD	6	270350	U-32 LONG ANGLE - 5" x 5" x 3/8" ANGLE (A572 GR. 5	442.140	2652.840
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	281082	CENTER CONNECTION PLATE - 1" BOLTS - 50 KSI FOR #1	43.820	131.460
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
LCB	90	230161	1-1/4"-7 X 6-1/2" A-325 BOLT WITH 2" THREAD	2.900	261.000
LCF	180	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	23.400
LCL	90	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	13.500
LCN	90	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	65.700

Total Wt 20696.01 lb [9387.55 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-32.0 (60' - 80' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 

1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

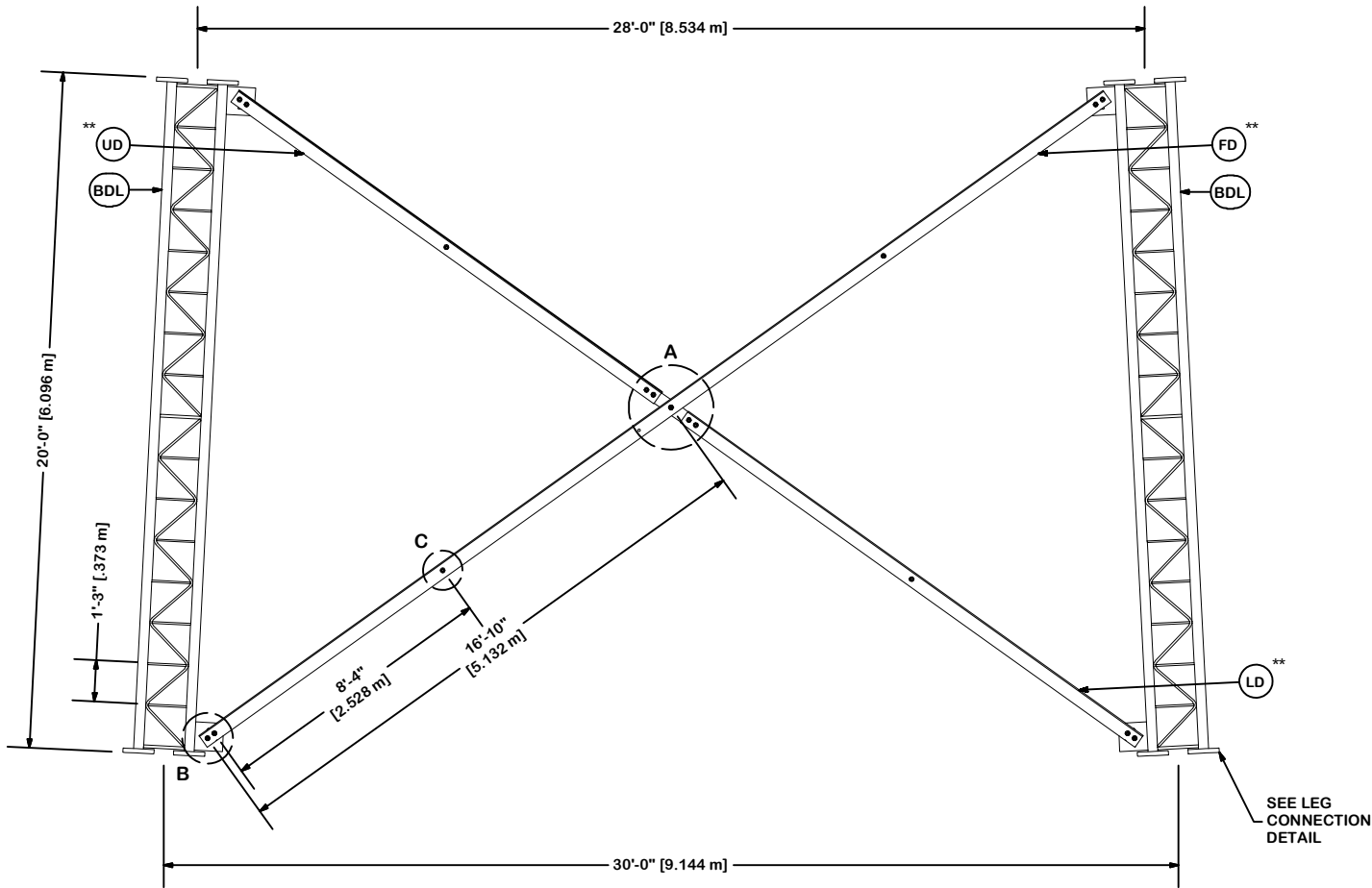
PAGE
6 OF 19

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

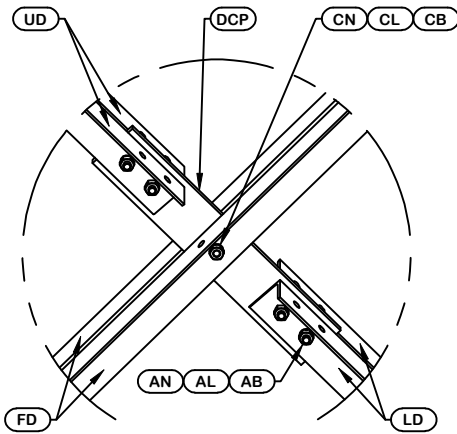
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP, 

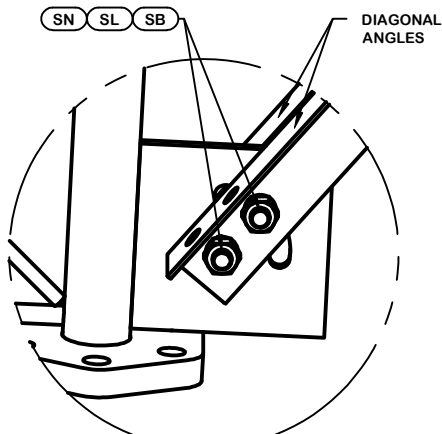
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



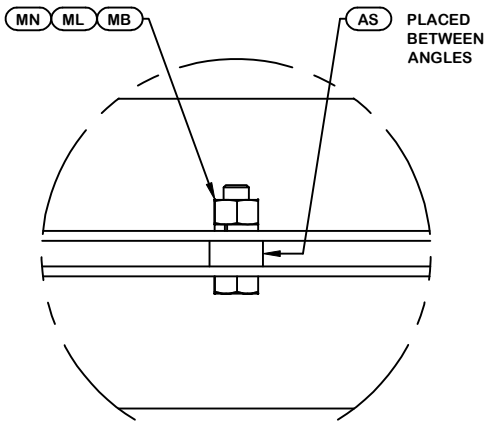
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



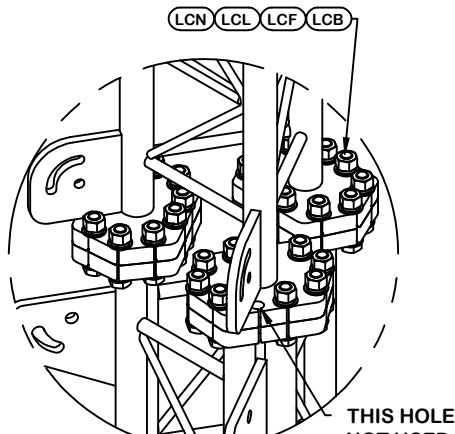
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	243892	#18 TRANS SECTION 3 1/2" LEG - 20' LENGTH	2914.280	8742.840
UD	6	126687	DIAG BRACE 3/8" x 5" x 5" 15'- 3- 7/ 8" LONG	197.000	1182.000
LD	6	126692	DIAG BRACE 3/8" x 5" x 5" 16'- 5-25/32" LONG	212.000	1272.000
FD	6	126586	DIAG BRACE 3/8" x 5" x 5" 32'- 9-21/32" LONG	403.000	2418.000
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	127087	DIAG BRACE CENTER PLATE (A-36M50)	28.500	85.500
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
LCB	84	230161	1-1/4"-7 X 6-1/2" A-325 BOLT WITH 2" THREAD	2.900	243.600
LCF	168	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	21.840
LCL	84	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	12.600
LCN	84	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	61.320

Total Wt 14175.90 lb [6435.98 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VAL MONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-30.0 (80' - 100' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 

1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

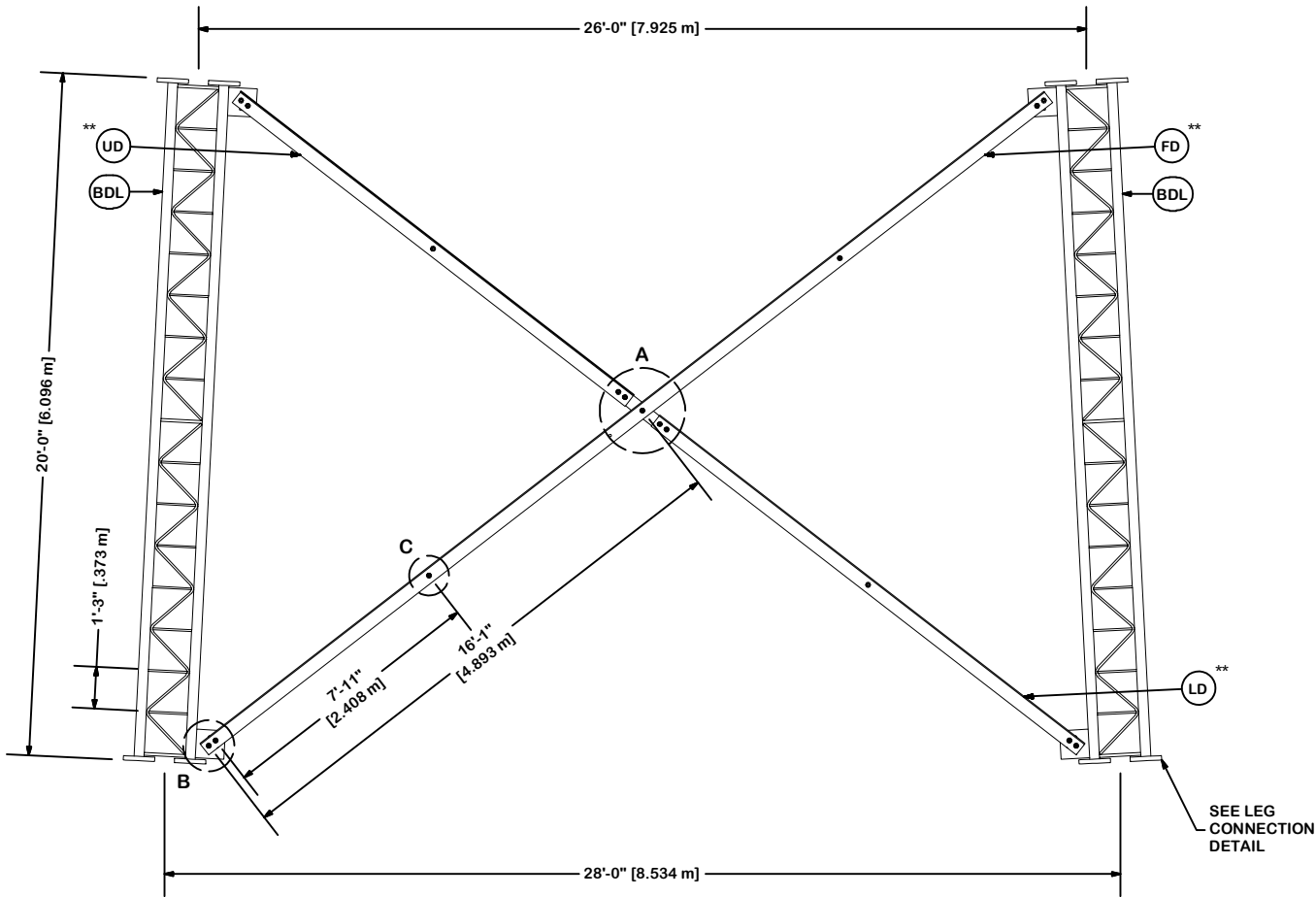
PAGE
7 OF 19

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

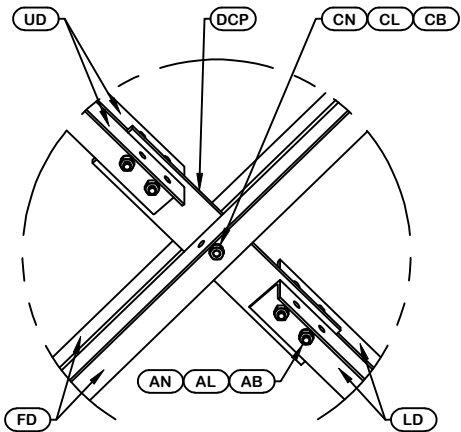
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP, 

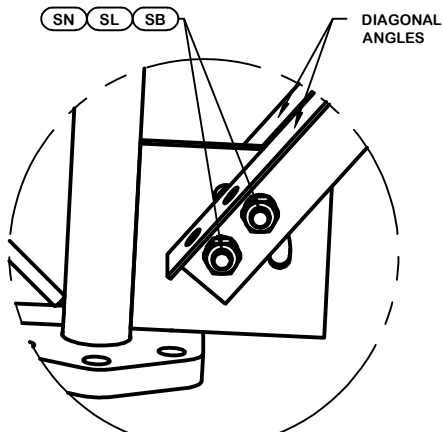
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



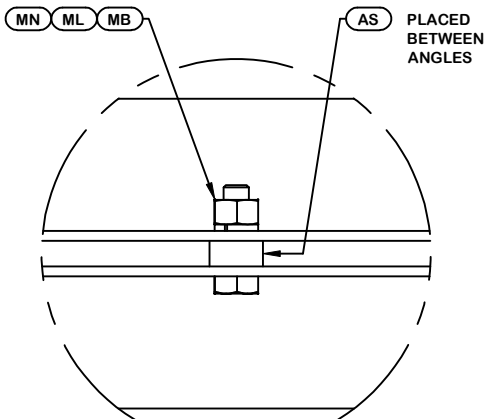
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



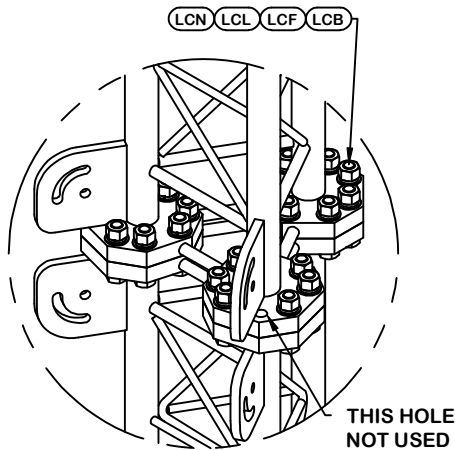
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	244221	#18 SECTION 3 1/2" LEG - 7/8" BRACE- 20'-0" LENGTH	2854.910	8564.730
UD	6	126674	U-28 UPPER DIAGONAL - 4" x 4" x 3/8" ANGLE (A572 G	148.760	892.560
LD	6	126679	U-28 LOWER DIAGONAL - 4" x 4" x 3/8" ANGLE (A572 G	161.060	966.360
FD	6	126578	U-28 LONG DIAGONAL - 4" x 4" x 3/8" ANGLE (A572 GR	320.300	1921.800
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	127087	DIAG BRACE CENTER PLATE (A-36M50)	28.500	85.500
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
LCB	66	222023	1-1/4"-7 X 6" A-325 BOLT WITH 2" THREAD	2.700	178.200
LCF	66	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	8.580
LCL	66	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	9.900
LCN	66	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	48.180

Total Wt 12812.01 lb [5811.43 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-28.0 (100' - 120' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

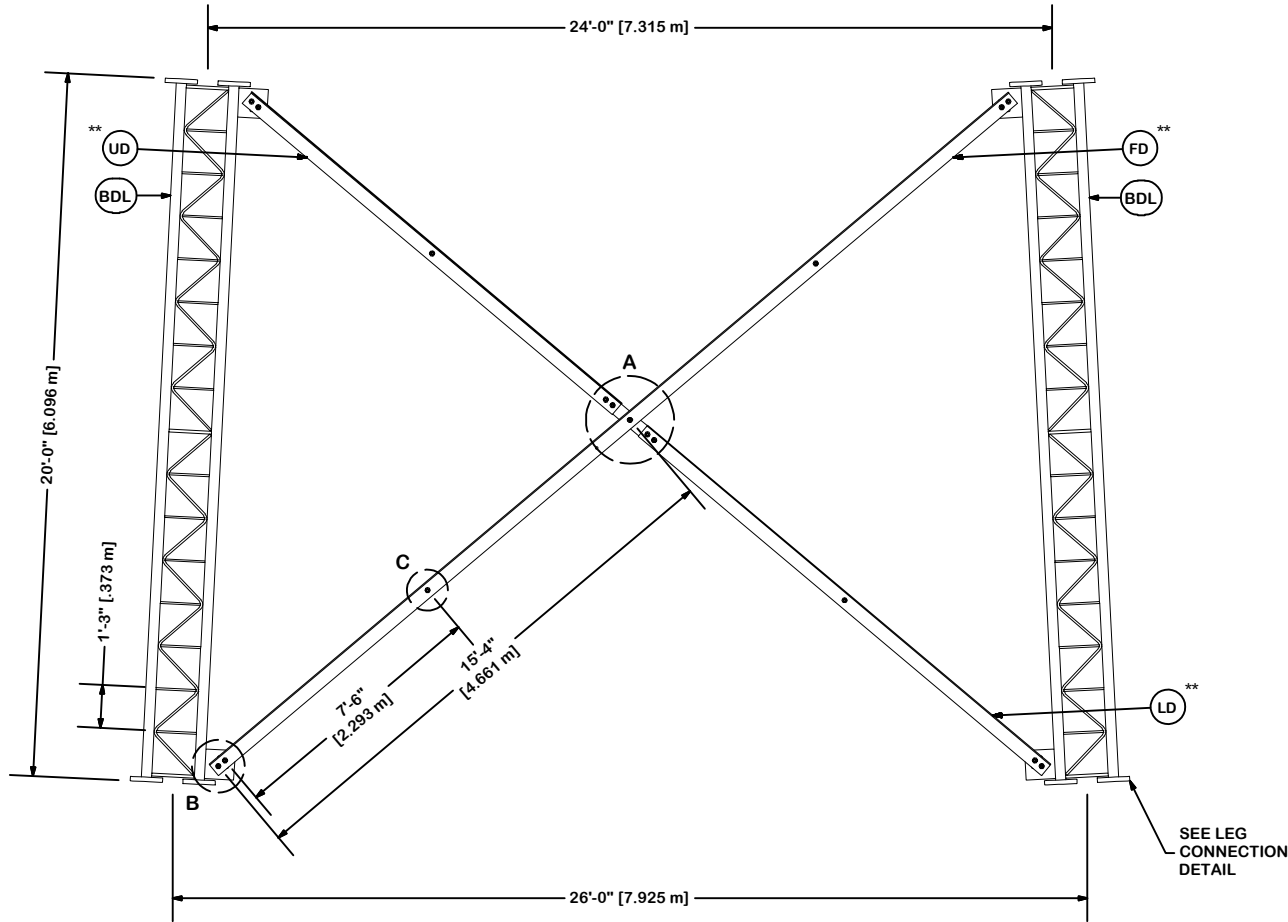
PAGE
8 OF 19

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

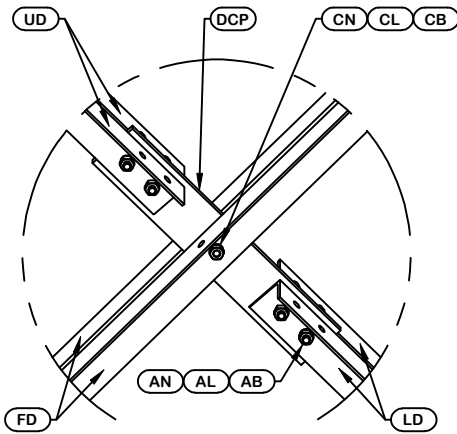
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP,

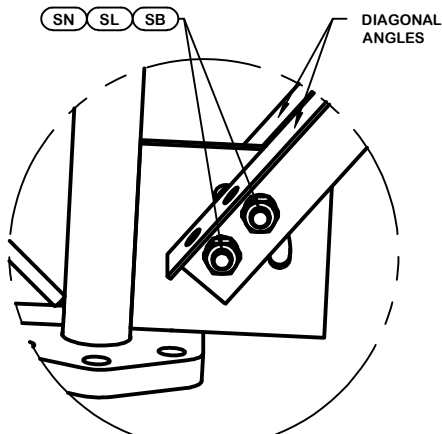
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



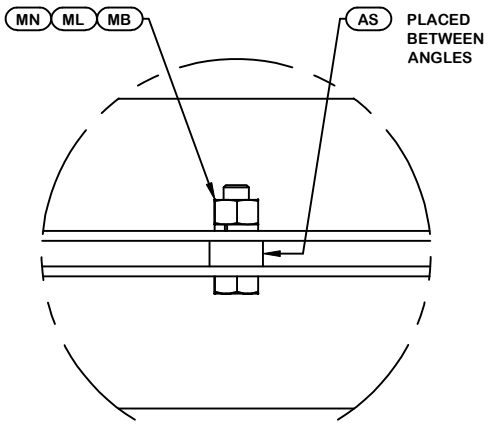
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



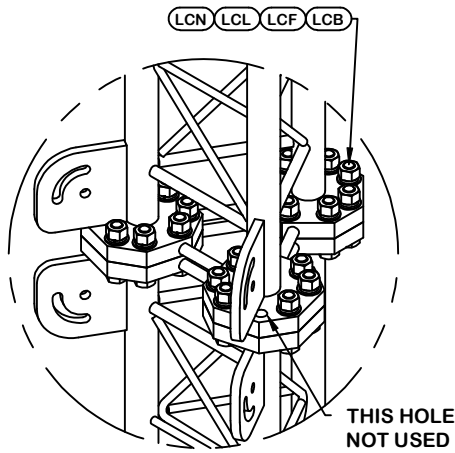
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	244221	#18 SECTION 3 1/2" LEG - 7/8" BRACE- 20'-0" LONG 5	2854.910	8564.730
UD	6	126664	DIAG BRACE 3/8" x 4" x 4" 13'- 8- 7/16" LONG (A-3)	188.000	1128.000
LD	6	126669	DIAG BRACE 3/8" x 4" x 4" 14'-11- 9/32" LONG (A-3)	146.180	877.080
FD	6	126573	DIAG BRACE 3/8" x 4" x 4" 29'- 7-23/32" LONG (A-5)	290.000	1740.000
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	127087	DIAG BRACE CENTER PLATE (A-36M50)	28.500	85.500
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
LCB	66	222023	1-1/4"-7 X 6" A-325 BOLT WITH 2" THREAD	2.700	178.200
LCF	66	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	8.580
LCL	66	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	9.900
LCN	66	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	48.180

Total Wt 12776.37 lb [5795.26 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-26.0 (120' - 140' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

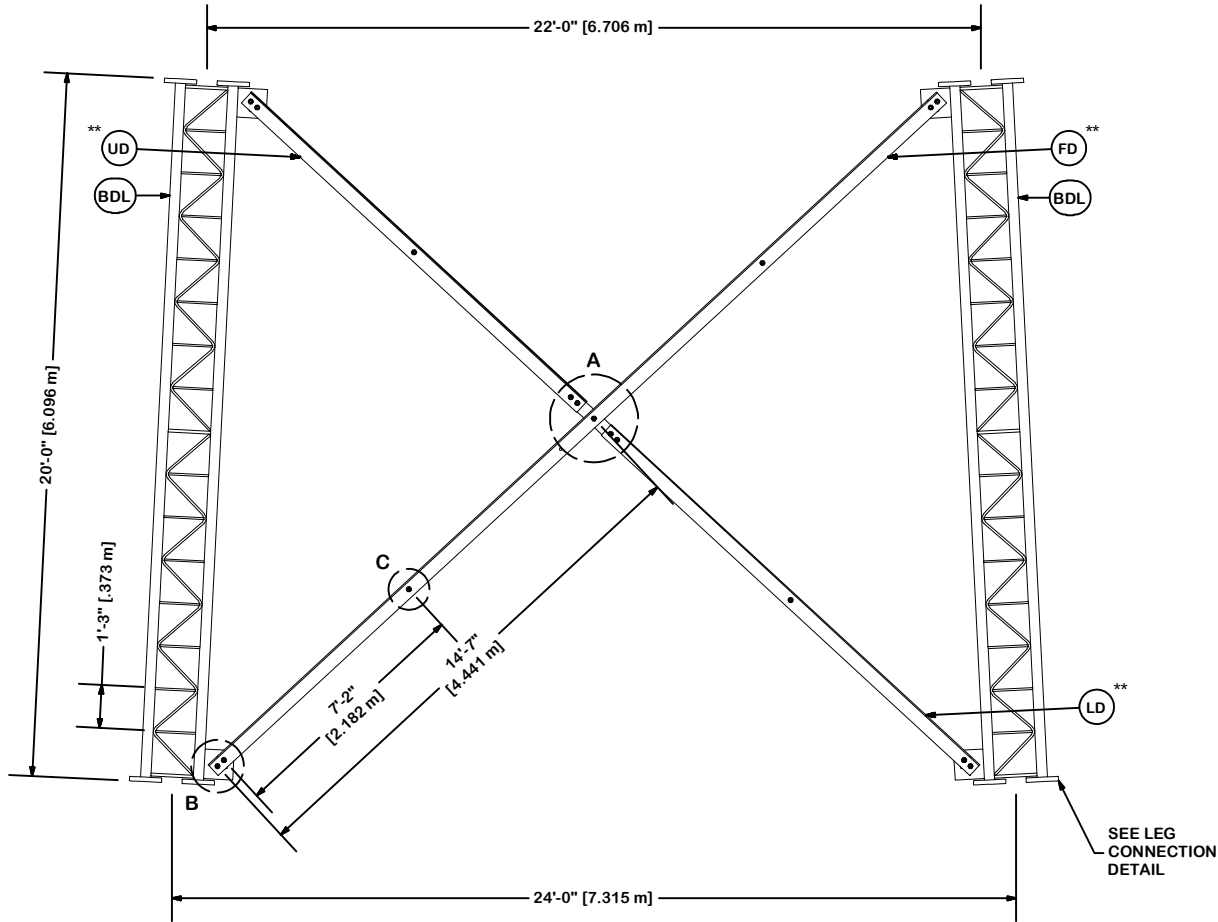
PAGE
9 OF 19

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

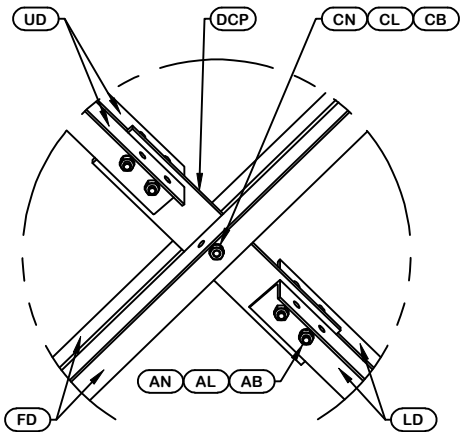
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP, 

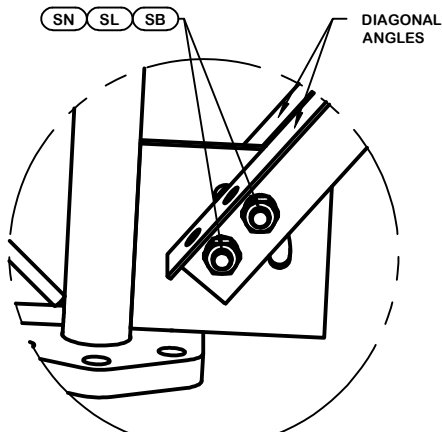
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



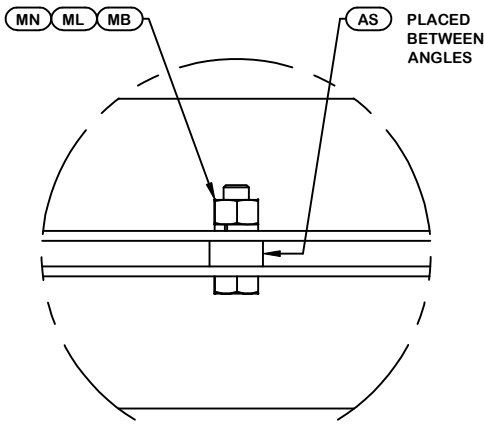
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



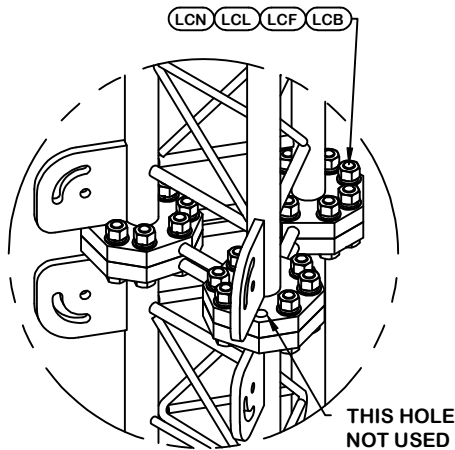
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	244221	#18 SECTION 3 1/2" LEG - 7/8" BRACE- 20'-0" LENGTH	2854.910	8564.73
UD	6	126655	DIAG BRACE 3/8" x 4" x 4" 12'-11- 1/ 8" LONG (A-3	126.000	756.000
LD	6	126660	DIAG BRACE 3/8" x 4" x 4" 14'- 2- 9/16" LONG (A-3	137.000	822.000
FD	6	126569	DIAG BRACE 3/8" x 4" x 4" 28'- 1-11/16" LONG (A-5	275.000	1650.000
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	127087	DIAG BRACE CENTER PLATE (A-36M50)	28.500	85.500
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	26.160
LCB	66	222023	1-1/4"-7 X 6" A-325 BOLT WITH 2" THREAD	2.700	178.200
LCF	66	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	8.580
LCL	66	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	9.900
LCN	66	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	48.180

Total Wt 12259.29 lb [5560.72 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-24.0 (140' - 160' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 

1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

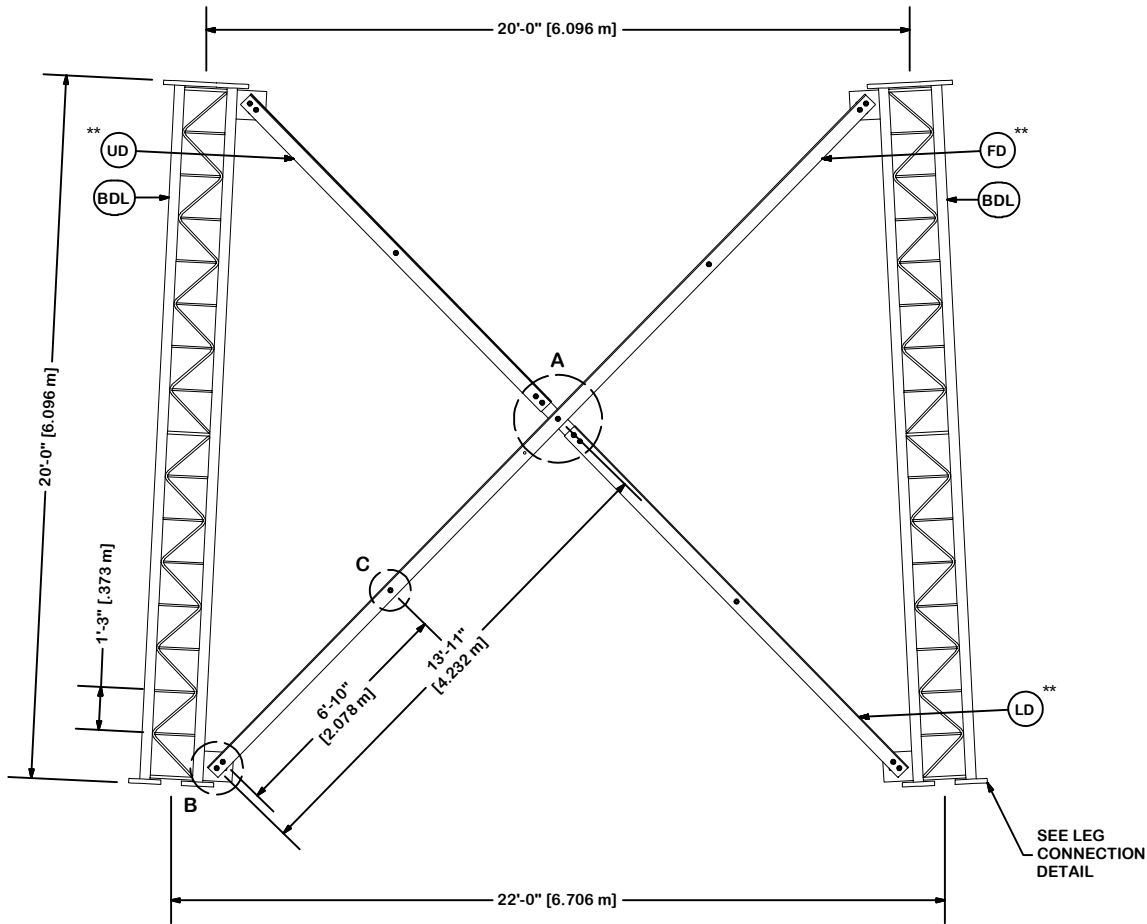
PAGE
10 OF 19

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

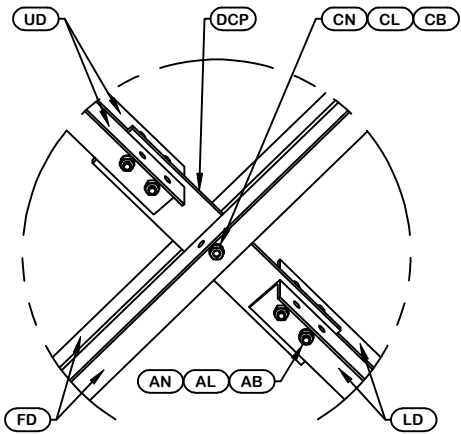
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

** DIAGONAL ANGLES MUST BE
INSTALLED WITH THE NON-BOLTED
FACE UP, 

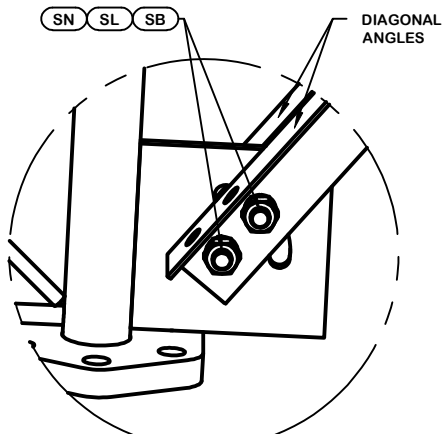
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



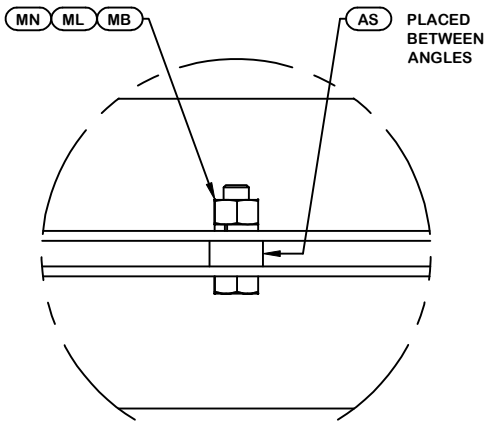
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



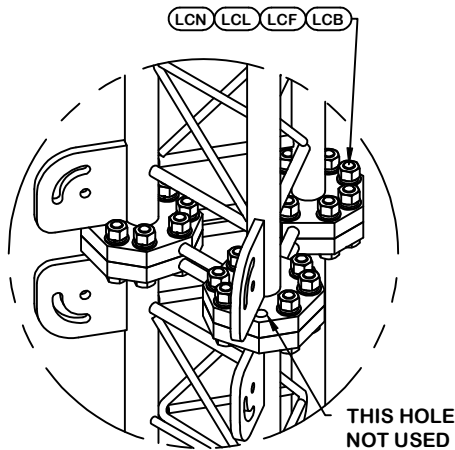
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(ANGLES NOT SHOWN FOR CLARITY)

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	259976	#18/12 TRANS SECTION 3 1/2 LEG	3022.570	9067.710
UD	6	126644	DIAG BRACE 3/8" X 4" X 4" 12'- 2-1/8" LONG (A-572	119.000	714.000
LD	6	126649	DIAG BRACE 3/8" X 4" X 4" 13'- 6-3/8" LONG (A-572	132.000	792.000
FD	6	126563	DIAG BRACE 3/8" X 4" X 4" 26'- 8-1/2" LONG (A-572	261.000	1566.000
AS	12	260038	SPACER PLATE - 1" BOLTS	4.550	54.600
AL/SL/ML	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
MB	12	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	13.080
AN/SN/MN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
DCP	3	127087	DIAG BRACE CENTER PLATE (A-36M50)	28.500	85.500
AB	15	222018	1"-8 X 3-1/2" A-325 BOLT WITH 1-3/4" THREAD	1.090	16.350
AN	15	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	6.450
AL	15	312223	1" GALVANIZED LOCKWASHER	0.080	1.200
SB	24	225017	1"-8 X 3-1/2" A-325T BOLT WITH FULL THREAD	1.090	26.160
LCB	66	222023	1-1/4"-7 X 6" A-325 BOLT WITH 2" THREAD	2.700	178.200
LCF	66	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	8.580
LCL	66	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	9.900
LCN	66	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	48.180

Total Wt 12606.27 lb [5723.36 kg]

SITE

WTPM RADIO PARAISO, PR
3A GROUP, LLC
U 38 X 328'

COPYRIGHT 2013

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT
INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF
VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

SECTION U-22.0 (160' - 180' ELEVATION)

STRUCTURE APPROVAL

SAN

4/20/2022

FOUNDATION APPROVAL

valmont 
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

STRUCTURES

ENG. FILE NO.

510330

DWG. NO.

293001T

PAGE
11 OF 19

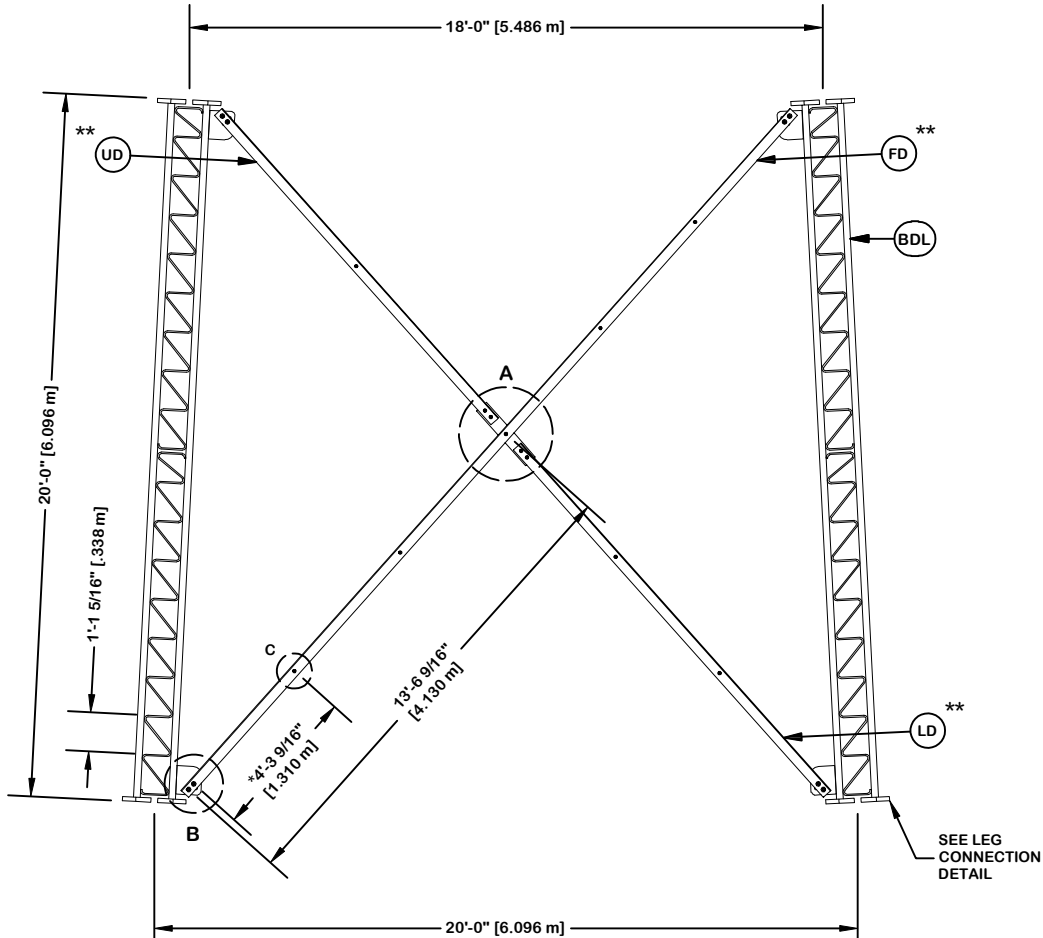
@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

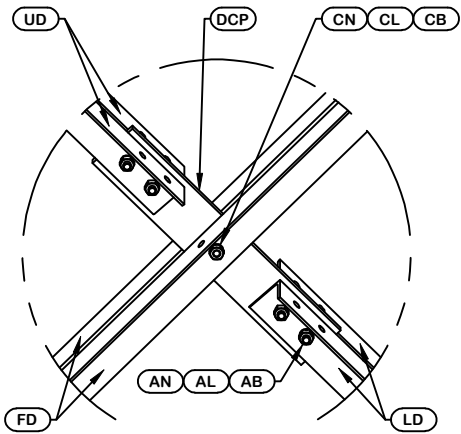
ORIENT ANGLES WITH STAMPED END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED WITH THE NON-BOLTED FACE UP,

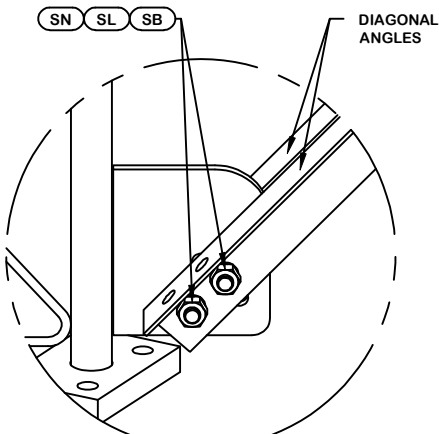
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



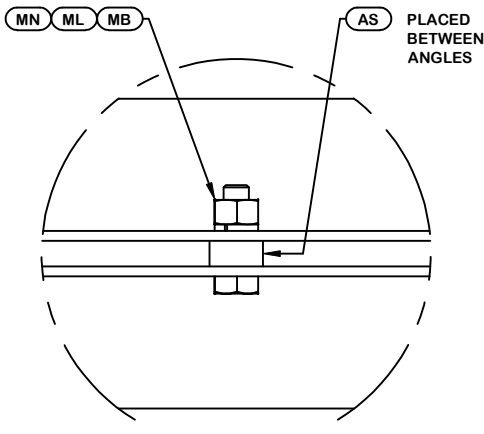
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW. PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



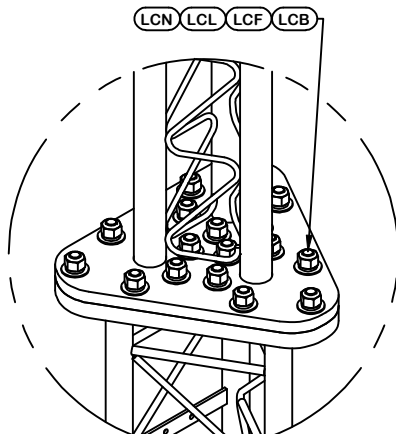
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	217974	#12/#18 LEG SECTION 3 1/2" TO 3" LEG 5/8" BRACE 20	2587.450	7762.350
UD	6	266179	U-20 UPPER ANGLE - DOUBLE BOLT FOR 20'-0" LONG TA	81.180	487.080
LD	6	266178	U-20 LOWER ANGLE - DOUBLE BOLT FOR 20'-0" LONG TA	91.150	546.900
FD	6	266177	U-20 LONG ANGLE - DOUBLE BOLT FOR 20'-0" LONG TAP	179.550	1077.300
ML	21	312123	5/8" GALVANIZED LOCKWASHER (53-22230)	0.020	0.420
MN	21	312501	5/8"-11 HOT DIPPED GALVANIZED NUT	0.120	2.520
AS	21	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	1.470
MB	21	161895	5/8"-11 X 2 1/4" A-325 BOLT 1 1/4" THREAD	0.260	5.460
AB/CB	15	161895	5/8"-11 X 2 1/4" A-325 BOLT 1 1/4" THREAD	0.260	3.900
AL / CL	15	312123	5/8" GALVANIZED LOCKWASHER (53-22230)	0.020	0.300
AN / CN	15	312501	5/8"-11 HOT DIPPED GALVANIZED NUT	0.120	1.800
DCP	3	211833	MID BRACE CONNECTION PLATE FOR #12 B/D LEG ANGLES	20.590	61.770
SL	24	312193	7/8" GALVANIZED LOCKWASHER	0.050	1.200
SN	24	312215	7/8"-9 HOT DIPPED GALVANIZED NUT	0.300	7.200
SB	24	172275	7/8"-9 X 2-1/2" A-325 BOLT WITH 1-1/2" THREAD	1.230	29.520
LCB	54	222022	1-1/4"-7 X 5-1/2" A-325 BOLT WITH 2" THREAD	2.530	136.620
LCF	54	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	7.020
LCL	54	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	8.100
LCN	54	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	39.420
Total Wt				10180.35 lb [4621.97 kg]	


@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

SITE
WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'
COPYRIGHT 2013
PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

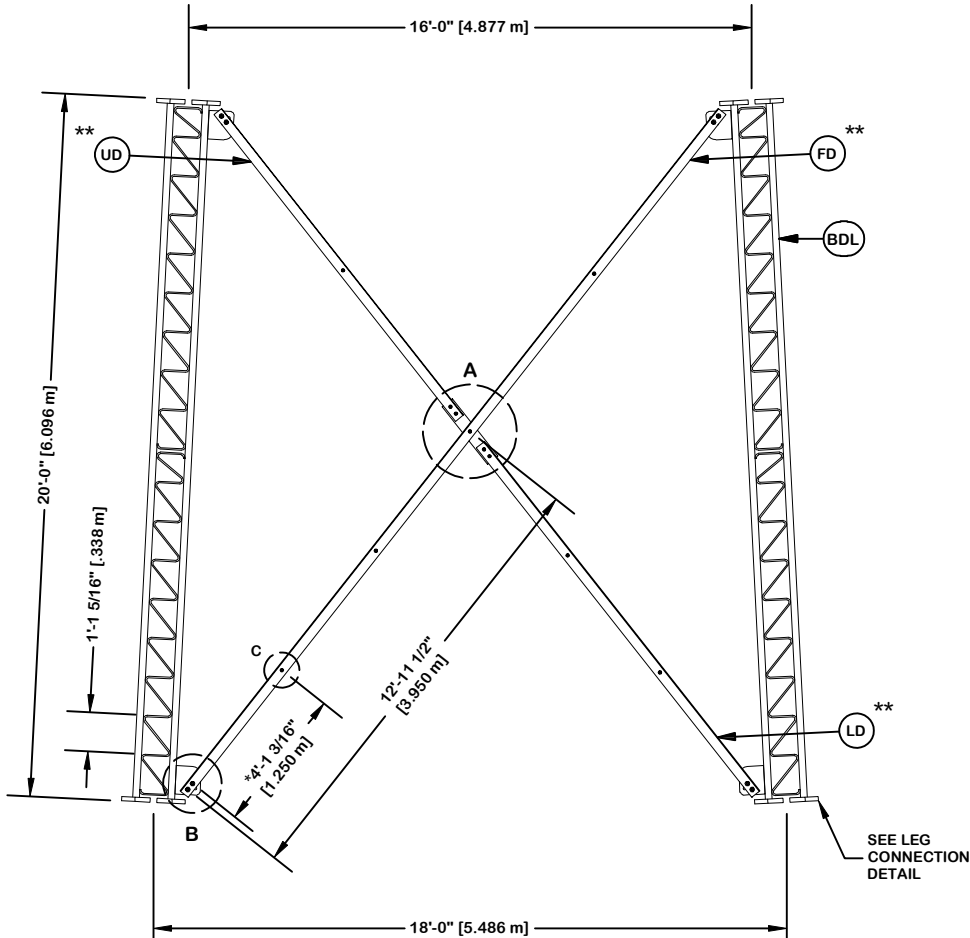
DESCRIPTION
SECTION U-20.0 (180' - 200' ELEVATION)
STRUCTURE APPROVAL
SAN 4/20/2022
FOUNDATION APPROVAL

<div>valmont</div> <div>1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR</div> <div>STRUCTURES</div>	
ENG. FILE NO.	510330
DWG. NO.	293001T
PAGE	12 OF 19

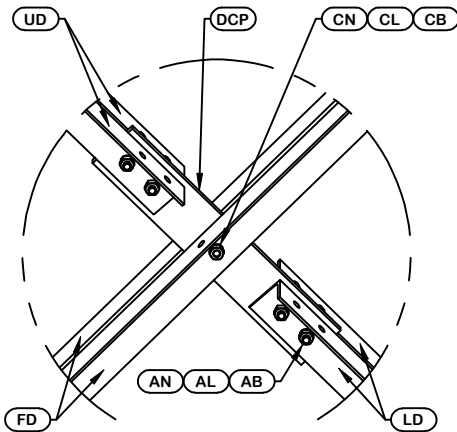
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED END TOWARD TOP OF SECTION
** DIAGONAL ANGLES MUST BE INSTALLED WITH THE NON-BOLTED FACE UP, 

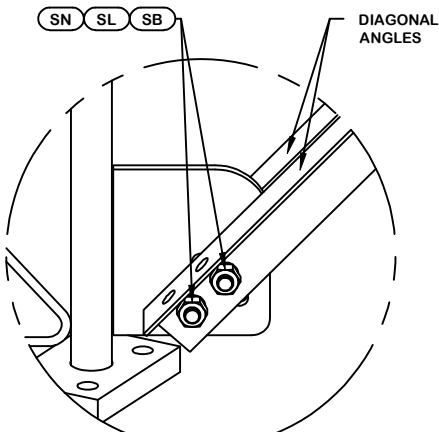
* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES



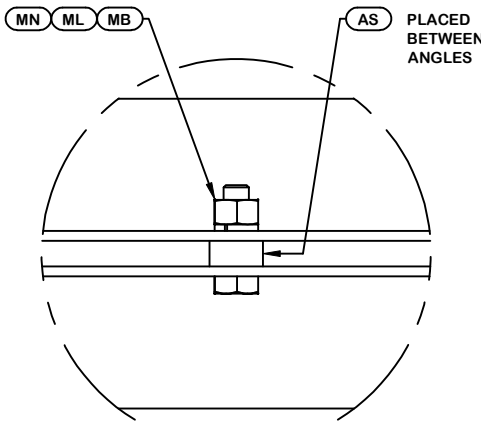
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



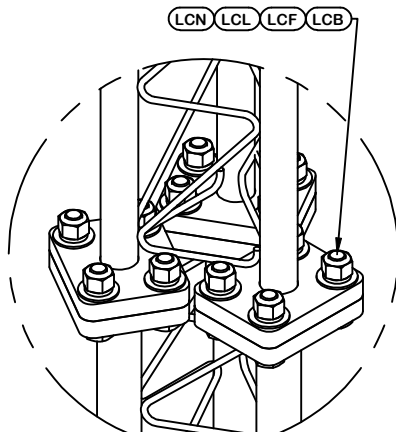
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION




LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	196953	#12 LEG SECT - 2-3/4" TO 2-1/4" TRANS LEG - 5/8" B	1598.350	4795.050
UD	6	266152	U-18 UPPER ANGLE - DOUBLE BOLT FOR 20'-0" LONG TA	76.340	458.040
LD	6	266151	U-18 LOWER ANGLE - DOUBLE BOLT FOR 20'-0" LONG TA	87.070	522.420
FD	6	266150	U-18 LONG ANGLE - DOUBLE BOLT FOR 20'-0" LONG TAP	170.630	1023.780
ML	18	312123	5/8" GALVANIZED LOCKWASHER (53-22230)	0.020	0.360
MN	18	312501	5/8"-11 HOT DIPPED GALVANIZED NUT	0.120	2.160
AS	18	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	1.260
MB	18	161895	5/8"-11 X 2 1/4" A-325 BOLT 1 1/4" THREAD	0.260	4.680
AB/CB	15	161895	5/8"-11 X 2 1/4" A-325 BOLT 1 1/4" THREAD	0.260	3.900
AL / CL	15	312123	5/8" GALVANIZED LOCKWASHER (53-22230)	0.020	0.300
AN / CN	15	312501	5/8"-11 HOT DIPPED GALVANIZED NUT	0.120	1.800
DCP	3	211833	MID BRACE CONNECTION PLATE FOR #12 B/D LEG ANGLES	20.590	61.770
SL	24	312193	7/8" GALVANIZED LOCKWASHER	0.050	1.200
SN	24	312215	7/8"-9 HOT DIPPED GALVANIZED NUT	0.300	7.200
SB	24	172275	7/8"-9 X 2-1/2" A-325 BOLT WITH 1-1/2" THREAD	1.230	29.520
LCB	36	222022	1-1/4"-7 X 5-1/2" A-325 BOLT WITH 2" THREAD	2.530	91.080
LCF	36	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	4.680
LCL	36	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	5.400
LCN	36	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	26.280
Total Wt				7040.88 lb [3196.62 kg]	

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

SITE	WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'
COPYRIGHT 2013	
PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.	

DESCRIPTION	SECTION U-18.0 (200' - 220' ELEVATION)
STRUCTURE APPROVAL	SAN 4/20/2022
FOUNDATION APPROVAL	

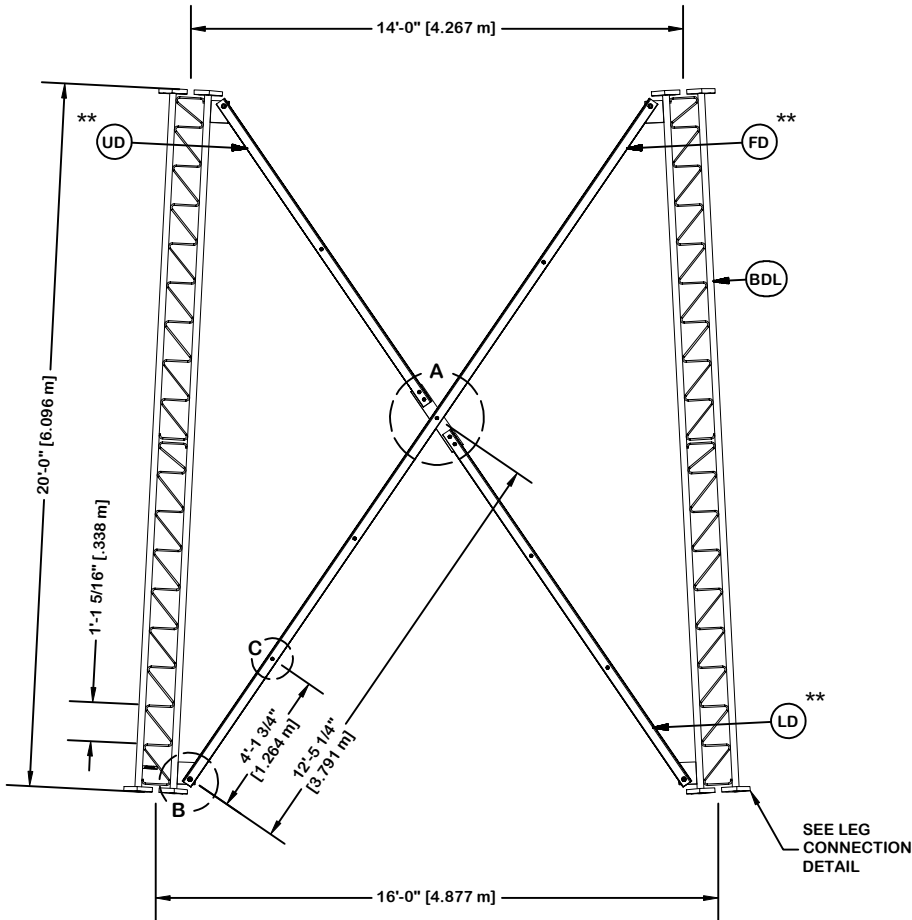
valmont 	
1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR	
STRUCTURES	
ENG. FILE NO.	510330
DWG. NO.	293001T
13 OF 19	
PAGE	

OREINT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED END TOWARD TOP OF SECTION

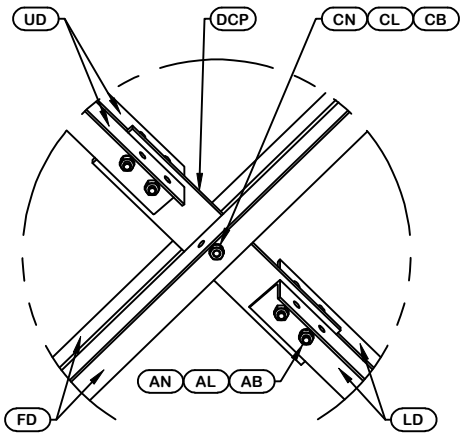
** DIAGONAL ANGLES MUST BE INSTALLED WITH THE NON-BOLTED FACE UP,

* STITCH BOLT SPACING SHOWN
IS MAX. FOR ALL ANGLES

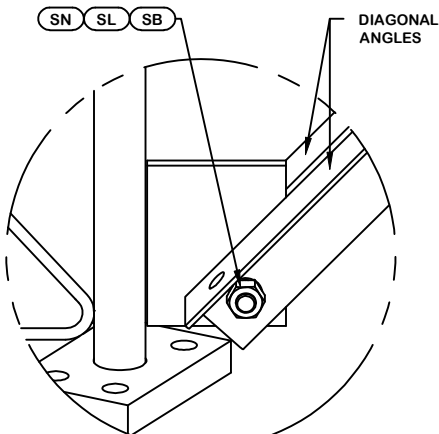


PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	195638	#12 LEG SECT - 2" TO 1-3/4" TRANS LEG - 5/8" BRACE	953.130	2859.390
UD	6	265640	U-16 UPPER ANGLE - SINGLE BOLT FOR 20'-0" LONG TA	63.030	378.180
LD	6	265639	U-16 LOWER ANGLE - SINGLE BOLT FOR 20'-0" LONG TA	73.370	440.220
FD	6	265638	U-16 LONG ANGLE - SINGLE BOLT FOR 20'-0" LONG TAP	142.740	856.440
ML	18	312123	5/8" GALVANIZED LOCKWASHER (53-22230)	0.020	0.360
MN	18	312501	5/8"-11 HOT DIPPED GALVANIZED NUT	0.120	2.160
AS	18	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	1.260
MB	18	161895	5/8"-11 X 2 1/4" A-325 BOLT 1 1/4" THREAD	0.260	4.680
AB/CB	15	161895	5/8"-11 X 2 1/4" A-325 BOLT 1 1/4" THREAD	0.260	3.900
AL / CL	15	312123	5/8" GALVANIZED LOCKWASHER (53-22230)	0.020	0.300
AN / CN	15	312501	5/8"-11 HOT DIPPED GALVANIZED NUT	0.120	1.800
DCP	3	211833	MID BRACE CONNECTION PLATE FOR #12 B/D LEG ANGLES	20.590	61.770
SL	12	312193	7/8" GALVANIZED LOCKWASHER	0.050	0.600
SN	12	312215	7/8"-9 HOT DIPPED GALVANIZED NUT	0.300	3.600
SB	12	172275	7/8"-9 X 2-1/2" A-325 BOLT WITH 1-1/2" THREAD	1.230	14.760
LCB	36	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	49.680
LCF	36	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	5.040
LCL	36	312223	1" GALVANIZED LOCKWASHER	0.080	2.880
LCN	36	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	15.480
Total Wt				4702.50 lb [2134.98 kg]	

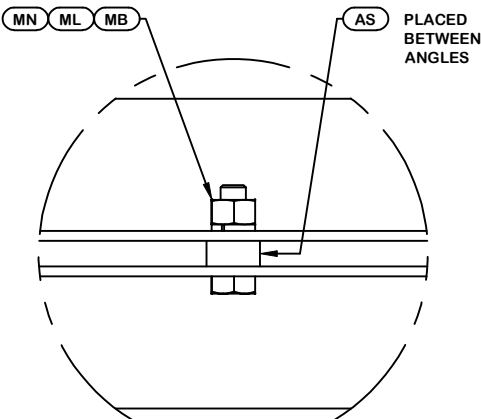
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW. PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



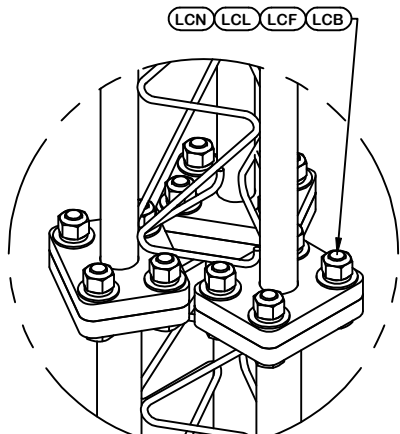
DETAIL A
ANGLE INTERSECTION CONNECTION




DETAIL B
END SIDE PLATE ANGLE CONNECTION



DETAIL C
STITCH BOLT CONNECTION



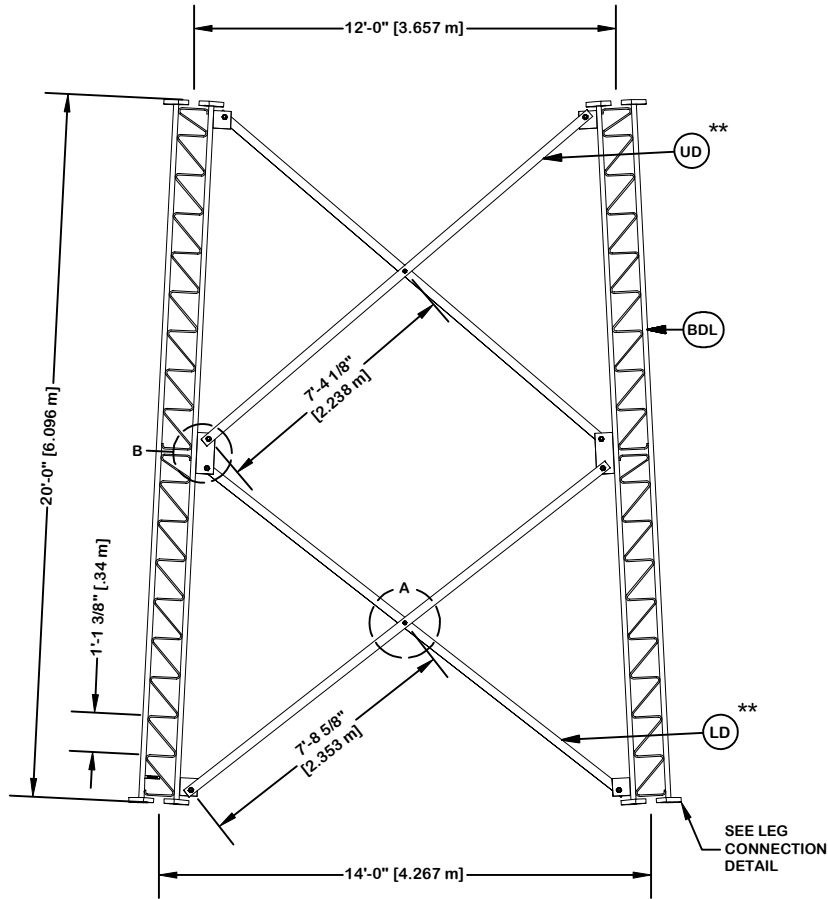
LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

					<div>SITE</div> <div>WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'</div> <div>COPYRIGHT 2013</div>		<div>DESCRIPTION</div> <div>SECTION U-16.0 (220' - 240' ELEVATION)</div>		<div><div>valmont</div><div>1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR</div><div>STRUCTURES</div></div>				
					PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.		STRUCTURE APPROVAL SAN 4/20/2022		FOUNDATION APPROVAL		<div>ENG. FILE NO.</div> <div>510330</div>		<div>PAGE</div> <div>14 OF 19</div>
									<div>DWG. NO.</div> <div>293001T</div>				
@A	REVISED LEG P/N'S				SAN	4/20/2022							
REV	DESCRIPTION OF REVISIONS			CPD	BY	DATE	REVISION HISTORY						

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

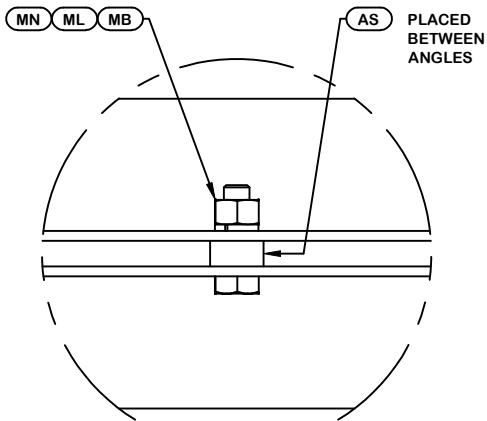
ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP,
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.

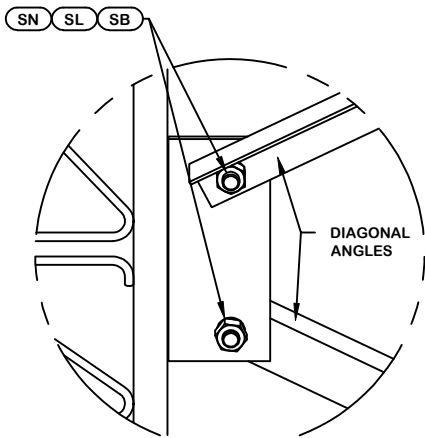


PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	195213	#12 LEG SECT - 1-3/4" TO 1-1/2" TRANS LEG - 1/2" B	739.890	2219.670
LD	6	126813	U-14 LOWER DIAGONAL - 3" x 3" x 5/16" ANGLE (A572	97.030	582.180
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	126810	U-14 UPPER DIAGONAL - 3" x 3" x 5/16" ANGLE (A572	92.070	552.420
LCB	18	222022	1-1/4"-7 X 5-1/2" A-325 BOLT WITH 2" THREAD	2.530	45.540
LCF	18	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	2.340
LCL	18	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	2.700
LCN	18	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	13.140
Total Wt				3454.95 lb [1568.58 kg]	

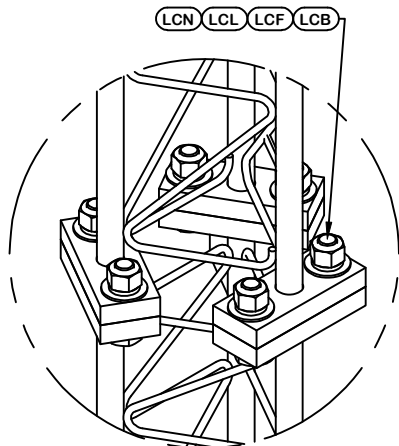
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW. PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

SITE	WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'			
COPYRIGHT 2013				
PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.				

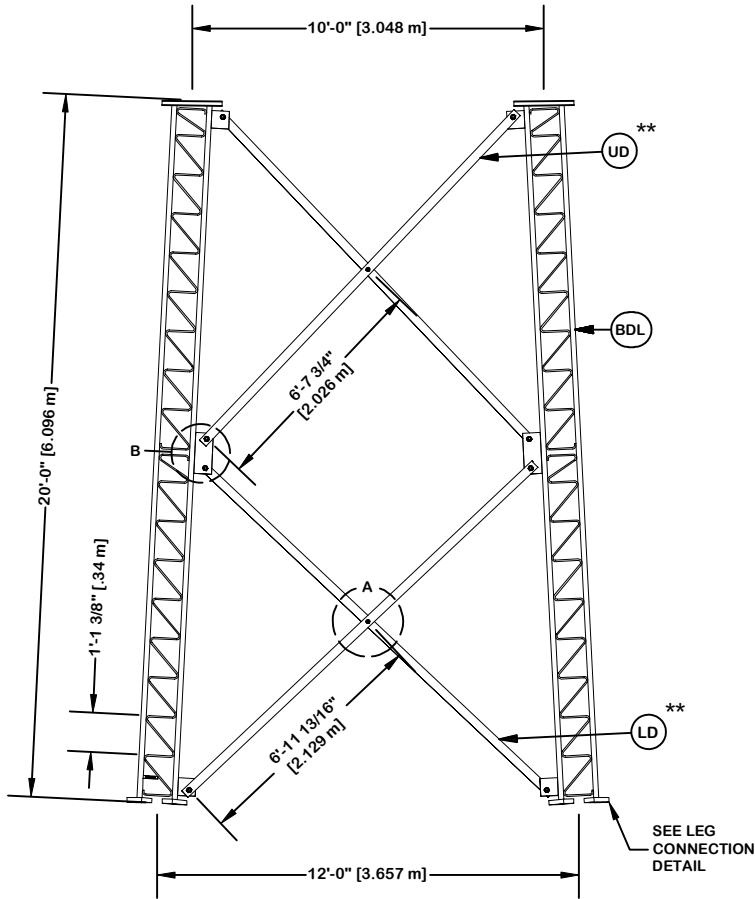
DESCRIPTION	
SECTION U-14.0 (240' - 260' ELEVATION)	
STRUCTURE APPROVAL	FOUNDATION APPROVAL
SAN	4/20/2022

<div>valmont</div> <div>1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR</div> <div>STRUCTURES</div>	
ENG. FILE NO.	510330
DWG. NO.	293001T
15 OF 19	
PAGE	

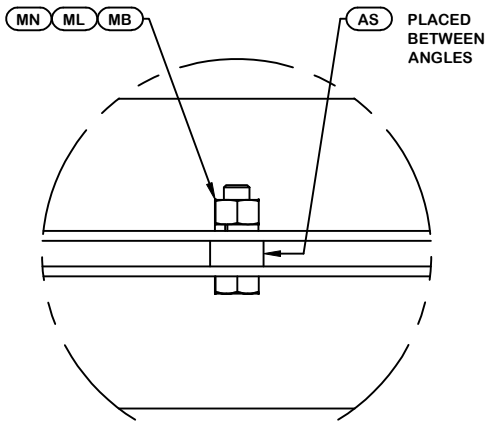
ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

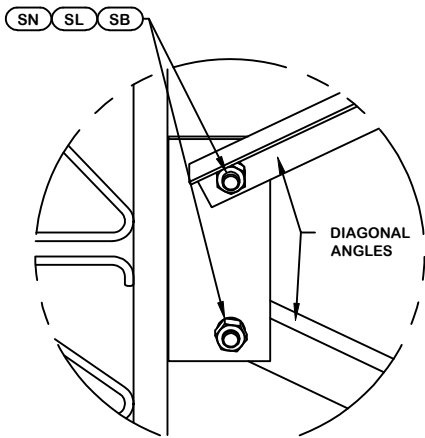
** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP,
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



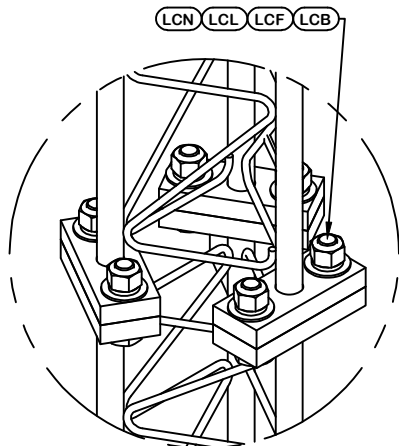
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW. PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION




LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	161001	#12 T-V SECTION 1 1/2" LEG 1/2" BRACE 20'-0" LENGT	594.460	1783.380
LD	6	126807	U-12 LOWER DIAGONAL - 3" x 3" x 5/16" ANGLE (A572	87.310	523.860
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	126803	U-12 UPPER DIAGONAL - 3" x 3" x 5/16" ANGLE (A572	82.770	496.620
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
Total Wt				2877.36 lb [1306.35 kg]	

@A	REVISED LEG P/N'S		SAN	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				


SITE	WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'
COPYRIGHT 2013	
PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.	

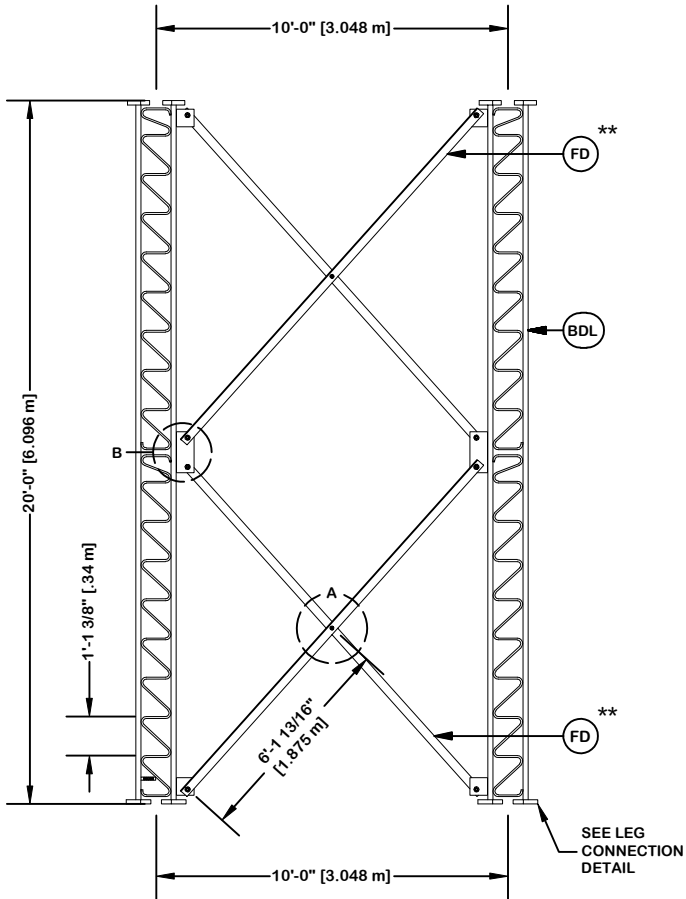
DESCRIPTION	SECTION U-12.0 (260' - 280' ELEVATION)
STRUCTURE APPROVAL	SAN 4/20/2022
FOUNDATION APPROVAL	

valmont  1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR STRUCTURES	
ENG. FILE NO.	510330
DWG. NO.	293001T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

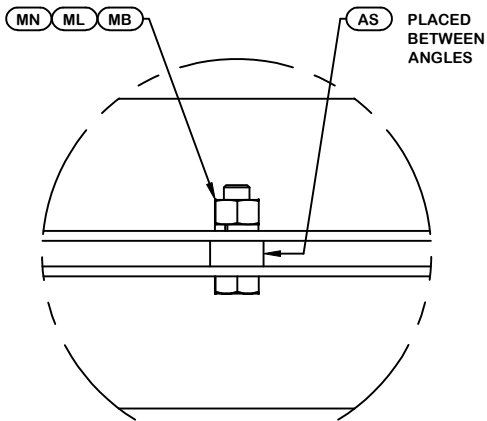
ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP, 
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.

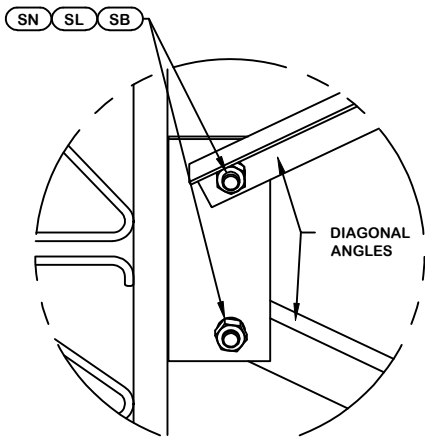


PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	194434	#12 LEG SECT - 1-1/4" LEG - 1/2" BRACE - 1" BOLT -	489.830	1469.490
LD	6	282648	U-10 STRAIGHT DIAGONAL - 3 1/2" x 3 1/2" x 5/16" A	95.060	570.360
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SB	24	222019	1-1/4"-7 X 2-3/4" A-325T BOLT FULL THREAD HDG	1.590	38.160
SL	24	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	3.600
SN	24	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	17.520
UD	6	282648	U-10 STRAIGHT DIAGONAL - 3 1/2" x 3 1/2" x 5/16" A	95.060	570.360
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
Total Wt				2710.59 lb [1230.63 kg]	

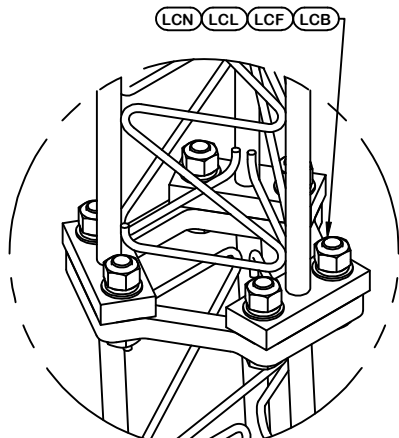
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION




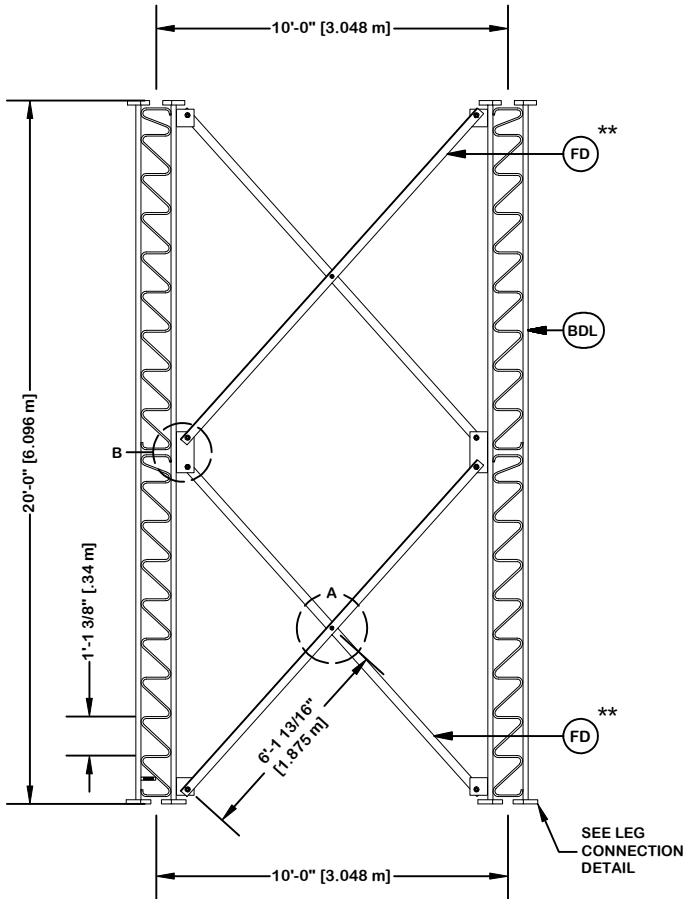
LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

					<div>SITE</div> <div>WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'</div> <div>COPYRIGHT 2013</div>		<div>DESCRIPTION</div> <div>SECTION U-10.0 (280' - 300' ELEVATION)</div>		<div><div>valmont</div><div>1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR</div><div>STRUCTURES</div></div>		<div>17 OF 19</div> <div>PAGE</div>
									<div>ENG. FILE NO.</div> <div>510330</div>		
					<div>PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.</div>		<div>STRUCTURE APPROVAL</div> <div>SAN4/20/2022</div>		<div>FOUNDATION APPROVAL</div>		<div>DWG. NO.</div> <div>293001T</div>
<div>@A</div> <div>REVISED LEG P/N'S</div>											
<div>REV</div> <div>DESCRIPTION OF REVISIONS</div> <div>REVISION HISTORY</div>					<div>CPD</div> <div>BY</div> <div>DATE</div>						

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

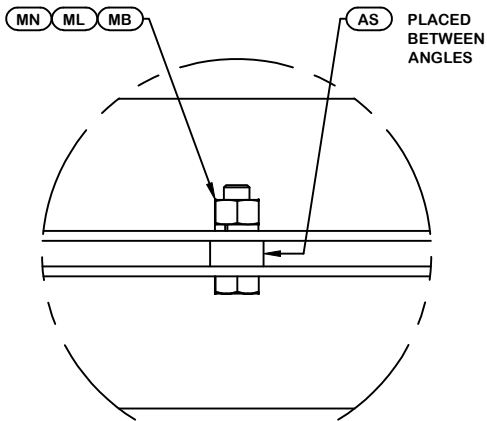
ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP, 
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.

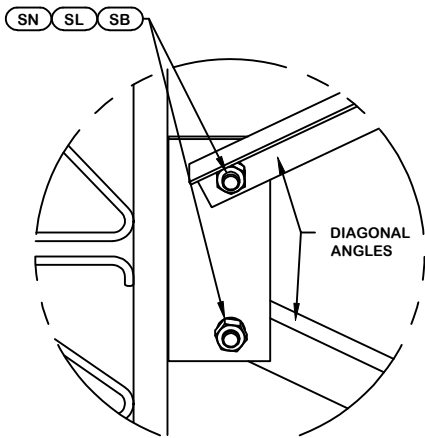


PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	194434	#12 LEG SECT - 1-1/4" LEG - 1/2" BRACE - 1" BOLT -	489.830	1469.490
LD	6	285904	U-10 STRAIGHT DIAGONAL - 2 1/2" x 2 1/2" x 1/4" AN	54.020	324.120
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	285904	U-10 STRAIGHT DIAGONAL - 2 1/2" x 2 1/2" x 1/4" AN	54.020	324.120
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
Total Wt				2191.23 lb	[994.84 kg]

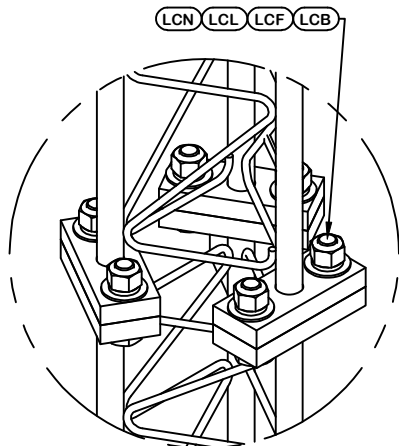
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.




DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

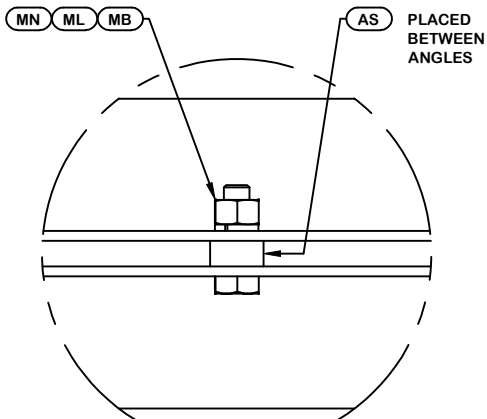
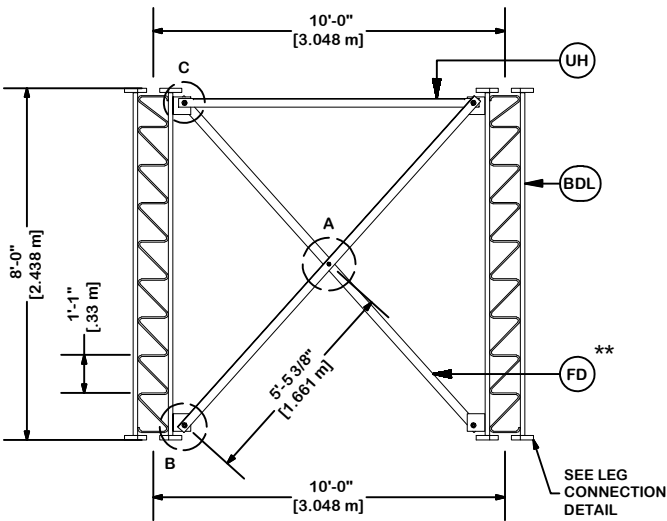
					SITE		DESCRIPTION		<div>valmont</div> <div>1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR</div> <div>STRUCTURES</div>				
					WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328'		SECTION U-10.0 (300' - 320' ELEVATION)						
					COPYRIGHT 2013								
@A	REVISED LEG P/N'S		SAN	4/20/2022	PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.		STRUCTURE APPROVAL		FOUNDATION APPROVAL		ENG. FILE NO.		18 OF 19 PAGE
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE			SAN		4/20/2022		DWG. NO.		
REVISION HISTORY											510330		
											293001T		

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

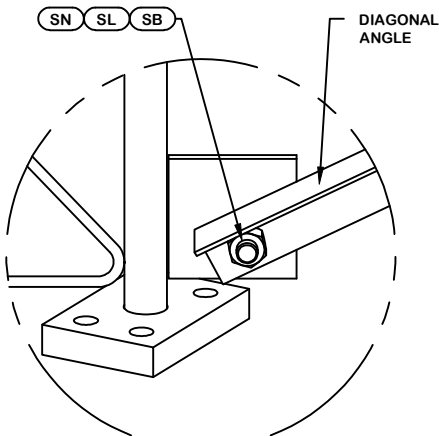
ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP, 
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.

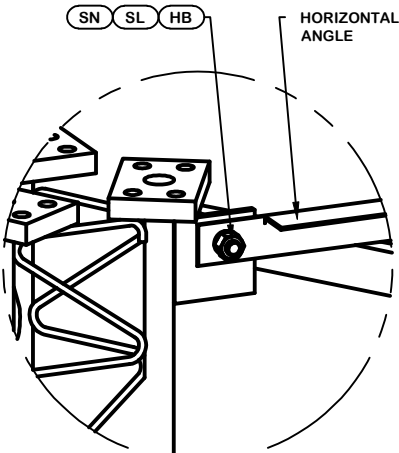
PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	292999	#12 LEG SECTION - 1-1/4" LEG - 1/2" BRACE - 1" BOL	279.340	838.020
LD	6	293000	DIAGONAL ANGLE (SPECIAL) FOR #12 B/D LEG SECTION 8'-0"	25.360	152.160
AS	3	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	3	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	3	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	3	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	12	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	12	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	6	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	15.120
UH	3	268840	U-10 STRAIGHT HORIZONTAL ANGLE (TYPE 1) - 3" x 3"	31.660	94.980
HB	6	225017	1"-8 X 3-1/2" A-325T BOLT WITH FULL THREAD	1.090	6.540
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
Total Wt				1160.16 lb [526.72 kg]	



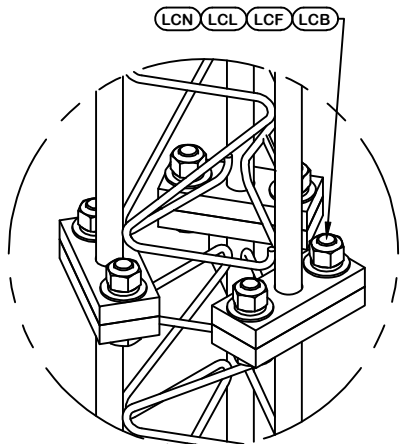
DETAIL A
ANGLE INTERSECTION CONNECTION




DETAIL B
END SIDE PLATE ANGLE CONNECTION

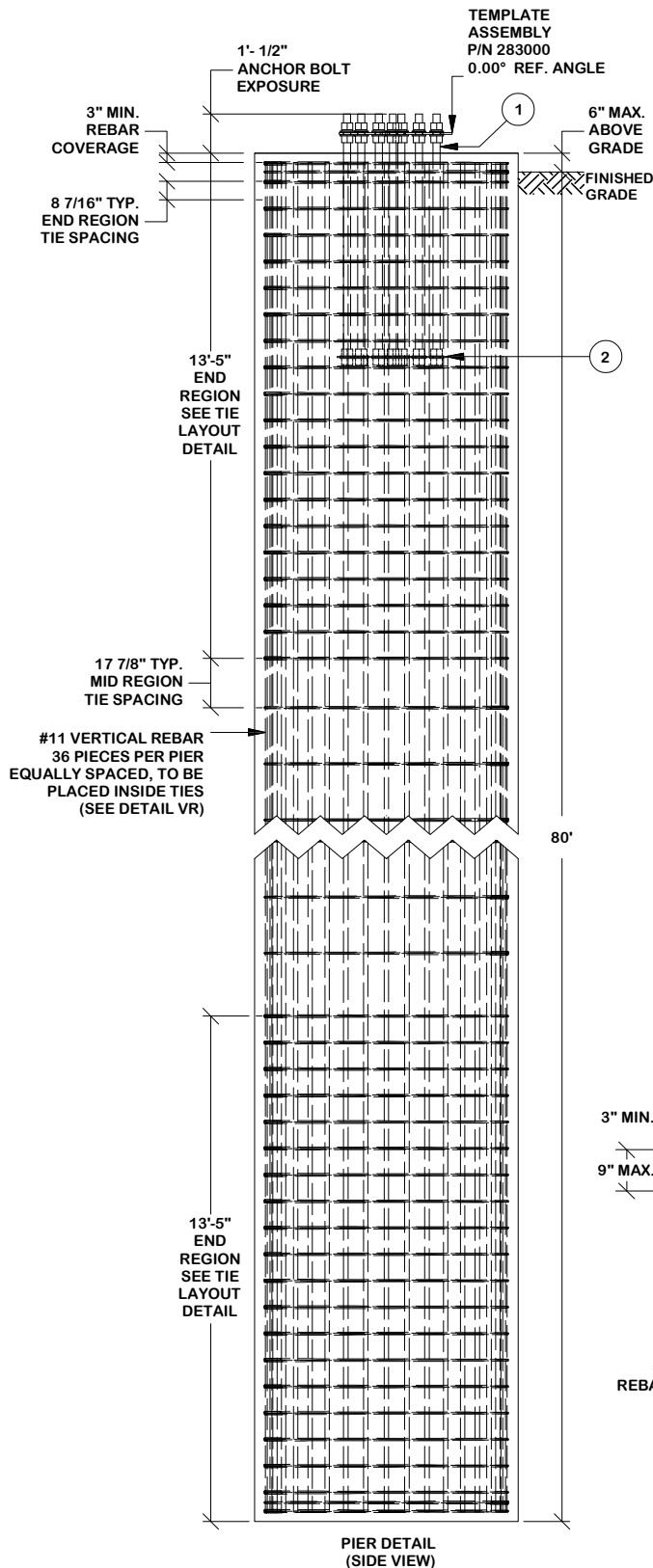


DETAIL C
HORIZONTAL CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

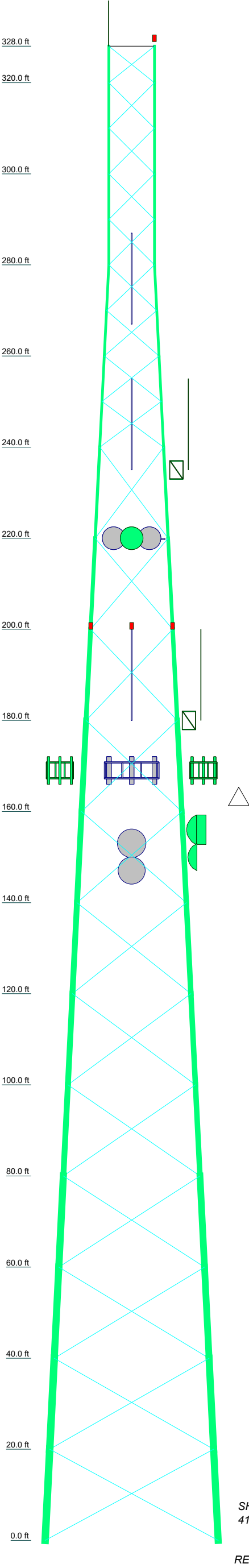
					SITE WTPM RADIO PARAISO, PR 3A GROUP, LLC U 38 X 328' COPYRIGHT 2013	DESCRIPTION SECTION U-10.0 (320' - 328' ELEVATION)		<div>valmont</div> <div>1-877-467-4763 Plymouth, IN 1-800-547-2151 Salem, OR</div> <div>STRUCTURES</div>			
@A	REVISED LEG P/N'S		SAN	4/20/2022	PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VAL MONT INDUSTRIES IS STRICTLY PROHIBITED.	STRUCTURE APPROVAL SAN	4/20/2022	ENG. FILE NO. 510330		PAGE 19 OF 19	
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE				DWG. NO. 293001T			
REVISION HISTORY											



PAGE
1 OF 1

@A	UPDATED FOUNDATION		J_S	4/20/2022
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

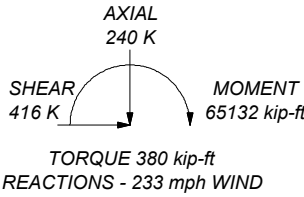
Section	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1						
Legs	J	I	H	G	G	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (P/rod 244221)												#12ZG-58 - 1.25" - 1.00" conn. (P/rod 194434)					
Leg Grade	A572-58																						
Diagonals	2L5x5x3/8				2L4x4x3/8				2L4x4x1/4				2L3 1/2x3 1/2x1/4				L3x3x5/16				L2 1/2x2 1/2x1/4		K
Diagonal Grade	A572-50																						
Top Girts	N.A.																	L					
Face Width (ft)	38	36	34	32	30	28	26	24	22	20	18	16	14	12	10								
# Panels @ (ft)	12 @ 20																	8 @ 10			1 @ 8		
Weight (K)	172.7	20.7	20.4	16.8	16.6	14.2	13.0	12.8	12.6	12.4	9.4	7.0	4.8	3.5	2.8	2.6	2.1	0.9					



ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 2059 K
SHEAR: 251 K

UPLIFT: -1817 K
SHEAR: 229 K



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5/8" x 10' lightning rod	328	RRU 8843 B2/B66	169
Beacon	328	RRU 4478 B14	169
DCR- C10 (installed above 292')	328 - 292	Squid DC9 (27.4 x 16.7)	169
3" x 30' Sch. 80	328 - 292	(2) 72" x 22" Panels QD66512-2	169
AL8 W leg mounted	277	RRU 4449 B5/B12	169
2.375 x 19.5' Hustler HX6-1448 Omni	235	RRU 4426 B66	169
6' Bogner Mount Heavy Duty	235	RRU 4415 B30	169
2.375 x 19.5' Hustler HX6-1448 Omni	235	RRU 8843 B2/B66	169
6' Bogner Mount Heavy Duty	235	RRU 4478 B14	169
RFI BA160-67-T3 Omni	235	Squid DC9 (27.4 x 16.7)	169
6' Bogner Mount Heavy Duty	235	(2) 72" x 22" Panels QD66512-2	169
SP1 R5 (Includes 4.5"x72" Pipe)	220	RRU 4449 B5/B12	169
SP1 R5 (Includes 4.5"x72" Pipe)	220	RRU 4426 B66	169
SP1 R5 (Includes 4.5"x72" Pipe)	220	RRU 4415 B30	169
SP1 R5 (Includes 4.5"x72" Pipe)	220	RRU 8843 B2/B66	169
SP1 R5 (Includes 4.5"x72" Pipe)	220	RRU 4478 B14	169
SP1 R5 (Includes 4.5"x72" Pipe)	220	Squid DC9 (27.4 x 16.7)	169
(5) L Com HG5829EG Grid	220	SP1 VFA10-HD-S	169
5' Grid Dish (L Com HG2430G)	220	SP1 VFA10-HD-S	169
5' Grid Dish (L Com HG2430G)	220	SP1 VFA10-HD-S	169
5' Grid Dish (L Com HG2430G)	220	(4) 2-1/2" x 72" Sch. 40	169
5' Grid Dish (L Com HG2430G)	220	(4) 2-1/2" x 72" Sch. 40	169
5' Grid Dish (L Com HG2430G)	220	(4) 2-1/2" x 72" Sch. 40	169
5' Grid Dish (L Com HG2430G)	220	(4) 2-1/2" x 72" Sch. 40	169
5' Grid Dish (L Com HG2430G)	220	(2) 72" x 22" Panels QD66512-2	169
OB light	200	RRU 4449 B5/B12	169
OB light	200	HPS-6.4 (6' HP)	156
OB light	200	SP1 R5 (Includes 4.5"x72" Pipe)	153
RFI OA40-41 Dipole	180	HPS-6.4 (6' HP)	153
6' Bogner Mount Heavy Duty	180	SP1 HS6-K	153
2.375 x 19.5' Hustler HX6-1448 Omni	180	mWAVE P-9A72GN-S 6' Grid Dish	150
6' Bogner Mount Heavy Duty	180	SP1 HS6-K	147
2.375 x 19.5' Hustler HX6-1448 Omni	180	mWAVE P-9A72GN-S 6' Grid Dish	147
6' Bogner Mount Heavy Duty	180	SP1 R5 (Includes 4.5"x72" Pipe)	147
RRU 4426 B66	169	RFI RDA6-99 UHF Yagi	40
RRU 4415 B30	169		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	G	#18/Double Rod Trans (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 243892)
B	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	H	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)
C	#12ZG-58 -2.00" - 0.875" conn.-TR3-(Pirod 195638)	I	#18 Double Rod (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244114)
D	#12ZG-58 -2.75"-0.875 -DB-0.625"-HP-TR4-(Pirod 196953)	J	#18 Double Rod BASE (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 260769)
E	#12/18-58 -3.50"-0.875 -DB-0.625"-HP-TR6-(Pirod 217974)	K	L2 1/2x2 1/2x3/16
F	#18/12- (58KSI) Transition - 3.50" - 0.875" Brace - 1.00" DB (Pirod 259976)	L	L3x3x3/16

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-58	58 ksi	75 ksi	A572-50	50 ksi	65 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 233 mph basic wind in accordance with the TIA-222-H Standard.
3. Deflections are based upon a 60 mph wind.
4. Tower Risk Category III.
5. Topographic Category 1 with Crest Height of 0.00 ft
6. TOWER RATING: 99.6%

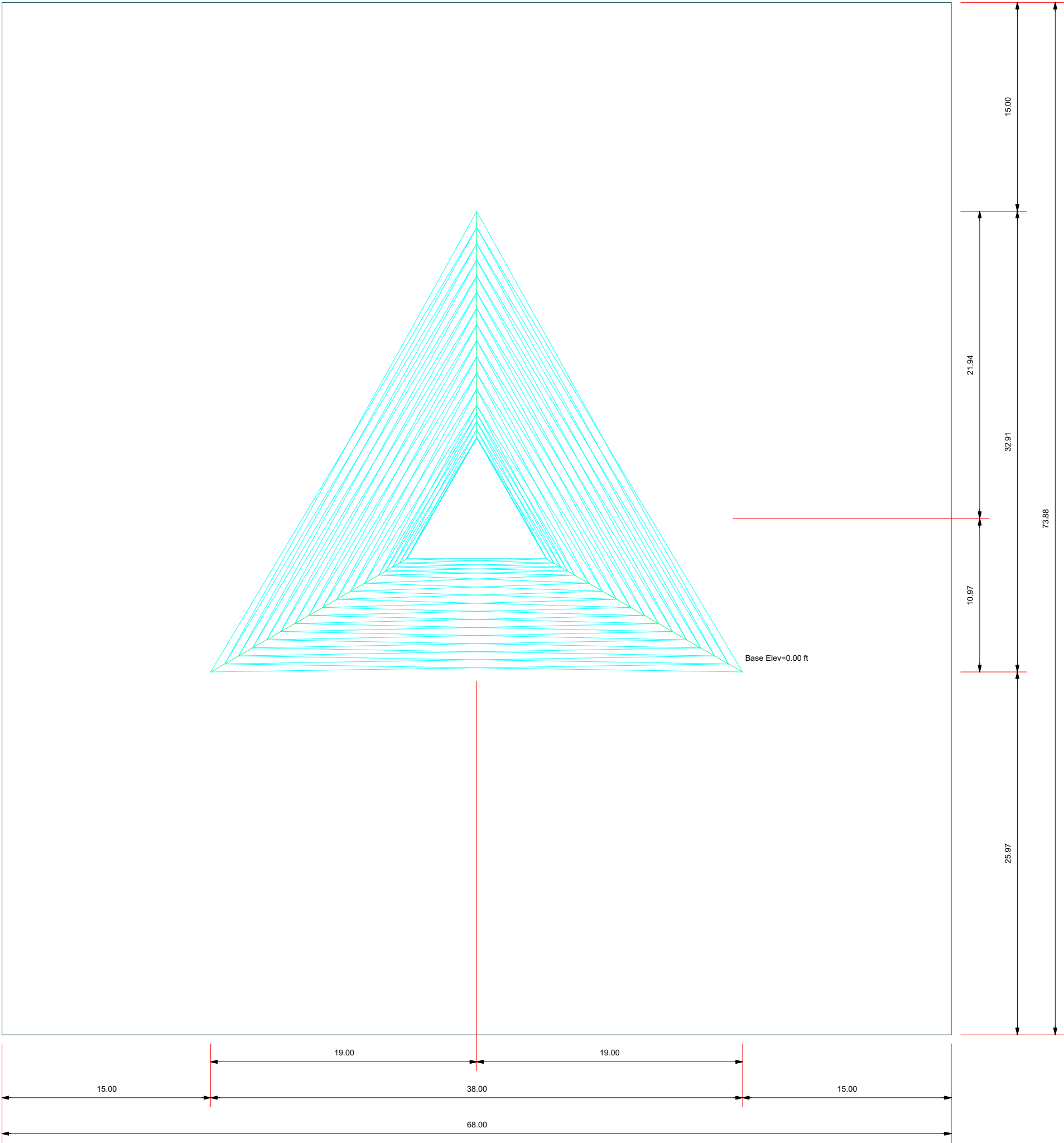




1545 Pidco Drive
Plymouth, IN
Valmont Industries, Inc. - Global Telecom
Phone: (574) 936-4221
FAX: (574) 936-6458

Job: 510330		
Project: U-38 x 328' - WTPM Radio Paraiso, PR		
Client: 3A Group, LLC	Drawn by: JS	App'd:
Code: TIA-222-H	Date: 04/20/22	Scale: NTS
Path:	Dwg No. E-1	

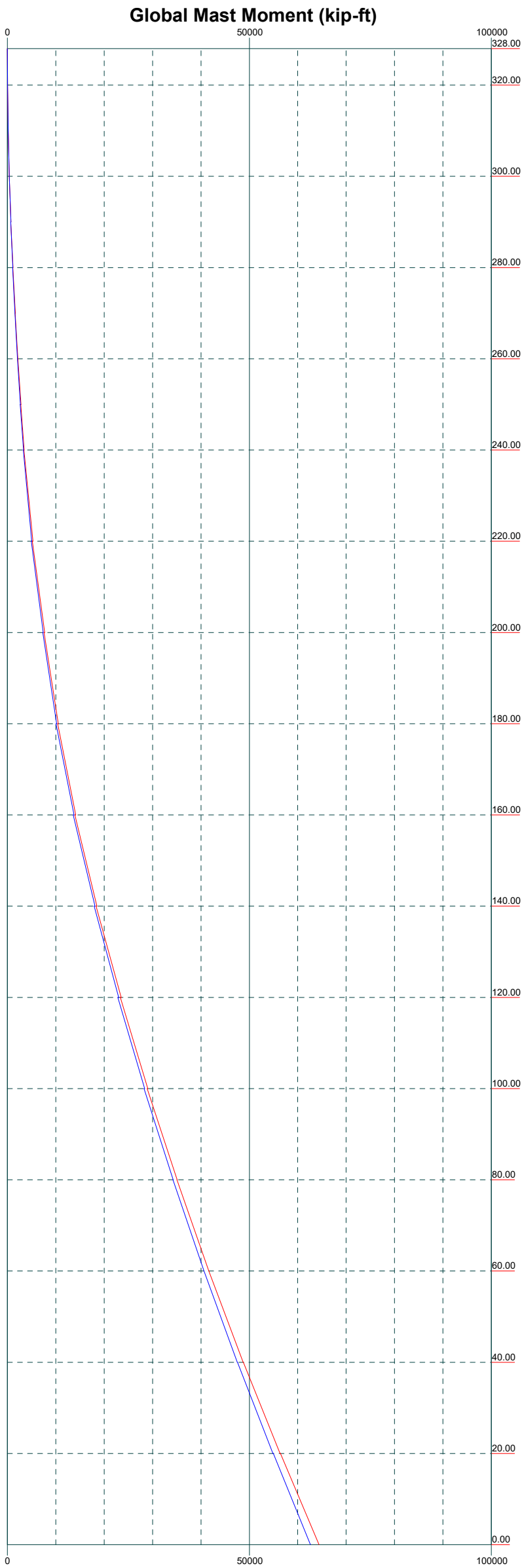
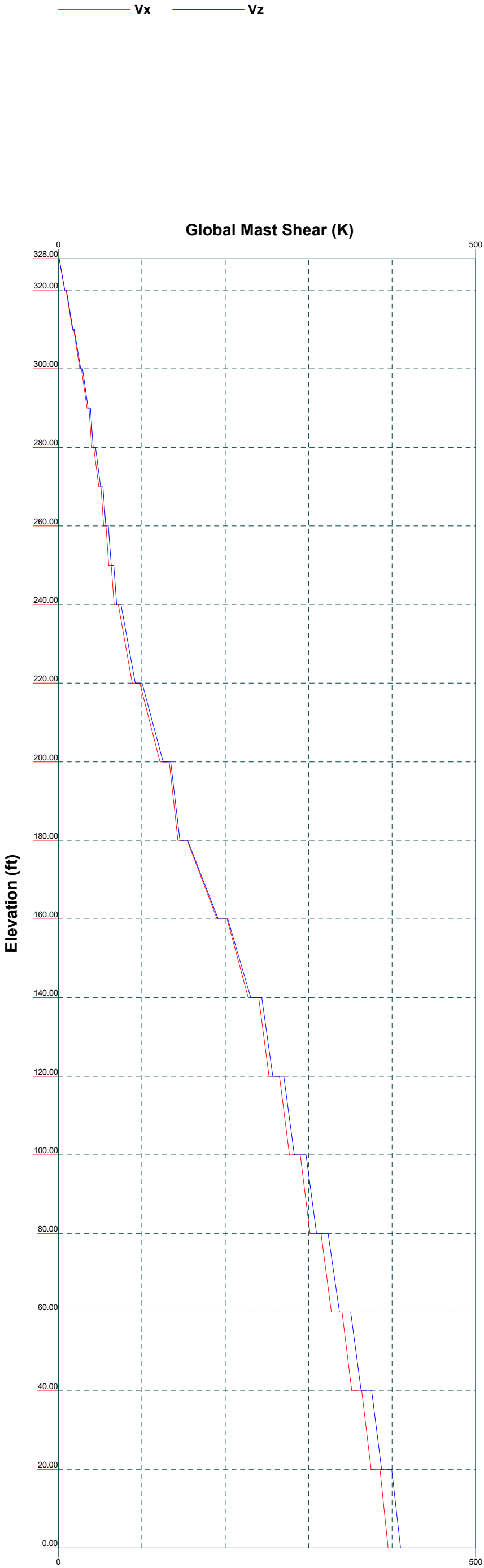
Plot Plan
Total Area - 0.12 Acres

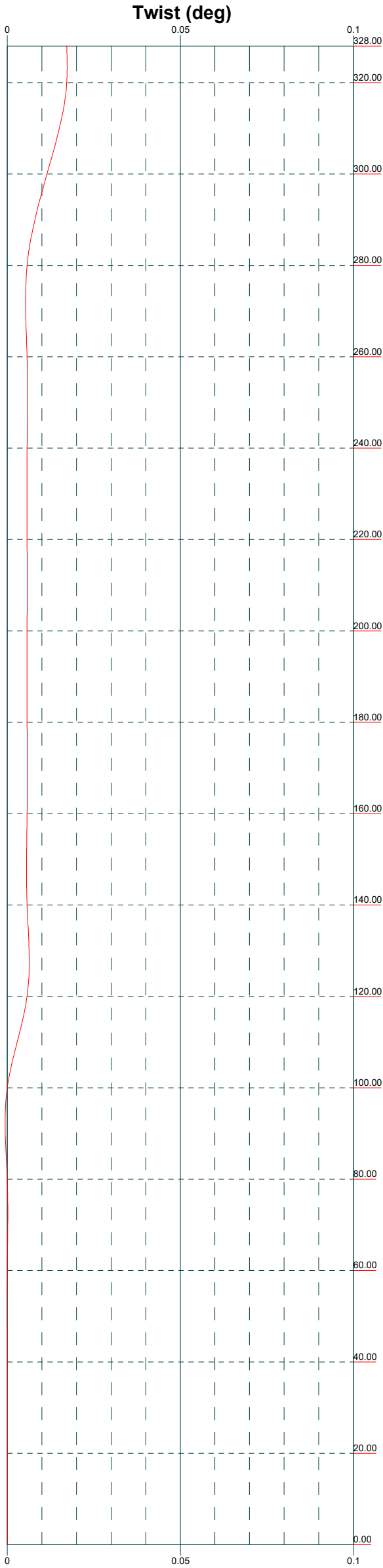
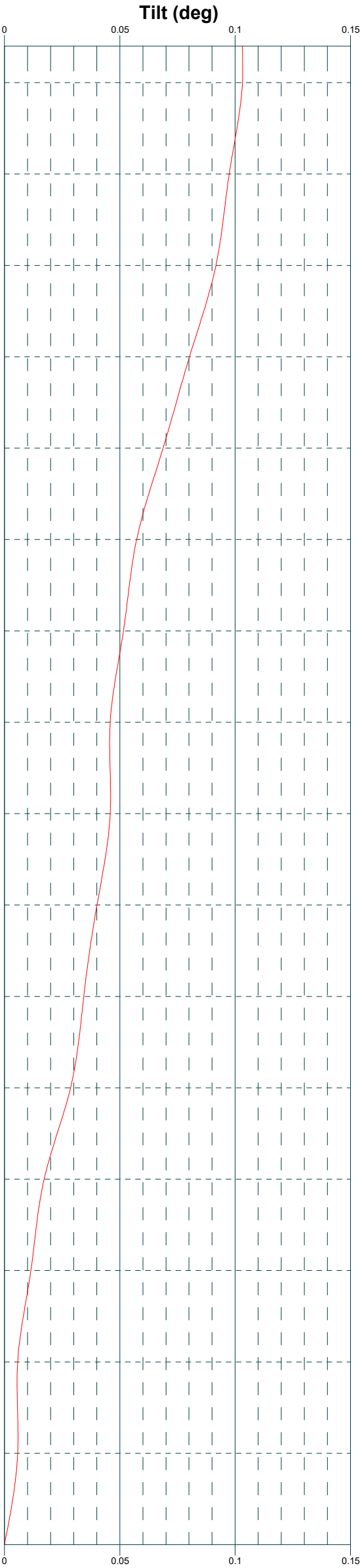
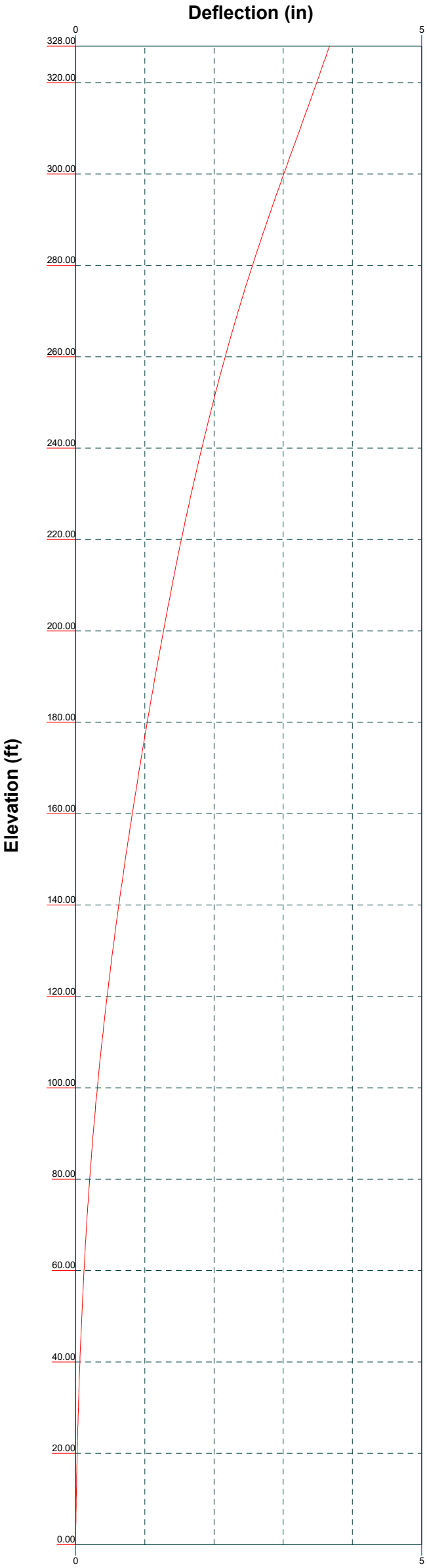


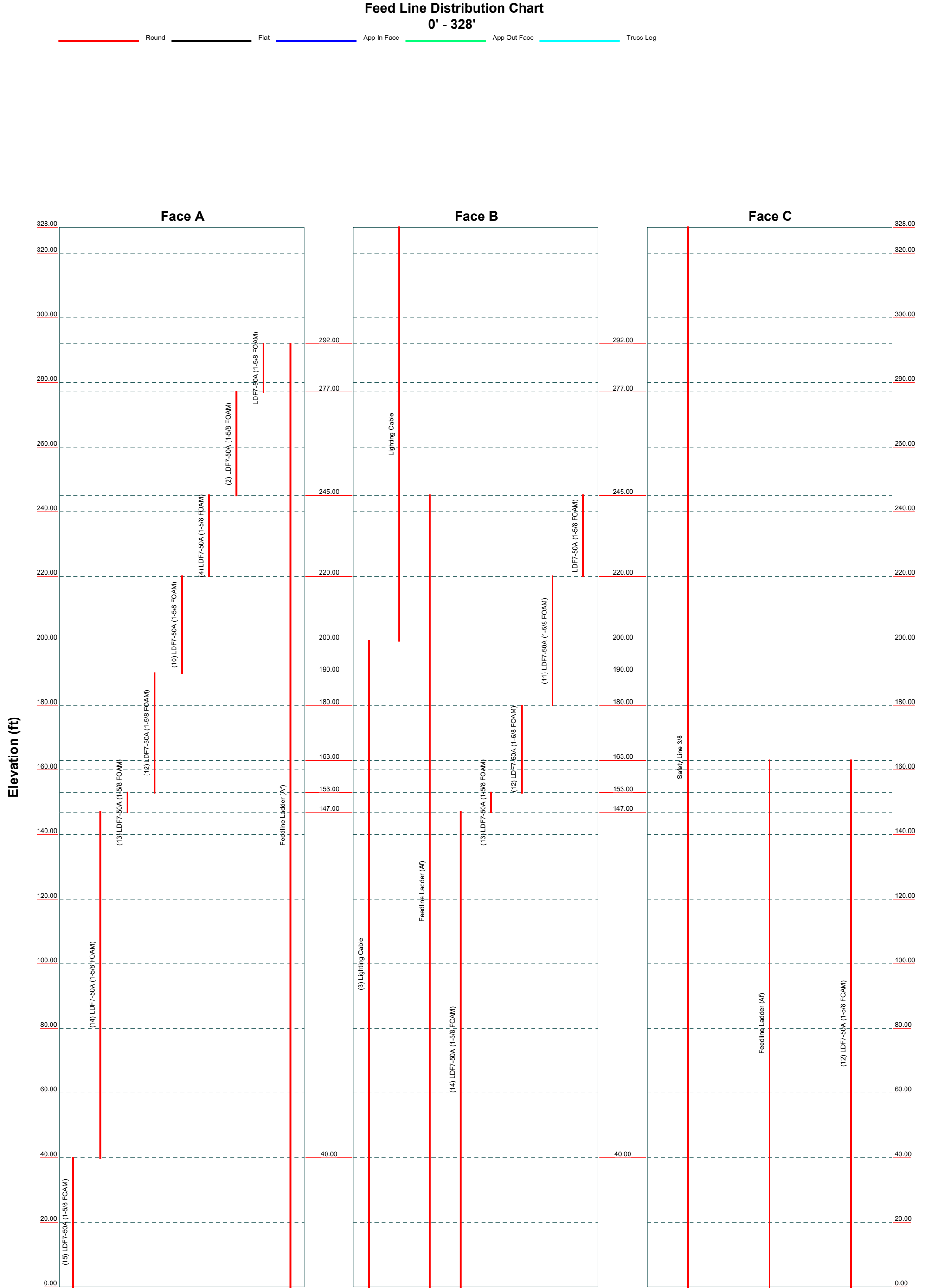
Leg Capacity —

Leg Compression (K)



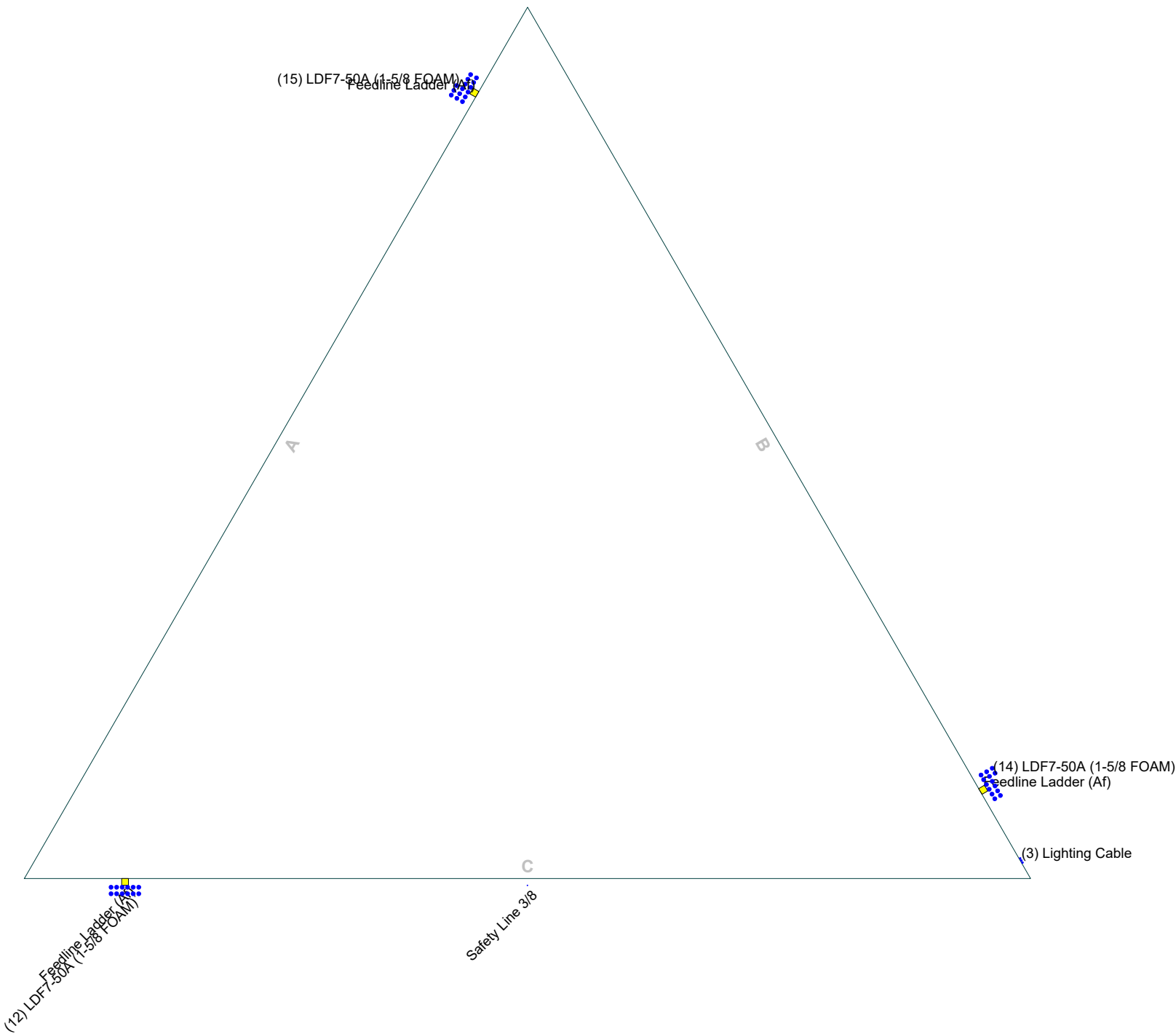






Feed Line Plan

Round Flat App In Face App Out Face Truss-Leg



Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job 510330	Page 1 of 103
	Project U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client 3A Group, LLC	Designed by JS

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 328.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 10.00 ft at the top and 38.00 ft at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower base elevation above sea level: 1121.00 ft.

Basic wind speed of 233 mph.

Risk Category III.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

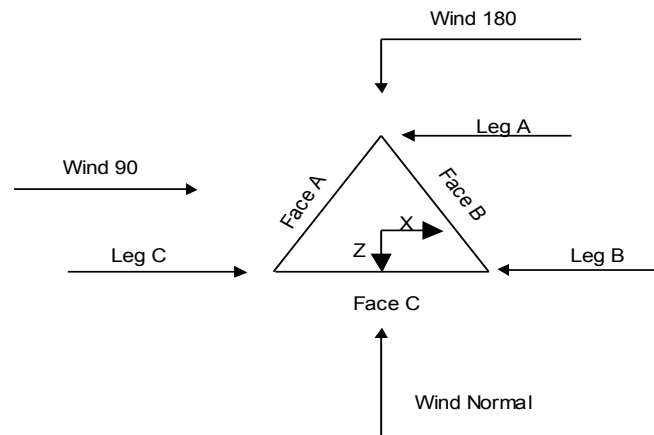
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	√ Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are
		Known

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	2 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	328.00-320.00		PiRod 12BDFH Truss Leg	10.00	1	8.00
T2	320.00-300.00		PiRod 12BDFH Truss Leg	10.00	1	20.00
T3	300.00-280.00		PiRod 12BDFH Truss Leg	10.00	1	20.00
T4	280.00-260.00		PiRod 12BDFH Truss Leg	10.00	1	20.00
T5	260.00-240.00		PiRod 12BDFH Truss Leg	12.00	1	20.00
T6	240.00-220.00		PiRod 12BDH2 Truss Leg	14.00	1	20.00
T7	220.00-200.00		PiRod 12BDH2D Truss Leg	16.00	1	20.00
T8	200.00-180.00		PiRod 12BDH2D Truss Leg	18.00	1	20.00
T9	180.00-160.00		PiRod 18BD Truss Leg	20.00	1	20.00
T10	160.00-140.00		PiRod 18BD Truss Leg	22.00	1	20.00
T11	140.00-120.00		PiRod 18BD Truss Leg	24.00	1	20.00
T12	120.00-100.00		PiRod 18BD Truss Leg	26.00	1	20.00
T13	100.00-80.00		PiRod 18BD Truss Leg	28.00	1	20.00
T14	80.00-60.00		PiRod 18BD Truss Leg	30.00	1	20.00
T15	60.00-40.00		PiRod 18BD Truss Leg	32.00	1	20.00
T16	40.00-20.00		PiRod 18BD Truss Leg	34.00	1	20.00
T17	20.00-0.00		PiRod 18BD Truss Leg	36.00	1	20.00

Tower Section Geometry (cont'd)

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	3 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Diagonal Spacing</i>	<i>Bracing Type</i>	<i>Has K Brace End Panels</i>	<i>Has Horizontal</i>	<i>Top Girt Offset</i>	<i>Bottom Girt Offset</i>
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	328.00-320.00	8.00	X Brace	No	No	0.0000	0.0000
T2	320.00-300.00	10.00	X Brace	No	No	0.0000	0.0000
T3	300.00-280.00	10.00	X Brace	No	No	0.0000	0.0000
T4	280.00-260.00	10.00	X Brace	No	No	0.0000	0.0000
T5	260.00-240.00	10.00	X Brace	No	No	0.0000	0.0000
T6	240.00-220.00	20.00	X Brace	No	No	0.0000	0.0000
T7	220.00-200.00	20.00	X Brace	No	No	0.0000	0.0000
T8	200.00-180.00	20.00	X Brace	No	No	0.0000	0.0000
T9	180.00-160.00	20.00	X Brace	No	No	0.0000	0.0000
T10	160.00-140.00	20.00	X Brace	No	No	0.0000	0.0000
T11	140.00-120.00	20.00	X Brace	No	No	0.0000	0.0000
T12	120.00-100.00	20.00	X Brace	No	No	0.0000	0.0000
T13	100.00-80.00	20.00	X Brace	No	No	0.0000	0.0000
T14	80.00-60.00	20.00	X Brace	No	No	0.0000	0.0000
T15	60.00-40.00	20.00	X Brace	No	No	0.0000	0.0000
T16	40.00-20.00	20.00	X Brace	No	No	0.0000	0.0000
T17	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Leg Type</i>	<i>Leg Size</i>	<i>Leg Grade</i>	<i>Diagonal Type</i>	<i>Diagonal Size</i>	<i>Diagonal Grade</i>
<i>ft</i>						
T1 328.00-320.00	Truss Leg	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A572-50 (50 ksi)
T2 320.00-300.00	Truss Leg	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A572-50 (50 ksi)
T3 300.00-280.00	Truss Leg	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	A572-58 (58 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A572-50 (50 ksi)
T4 280.00-260.00	Truss Leg	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	A572-58 (58 ksi)	Equal Angle	L3x3x5/16	A572-50 (50 ksi)
T5 260.00-240.00	Truss Leg	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	A572-58 (58 ksi)	Equal Angle	L3x3x5/16	A572-50 (50 ksi)
T6 240.00-220.00	Truss Leg	#12ZG-58 -2.00" - 0.875" conn.-TR3-(Pirod 195638)	A572-58 (58 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T7 220.00-200.00	Truss Leg	#12ZG-58 -2.75"-0.875 -DB-0.625"-HP-TR4-(Pirod 196953)	A572-58 (58 ksi)	Double Equal Angle	2L4x4x1/4	A572-50 (50 ksi)
T8 200.00-180.00	Truss Leg	#12/18-58 -3.50"-0.875 -DB-0.625"-HP-TR6-(Pirod 217974)	A572-58 (58 ksi)	Double Equal Angle	2L4x4x1/4	A572-50 (50 ksi)
T9 180.00-160.00	Truss Leg	#18/12- (58KSI) Transition - 3.50" - 0.875" Brace - 1.00' DB (Pirod 259976)	A572-58 (58 ksi)	Double Equal Angle	2L4x4x3/8	A572-50 (50 ksi)
T10 160.00-140.00	Truss Leg	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	A572-58 (58 ksi)	Double Equal Angle	2L4x4x3/8	A572-50 (50 ksi)
T11 140.00-120.00	Truss Leg	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	A572-58 (58 ksi)	Double Equal Angle	2L4x4x3/8	A572-50 (50 ksi)
T12 120.00-100.00	Truss Leg	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	A572-58 (58 ksi)	Double Equal Angle	2L4x4x3/8	A572-50 (50 ksi)
T13 100.00-80.00	Truss Leg	#18/Double Rod Trans (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 243892)	A572-58 (58 ksi)	Double Equal Angle	2L5x5x3/8	A572-50 (50 ksi)
T14 80.00-60.00	Truss Leg	#18 Double Rod (58KSI) -	A572-58	Double Equal	2L5x5x3/8	A572-50

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	4 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
		3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	(58 ksi)	Angle		(50 ksi)
T15 60.00-40.00	Truss Leg	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	A572-58 (58 ksi)	Double Equal Angle	2L5x5x3/8	A572-50 (50 ksi)
T16 40.00-20.00	Truss Leg	#18 Double Rod (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244114)	A572-58 (58 ksi)	Double Equal Angle	2L5x5x3/8	A572-50 (50 ksi)
T17 20.00-0.00	Truss Leg	#18 Double Rod BASE (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 260789)	A572-58 (58 ksi)	Double Equal Angle	2L5x5x3/8	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 328.00-320.00	Equal Angle	L3x3x3/16	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 328.00-320.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T2 320.00-300.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T3 300.00-280.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T4 280.00-260.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T5 260.00-240.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T6 240.00-220.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	0.0000	36.0000	36.0000
T7 220.00-200.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T8 200.00-180.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T9 180.00-160.00	0.00	1.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T10 160.00-140.00	0.00	1.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T11 140.00-120.00	0.00	1.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T12 120.00-100.00	0.00	1.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 5 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
T13	0.00	1.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
100.00-80.00			(36 ksi)						
T14	0.00	1.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
80.00-60.00			(36 ksi)						
T15	0.00	1.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
60.00-40.00			(36 ksi)						
T16	0.00	1.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
40.00-20.00			(36 ksi)						
T17 20.00-0.00	0.00	1.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
328.00-320.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
320.00-300.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
300.00-280.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
280.00-260.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
260.00-240.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
240.00-220.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T16	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T17	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	8 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
160.00-140.00														
T11	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
140.00-120.00														
T12	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
120.00-100.00														
T13	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
100.00-80.00														
T14	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
80.00-60.00														
T15	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
60.00-40.00														
T16	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
40.00-20.00														
T17 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
	in	in	in	in	in	in	in	in
T1	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
328.00-320.00								
T2	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
320.00-300.00								
T3	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
300.00-280.00								
T4	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
280.00-260.00								
T5	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
260.00-240.00								
T6	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
240.00-220.00								
T7	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
220.00-200.00								
T8	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
200.00-180.00								
T9	6.5000	15.2500	6.5000	15.2500	0.0000	0.0000	0.0000	0.0000
180.00-160.00								
T10	6.5000	15.2500	6.5000	15.2500	0.0000	0.0000	0.0000	0.0000
160.00-140.00								
T11	6.5000	15.2500	6.5000	15.2500	0.0000	0.0000	0.0000	0.0000
140.00-120.00								
T12	6.5000	15.2500	6.5000	15.2500	0.0000	0.0000	0.0000	0.0000
120.00-100.00								
T13	6.5000	15.2500	6.5000	15.2500	0.0000	0.0000	0.0000	0.0000
100.00-80.00								

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	9 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T14 80.00-60.00	10.5000	16.0000	10.5000	16.0000	0.0000	0.0000	0.0000	0.0000
T15 60.00-40.00	10.5000	16.0000	10.5000	16.0000	0.0000	0.0000	0.0000	0.0000
T16 40.00-20.00	10.5000	16.0000	10.5000	16.0000	0.0000	0.0000	0.0000	0.0000
T17 20.00-0.00	11.0000	16.0000	12.0000	16.0000	0.0000	0.0000	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 328.00-320.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T2 320.00-300.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T3 300.00-280.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T4 280.00-260.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T5 260.00-240.00	Flange	1.2500 A325N	6	1.0000 A325N	1	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T6 240.00-220.00	Flange	1.0000 A325N	12	0.8750 A325N	1	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T7 220.00-200.00	Flange	1.2500 A325N	12	0.8750 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T8 200.00-180.00	Flange	1.2500 A325N	18	0.8750 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T9 180.00-160.00	Flange	1.2500 A325N	24	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T10 160.00-140.00	Flange	1.2500 A325N	24	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T11 140.00-120.00	Flange	1.2500 A325N	24	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T12 120.00-100.00	Flange	1.2500 A325N	24	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T13 100.00-80.00	Flange	1.2500 A325N	30	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T14 80.00-60.00	Flange	1.2500 A325N	30	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T15 60.00-40.00	Flange	1.2500 A325N	30	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T16 40.00-20.00	Flange	1.2500 A325N	30	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T17 20.00-0.00	Flange	1.7500 F1554-105	24	1.0000 A325N	2 *	0.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	10 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

* Out-of-plane partial restraint assumed

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	C	No	No	Ar (CaAa)	328.00 - 0.00	3.0000	0	1	1	0.3750	0.3750		0.22
Lighting Cable	B	No	No	Ar (CaAa)	200.00 - 0.00	0.0000	0.48	3	3	0.2000	0.8700		0.15
Lighting Cable	B	No	No	Ar (CaAa)	328.00 - 200.00	0.0000	0.48	1	1	0.2000	0.8700		0.15

Feedline Ladder (Af)	C	No	No	Af (CaAa)	163.00 - 0.00	0.0000	0.4	1	1	3.0000	3.0000		8.40
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	163.00 - 0.00	3.0000	0.4	12	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	40.00 - 0.00	3.0000	0.4	15	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	40.00 - 147.00	3.0000	0.4	14	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	153.00 - 147.00	3.0000	0.4	13	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	190.00 - 153.00	3.0000	0.4	12	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	190.00 - 220.00	3.0000	0.4	10	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	220.00 - 245.00	3.0000	0.4	4	4	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	277.00 - 245.00	3.0000	0.4	2	2	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	277.00 - 292.00	3.0000	0.4	1	1	0.5200 1.0000	1.9800		0.82
Feedline Ladder (Af)	A	No	No	Af (CaAa)	292.00 - 0.00	0.0000	0.4	1	1	3.0000	3.0000		8.40

Feedline Ladder (Af)	B	No	No	Af (CaAa)	245.00 - 0.00	0.0000	0.4	1	1	3.0000	3.0000		8.40
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	147.00 - 0.00	3.0000	0.4	14	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	147.00 - 153.00	3.0000	0.4	13	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	180.00 - 153.00	3.0000	0.4	12	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	180.00 - 220.00	3.0000	0.4	11	6	0.5200 1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	245.00 - 220.00	3.0000	0.4	1	1	0.5200 1.0000	1.9800		0.82

Feed Line/Linear Appurtenances Section Areas

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	11 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A_R</i> <i>ft²</i>	<i>A_F</i> <i>ft²</i>	<i>C_AA_A</i> <i>In Face ft²</i>	<i>C_AA_A</i> <i>Out Face ft²</i>	<i>Weight K</i>
T1	328.00-320.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.696	0.000	0.00
		C	0.000	0.000	0.300	0.000	0.00
T2	320.00-300.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.740	0.000	0.00
		C	0.000	0.000	0.750	0.000	0.00
T3	300.00-280.00	A	0.000	0.000	7.957	0.000	0.11
		B	0.000	0.000	1.740	0.000	0.00
		C	0.000	0.000	0.750	0.000	0.00
T4	280.00-260.00	A	0.000	0.000	17.223	0.000	0.20
		B	0.000	0.000	1.740	0.000	0.00
		C	0.000	0.000	0.750	0.000	0.00
T5	260.00-240.00	A	0.000	0.000	19.900	0.000	0.21
		B	0.000	0.000	5.070	0.000	0.05
		C	0.000	0.000	0.750	0.000	0.00
T6	240.00-220.00	A	0.000	0.000	25.840	0.000	0.23
		B	0.000	0.000	15.078	0.000	0.19
		C	0.000	0.000	0.750	0.000	0.00
T7	220.00-200.00	A	0.000	0.000	49.600	0.000	0.33
		B	0.000	0.000	55.300	0.000	0.35
		C	0.000	0.000	0.750	0.000	0.00
T8	200.00-180.00	A	0.000	0.000	53.560	0.000	0.35
		B	0.000	0.000	58.780	0.000	0.36
		C	0.000	0.000	0.750	0.000	0.00
T9	180.00-160.00	A	0.000	0.000	57.520	0.000	0.36
		B	0.000	0.000	62.740	0.000	0.37
		C	0.000	0.000	9.378	0.000	0.06
T10	160.00-140.00	A	0.000	0.000	61.480	0.000	0.38
		B	0.000	0.000	66.700	0.000	0.39
		C	0.000	0.000	58.270	0.000	0.37
T11	140.00-120.00	A	0.000	0.000	65.440	0.000	0.40
		B	0.000	0.000	70.660	0.000	0.41
		C	0.000	0.000	58.270	0.000	0.37
T12	120.00-100.00	A	0.000	0.000	65.440	0.000	0.40
		B	0.000	0.000	70.660	0.000	0.41
		C	0.000	0.000	58.270	0.000	0.37
T13	100.00-80.00	A	0.000	0.000	65.440	0.000	0.40
		B	0.000	0.000	70.660	0.000	0.41
		C	0.000	0.000	58.270	0.000	0.37
T14	80.00-60.00	A	0.000	0.000	65.440	0.000	0.40
		B	0.000	0.000	70.660	0.000	0.41
		C	0.000	0.000	58.270	0.000	0.37
T15	60.00-40.00	A	0.000	0.000	65.440	0.000	0.40
		B	0.000	0.000	70.660	0.000	0.41
		C	0.000	0.000	58.270	0.000	0.37
T16	40.00-20.00	A	0.000	0.000	69.400	0.000	0.41
		B	0.000	0.000	70.660	0.000	0.41
		C	0.000	0.000	58.270	0.000	0.37
T17	20.00-0.00	A	0.000	0.000	69.400	0.000	0.41
		B	0.000	0.000	70.660	0.000	0.41
		C	0.000	0.000	58.270	0.000	0.37

Feed Line Center of Pressure

<i>Section</i>	<i>Elevation</i>	<i>CP_x</i>	<i>CP_z</i>	<i>CP_x</i>	<i>CP_z</i>
	<i>ft</i>	<i>in</i>	<i>in</i>	<i>Ice in</i>	<i>Ice in</i>
T1	328.00-320.00	0.7682	0.6902	0.7682	0.6902

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	12 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
T2	320.00-300.00	0.9554	0.8414	0.9554	0.8414
T3	300.00-280.00	0.2980	-3.1333	0.3640	-2.7107
T4	280.00-260.00	-0.0728	-6.9727	-0.0574	-6.8780
T5	260.00-240.00	1.5286	-7.9906	1.3308	-8.0981
T6	240.00-220.00	6.0595	-8.9708	5.3230	-9.3865
T7	220.00-200.00	10.4405	-9.7706	10.4405	-9.7706
T8	200.00-180.00	11.5045	-9.0585	11.5045	-9.0585
T9	180.00-160.00	8.4517	-7.8859	8.4517	-7.8859
T10	160.00-140.00	-3.2941	-3.8348	-3.2941	-3.8348
T11	140.00-120.00	-2.7962	-4.2673	-2.7962	-4.2673
T12	120.00-100.00	-2.9584	-4.4831	-2.9584	-4.4831
T13	100.00-80.00	-2.9245	-4.4341	-2.9245	-4.4341
T14	80.00-60.00	-2.9498	-4.4326	-2.9498	-4.4326
T15	60.00-40.00	-3.0729	-4.5984	-3.0729	-4.5984
T16	40.00-20.00	-3.1371	-4.6707	-3.1371	-4.6707
T17	20.00-0.00	-3.2508	-4.8249	-3.2508	-4.8249

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	Safety Line 3/8	320.00 - 328.00	0.6000	0.6000
T1	3	Lighting Cable	320.00 - 328.00	0.6000	0.6000
T2	1	Safety Line 3/8	300.00 - 320.00	0.6000	0.6000
T2	3	Lighting Cable	300.00 - 320.00	0.6000	0.6000
T3	1	Safety Line 3/8	280.00 - 300.00	0.6000	0.6000
T3	3	Lighting Cable	280.00 - 300.00	0.6000	0.6000
T3	29	LDF7-50A (1-5/8 FOAM)	280.00 - 292.00	1.0000	0.6000
T3	30	Feedline Ladder (Af)	280.00 - 292.00	0.6000	0.6000
T4	1	Safety Line 3/8	260.00 - 280.00	0.6000	0.6000
T4	3	Lighting Cable	260.00 - 280.00	0.6000	0.6000
T4	28	LDF7-50A (1-5/8 FOAM)	260.00 - 277.00	0.6000	0.6000
T4	29	LDF7-50A (1-5/8 FOAM)	277.00 - 280.00	1.0000	0.6000
T4	30	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.6000
T5	1	Safety Line 3/8	240.00 - 260.00	0.6000	0.6000
T5	3	Lighting Cable	240.00 - 260.00	0.6000	0.6000
T5	27	LDF7-50A (1-5/8 FOAM)	240.00 - 245.00	0.6000	0.6000
T5	28	LDF7-50A (1-5/8 FOAM)	245.00 - 260.00	0.6000	0.6000

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	13 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
T5	30	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.6000
T5	32	Feedline Ladder (Af)	240.00 - 245.00	0.6000	0.6000
T5	37	LDF7-50A (1-5/8 FOAM)	240.00 - 245.00	1.0000	0.6000
T6	1	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T6	3	Lighting Cable	220.00 - 240.00	0.6000	0.6000
T6	27	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.6000
T6	30	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T6	32	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T6	37	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	1.0000	0.6000
T7	1	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T7	3	Lighting Cable	200.00 - 220.00	0.6000	0.6000
T7	26	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.6000
T7	30	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T7	32	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T7	36	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.6000
T8	1	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T8	2	Lighting Cable	180.00 - 200.00	0.6000	0.6000
T8	25	LDF7-50A (1-5/8 FOAM)	180.00 - 190.00	0.6000	0.6000
T8	26	LDF7-50A (1-5/8 FOAM)	190.00 - 200.00	0.6000	0.6000
T8	30	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T8	32	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T8	36	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6000
T9	1	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T9	2	Lighting Cable	160.00 - 180.00	0.6000	0.6000
T9	20	Feedline Ladder (Af)	160.00 - 163.00	0.6000	0.6000
T9	21	LDF7-50A (1-5/8 FOAM)	160.00 - 163.00	0.6000	0.6000
T9	25	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.6000
T9	30	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T9	32	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T9	35	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.6000
T10	1	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	14 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
T10	2	Lighting Cable	140.00 - 160.00	0.6000	0.6000
T10	20	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T10	21	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T10	23	LDF7-50A (1-5/8 FOAM)	140.00 - 147.00	0.6000	0.6000
T10	24	LDF7-50A (1-5/8 FOAM)	147.00 - 153.00	0.6000	0.6000
T10	25	LDF7-50A (1-5/8 FOAM)	153.00 - 160.00	0.6000	0.6000
T10	30	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T10	32	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T10	33	LDF7-50A (1-5/8 FOAM)	140.00 - 147.00	0.6000	0.6000
T10	34	LDF7-50A (1-5/8 FOAM)	147.00 - 153.00	0.6000	0.6000
T10	35	LDF7-50A (1-5/8 FOAM)	153.00 - 160.00	0.6000	0.6000
T11	1	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T11	2	Lighting Cable	120.00 - 140.00	0.6000	0.6000
T11	20	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T11	21	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T11	23	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T11	30	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T11	32	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T11	33	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T12	1	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T12	2	Lighting Cable	100.00 - 120.00	0.6000	0.6000
T12	20	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T12	21	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T12	23	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T12	30	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T12	32	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T12	33	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T13	1	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T13	2	Lighting Cable	80.00 - 100.00	0.6000	0.6000
T13	20	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T13	21	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T13	23	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T13	30	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T13	32	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T13	33	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	15 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
T14	1	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T14	2	Lighting Cable	60.00 - 80.00	0.6000	0.6000
T14	20	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T14	21	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T14	23	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T14	30	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T14	32	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T14	33	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T15	1	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T15	2	Lighting Cable	40.00 - 60.00	0.6000	0.6000
T15	20	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T15	21	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T15	23	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T15	30	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T15	32	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T15	33	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T16	1	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T16	2	Lighting Cable	20.00 - 40.00	0.6000	0.6000
T16	20	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T16	21	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T16	22	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T16	30	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T16	32	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T16	33	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T17	1	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T17	2	Lighting Cable	0.00 - 20.00	0.6000	0.6000
T17	20	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T17	21	LDF7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000
T17	22	LDF7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000
T17	30	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T17	32	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T17	33	LDF7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i>	<i>Azimuth Adjustment</i>	<i>Placement</i>		<i>C_{AA} Front</i>	<i>C_{AA} Side</i>	<i>Weight</i>
			<i>ft ft ft</i>	<i>°</i>	<i>ft</i>		<i>ft²</i>	<i>ft²</i>	<i>K</i>
5/8" x 10' lightning rod	C	From Leg	0.00 0.00 5.00	0.0000	328.00	No Ice	0.63	0.63	0.02
Beacon	B	From Leg	0.00 0.00 1.00	0.0000	328.00	No Ice	2.40	2.40	0.07
OB light	A	From Leg	0.00 0.00 0.00	0.0000	200.00	No Ice	0.50	0.50	0.03
OB light	B	From Leg	0.00 0.00 0.00	0.0000	200.00	No Ice	0.50	0.50	0.03
OB light	C	From Leg	0.00	0.0000	200.00	No Ice	0.50	0.50	0.03

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	16 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>
			0.00						
***			0.00						
DCR- C10 (installed above 292')	C	From Leg	0.50	0.0000	328.00 - 292.00	No Ice	89.30	89.30	0.95
			0.00						
3" x 30' Sch. 80	C	From Leg	0.50	0.0000	328.00 - 292.00	No Ice	10.50	10.50	0.31
			0.00						
***			0.00						
2.375 x 19.5' Huslter HX6-1448 Omni	A	From Leg	6.00	0.0000	235.00	No Ice	5.00	5.00	0.04
			0.00						
6' Bogner Mount Heavy Duty	A	From Leg	10.00	0.0000	235.00	No Ice	14.80	14.80	0.70
			3.00						
			0.00						
2.375 x 19.5' Huslter HX6-1448 Omni	B	From Leg	6.00	0.0000	235.00	No Ice	5.00	5.00	0.04
			0.00						
6' Bogner Mount Heavy Duty	B	From Leg	10.00	0.0000	235.00	No Ice	14.80	14.80	0.70
			3.00						
			0.00						
***			0.00						
SP1 R5 (Includes 4.5"x72" Pipe)	A	From Face	0.50	0.0000	220.00	No Ice	2.85	3.15	0.14
			0.00						
SP1 R5 (Includes 4.5"x72" Pipe)	A	From Face	0.50	0.0000	220.00	No Ice	2.85	3.15	0.14
			0.00						
SP1 R5 (Includes 4.5"x72" Pipe)	B	From Face	0.50	0.0000	220.00	No Ice	2.85	3.15	0.14
			0.00						
SP1 R5 (Includes 4.5"x72" Pipe)	B	From Face	0.50	0.0000	220.00	No Ice	2.85	3.15	0.14
			0.00						
SP1 R5 (Includes 4.5"x72" Pipe)	C	From Face	0.50	0.0000	220.00	No Ice	2.85	3.15	0.14
			0.00						
SP1 R5 (Includes 4.5"x72" Pipe)	C	From Face	0.50	0.0000	220.00	No Ice	2.85	3.15	0.14
			0.00						
***			0.00						
2.375 x 19.5' Huslter HX6-1448 Omni	A	From Leg	6.00	0.0000	180.00	No Ice	5.00	5.00	0.04
			0.00						
6' Bogner Mount Heavy Duty	A	From Leg	10.00	0.0000	180.00	No Ice	14.80	14.80	0.70
			3.00						
			0.00						
2.375 x 19.5' Huslter HX6-1448 Omni	B	From Leg	6.00	0.0000	180.00	No Ice	5.00	5.00	0.04
			0.00						
6' Bogner Mount Heavy Duty	B	From Leg	10.00	0.0000	180.00	No Ice	14.80	14.80	0.70
			3.00						
			0.00						
***			0.00						
SP1 R5 (Includes 4.5"x72" Pipe)	B	From Face	0.50	0.0000	153.00	No Ice	2.85	3.15	0.14
			0.00						

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	17 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>
SP1 R5 (Includes 4.5"x72" Pipe)	B	From Face	0.00 0.50 0.00 0.00	0.0000	147.00	No Ice	2.85	3.15	0.14

RFI RDA6-99 UHF Yagi	A	None		0.0000	40.00	No Ice	0.95	0.95	0.03

RFI BA160-67-T3 Omni	A	From Leg	4.00 0.00 10.00	0.0000	235.00	No Ice	7.60	7.60	0.06
6' Bogner Mount Heavy Duty	A	From Leg	3.00 0.00 0.00	0.0000	235.00	No Ice	14.80	14.80	0.70
**									
(5) L Com HG5829EG Grid	B	From Face	1.00 0.00 0.00	0.0000	220.00	No Ice	7.72	7.72	0.31

SP1 HS6-K	B	From Leg	0.50 0.00 0.00	0.0000	153.00	No Ice	4.40	8.59	0.29
SP1 HS6-K	B	From Leg	0.50 0.00 0.00	0.0000	147.00	No Ice	4.40	8.59	0.29

RFI OA40-41 Dipole	A	From Leg	4.00 0.00 10.00	0.0000	180.00	No Ice	8.00	8.00	0.06
6' Bogner Mount Heavy Duty	A	From Leg	3.00 0.00 0.00	0.0000	180.00	No Ice	14.80	14.80	0.70

(2) 72" x 22" Panels QD66512-2	A	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	10.14	6.84	0.11
RRU 4449 B5/B12	A	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	2.41	0.86	0.02
RRU 4426 B66	A	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	2.41	0.86	0.02
RRU 4415 B30	A	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	2.41	0.86	0.02
RRU 8843 B2/B66	A	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	2.41	0.86	0.02
RRU 4478 B14	A	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	2.41	0.86	0.02
Squid DC9 (27.4 x 16.7)	A	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	4.50	4.50	0.09
(2) 72" x 22" Panels QD66512-2	B	From Leg	3.00 0.00 0.00	0.0000	169.00	No Ice	10.14	6.84	0.11
RRU 4449 B5/B12	B	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	18 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>
			0.00						
			0.00						
RRU 4426 B66	B	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
RRU 4415 B30	B	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
RRU 8843 B2/B66	B	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
RRU 4478 B14	B	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
Squid DC9 (27.4 x 16.7)	B	From Leg	3.00	0.0000	169.00	No Ice	4.50	4.50	0.09
			0.00						
			0.00						
(2) 72" x 22" Panels QD66512-2	C	From Leg	3.00	0.0000	169.00	No Ice	10.14	6.84	0.11
			0.00						
			0.00						
RRU 4449 B5/B12	C	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
RRU 4426 B66	C	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
RRU 4415 B30	C	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
RRU 8843 B2/B66	C	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
RRU 4478 B14	C	From Leg	3.00	0.0000	169.00	No Ice	2.41	0.86	0.02
			0.00						
			0.00						
Squid DC9 (27.4 x 16.7)	C	From Leg	3.00	0.0000	169.00	No Ice	4.50	4.50	0.09
			0.00						
			0.00						
SP1 VFA10-HD-S	A	From Leg	3.00	0.0000	169.00	No Ice	11.40	7.00	0.55
			0.00						
			0.00						
SP1 VFA10-HD-S	B	From Leg	3.00	0.0000	169.00	No Ice	11.40	7.00	0.55
			0.00						
			0.00						
SP1 VFA10-HD-S	C	From Leg	3.00	0.0000	169.00	No Ice	11.40	7.00	0.55
			0.00						
			0.00						
(4) 2-1/2" x 72" Sch. 40	A	From Leg	3.00	0.0000	169.00	No Ice	1.73	1.73	0.03
			0.00						
			0.00						
(4) 2-1/2" x 72" Sch. 40	B	From Leg	3.00	0.0000	169.00	No Ice	1.73	1.73	0.03
			0.00						
			0.00						
(4) 2-1/2" x 72" Sch. 40	C	From Leg	3.00	0.0000	169.00	No Ice	1.73	1.73	0.03
			0.00						
			0.00						

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	19 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
AL8 W leg mounted	A	From Leg	0.50 0.00 0.00	0.0000	277.00	No Ice 17.07	17.07	0.16

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
5' Grid Dish (L Com HG2430G)	A	Grid	From Face	0.00 0.00 0.00	0.0000		220.00	5.00	No Ice 19.63	0.18
5' Grid Dish (L Com HG2430G)	A	Grid	From Face	0.00 0.00 0.00	0.0000		220.00	5.00	No Ice 19.63	0.18
5' Grid Dish (L Com HG2430G)	B	Grid	From Face	0.00 0.00 0.00	0.0000		220.00	5.00	No Ice 19.63	0.18
5' Grid Dish (L Com HG2430G)	B	Grid	From Face	0.00 0.00 0.00	0.0000		220.00	5.00	No Ice 19.63	0.18
5' Grid Dish (L Com HG2430G)	C	Grid	From Face	0.00 0.00 0.00	0.0000		220.00	5.00	No Ice 19.63	0.18
5' Grid Dish (L Com HG2430G)	C	Grid	From Face	0.00 0.00 0.00	0.0000		220.00	5.00	No Ice 19.63	0.18
*** HPS-6.4 (6' HP)	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		153.00	6.46	No Ice 32.78	0.25
*** mWAVE P-9A72GN-S 6' Grid Dish	A	Grid	From Leg	1.00 0.00 0.00	0.0000		147.00	6.00	No Ice 28.27	0.08
*** HPS-6.4 (6' HP)	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		156.00	6.46	No Ice 32.78	0.25
mWAVE P-9A72GN-S 6' Grid Dish	B	Grid	From Leg	1.00 0.00 0.00	0.0000		150.00	6.00	No Ice 28.27	0.08

Truss-Leg Properties

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	20 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv. Diameter	Equiv. Diameter Ice	Leg Area
	in ²	in ²	K	K	in	in	in ²
#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	1884.8315	1884.8315	0.50	0.00	6.5446	6.5446	3.6816
#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	1884.8315	1884.8315	0.50	0.00	6.5446	6.5446	3.6816
#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	1884.8315	1884.8315	0.50	0.00	6.5446	6.5446	3.6816
#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	2010.3106	2010.3106	0.62	0.00	6.9802	6.9802	5.3014
#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	2035.9652	2035.9652	0.79	0.00	7.0693	7.0693	7.2158
#12ZG-58 -2.00" - 0.875" conn.-TR3-(Pirod 195638)	2412.0304	2412.0304	1.05	0.00	8.3751	8.3751	9.4248
#12ZG-58 -2.75"-0.875	2842.3658	2842.3658	1.64	0.00	9.8693	9.8693	17.8187
-DB-0.625"-HP-TR4 -(Pirod 196953)							
#12/18-58 -3.50"-0.875	3331.2142	3331.2142	2.42	0.00	11.5667	11.5667	28.8634
-DB-0.625"-HP-TR6 -(Pirod 217974)							
#18/12- (58KSI) Transition - 3.50" - 0.875" Brace - 1.00' DB (Pirod 259976)	4439.0871	4439.0871	3.05	0.00	15.4135	15.4135	28.8634
#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	4439.0871	4439.0871	3.05	0.00	15.4135	15.4135	28.8634
#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	4439.0871	4439.0871	3.05	0.00	15.4135	15.4135	28.8634
#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	4439.0871	4439.0871	3.05	0.00	15.4135	15.4135	28.8634
#18/Doubling Rod Trans (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 243892)	4439.0871	4439.0871	3.05	0.00	15.4135	15.4135	28.8634
#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	5071.6561	5071.6561	3.77	0.00	17.6099	17.6099	37.6991
#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	5071.6561	5071.6561	3.77	0.00	17.6099	17.6099	37.6991
#18 Double Rod (58KSI) - 3.50" -	5354.1962	5354.1962	4.89	0.00	18.5910	18.5910	53.1616

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	21 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv. Diameter	Equiv. Diameter Ice	Leg Area
	in ²	in ²	K	K	in	in	in ²
0.875" Brace - 1.00" DB (Pirod 244114) #18 Double Rod BASE (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 260789)	5354.1962	5354.1962	4.89	0.00	18.5910	18.5910	53.1616

Tower Pressures - No Ice

$$G_H = 0.850$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
T1 328.00-320.00	324.00	1.621	184	88.833	A	6.790	8.726	8.726	56.24	0.000	0.000
					B	6.790	8.726		56.24	0.696	0.000
					C	6.790	8.726		56.24	0.300	0.000
T2 320.00-300.00	310.00	1.606	182	222.083	A	10.254	21.815	21.815	68.03	0.000	0.000
					B	10.254	21.815		68.03	1.740	0.000
					C	10.254	21.815		68.03	0.750	0.000
T3 300.00-280.00	290.00	1.584	180	222.083	A	14.355	21.815	21.815	60.31	7.957	0.000
					B	14.355	21.815		60.31	1.740	0.000
					C	14.355	21.815		60.31	0.750	0.000
T4 280.00-260.00	270.00	1.56	177	242.528	A	13.001	23.306	23.306	64.19	17.223	0.000
					B	13.001	23.306		64.19	1.740	0.000
					C	13.001	23.306		64.19	0.750	0.000
T5 260.00-240.00	250.00	1.535	174	282.945	A	14.486	23.604	23.604	61.97	19.900	0.000
					B	14.486	23.604		61.97	5.070	0.000
					C	14.486	23.604		61.97	0.750	0.000
T6 240.00-220.00	230.00	1.508	171	323.362	A	13.541	27.964	27.964	67.37	25.840	0.000
					B	13.541	27.964		67.37	15.078	0.000
					C	13.541	27.964		67.37	0.750	0.000
T7 220.00-200.00	210.00	1.48	168	364.614	A	16.264	32.953	32.953	66.95	49.600	0.000
					B	16.264	32.953		66.95	55.300	0.000
					C	16.264	32.953		66.95	0.750	0.000
T8 200.00-180.00	190.00	1.449	164	405.866	A	17.121	38.620	38.620	69.28	53.560	0.000
					B	17.121	38.620		69.28	58.780	0.000
					C	17.121	38.620		69.28	0.750	0.000
T9 180.00-160.00	170.00	1.415	161	455.878	A	17.624	51.464	51.464	74.49	57.520	0.000
					B	17.624	51.464		74.49	62.740	0.000
					C	17.624	51.464		74.49	9.378	0.000
T10 160.00-140.00	150.00	1.378	156	495.878	A	18.580	51.464	51.464	73.47	61.480	0.000
					B	18.580	51.464		73.47	66.700	0.000
					C	18.580	51.464		73.47	58.270	0.000
T11 140.00-120.00	130.00	1.337	152	535.878	A	19.579	51.464	51.464	72.44	65.440	0.000
					B	19.579	51.464		72.44	70.660	0.000
					C	19.579	51.464		72.44	58.270	0.000
T12 120.00-100.00	110.00	1.291	146	575.878	A	20.617	51.464	51.464	71.40	65.440	0.000
					B	20.617	51.464		71.40	70.660	0.000
					C	20.617	51.464		71.40	58.270	0.000
T13 100.00-80.00	90.00	1.238	140	615.878	A	27.108	51.464	51.464	65.50	65.440	0.000
					B	27.108	51.464		65.50	70.660	0.000
					C	27.108	51.464		65.50	58.270	0.000

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 22 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T14 80.00-60.00	70.00	1.174	133	656.712	A	28.089	58.797	58.797	67.67	65.440	0.000
					B	28.089	58.797		67.67	70.660	0.000
					C	28.089	58.797		67.67	58.270	0.000
T15 60.00-40.00	50.00	1.094	124	696.712	A	29.504	58.797	58.797	66.59	65.440	0.000
					B	29.504	58.797		66.59	70.660	0.000
					C	29.504	58.797		66.59	58.270	0.000
T16 40.00-20.00	30.00	0.982	111	737.964	A	30.944	62.073	62.073	66.73	69.400	0.000
					B	30.944	62.073		66.73	70.660	0.000
					C	30.944	62.073		66.73	58.270	0.000
T17 20.00-0.00	10.00	0.85	96	777.964	A	32.340	62.073	62.073	65.75	69.400	0.000
					B	32.340	62.073		65.75	70.660	0.000
					C	32.340	62.073		65.75	58.270	0.000

Tower Pressure - Service

$$G_H = 0.850$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T1 328.00-320.00	324.00	1.621	12	88.833	A	6.790	8.726	8.726	56.24	0.000	0.000
					B	6.790	8.726		56.24	0.696	0.000
					C	6.790	8.726		56.24	0.300	0.000
T2 320.00-300.00	310.00	1.606	12	222.083	A	10.254	21.815	21.815	68.03	0.000	0.000
					B	10.254	21.815		68.03	1.740	0.000
					C	10.254	21.815		68.03	0.750	0.000
T3 300.00-280.00	290.00	1.584	12	222.083	A	14.355	21.815	21.815	60.31	7.957	0.000
					B	14.355	21.815		60.31	1.740	0.000
					C	14.355	21.815		60.31	0.750	0.000
T4 280.00-260.00	270.00	1.56	12	242.528	A	13.001	23.306	23.306	64.19	17.223	0.000
					B	13.001	23.306		64.19	1.740	0.000
					C	13.001	23.306		64.19	0.750	0.000
T5 260.00-240.00	250.00	1.535	12	282.945	A	14.486	23.604	23.604	61.97	19.900	0.000
					B	14.486	23.604		61.97	5.070	0.000
					C	14.486	23.604		61.97	0.750	0.000
T6 240.00-220.00	230.00	1.508	11	323.362	A	13.541	27.964	27.964	67.37	25.840	0.000
					B	13.541	27.964		67.37	15.078	0.000
					C	13.541	27.964		67.37	0.750	0.000
T7 220.00-200.00	210.00	1.48	11	364.614	A	16.264	32.953	32.953	66.95	49.600	0.000
					B	16.264	32.953		66.95	55.300	0.000
					C	16.264	32.953		66.95	0.750	0.000
T8 200.00-180.00	190.00	1.449	11	405.866	A	17.121	38.620	38.620	69.28	53.560	0.000
					B	17.121	38.620		69.28	58.780	0.000
					C	17.121	38.620		69.28	0.750	0.000
T9 180.00-160.00	170.00	1.415	11	455.878	A	17.624	51.464	51.464	74.49	57.520	0.000
					B	17.624	51.464		74.49	62.740	0.000
					C	17.624	51.464		74.49	9.378	0.000
T10 160.00-140.00	150.00	1.378	10	495.878	A	18.580	51.464	51.464	73.47	61.480	0.000
					B	18.580	51.464		73.47	66.700	0.000
					C	18.580	51.464		73.47	58.270	0.000
T11 140.00-120.00	130.00	1.337	10	535.878	A	19.579	51.464	51.464	72.44	65.440	0.000
					B	19.579	51.464		72.44	70.660	0.000
					C	19.579	51.464		72.44	58.270	0.000
T12 120.00-100.00	110.00	1.291	10	575.878	A	20.617	51.464	51.464	71.40	65.440	0.000
					B	20.617	51.464		71.40	70.660	0.000

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 23 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T13 100.00-80.00	90.00	1.238	9	615.878	C	20.617	51.464		71.40	58.270	0.000
					A	27.108	51.464	51.464	65.50	65.440	0.000
					B	27.108	51.464		65.50	70.660	0.000
					C	27.108	51.464		65.50	58.270	0.000
T14 80.00-60.00	70.00	1.174	9	656.712	A	28.089	58.797	58.797	67.67	65.440	0.000
					B	28.089	58.797		67.67	70.660	0.000
					C	28.089	58.797		67.67	58.270	0.000
T15 60.00-40.00	50.00	1.094	8	696.712	A	29.504	58.797	58.797	66.59	65.440	0.000
					B	29.504	58.797		66.59	70.660	0.000
					C	29.504	58.797		66.59	58.270	0.000
T16 40.00-20.00	30.00	0.982	7	737.964	A	30.944	62.073	62.073	66.73	69.400	0.000
					B	30.944	62.073		66.73	70.660	0.000
					C	30.944	62.073		66.73	58.270	0.000
T17 20.00-0.00	10.00	0.85	6	777.964	A	32.340	62.073	62.073	65.75	69.400	0.000
					B	32.340	62.073		65.75	70.660	0.000
					C	32.340	62.073		65.75	58.270	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
T1 328.00-320.00	0.00	0.93	A	0.175	2.683	184	1	1	11.769	5.03	628.51	C
			B	0.175	2.683		1	1	11.769			
			C	0.175	2.683		1	1	11.769			
T2 320.00-300.00	0.01	2.14	A	0.144	2.792	182	1	1	22.623	10.01	500.65	C
			B	0.144	2.792		1	1	22.623			
			C	0.144	2.792		1	1	22.623			
T3 300.00-280.00	0.12	2.61	A	0.163	2.725	180	1	1	26.768	12.08	603.79	C
			B	0.163	2.725		1	1	26.768			
			C	0.163	2.725		1	1	26.768			
T4 280.00-260.00	0.21	2.85	A	0.15	2.773	177	1	1	26.227	12.52	626.03	A
			B	0.15	2.773		1	1	26.227			
			C	0.15	2.773		1	1	26.227			
T5 260.00-240.00	0.26	3.47	A	0.135	2.829	174	1	1	27.849	13.71	685.74	A
			B	0.135	2.829		1	1	27.849			
			C	0.135	2.829		1	1	27.849			
T6 240.00-220.00	0.43	4.82	A	0.128	2.853	171	1	1	29.360	15.57	778.66	A
			B	0.128	2.853		1	1	29.360			
			C	0.128	2.853		1	1	29.360			
T7 220.00-200.00	0.69	6.95	A	0.135	2.828	168	1	1	34.921	20.25	1012.64	B
			B	0.135	2.828		1	1	34.921			
			C	0.135	2.828		1	1	34.921			
T8 200.00-180.00	0.71	9.41	A	0.137	2.819	164	1	1	38.994	21.68	1084.12	B
			B	0.137	2.819		1	1	38.994			
			C	0.137	2.819		1	1	38.994			
T9 180.00-160.00	0.80	12.41	A	0.152	2.766	161	1	1	46.840	24.18	1208.90	B
			B	0.152	2.766		1	1	46.840			
			C	0.152	2.766		1	1	46.840			
T10 160.00-140.00	1.14	12.59	A	0.141	2.804	156	1	1	47.744	26.32	1315.95	C
			B	0.141	2.804		1	1	47.744			
			C	0.141	2.804		1	1	47.744			
T11 140.00-120.00	1.17	12.77	A	0.133	2.837	152	1	1	48.708	26.39	1319.71	C
			B	0.133	2.837		1	1	48.708			
			C	0.133	2.837		1	1	48.708			
T12	1.17	12.96	A	0.125	2.865	146	1	1	49.719	26.01	1300.73	C

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	24 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
ft	K	K										
120.00-100.00			B	0.125	2.865		1	1	49.719			
			C	0.125	2.865		1	1	49.719			
T13	1.17	14.20	A	0.128	2.856	140	1	1	56.218	27.10	1354.94	C
100.00-80.00			B	0.128	2.856		1	1	56.218			
			C	0.128	2.856		1	1	56.218			
T14	1.17	16.56	A	0.132	2.838	133	1	1	61.367	27.24	1362.07	C
80.00-60.00			B	0.132	2.838		1	1	61.367			
			C	0.132	2.838		1	1	61.367			
T15	1.17	16.82	A	0.127	2.859	124	1	1	62.759	25.94	1296.78	C
60.00-40.00			B	0.127	2.859		1	1	62.759			
			C	0.127	2.859		1	1	62.759			
T16	1.19	20.44	A	0.126	2.862	111	1	1	66.048	24.20	1209.93	C
40.00-20.00			B	0.126	2.862		1	1	66.048			
			C	0.126	2.862		1	1	66.048			
T17	1.19	20.70	A	0.121	2.88	96	1	1	67.427	21.36	1068.19	C
20.00-0.00			B	0.121	2.88		1	1	67.427			
			C	0.121	2.88		1	1	67.427			
Sum Weight:	12.60	172.66						OTM	47932.09 kip-ft	339.60		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
ft	K	K										
T1	0.00	0.93	A	0.175	2.683	184	0.8	1	10.410	4.46	557.33	C
328.00-320.00			B	0.175	2.683		0.8	1	10.410			
			C	0.175	2.683		0.8	1	10.410			
T2	0.01	2.14	A	0.144	2.792	182	0.8	1	20.572	9.13	456.31	C
320.00-300.00			B	0.144	2.792		0.8	1	20.572			
			C	0.144	2.792		0.8	1	20.572			
T3	0.12	2.61	A	0.163	2.725	180	0.8	1	23.897	10.88	544.06	C
300.00-280.00			B	0.163	2.725		0.8	1	23.897			
			C	0.163	2.725		0.8	1	23.897			
T4	0.21	2.85	A	0.15	2.773	177	0.8	1	23.627	11.44	571.81	B
280.00-260.00			B	0.15	2.773		0.8	1	23.627			
			C	0.15	2.773		0.8	1	23.627			
T5	0.26	3.47	A	0.135	2.829	174	0.8	1	24.952	12.50	625.09	B
260.00-240.00			B	0.135	2.829		0.8	1	24.952			
			C	0.135	2.829		0.8	1	24.952			
T6	0.43	4.82	A	0.128	2.853	171	0.8	1	26.652	14.45	722.49	B
240.00-220.00			B	0.128	2.853		0.8	1	26.652			
			C	0.128	2.853		0.8	1	26.652			
T7	0.69	6.95	A	0.135	2.828	168	0.8	1	31.669	18.94	947.04	C
220.00-200.00			B	0.135	2.828		0.8	1	31.669			
			C	0.135	2.828		0.8	1	31.669			
T8	0.71	9.41	A	0.137	2.819	164	0.8	1	35.570	20.33	1016.71	C
200.00-180.00			B	0.137	2.819		0.8	1	35.570			
			C	0.137	2.819		0.8	1	35.570			
T9	0.80	12.41	A	0.152	2.766	161	0.8	1	43.315	22.85	1142.39	C
180.00-160.00			B	0.152	2.766		0.8	1	43.315			
			C	0.152	2.766		0.8	1	43.315			
T10	1.14	12.59	A	0.141	2.804	156	0.8	1	44.029	24.93	1246.71	A

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	25 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
ft	K	K										
160.00-140.00			B	0.141	2.804		0.8	1	44.029			
			C	0.141	2.804		0.8	1	44.029			
T11	1.17	12.77	A	0.133	2.837	152	0.8	1	44.792	24.96	1248.09	A
140.00-120.00			B	0.133	2.837		0.8	1	44.792			
			C	0.133	2.837		0.8	1	44.792			
T12	1.17	12.96	A	0.125	2.865	146	0.8	1	45.595	24.54	1227.19	A
120.00-100.00			B	0.125	2.865		0.8	1	45.595			
			C	0.125	2.865		0.8	1	45.595			
T13	1.17	14.20	A	0.128	2.856	140	0.8	1	50.797	25.25	1262.54	A
100.00-80.00			B	0.128	2.856		0.8	1	50.797			
			C	0.128	2.856		0.8	1	50.797			
T14	1.17	16.56	A	0.132	2.838	133	0.8	1	55.749	25.44	1271.84	A
80.00-60.00			B	0.132	2.838		0.8	1	55.749			
			C	0.132	2.838		0.8	1	55.749			
T15	1.17	16.82	A	0.127	2.859	124	0.8	1	56.858	24.16	1207.83	A
60.00-40.00			B	0.127	2.859		0.8	1	56.858			
			C	0.127	2.859		0.8	1	56.858			
T16	1.19	20.44	A	0.126	2.862	111	0.8	1	59.859	22.52	1126.07	A
40.00-20.00			B	0.126	2.862		0.8	1	59.859			
			C	0.126	2.862		0.8	1	59.859			
T17	1.19	20.70	A	0.121	2.88	96	0.8	1	60.959	19.84	991.86	A
20.00-0.00			B	0.121	2.88		0.8	1	60.959			
			C	0.121	2.88		0.8	1	60.959			
Sum Weight:	12.60	172.66						OTM	44511.15 kip-ft	316.62		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
ft	K	K										
T1	0.00	0.93	A	0.175	2.683	184	0.85	1	10.750	4.60	575.13	C
328.00-320.00			B	0.175	2.683		0.85	1	10.750			
			C	0.175	2.683		0.85	1	10.750			
T2	0.01	2.14	A	0.144	2.792	182	0.85	1	21.085	9.35	467.40	C
320.00-300.00			B	0.144	2.792		0.85	1	21.085			
			C	0.144	2.792		0.85	1	21.085			
T3	0.12	2.61	A	0.163	2.725	180	0.85	1	24.614	11.18	558.99	C
300.00-280.00			B	0.163	2.725		0.85	1	24.614			
			C	0.163	2.725		0.85	1	24.614			
T4	0.21	2.85	A	0.15	2.773	177	0.85	1	24.277	11.71	585.36	C
280.00-260.00			B	0.15	2.773		0.85	1	24.277			
			C	0.15	2.773		0.85	1	24.277			
T5	0.26	3.47	A	0.135	2.829	174	0.85	1	25.676	12.81	640.25	C
260.00-240.00			B	0.135	2.829		0.85	1	25.676			
			C	0.135	2.829		0.85	1	25.676			
T6	0.43	4.82	A	0.128	2.853	171	0.85	1	27.329	14.73	736.53	C
240.00-220.00			B	0.128	2.853		0.85	1	27.329			
			C	0.128	2.853		0.85	1	27.329			
T7	0.69	6.95	A	0.135	2.828	168	0.85	1	32.482	19.78	988.90	C
220.00-200.00			B	0.135	2.828		0.85	1	32.482			
			C	0.135	2.828		0.85	1	32.482			
T8	0.71	9.41	A	0.137	2.819	164	0.85	1	36.426	21.17	1058.50	C

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	26 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
ft	K	K										
200.00-180.00			B	0.137	2.819		0.85	1	36.426			
			C	0.137	2.819		0.85	1	36.426			
T9	0.80	12.41	A	0.152	2.766	161	0.85	1	44.196	23.59	1179.72	C
180.00-160.00			B	0.152	2.766		0.85	1	44.196			
			C	0.152	2.766		0.85	1	44.196			
T10	1.14	12.59	A	0.141	2.804	156	0.85	1	44.958	25.32	1266.00	A
160.00-140.00			B	0.141	2.804		0.85	1	44.958			
			C	0.141	2.804		0.85	1	44.958			
T11	1.17	12.77	A	0.133	2.837	152	0.85	1	45.771	25.31	1265.40	A
140.00-120.00			B	0.133	2.837		0.85	1	45.771			
			C	0.133	2.837		0.85	1	45.771			
T12	1.17	12.96	A	0.125	2.865	146	0.85	1	46.626	24.90	1244.99	A
120.00-100.00			B	0.125	2.865		0.85	1	46.626			
			C	0.125	2.865		0.85	1	46.626			
T13	1.17	14.20	A	0.128	2.856	140	0.85	1	52.152	25.70	1285.09	A
100.00-80.00			B	0.128	2.856		0.85	1	52.152			
			C	0.128	2.856		0.85	1	52.152			
T14	1.17	16.56	A	0.132	2.838	133	0.85	1	57.154	25.88	1293.87	A
80.00-60.00			B	0.132	2.838		0.85	1	57.154			
			C	0.132	2.838		0.85	1	57.154			
T15	1.17	16.82	A	0.127	2.859	124	0.85	1	58.333	24.59	1229.57	A
60.00-40.00			B	0.127	2.859		0.85	1	58.333			
			C	0.127	2.859		0.85	1	58.333			
T16	1.19	20.44	A	0.126	2.862	111	0.85	1	61.407	22.93	1146.59	A
40.00-20.00			B	0.126	2.862		0.85	1	61.407			
			C	0.126	2.862		0.85	1	61.407			
T17	1.19	20.70	A	0.121	2.88	96	0.85	1	62.576	20.21	1010.56	A
20.00-0.00			B	0.121	2.88		0.85	1	62.576			
			C	0.121	2.88		0.85	1	62.576			
Sum Weight:	12.60	172.66						OTM	45639.03 kip-ft	323.76		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
ft	K	K										
T1	0.00	0.93	A	0.175	2.683	12	1	1	11.769	0.33	41.68	C
328.00-320.00			B	0.175	2.683		1	1	11.769			
			C	0.175	2.683		1	1	11.769			
T2	0.01	2.14	A	0.144	2.792	12	1	1	22.623	0.66	33.20	C
320.00-300.00			B	0.144	2.792		1	1	22.623			
			C	0.144	2.792		1	1	22.623			
T3	0.12	2.61	A	0.163	2.725	12	1	1	26.768	0.80	40.04	C
300.00-280.00			B	0.163	2.725		1	1	26.768			
			C	0.163	2.725		1	1	26.768			
T4	0.21	2.85	A	0.15	2.773	12	1	1	26.227	0.83	41.51	A
280.00-260.00			B	0.15	2.773		1	1	26.227			
			C	0.15	2.773		1	1	26.227			
T5	0.26	3.47	A	0.135	2.829	12	1	1	27.849	0.91	45.47	A
260.00-240.00			B	0.135	2.829		1	1	27.849			
			C	0.135	2.829		1	1	27.849			
T6	0.43	4.82	A	0.128	2.853	11	1	1	29.360	1.03	51.63	A

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	27 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
240.00-220.00			B	0.128	2.853		1	1	29.360			
			C	0.128	2.853		1	1	29.360			
T7	0.69	6.95	A	0.135	2.828	11	1	1	34.921	1.34	67.15	B
220.00-200.00			B	0.135	2.828		1	1	34.921			
			C	0.135	2.828		1	1	34.921			
T8	0.71	9.41	A	0.137	2.819	11	1	1	38.994	1.44	71.89	B
200.00-180.00			B	0.137	2.819		1	1	38.994			
			C	0.137	2.819		1	1	38.994			
T9	0.80	12.41	A	0.152	2.766	11	1	1	46.840	1.60	80.16	B
180.00-160.00			B	0.152	2.766		1	1	46.840			
			C	0.152	2.766		1	1	46.840			
T10	1.14	12.59	A	0.141	2.804	10	1	1	47.744	1.75	87.26	C
160.00-140.00			B	0.141	2.804		1	1	47.744			
			C	0.141	2.804		1	1	47.744			
T11	1.17	12.77	A	0.133	2.837	10	1	1	48.708	1.75	87.51	C
140.00-120.00			B	0.133	2.837		1	1	48.708			
			C	0.133	2.837		1	1	48.708			
T12	1.17	12.96	A	0.125	2.865	10	1	1	49.719	1.73	86.25	C
120.00-100.00			B	0.125	2.865		1	1	49.719			
			C	0.125	2.865		1	1	49.719			
T13	1.17	14.20	A	0.128	2.856	9	1	1	56.218	1.80	89.85	C
100.00-80.00			B	0.128	2.856		1	1	56.218			
			C	0.128	2.856		1	1	56.218			
T14	1.17	16.56	A	0.132	2.838	9	1	1	61.367	1.81	90.32	C
80.00-60.00			B	0.132	2.838		1	1	61.367			
			C	0.132	2.838		1	1	61.367			
T15	1.17	16.82	A	0.127	2.859	8	1	1	62.759	1.72	85.99	C
60.00-40.00			B	0.127	2.859		1	1	62.759			
			C	0.127	2.859		1	1	62.759			
T16	1.19	20.44	A	0.126	2.862	7	1	1	66.048	1.60	80.23	C
40.00-20.00			B	0.126	2.862		1	1	66.048			
			C	0.126	2.862		1	1	66.048			
T17	1.19	20.70	A	0.121	2.88	6	1	1	67.427	1.42	70.83	C
20.00-0.00			B	0.121	2.88		1	1	67.427			
			C	0.121	2.88		1	1	67.427			
Sum Weight:	12.60	172.66						OTM	3178.46 kip-ft	22.52		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1	0.00	0.93	A	0.175	2.683	12	0.8	1	10.410	0.30	36.96	C
328.00-320.00			B	0.175	2.683		0.8	1	10.410			
			C	0.175	2.683		0.8	1	10.410			
T2	0.01	2.14	A	0.144	2.792	12	0.8	1	20.572	0.61	30.26	C
320.00-300.00			B	0.144	2.792		0.8	1	20.572			
			C	0.144	2.792		0.8	1	20.572			
T3	0.12	2.61	A	0.163	2.725	12	0.8	1	23.897	0.72	36.08	C
300.00-280.00			B	0.163	2.725		0.8	1	23.897			
			C	0.163	2.725		0.8	1	23.897			
T4	0.21	2.85	A	0.15	2.773	12	0.8	1	23.627	0.76	37.92	B

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	28 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
280.00-260.00			B	0.15	2.773		0.8	1	23.627			
			C	0.15	2.773		0.8	1	23.627			
T5	0.26	3.47	A	0.135	2.829	12	0.8	1	24.952	0.83	41.45	B
260.00-240.00			B	0.135	2.829		0.8	1	24.952			
			C	0.135	2.829		0.8	1	24.952			
T6	0.43	4.82	A	0.128	2.853	11	0.8	1	26.652	0.96	47.91	B
240.00-220.00			B	0.128	2.853		0.8	1	26.652			
			C	0.128	2.853		0.8	1	26.652			
T7	0.69	6.95	A	0.135	2.828	11	0.8	1	31.669	1.26	62.80	C
220.00-200.00			B	0.135	2.828		0.8	1	31.669			
			C	0.135	2.828		0.8	1	31.669			
T8	0.71	9.41	A	0.137	2.819	11	0.8	1	35.570	1.35	67.42	C
200.00-180.00			B	0.137	2.819		0.8	1	35.570			
			C	0.137	2.819		0.8	1	35.570			
T9	0.80	12.41	A	0.152	2.766	11	0.8	1	43.315	1.52	75.75	C
180.00-160.00			B	0.152	2.766		0.8	1	43.315			
			C	0.152	2.766		0.8	1	43.315			
T10	1.14	12.59	A	0.141	2.804	10	0.8	1	44.029	1.65	82.67	A
160.00-140.00			B	0.141	2.804		0.8	1	44.029			
			C	0.141	2.804		0.8	1	44.029			
T11	1.17	12.77	A	0.133	2.837	10	0.8	1	44.792	1.66	82.76	A
140.00-120.00			B	0.133	2.837		0.8	1	44.792			
			C	0.133	2.837		0.8	1	44.792			
T12	1.17	12.96	A	0.125	2.865	10	0.8	1	45.595	1.63	81.38	A
120.00-100.00			B	0.125	2.865		0.8	1	45.595			
			C	0.125	2.865		0.8	1	45.595			
T13	1.17	14.20	A	0.128	2.856	9	0.8	1	50.797	1.67	83.72	A
100.00-80.00			B	0.128	2.856		0.8	1	50.797			
			C	0.128	2.856		0.8	1	50.797			
T14	1.17	16.56	A	0.132	2.838	9	0.8	1	55.749	1.69	84.34	A
80.00-60.00			B	0.132	2.838		0.8	1	55.749			
			C	0.132	2.838		0.8	1	55.749			
T15	1.17	16.82	A	0.127	2.859	8	0.8	1	56.858	1.60	80.09	A
60.00-40.00			B	0.127	2.859		0.8	1	56.858			
			C	0.127	2.859		0.8	1	56.858			
T16	1.19	20.44	A	0.126	2.862	7	0.8	1	59.859	1.49	74.67	A
40.00-20.00			B	0.126	2.862		0.8	1	59.859			
			C	0.126	2.862		0.8	1	59.859			
T17	1.19	20.70	A	0.121	2.88	6	0.8	1	60.959	1.32	65.77	A
20.00-0.00			B	0.121	2.88		0.8	1	60.959			
			C	0.121	2.88		0.8	1	60.959			
Sum Weight:	12.60	172.66						OTM	2951.61 kip-ft	21.00		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1	0.00	0.93	A	0.175	2.683	12	0.85	1	10.750	0.31	38.14	C
328.00-320.00			B	0.175	2.683		0.85	1	10.750			
			C	0.175	2.683		0.85	1	10.750			
T2	0.01	2.14	A	0.144	2.792	12	0.85	1	21.085	0.62	30.99	C

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	29 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
320.00-300.00			B	0.144	2.792		0.85	1	21.085			
			C	0.144	2.792		0.85	1	21.085			
T3	0.12	2.61	A	0.163	2.725	12	0.85	1	24.614	0.74	37.07	C
300.00-280.00			B	0.163	2.725		0.85	1	24.614			
			C	0.163	2.725		0.85	1	24.614			
T4	0.21	2.85	A	0.15	2.773	12	0.85	1	24.277	0.78	38.82	C
280.00-260.00			B	0.15	2.773		0.85	1	24.277			
			C	0.15	2.773		0.85	1	24.277			
T5	0.26	3.47	A	0.135	2.829	12	0.85	1	25.676	0.85	42.46	C
260.00-240.00			B	0.135	2.829		0.85	1	25.676			
			C	0.135	2.829		0.85	1	25.676			
T6	0.43	4.82	A	0.128	2.853	11	0.85	1	27.329	0.98	48.84	C
240.00-220.00			B	0.128	2.853		0.85	1	27.329			
			C	0.128	2.853		0.85	1	27.329			
T7	0.69	6.95	A	0.135	2.828	11	0.85	1	32.482	1.31	65.58	C
220.00-200.00			B	0.135	2.828		0.85	1	32.482			
			C	0.135	2.828		0.85	1	32.482			
T8	0.71	9.41	A	0.137	2.819	11	0.85	1	36.426	1.40	70.19	C
200.00-180.00			B	0.137	2.819		0.85	1	36.426			
			C	0.137	2.819		0.85	1	36.426			
T9	0.80	12.41	A	0.152	2.766	11	0.85	1	44.196	1.56	78.23	C
180.00-160.00			B	0.152	2.766		0.85	1	44.196			
			C	0.152	2.766		0.85	1	44.196			
T10	1.14	12.59	A	0.141	2.804	10	0.85	1	44.958	1.68	83.95	A
160.00-140.00			B	0.141	2.804		0.85	1	44.958			
			C	0.141	2.804		0.85	1	44.958			
T11	1.17	12.77	A	0.133	2.837	10	0.85	1	45.771	1.68	83.91	A
140.00-120.00			B	0.133	2.837		0.85	1	45.771			
			C	0.133	2.837		0.85	1	45.771			
T12	1.17	12.96	A	0.125	2.865	10	0.85	1	46.626	1.65	82.56	A
120.00-100.00			B	0.125	2.865		0.85	1	46.626			
			C	0.125	2.865		0.85	1	46.626			
T13	1.17	14.20	A	0.128	2.856	9	0.85	1	52.152	1.70	85.22	A
100.00-80.00			B	0.128	2.856		0.85	1	52.152			
			C	0.128	2.856		0.85	1	52.152			
T14	1.17	16.56	A	0.132	2.838	9	0.85	1	57.154	1.72	85.80	A
80.00-60.00			B	0.132	2.838		0.85	1	57.154			
			C	0.132	2.838		0.85	1	57.154			
T15	1.17	16.82	A	0.127	2.859	8	0.85	1	58.333	1.63	81.54	A
60.00-40.00			B	0.127	2.859		0.85	1	58.333			
			C	0.127	2.859		0.85	1	58.333			
T16	1.19	20.44	A	0.126	2.862	7	0.85	1	61.407	1.52	76.03	A
40.00-20.00			B	0.126	2.862		0.85	1	61.407			
			C	0.126	2.862		0.85	1	61.407			
T17	1.19	20.70	A	0.121	2.88	6	0.85	1	62.576	1.34	67.01	A
20.00-0.00			B	0.121	2.88		0.85	1	62.576			
			C	0.121	2.88		0.85	1	62.576			
Sum Weight:	12.60	172.66						OTM	3026.40 kip-ft	21.47		

Mast Vectors - No Ice

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	30 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T1	328.00-320.00	0	Wind Normal	5.03	0.00	-5.03	-1629.10	-0.01	0.32
		30	Wind 90	4.60	2.30	-3.98	-1291.00	-745.37	0.41
		60	Wind 60	4.46	3.86	-2.23	-722.29	-1251.07	0.39
		90	Wind 90	4.60	4.60	0.00	0.01	-1490.74	0.26
		120	Wind Normal	5.03	4.35	2.51	814.56	-1410.86	0.07
		150	Wind 90	4.60	2.30	3.98	1291.02	-745.37	-0.15
		180	Wind 60	4.46	0.00	4.46	1444.62	-0.01	-0.32
		210	Wind 90	4.60	-2.30	3.98	1291.02	745.36	-0.41
		240	Wind Normal	5.03	-4.35	2.51	814.56	1410.84	-0.39
		270	Wind 90	4.60	-4.60	0.00	0.01	1490.73	-0.26
		300	Wind 60	4.46	-3.86	-2.23	-722.29	1251.06	-0.07
		330	Wind 90	4.60	-2.30	-3.98	-1291.00	745.36	0.15
T2	320.00-300.00	0	Wind Normal	10.01	0.00	-10.01	-3104.00	-0.01	0.80
		30	Wind 90	9.35	4.67	-8.10	-2509.60	-1448.94	1.02
		60	Wind 60	9.13	7.90	-4.56	-1414.55	-2450.12	0.97
		90	Wind 90	9.35	9.35	0.00	0.02	-2897.88	0.66
		120	Wind Normal	10.01	8.67	5.01	1552.03	-2688.17	0.17
		150	Wind 90	9.35	4.67	8.10	2509.64	-1448.94	-0.36
		180	Wind 60	9.13	0.00	9.13	2829.16	-0.01	-0.80
		210	Wind 90	9.35	-4.67	8.10	2509.64	1448.92	-1.02
		240	Wind Normal	10.01	-8.67	5.01	1552.03	2688.14	-0.97
		270	Wind 90	9.35	-9.35	0.00	0.02	2897.85	-0.66
		300	Wind 60	9.13	-7.90	-4.56	-1414.55	2450.09	-0.17
		330	Wind 90	9.35	-4.67	-8.10	-2509.60	1448.92	0.36
T3	300.00-280.00	0	Wind Normal	12.08	0.00	-12.08	-3502.48	0.05	0.30
		30	Wind 90	11.18	5.59	-9.68	-2808.32	-1621.02	-1.20
		60	Wind 60	10.88	9.42	-5.44	-1578.31	-2732.74	-2.38
		90	Wind 90	11.18	11.18	0.00	-0.53	-3242.10	-2.92
		120	Wind Normal	12.08	10.46	6.04	1750.45	-3032.73	-2.68
		150	Wind 90	11.18	5.59	9.68	2807.26	-1621.02	-1.72
		180	Wind 60	10.88	0.00	10.88	3155.03	0.05	-0.30
		210	Wind 90	11.18	-5.59	9.68	2807.26	1621.13	1.20
		240	Wind Normal	12.08	-10.46	6.04	1750.45	3032.84	2.38
		270	Wind 90	11.18	-11.18	0.00	-0.53	3242.21	2.92
		300	Wind 60	10.88	-9.42	-5.44	-1578.31	2732.84	2.68
		330	Wind 90	11.18	-5.59	-9.68	-2808.32	1621.13	1.72
T4	280.00-260.00	0	Wind Normal	12.41	0.00	-12.41	-3352.46	0.12	-0.08
		30	Wind 90	11.48	5.74	-9.94	-2685.27	-1549.61	-2.74
		60	Wind 60	11.33	9.81	-5.66	-1530.38	-2648.73	-5.40
		90	Wind 90	11.71	11.71	0.00	-1.06	-3160.85	-6.80
		120	Wind Normal	12.52	10.84	6.26	1689.21	-2927.52	-5.81
		150	Wind 90	11.71	5.85	10.14	2736.42	-1580.36	-3.26
		180	Wind 60	11.33	0.00	11.33	3057.56	0.12	0.08
		210	Wind 90	11.48	-5.74	9.94	2683.14	1549.85	2.74
		240	Wind Normal	12.41	-10.75	6.21	1674.64	2902.52	5.40
		270	Wind 90	11.71	-11.71	0.00	-1.06	3161.09	6.80
		300	Wind 60	11.44	-9.90	-5.72	-1544.95	2674.21	5.81
		330	Wind 90	11.71	-5.85	-10.14	-2738.54	1580.60	3.26
T5	260.00-240.00	0	Wind Normal	13.48	0.00	-13.48	-3372.04	-0.14	1.72
		30	Wind 90	12.37	6.18	-10.71	-2678.42	-1545.84	-1.13
		60	Wind 60	12.27	10.63	-6.14	-1535.01	-2656.77	-5.18
		90	Wind 90	12.81	12.81	0.00	-1.20	-3201.42	-8.53
		120	Wind Normal	13.71	11.88	6.86	1713.15	-2969.48	-8.13
		150	Wind 90	12.81	6.40	11.09	2771.18	-1600.78	-5.56
		180	Wind 60	12.27	0.00	12.27	3066.41	-0.14	-1.72
		210	Wind 90	12.37	-6.18	10.71	2676.02	1545.55	1.13
		240	Wind Normal	13.48	-11.68	6.74	1684.22	2919.09	5.18
		270	Wind 90	12.81	-12.81	0.00	-1.20	3201.13	8.53
		300	Wind 60	12.50	-10.83	-6.25	-1563.93	2706.59	8.13
		330	Wind 90	12.81	-6.40	-11.09	-2773.58	1600.49	5.56
T6	240.00-220.00	0	Wind Normal	15.03	0.00	-15.03	-3458.55	-1.08	7.59

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	31 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T7	220.00-200.00	30	Wind 90	13.78	6.89	-11.93	-2746.04	-1585.84	5.01
		60	Wind 60	13.91	12.05	-6.95	-1600.65	-2771.48	-2.21
		90	Wind 90	14.73	14.73	0.00	-1.16	-3389.13	-11.01
		120	Wind Normal	15.57	13.49	7.79	1789.77	-3103.06	-13.05
		150	Wind 90	14.73	7.37	12.76	2932.98	-1695.10	-11.59
		180	Wind 60	13.91	0.00	13.91	3197.82	-1.08	-7.59
		210	Wind 90	13.78	-6.89	11.93	2743.72	1583.68	-5.01
		240	Wind Normal	15.03	-13.02	7.52	1727.53	2993.11	2.21
		270	Wind 90	14.73	-14.73	0.00	-1.16	3386.98	11.01
		300	Wind 60	14.45	-12.51	-7.22	-1662.89	2877.12	13.05
		330	Wind 90	14.73	-7.37	-12.76	-2935.30	1692.95	11.59
		0	Wind Normal	18.72	0.00	-18.72	-3933.88	-2.41	16.29
		30	Wind 90	18.25	9.13	-15.81	-3320.71	-1918.68	20.25
		60	Wind 60	18.94	16.40	-9.47	-1990.41	-3447.08	9.32
		90	Wind 90	19.78	19.78	0.00	-1.64	-4155.81	-16.10
		120	Wind Normal	20.25	17.54	10.13	2124.92	-3685.71	-27.75
		150	Wind 90	18.25	9.13	15.81	3317.44	-1918.68	-19.96
		180	Wind 60	17.41	0.00	17.41	3655.06	-2.41	-16.29
		210	Wind 90	18.25	-9.13	15.81	3317.44	1913.85	-20.25
		240	Wind Normal	20.25	-17.54	10.13	2124.92	3680.88	-9.32
T8	200.00-180.00	270	Wind 90	19.78	-19.78	0.00	-1.64	4150.98	16.10
		300	Wind 60	18.94	-16.40	-9.47	-1990.41	3442.25	27.75
		330	Wind 90	18.25	-9.13	-15.81	-3320.71	1913.85	19.96
		0	Wind Normal	20.04	0.00	-20.04	-3810.17	-2.73	19.22
		30	Wind 90	19.67	9.84	-17.04	-3239.19	-1871.75	25.26
		60	Wind 60	20.33	17.61	-10.17	-1933.70	-3348.62	12.94
		90	Wind 90	21.17	21.17	0.00	-1.95	-4025.02	-15.98
		120	Wind Normal	21.54	18.65	10.77	2044.29	-3546.91	-30.32
		150	Wind 90	19.42	9.71	16.82	3193.30	-1847.51	-22.06
		180	Wind 60	18.70	0.00	18.70	3550.12	-2.73	-19.22
		210	Wind 90	19.67	-9.84	17.04	3235.29	1866.29	-25.26
		240	Wind Normal	21.68	-18.78	10.84	2057.88	3565.00	-12.94
		270	Wind 90	21.17	-21.17	0.00	-1.95	4019.56	15.98
		300	Wind 60	20.19	-17.49	-10.10	-1920.10	3319.61	30.32
		330	Wind 90	19.42	-9.71	-16.82	-3197.19	1842.05	22.06
		0	Wind Normal	22.80	0.00	-22.80	-3877.21	-2.68	16.06
		30	Wind 90	22.35	11.18	-19.36	-3292.67	-1902.62	25.31
		60	Wind 60	22.85	19.79	-11.42	-1943.94	-3366.43	14.48
		90	Wind 90	23.59	23.59	0.00	-1.88	-4013.73	-15.51
T9	180.00-160.00	120	Wind Normal	24.04	20.82	12.02	2041.37	-3541.70	-29.45
		150	Wind 90	22.10	11.05	19.14	3252.20	-1881.43	-18.76
		180	Wind 60	21.47	0.00	21.47	3647.30	-2.68	-16.06
		210	Wind 90	22.35	-11.18	19.36	3288.91	1897.26	-25.31
		240	Wind Normal	24.18	-20.94	12.09	2053.25	3556.92	-14.48
		270	Wind 90	23.59	-23.59	0.00	-1.88	4008.37	15.51
		300	Wind 60	22.71	-19.67	-11.35	-1932.06	3340.49	29.45
		330	Wind 90	22.10	-11.05	-19.14	-3255.97	1876.07	18.76
		0	Wind Normal	26.32	0.00	-26.32	-3947.90	-0.26	-7.22
		30	Wind 90	25.32	12.66	-21.93	-3289.22	-1899.26	14.00
		60	Wind 60	24.78	21.46	-12.39	-1858.61	-3219.38	14.76
		90	Wind 90	25.03	25.03	0.00	-0.05	-3754.82	-8.00
		120	Wind Normal	26.03	22.54	13.01	1952.16	-3381.58	-13.40
		150	Wind 90	25.08	12.54	21.72	3257.58	-1881.05	5.91
		180	Wind 60	24.93	0.00	24.93	3740.09	-0.26	7.22
		210	Wind 90	25.32	-12.66	21.93	3289.12	1898.75	-14.00
		240	Wind Normal	26.17	-22.66	13.08	1962.37	3398.75	-14.76
		270	Wind 90	25.03	-25.03	0.00	-0.05	3754.31	8.00
		300	Wind 60	24.64	-21.34	-12.32	-1848.40	3201.18	13.40
T10	160.00-140.00	330	Wind 90	25.08	-12.54	-21.72	-3257.68	1880.54	-5.91
		0	Wind Normal	26.39	0.00	-26.39	-3431.44	-0.44	-6.15
		30	Wind 90	25.31	12.65	-21.92	-2849.44	-1645.45	13.82
T11	140.00-120.00								

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	32 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T12	120.00-100.00	60	Wind 60	24.66	21.36	-12.33	-1603.19	-2776.92	13.80
		90	Wind 90	24.88	24.88	0.00	-0.19	-3234.27	-8.85
		120	Wind Normal	25.96	22.48	12.98	1687.34	-2923.32	-14.42
		150	Wind 90	25.07	12.54	21.71	2822.54	-1630.14	4.44
		180	Wind 60	24.96	0.00	24.96	3244.85	-0.44	6.15
		210	Wind 90	25.31	-12.65	21.92	2849.06	1644.58	-13.82
		240	Wind Normal	26.09	-22.60	13.05	1695.93	2937.32	-13.80
		270	Wind 90	24.88	-24.88	0.00	-0.19	3233.39	8.85
		300	Wind 60	24.53	-21.24	-12.26	-1594.60	2761.17	14.42
		330	Wind 90	25.07	-12.54	-21.71	-2822.91	1629.26	-4.44
		0	Wind Normal	26.01	0.00	-26.01	-2861.79	-0.47	-6.41
		30	Wind 90	24.90	12.45	-21.56	-2372.23	-1369.96	14.38
		60	Wind 60	24.25	21.00	-12.13	-1334.16	-2310.96	14.42
		90	Wind 90	24.48	24.48	0.00	-0.20	-2693.54	-9.15
		120	Wind Normal	25.60	22.17	12.80	1407.64	-2438.93	-15.01
		150	Wind 90	24.67	12.34	21.37	2350.16	-1357.45	4.60
T13	100.00-80.00	180	Wind 60	24.54	0.00	24.54	2699.61	-0.47	6.41
		210	Wind 90	24.90	-12.45	21.56	2371.83	1369.02	-14.38
		240	Wind Normal	25.72	-22.28	12.86	1414.66	2450.13	-14.42
		270	Wind 90	24.48	-24.48	0.00	-0.20	2692.59	9.15
		300	Wind 60	24.13	-20.89	-12.06	-1327.14	2297.87	15.01
		330	Wind 90	24.67	-12.34	-21.37	-2350.56	1356.51	-4.60
		0	Wind Normal	27.10	0.00	-27.10	-2439.10	-0.51	-6.60
		30	Wind 90	25.70	12.85	-22.26	-2003.46	-1157.09	14.78
		60	Wind 60	24.97	21.63	-12.49	-1124.00	-1946.96	14.87
		90	Wind 90	25.30	25.30	0.00	-0.21	-2277.65	-9.35
		120	Wind Normal	26.70	23.12	13.35	1201.23	-2081.46	-15.43
		150	Wind 90	25.48	12.74	22.07	1986.05	-1147.28	4.71
		180	Wind 60	25.25	0.00	25.25	2272.37	-0.51	6.60
		210	Wind 90	25.70	-12.85	22.26	2003.04	1156.07	-14.78
		240	Wind Normal	26.82	-23.23	13.41	1206.73	2089.98	-14.87
		270	Wind 90	25.30	-25.30	0.00	-0.21	2276.64	9.35
T14	80.00-60.00	300	Wind 60	24.85	-21.52	-12.43	-1118.49	1936.42	15.43
		330	Wind 90	25.48	-12.74	-22.07	-1986.47	1146.26	-4.71
		0	Wind Normal	27.24	0.00	-27.24	-1907.12	-0.54	-6.70
		30	Wind 90	25.88	12.94	-22.41	-1568.96	-906.25	14.96
		60	Wind 60	25.17	21.80	-12.59	-881.28	-1526.59	15.10
		90	Wind 90	25.50	25.50	0.00	-0.22	-1785.40	-9.42
		120	Wind Normal	26.86	23.26	13.43	939.95	-1628.96	-15.62
		150	Wind 90	25.67	12.84	22.23	1555.98	-899.01	4.76
		180	Wind 60	25.44	0.00	25.44	1780.35	-0.54	6.70
		210	Wind 90	25.88	-12.94	22.41	1568.51	905.17	-14.96
		240	Wind Normal	26.98	-23.36	13.49	944.00	1634.90	-15.10
		270	Wind 90	25.50	-25.50	0.00	-0.22	1784.31	9.42
		300	Wind 60	25.06	-21.70	-12.53	-877.23	1518.47	15.62
		330	Wind 90	25.67	-12.84	-22.23	-1556.42	897.93	-4.76
		0	Wind Normal	25.94	0.00	-25.94	-1297.01	-0.58	-6.64
		30	Wind 90	24.59	12.30	-21.30	-1065.08	-615.37	14.82
T15	60.00-40.00	60	Wind 60	23.91	20.71	-11.96	-598.01	-1035.96	14.99
		90	Wind 90	24.24	24.24	0.00	-0.23	-1212.48	-9.29
		120	Wind Normal	25.58	22.15	12.79	639.32	-1108.32	-15.47
		150	Wind 90	24.40	12.20	21.13	1056.27	-610.55	4.70
		180	Wind 60	24.16	0.00	24.16	1207.59	-0.58	6.64
		210	Wind 90	24.59	-12.30	21.30	1064.61	614.21	-14.82
		240	Wind Normal	25.69	-22.25	12.85	642.02	1111.84	-14.99
		270	Wind 90	24.24	-24.24	0.00	-0.23	1211.32	9.29
		300	Wind 60	23.80	-20.61	-11.90	-595.31	1030.12	15.47
		330	Wind 90	24.40	-12.20	-21.13	-1056.73	609.39	-4.70
		0	Wind Normal	24.20	0.00	-24.20	-726.49	-0.58	-6.33
		30	Wind 90	22.93	11.47	-19.86	-596.32	-344.56	14.10
		60	Wind 60	22.30	19.31	-11.15	-335.04	-579.97	14.29
T16	40.00-20.00								

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	33 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T17	20.00-0.00	90	Wind 90	22.61	22.61	0.00	-0.53	-679.01	-8.80
		120	Wind Normal	23.88	20.68	11.94	357.69	-621.03	-14.72
		150	Wind 90	22.76	11.38	19.71	590.76	-341.96	4.46
		180	Wind 60	22.52	0.00	22.52	675.11	-0.58	6.33
		210	Wind 90	22.93	-11.47	19.86	595.26	343.40	-14.10
		240	Wind Normal	23.98	-20.77	11.99	359.14	622.39	-14.29
		270	Wind 90	22.61	-22.61	0.00	-0.53	677.85	8.80
		300	Wind 60	22.20	-19.23	-11.10	-333.59	576.30	14.72
		330	Wind 90	22.76	-11.38	-19.71	-591.82	340.81	-4.46
		0	Wind Normal	21.36	0.00	-21.36	-214.20	-0.61	-5.79
		30	Wind 90	20.21	10.11	-17.50	-175.59	-101.67	12.88
		60	Wind 60	19.65	17.01	-9.82	-98.79	-170.75	13.09
		90	Wind 90	19.94	19.94	0.00	-0.56	-199.97	-8.02
		120	Wind Normal	21.09	18.26	10.54	104.89	-183.25	-13.45
		150	Wind 90	20.06	10.03	17.37	173.18	-100.92	4.06
		180	Wind 60	19.84	0.00	19.84	197.81	-0.61	5.79
		210	Wind 90	20.21	-10.11	17.50	174.48	100.45	-12.88
		240	Wind Normal	21.17	-18.34	10.59	105.31	182.75	-13.09
		270	Wind 90	19.94	-19.94	0.00	-0.56	198.75	8.02
		300	Wind 60	19.56	-16.94	-9.78	-98.37	168.81	13.45
		330	Wind 90	20.06	-10.03	-17.37	-174.30	99.70	-4.06

Mast Totals - No Ice

Wind Azimuth °	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.00	-334.18	-46864.95	-12.88	10.37
30	158.94	-275.29	-38491.51	-22229.28	185.93
60	271.76	-156.90	-22082.32	-38240.53	138.24
90	320.89	0.00	-11.57	-45413.82	-146.80
120	291.38	168.23	23809.95	-41272.97	-234.48
150	158.67	274.82	38603.96	-22307.57	-45.78
180	0.00	311.19	43420.86	-12.88	-10.37
210	-158.94	275.29	38468.36	22203.52	-185.93
240	-291.66	168.39	23769.64	41177.40	-138.24
270	-320.89	0.00	-11.57	45388.06	146.80
300	-271.47	-156.74	-22122.63	38284.59	234.48
330	-158.67	-274.82	-38627.11	22281.81	45.78

Mast Vectors - Service

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T1	328.00-320.00	0	Wind Normal	0.33	0.00	-0.33	-108.02	-0.01	0.02
		30	Wind 90	0.31	0.15	-0.26	-85.60	-49.43	0.03
		60	Wind 60	0.30	0.26	-0.15	-47.89	-82.97	0.03
		90	Wind 90	0.31	0.31	0.00	0.01	-98.86	0.02
		120	Wind Normal	0.33	0.29	0.17	54.02	-93.56	0.00
		150	Wind 90	0.31	0.15	0.26	85.62	-49.43	-0.01
		180	Wind 60	0.30	0.00	0.30	95.80	-0.01	-0.02

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	34 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T2	320.00-300.00	210	Wind 90	0.31	-0.15	0.26	85.62	49.42	-0.03
		240	Wind Normal	0.33	-0.29	0.17	54.02	93.55	-0.03
		270	Wind 90	0.31	-0.31	0.00	0.01	98.85	-0.02
		300	Wind 60	0.30	-0.26	-0.15	-47.89	82.95	-0.00
		330	Wind 90	0.31	-0.15	-0.26	-85.60	49.42	0.01
		0	Wind Normal	0.66	0.00	-0.66	-205.81	-0.01	0.05
		30	Wind 90	0.62	0.31	-0.54	-166.40	-96.10	0.07
		60	Wind 60	0.61	0.52	-0.30	-93.78	-162.49	0.06
		90	Wind 90	0.62	0.62	0.00	0.02	-192.18	0.04
		120	Wind Normal	0.66	0.58	0.33	102.94	-178.27	0.01
		150	Wind 90	0.62	0.31	0.54	166.44	-96.10	-0.02
		180	Wind 60	0.61	0.00	0.61	187.63	-0.01	-0.05
T3	300.00-280.00	210	Wind 90	0.62	-0.31	0.54	166.44	96.07	-0.07
		240	Wind Normal	0.66	-0.58	0.33	102.94	178.24	-0.06
		270	Wind 90	0.62	-0.62	0.00	0.02	192.15	-0.04
		300	Wind 60	0.61	-0.52	-0.30	-93.78	162.46	-0.01
		330	Wind 90	0.62	-0.31	-0.54	-166.40	96.07	0.02
		0	Wind Normal	0.80	0.00	-0.80	-232.75	0.05	0.02
		30	Wind 90	0.74	0.37	-0.64	-186.72	-107.44	-0.08
		60	Wind 60	0.72	0.62	-0.36	-105.15	-181.16	-0.16
		90	Wind 90	0.74	0.74	0.00	-0.53	-214.94	-0.19
		120	Wind Normal	0.80	0.69	0.40	115.58	-201.05	-0.18
		150	Wind 90	0.74	0.37	0.64	185.66	-107.44	-0.11
		180	Wind 60	0.72	0.00	0.72	208.72	0.05	-0.02
T4	280.00-260.00	210	Wind 90	0.74	-0.37	0.64	185.66	107.55	0.08
		240	Wind Normal	0.80	-0.69	0.40	115.58	201.16	0.16
		270	Wind 90	0.74	-0.74	0.00	-0.53	215.05	0.19
		300	Wind 60	0.72	-0.62	-0.36	-105.15	181.27	0.18
		330	Wind 90	0.74	-0.37	-0.64	-186.72	107.55	0.11
		0	Wind Normal	0.82	0.00	-0.82	-223.30	0.12	-0.00
		30	Wind 90	0.76	0.38	-0.66	-179.06	-102.65	-0.18
		60	Wind 60	0.75	0.65	-0.38	-102.47	-175.53	-0.36
		90	Wind 90	0.78	0.78	0.00	-1.06	-209.49	-0.45
		120	Wind Normal	0.83	0.72	0.42	111.02	-194.02	-0.39
		150	Wind 90	0.78	0.39	0.67	180.46	-104.68	-0.22
		180	Wind 60	0.75	0.00	0.75	201.76	0.12	0.00
T5	260.00-240.00	210	Wind 90	0.76	-0.38	0.66	176.93	102.89	0.18
		240	Wind Normal	0.82	-0.71	0.41	110.06	192.58	0.36
		270	Wind 90	0.78	-0.78	0.00	-1.06	209.73	0.45
		300	Wind 60	0.76	-0.66	-0.38	-103.44	177.44	0.39
		330	Wind 90	0.78	-0.39	-0.67	-182.59	104.92	0.22
		0	Wind Normal	0.89	0.00	-0.89	-224.73	-0.14	0.11
		30	Wind 90	0.82	0.41	-0.71	-178.73	-102.64	-0.08
		60	Wind 60	0.81	0.70	-0.41	-102.91	-176.31	-0.34
		90	Wind 90	0.85	0.85	0.00	-1.20	-212.43	-0.57
		120	Wind Normal	0.91	0.79	0.45	112.48	-197.05	-0.54
		150	Wind 90	0.85	0.42	0.74	182.64	-106.29	-0.37
		180	Wind 60	0.81	0.00	0.81	202.22	-0.14	-0.11
T6	240.00-220.00	210	Wind 90	0.82	-0.41	0.71	176.33	102.35	0.08
		240	Wind Normal	0.89	-0.77	0.45	110.56	193.44	0.34
		270	Wind 90	0.85	-0.85	0.00	-1.20	212.14	0.57
		300	Wind 60	0.83	-0.72	-0.41	-104.83	179.34	0.54
		330	Wind 90	0.85	-0.42	-0.74	-185.04	106.00	0.37
		0	Wind Normal	1.00	0.00	-1.00	-230.43	-1.08	0.50
		30	Wind 90	0.91	0.46	-0.79	-183.18	-106.17	0.33
		60	Wind 60	0.92	0.80	-0.46	-107.23	-184.79	-0.15
		90	Wind 90	0.98	0.98	0.00	-1.16	-225.75	-0.73
		120	Wind Normal	1.03	0.89	0.52	117.60	-206.78	-0.87
		150	Wind 90	0.98	0.49	0.85	193.41	-113.41	-0.77
		180	Wind 60	0.92	0.00	0.92	210.97	-1.08	-0.50
		210	Wind 90	0.91	-0.46	0.79	180.86	104.01	-0.33

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	35 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T7	220.00-200.00	240	Wind Normal	1.00	-0.86	0.50	113.47	197.47	0.15
		270	Wind 90	0.98	-0.98	0.00	-1.16	223.59	0.73
		300	Wind 60	0.96	-0.83	-0.48	-111.35	189.78	0.87
		330	Wind 90	0.98	-0.49	-0.85	-195.73	111.26	0.77
		0	Wind Normal	1.24	0.00	-1.24	-262.39	-2.41	1.08
		30	Wind 90	1.21	0.61	-1.05	-221.73	-129.49	1.34
		60	Wind 60	1.26	1.09	-0.63	-133.52	-230.84	0.62
		90	Wind 90	1.31	1.31	0.00	-1.64	-277.83	-1.07
		120	Wind Normal	1.34	1.16	0.67	139.38	-246.66	-1.84
		150	Wind 90	1.21	0.61	1.05	218.46	-129.49	-1.32
T8	200.00-180.00	180	Wind 60	1.15	0.00	1.15	240.85	-2.41	-1.08
		210	Wind 90	1.21	-0.61	1.05	218.46	124.66	-1.34
		240	Wind Normal	1.34	-1.16	0.67	139.38	241.83	-0.62
		270	Wind 90	1.31	-1.31	0.00	-1.64	273.00	1.07
		300	Wind 60	1.26	-1.09	-0.63	-133.52	226.01	1.84
		330	Wind 90	1.21	-0.61	-1.05	-221.73	124.66	1.32
		0	Wind Normal	1.33	0.00	-1.33	-254.48	-2.73	1.27
		30	Wind 90	1.30	0.65	-1.13	-216.61	-126.67	1.68
		60	Wind 60	1.35	1.17	-0.67	-130.04	-224.60	0.86
		90	Wind 90	1.40	1.40	0.00	-1.95	-269.46	-1.06
T9	180.00-160.00	120	Wind Normal	1.43	1.24	0.71	133.74	-237.75	-2.01
		150	Wind 90	1.29	0.64	1.12	209.94	-125.06	-1.46
		180	Wind 60	1.24	0.00	1.24	233.60	-2.73	-1.27
		210	Wind 90	1.30	-0.65	1.13	212.72	121.21	-1.68
		240	Wind Normal	1.44	-1.25	0.72	134.64	233.85	-0.86
		270	Wind 90	1.40	-1.40	0.00	-1.95	263.99	1.06
		300	Wind 60	1.34	-1.16	-0.67	-129.14	217.58	2.01
		330	Wind 90	1.29	-0.64	-1.12	-213.83	119.60	1.46
		0	Wind Normal	1.51	0.00	-1.51	-258.86	-2.68	1.06
		30	Wind 90	1.48	0.74	-1.28	-220.10	-128.67	1.68
T10	160.00-140.00	60	Wind 60	1.52	1.31	-0.76	-130.66	-225.74	0.96
		90	Wind 90	1.56	1.56	0.00	-1.88	-268.66	-1.03
		120	Wind Normal	1.59	1.38	0.80	133.61	-237.36	-1.95
		150	Wind 90	1.47	0.73	1.27	213.90	-127.26	-1.24
		180	Wind 60	1.42	0.00	1.42	240.10	-2.68	-1.06
		210	Wind 90	1.48	-0.74	1.28	216.34	123.31	-1.68
		240	Wind Normal	1.60	-1.39	0.80	134.40	233.36	-0.96
		270	Wind 90	1.56	-1.56	0.00	-1.88	263.30	1.03
		300	Wind 60	1.51	-1.30	-0.75	-129.88	219.01	1.95
		330	Wind 90	1.47	-0.73	-1.27	-217.67	121.90	1.24
T11	140.00-120.00	0	Wind Normal	1.75	0.00	-1.75	-261.84	-0.26	-0.48
		30	Wind 90	1.68	0.84	-1.45	-218.16	-126.18	0.93
		60	Wind 60	1.64	1.42	-0.82	-123.29	-213.72	0.98
		90	Wind 90	1.66	1.66	0.00	-0.05	-249.23	-0.53
		120	Wind Normal	1.73	1.49	0.86	129.40	-224.48	-0.89
		150	Wind 90	1.66	0.83	1.44	215.97	-124.97	0.39
		180	Wind 60	1.65	0.00	1.65	247.97	-0.26	0.48
		210	Wind 90	1.68	-0.84	1.45	218.06	125.67	-0.93
		240	Wind Normal	1.74	-1.50	0.87	130.08	225.14	-0.98
		270	Wind 90	1.66	-1.66	0.00	-0.05	248.72	0.53
		300	Wind 60	1.63	-1.42	-0.82	-122.62	212.04	0.89
		330	Wind 90	1.66	-0.83	-1.44	-216.07	124.46	-0.39
		0	Wind Normal	1.75	0.00	-1.75	-227.72	-0.44	-0.41
		30	Wind 90	1.68	0.84	-1.45	-189.13	-109.52	0.92
		60	Wind 60	1.64	1.42	-0.82	-106.48	-184.55	0.92
		90	Wind 90	1.65	1.65	0.00	-0.19	-214.88	-0.59
		120	Wind Normal	1.72	1.49	0.86	111.72	-194.26	-0.96
		150	Wind 90	1.66	0.83	1.44	186.99	-108.51	0.29
		180	Wind 60	1.66	0.00	1.66	215.00	-0.44	0.41
		210	Wind 90	1.68	-0.84	1.45	188.75	108.65	-0.92
		240	Wind Normal	1.73	-1.50	0.87	112.29	194.37	-0.92

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	36 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T12	120.00-100.00	270	Wind 90	1.65	-1.65	0.00	-0.19	214.00	0.59
		300	Wind 60	1.63	-1.41	-0.81	-105.91	182.69	0.96
		330	Wind 90	1.66	-0.83	-1.44	-187.37	107.63	-0.29
		0	Wind Normal	1.73	0.00	-1.73	-189.96	-0.47	-0.43
		30	Wind 90	1.65	0.83	-1.43	-157.49	-91.29	0.95
		60	Wind 60	1.61	1.39	-0.80	-88.66	-153.69	0.96
		90	Wind 90	1.62	1.62	0.00	-0.20	-179.06	-0.61
		120	Wind Normal	1.70	1.47	0.85	93.16	-162.17	-1.00
		150	Wind 90	1.64	0.82	1.42	155.66	-90.46	0.31
		180	Wind 60	1.63	0.00	1.63	178.83	-0.47	0.43
		210	Wind 90	1.65	-0.83	1.43	157.10	90.34	-0.95
		240	Wind Normal	1.71	-1.48	0.85	93.62	162.03	-0.96
T13	100.00-80.00	270	Wind 90	1.62	-1.62	0.00	-0.20	178.11	0.61
		300	Wind 60	1.60	-1.39	-0.80	-88.19	151.93	1.00
		330	Wind 90	1.64	-0.82	-1.42	-156.05	89.51	-0.31
		0	Wind Normal	1.80	0.00	-1.80	-161.94	-0.51	-0.44
		30	Wind 90	1.70	0.85	-1.48	-133.05	-77.20	0.98
		60	Wind 60	1.66	1.43	-0.83	-74.73	-129.58	0.99
		90	Wind 90	1.68	1.68	0.00	-0.21	-151.51	-0.62
		120	Wind Normal	1.77	1.53	0.89	79.46	-138.50	-1.02
		150	Wind 90	1.69	0.84	1.46	131.50	-76.55	0.31
		180	Wind 60	1.67	0.00	1.67	150.49	-0.51	0.44
		210	Wind 90	1.70	-0.85	1.48	132.63	76.19	-0.98
		240	Wind Normal	1.78	-1.54	0.89	79.83	138.12	-0.99
T14	80.00-60.00	270	Wind 90	1.68	-1.68	0.00	-0.21	150.49	0.62
		300	Wind 60	1.65	-1.43	-0.82	-74.36	127.93	1.02
		330	Wind 90	1.69	-0.84	-1.46	-131.92	75.54	-0.31
		0	Wind Normal	1.81	0.00	-1.81	-126.67	-0.54	-0.44
		30	Wind 90	1.72	0.86	-1.49	-104.25	-60.60	0.99
		60	Wind 60	1.67	1.45	-0.83	-58.65	-101.74	1.00
		90	Wind 90	1.69	1.69	0.00	-0.22	-118.90	-0.62
		120	Wind Normal	1.78	1.54	0.89	62.12	-108.53	-1.04
		150	Wind 90	1.70	0.85	1.47	102.97	-60.12	0.32
		180	Wind 60	1.69	0.00	1.69	117.85	-0.54	0.44
		210	Wind 90	1.72	-0.86	1.49	103.80	59.52	-0.99
		240	Wind Normal	1.79	-1.55	0.89	62.39	107.91	-1.00
T15	60.00-40.00	270	Wind 90	1.69	-1.69	0.00	-0.22	117.81	0.62
		300	Wind 60	1.66	-1.44	-0.83	-58.38	100.18	1.04
		330	Wind 90	1.70	-0.85	-1.47	-103.42	59.04	-0.32
		0	Wind Normal	1.72	0.00	-1.72	-86.22	-0.58	-0.44
		30	Wind 90	1.63	0.82	-1.41	-70.84	-41.35	0.98
		60	Wind 60	1.59	1.37	-0.79	-39.87	-69.24	0.99
		90	Wind 90	1.61	1.61	0.00	-0.23	-80.94	-0.62
		120	Wind Normal	1.70	1.47	0.85	42.18	-74.03	-1.03
		150	Wind 90	1.62	0.81	1.40	69.83	-41.03	0.31
		180	Wind 60	1.60	0.00	1.60	79.86	-0.58	0.44
		210	Wind 90	1.63	-0.82	1.41	70.38	40.19	-0.98
		240	Wind Normal	1.70	-1.48	0.85	42.36	73.19	-0.99
T16	40.00-20.00	270	Wind 90	1.61	-1.61	0.00	-0.23	79.78	0.62
		300	Wind 60	1.58	-1.37	-0.79	-39.69	67.77	1.03
		330	Wind 90	1.62	-0.81	-1.40	-70.29	39.87	-0.31
		0	Wind Normal	1.60	0.00	-1.60	-48.67	-0.58	-0.42
		30	Wind 90	1.52	0.76	-1.32	-40.04	-23.39	0.93
		60	Wind 60	1.48	1.28	-0.74	-22.71	-39.00	0.95
		90	Wind 90	1.50	1.50	0.00	-0.53	-45.56	-0.58
		120	Wind Normal	1.58	1.37	0.79	23.22	-41.72	-0.98
		150	Wind 90	1.51	0.75	1.31	38.68	-23.21	0.30
		180	Wind 60	1.49	0.00	1.49	44.27	-0.58	0.42
		210	Wind 90	1.52	-0.76	1.32	38.98	22.23	-0.93
		240	Wind Normal	1.59	-1.38	0.80	23.32	40.73	-0.95
		270	Wind 90	1.50	-1.50	0.00	-0.53	44.41	0.58

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	37 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
T17	20.00-0.00	300	Wind 60	1.47	-1.28	-0.74	-22.62	37.68	0.98
		330	Wind 90	1.51	-0.75	-1.31	-39.74	22.06	-0.30
		0	Wind Normal	1.42	0.00	-1.42	-14.72	-0.61	-0.38
		30	Wind 90	1.34	0.67	-1.16	-12.16	-7.31	0.85
		60	Wind 60	1.30	1.13	-0.65	-7.07	-11.89	0.87
		90	Wind 90	1.32	1.32	0.00	-0.56	-13.83	-0.53
		120	Wind Normal	1.40	1.21	0.70	6.43	-12.72	-0.89
		150	Wind 90	1.33	0.67	1.15	10.96	-7.26	0.27
		180	Wind 60	1.32	0.00	1.32	12.60	-0.61	0.38
		210	Wind 90	1.34	-0.67	1.16	11.05	6.09	-0.85
		240	Wind Normal	1.40	-1.22	0.70	6.46	11.55	-0.87
		270	Wind 90	1.32	-1.32	0.00	-0.56	12.61	0.53
		300	Wind 60	1.30	-1.12	-0.65	-7.04	10.62	0.89
		330	Wind 90	1.33	-0.67	-1.15	-12.08	6.04	-0.27

Mast Totals - Service

Wind Azimuth °	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.00	-22.16	-3118.51	-12.88	0.69
30	10.54	-18.25	-2563.25	-1486.09	12.33
60	18.02	-10.40	-1475.13	-2547.82	9.17
90	21.28	0.00	-11.57	-3023.50	-9.73
120	19.32	11.16	1568.07	-2748.91	-15.55
150	10.52	18.22	2549.09	-1491.28	-3.04
180	0.00	20.64	2868.51	-12.88	-0.69
210	-10.54	18.25	2540.10	1460.33	-12.33
240	-19.34	11.17	1565.40	2718.52	-9.17
270	-21.28	0.00	-11.57	2997.74	9.73
300	-18.00	-10.39	-1477.80	2526.69	15.55
330	-10.52	-18.22	-2572.24	1465.52	3.04

Discrete Appurtenance Pressures - No Ice G_H = 0.850

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _A A _C Front ft ²	C _A A _C Side ft ²
5/8" x 10' lightning rod	240.0000	0.02	-5.00	2.89	333.00	1.630	185	0.63	0.63
Beacon	120.0000	0.07	5.00	2.89	329.00	1.626	184	2.40	2.40
OB light	0.0000	0.03	0.00	-10.39	200.00	1.464	166	0.50	0.50
OB light	120.0000	0.03	9.00	5.20	200.00	1.464	166	0.50	0.50
OB light	240.0000	0.03	-9.00	5.20	200.00	1.464	166	0.50	0.50
DCR- C10 (installed above 292')	240.0000	0.95	-5.43	3.14	310.00	1.606	182	89.30	89.30
3" x 30' Sch. 80	240.0000	0.31	-5.43	3.14	310.00	1.606	182	10.50	10.50
2.375 x 19.5' Huslter HX6-1448 Omni	0.0000	0.04	0.00	-14.37	245.00	1.528	173	5.00	5.00
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-11.37	235.00	1.515	172	14.80	14.80
2.375 x 19.5' Huslter HX6-1448 Omni	120.0000	0.04	12.45	7.19	245.00	1.528	173	5.00	5.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	38 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _A A _C Front ft ²	C _A A _C Side ft ²
6' Bogner Mount Heavy Duty	120.0000	0.70	9.85	5.69	235.00	1.515	172	14.80	14.80
SP1 R5 (Includes 4.5"x72" Pipe)	300.0000	0.14	-4.43	-2.56	220.00	1.494	169	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	300.0000	0.14	-4.43	-2.56	220.00	1.494	169	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	4.43	-2.56	220.00	1.494	169	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	4.43	-2.56	220.00	1.494	169	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	180.0000	0.14	0.00	5.12	220.00	1.494	169	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	180.0000	0.14	0.00	5.12	220.00	1.494	169	2.85	3.15
2.375 x 19.5' Huslter HX6-1448 Omni	0.0000	0.04	0.00	-17.55	190.00	1.449	164	5.00	5.00
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-14.55	180.00	1.432	162	14.80	14.80
2.375 x 19.5' Huslter HX6-1448 Omni	120.0000	0.04	15.20	8.77	190.00	1.449	164	5.00	5.00
6' Bogner Mount Heavy Duty	120.0000	0.70	12.60	7.27	180.00	1.432	162	14.80	14.80
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	6.11	-3.53	153.00	1.384	157	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	6.26	-3.61	147.00	1.373	156	2.85	3.15
RFI RDA6-99 UHF Yagi	0.0000	0.03	0.00	0.00	40.00	1.044	118	0.95	0.95
RFI BA160-67-T3 Omni	0.0000	0.06	0.00	-12.37	245.00	1.528	173	7.60	7.60
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-11.37	235.00	1.515	172	14.80	14.80
L Com HG5829EG Grid	60.0000	1.55	4.87	-2.81	220.00	1.494	169	38.60	38.60
SP1 HS6-K	120.0000	0.29	11.78	6.80	153.00	1.384	157	4.40	8.59
SP1 HS6-K	120.0000	0.29	12.08	6.98	147.00	1.373	156	4.40	8.59
RFI OA40-41 Dipole	0.0000	0.06	0.00	-15.55	190.00	1.449	164	8.00	8.00
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-14.55	180.00	1.432	162	14.80	14.80
72" x 22" Panels	0.0000	0.22	0.00	-15.18	169.00	1.413	160	20.27	13.69
QD66512-2									
RRU 4449 B5/B12	0.0000	0.02	0.00	-15.18	169.00	1.413	160	2.41	0.86
RRU 4426 B66	0.0000	0.02	0.00	-15.18	169.00	1.413	160	2.41	0.86
RRU 4415 B30	0.0000	0.02	0.00	-15.18	169.00	1.413	160	2.41	0.86
RRU 8843 B2/B66	0.0000	0.02	0.00	-15.18	169.00	1.413	160	2.41	0.86
RRU 4478 B14	0.0000	0.02	0.00	-15.18	169.00	1.413	160	2.41	0.86
Squid DC9 (27.4 x 16.7)	0.0000	0.09	0.00	-15.18	169.00	1.413	160	4.50	4.50
72" x 22" Panels	120.0000	0.22	13.15	7.59	169.00	1.413	160	20.27	13.69
QD66512-2									
RRU 4449 B5/B12	120.0000	0.02	13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 4426 B66	120.0000	0.02	13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 4415 B30	120.0000	0.02	13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 8843 B2/B66	120.0000	0.02	13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 4478 B14	120.0000	0.02	13.15	7.59	169.00	1.413	160	2.41	0.86
Squid DC9 (27.4 x 16.7)	120.0000	0.09	13.15	7.59	169.00	1.413	160	4.50	4.50
72" x 22" Panels	240.0000	0.22	-13.15	7.59	169.00	1.413	160	20.27	13.69
QD66512-2									
RRU 4449 B5/B12	240.0000	0.02	-13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 4426 B66	240.0000	0.02	-13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 4415 B30	240.0000	0.02	-13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 8843 B2/B66	240.0000	0.02	-13.15	7.59	169.00	1.413	160	2.41	0.86
RRU 4478 B14	240.0000	0.02	-13.15	7.59	169.00	1.413	160	2.41	0.86
Squid DC9 (27.4 x 16.7)	240.0000	0.09	-13.15	7.59	169.00	1.413	160	4.50	4.50
SP1 VFA10-HD-S	0.0000	0.55	0.00	-15.18	169.00	1.413	160	11.40	7.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 39 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _A C _C Front ft ²	C _A C _C Side ft ²
SP1 VFA10-HD-S	120.0000	0.55	13.15	7.59	169.00	1.413	160	11.40	7.00
SP1 VFA10-HD-S	240.0000	0.55	-13.15	7.59	169.00	1.413	160	11.40	7.00
2-1/2" x 72" Sch. 40	0.0000	0.14	0.00	-15.18	169.00	1.413	160	6.90	6.90
2-1/2" x 72" Sch. 40	120.0000	0.14	13.15	7.59	169.00	1.413	160	6.90	6.90
2-1/2" x 72" Sch. 40	240.0000	0.14	-13.15	7.59	169.00	1.413	160	6.90	6.90
AL8 W leg mounted	0.0000	0.16	0.00	-6.45	277.00	1.568	178	17.07	17.07
Sum Weight:		12.65							

Discrete Appurtenance Vectors - No Ice

5/8" x 10' lightning rod - Elevation 333 - From Leg C							
Wind Azimuth °	F _a K	F _s K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.05	0.09	0.00	-0.10	-32.65	0.12	-0.49
30	0.09	0.05	0.05	-0.09	-28.27	-16.24	-0.28
60	0.10	0.00	0.09	-0.05	-16.29	-28.22	0.00
90	0.09	0.05	0.10	0.00	0.07	-32.60	0.28
120	0.05	0.09	0.09	0.05	16.43	-28.22	0.49
150	0.00	0.10	0.05	0.09	28.40	-16.24	0.57
180	0.05	0.09	0.00	0.10	32.78	0.12	0.49
210	0.09	0.05	-0.05	0.09	28.40	16.47	0.28
240	0.10	0.00	-0.09	0.05	16.43	28.45	0.00
270	0.09	0.05	-0.10	0.00	0.07	32.83	-0.28
300	0.05	0.09	-0.09	-0.05	-16.29	28.45	-0.49
330	0.00	0.10	-0.05	-0.09	-28.27	16.47	-0.57

Beacon - Elevation 329 - From Leg B							
Wind Azimuth °	F _a K	F _s K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.19	0.33	0.00	-0.38	-123.60	-0.36	1.88
30	0.00	0.38	0.19	-0.33	-107.01	-62.27	2.17
60	0.19	0.33	0.33	-0.19	-61.69	-107.59	1.88
90	0.33	0.19	0.38	0.00	0.21	-124.18	1.09
120	0.38	0.00	0.33	0.19	62.12	-107.59	0.00
150	0.33	0.19	0.19	0.33	107.43	-62.27	-1.09
180	0.19	0.33	0.00	0.38	124.02	-0.36	-1.88
210	0.00	0.38	-0.19	0.33	107.43	61.54	-2.17
240	0.19	0.33	-0.33	0.19	62.12	106.86	-1.88
270	0.33	0.19	-0.38	0.00	0.21	123.45	-1.09
300	0.38	0.00	-0.33	-0.19	-61.69	106.86	0.00
330	0.33	0.19	-0.19	-0.33	-107.01	61.54	1.09

OB light - Elevation 200 - From Leg A							
Wind Azimuth °	F _a K	F _s K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.07	0.00	0.00	-0.07	-14.43	0.00	0.00
30	0.06	0.04	0.04	-0.06	-12.54	-7.06	-0.37
60	0.04	0.06	0.06	-0.04	-7.37	-12.23	-0.64
90	0.00	0.07	0.07	0.00	-0.31	-14.12	-0.73
120	0.04	0.06	0.06	0.04	6.75	-12.23	-0.64

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	40 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

OB light - Elevation 200 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	0.06	0.04	0.04	0.06	11.92	-7.06	-0.37
180	0.07	0.00	0.00	0.07	13.81	0.00	0.00
210	0.06	0.04	-0.04	0.06	11.92	7.06	0.37
240	0.04	0.06	-0.06	0.04	6.75	12.23	0.64
270	0.00	0.07	-0.07	0.00	-0.31	14.12	0.73
300	0.04	0.06	-0.06	-0.04	-7.37	12.23	0.64
330	0.06	0.04	-0.04	-0.06	-12.54	7.06	0.37

OB light - Elevation 200 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.04	0.06	0.00	-0.07	-13.96	-0.27	0.64
30	0.00	0.07	0.04	-0.06	-12.07	-7.33	0.73
60	0.04	0.06	0.06	-0.04	-6.90	-12.50	0.64
90	0.06	0.04	0.07	0.00	0.16	-14.39	0.37
120	0.07	0.00	0.06	0.04	7.22	-12.50	0.00
150	0.06	0.04	0.04	0.06	12.38	-7.33	-0.37
180	0.04	0.06	0.00	0.07	14.28	-0.27	-0.64
210	0.00	0.07	-0.04	0.06	12.38	6.79	-0.73
240	0.04	0.06	-0.06	0.04	7.22	11.96	-0.64
270	0.06	0.04	-0.07	0.00	0.16	13.85	-0.37
300	0.07	0.00	-0.06	-0.04	-6.90	11.96	0.00
330	0.06	0.04	-0.04	-0.06	-12.07	6.79	0.37

OB light - Elevation 200 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.04	0.06	0.00	-0.07	-13.96	0.27	-0.64
30	0.06	0.04	0.04	-0.06	-12.07	-6.79	-0.37
60	0.07	0.00	0.06	-0.04	-6.90	-11.96	0.00
90	0.06	0.04	0.07	0.00	0.16	-13.85	0.37
120	0.04	0.06	0.06	0.04	7.22	-11.96	0.64
150	0.00	0.07	0.04	0.06	12.38	-6.79	0.73
180	0.04	0.06	0.00	0.07	14.28	0.27	0.64
210	0.06	0.04	-0.04	0.06	12.38	7.33	0.37
240	0.07	0.00	-0.06	0.04	7.22	12.50	0.00
270	0.06	0.04	-0.07	0.00	0.16	14.39	-0.37
300	0.04	0.06	-0.06	-0.04	-6.90	12.50	-0.64
330	0.00	0.07	-0.04	-0.06	-12.07	7.33	-0.73

DCR- C10 (installed above 292') - Elevation 292.00-328.00 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	6.91	11.98	0.00	-13.83	-4283.77	5.14	-75.13
30	11.98	6.91	6.91	-11.98	-3709.45	-2138.23	-43.38
60	13.83	0.00	11.98	-6.91	-2140.40	-3707.28	0.00
90	11.98	6.91	13.83	0.00	2.97	-4281.59	43.38
120	6.91	11.98	11.98	6.91	2146.33	-3707.28	75.13
150	0.00	13.83	6.91	11.98	3715.39	-2138.23	86.75
180	6.91	11.98	0.00	13.83	4289.70	5.14	75.13
210	11.98	6.91	-6.91	11.98	3715.39	2148.51	43.38

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 41 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

DCR- C10 (installed above 292') - Elevation 292.00-328.00 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
240	13.83	0.00	-11.98	6.91	2146.33	3717.56	0.00
270	11.98	6.91	-13.83	0.00	2.97	4291.87	-43.38
300	6.91	11.98	-11.98	-6.91	-2140.40	3717.56	-75.13
330	0.00	13.83	-6.91	-11.98	-3709.45	2148.51	-86.75

3" x 30' Sch. 80 - Elevation 292.00-328.00 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.81	1.41	0.00	-1.63	-503.07	1.68	-8.83
30	1.41	0.81	0.81	-1.41	-435.54	-250.34	-5.10
60	1.63	0.00	1.41	-0.81	-251.05	-434.83	0.00
90	1.41	0.81	1.63	0.00	0.97	-502.36	5.10
120	0.81	1.41	1.41	0.81	252.99	-434.83	8.83
150	0.00	1.63	0.81	1.41	437.48	-250.34	10.20
180	0.81	1.41	0.00	1.63	505.01	1.68	8.83
210	1.41	0.81	-0.81	1.41	437.48	253.70	5.10
240	1.63	0.00	-1.41	0.81	252.99	438.19	0.00
270	1.41	0.81	-1.63	0.00	0.97	505.72	-5.10
300	0.81	1.41	-1.41	-0.81	-251.05	438.19	-8.83
330	0.00	1.63	-0.81	-1.41	-435.54	253.70	-10.20

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 245 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.66	0.00	0.00	-0.66	-163.08	0.00	0.00
30	0.57	0.33	0.33	-0.57	-141.31	-81.24	-4.77
60	0.33	0.57	0.57	-0.33	-81.84	-140.70	-8.25
90	0.00	0.66	0.66	0.00	-0.60	-162.47	-9.53
120	0.33	0.57	0.57	0.33	80.63	-140.70	-8.25
150	0.57	0.33	0.33	0.57	140.10	-81.24	-4.77
180	0.66	0.00	0.00	0.66	161.87	0.00	0.00
210	0.57	0.33	-0.33	0.57	140.10	81.24	4.77
240	0.33	0.57	-0.57	0.33	80.63	140.70	8.25
270	0.00	0.66	-0.66	0.00	-0.60	162.47	9.53
300	0.33	0.57	-0.57	-0.33	-81.84	140.70	8.25
330	0.57	0.33	-0.33	-0.57	-141.31	81.24	4.77

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.16	0.00	0.00	-2.16	-516.02	0.00	0.00
30	1.87	1.08	1.08	-1.87	-447.96	-254.03	-12.29
60	1.08	1.87	1.87	-1.08	-261.99	-440.00	-21.29
90	0.00	2.16	2.16	0.00	-7.96	-508.06	-24.59
120	1.08	1.87	1.87	1.08	246.07	-440.00	-21.29
150	1.87	1.08	1.08	1.87	432.04	-254.03	-12.29
180	2.16	0.00	0.00	2.16	500.10	0.00	0.00
210	1.87	1.08	-1.08	1.87	432.04	254.03	12.29
240	1.08	1.87	-1.87	1.08	246.07	440.00	21.29
270	0.00	2.16	-2.16	0.00	-7.96	508.06	24.59
300	1.08	1.87	-1.87	-1.08	-261.99	440.00	21.29

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	42 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	1.87	1.08	-1.08	-1.87	-447.96	254.03	12.29

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 245 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.33	0.57	0.00	-0.66	-162.17	-0.52	8.25
30	0.00	0.66	0.33	-0.57	-140.40	-81.76	9.53
60	0.33	0.57	0.57	-0.33	-80.93	-141.23	8.25
90	0.57	0.33	0.66	0.00	0.30	-162.99	4.77
120	0.66	0.00	0.57	0.33	81.54	-141.23	0.00
150	0.57	0.33	0.33	0.57	141.01	-81.76	-4.77
180	0.33	0.57	0.00	0.66	162.77	-0.52	-8.25
210	0.00	0.66	-0.33	0.57	141.01	80.71	-9.53
240	0.33	0.57	-0.57	0.33	81.54	140.18	-8.25
270	0.57	0.33	-0.66	0.00	0.30	161.95	-4.77
300	0.66	0.00	-0.57	-0.33	-80.93	140.18	0.00
330	0.57	0.33	-0.33	-0.57	-140.40	80.71	4.77

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.08	1.87	0.00	-2.16	-504.08	-6.89	21.29
30	0.00	2.16	1.08	-1.87	-436.02	-260.93	24.59
60	1.08	1.87	1.87	-1.08	-250.05	-446.89	21.29
90	1.87	1.08	2.16	0.00	3.98	-514.96	12.29
120	2.16	0.00	1.87	1.08	258.01	-446.89	0.00
150	1.87	1.08	1.08	1.87	443.98	-260.93	-12.29
180	1.08	1.87	0.00	2.16	512.04	-6.89	-21.29
210	0.00	2.16	-1.08	1.87	443.98	247.14	-24.59
240	1.08	1.87	-1.87	1.08	258.01	433.10	-21.29
270	1.87	1.08	-2.16	0.00	3.98	501.17	-12.29
300	2.16	0.00	-1.87	-1.08	-250.05	433.10	0.00
330	1.87	1.08	-1.08	-1.87	-436.02	247.14	12.29

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.21	0.39	0.02	-0.44	-97.81	-3.51	-2.01
30	0.00	0.45	0.23	-0.39	-86.81	-49.31	-2.32
60	0.21	0.39	0.37	-0.24	-52.65	-81.74	-2.01
90	0.36	0.23	0.42	-0.02	-4.47	-92.10	-1.16
120	0.41	0.00	0.36	0.21	44.81	-77.62	0.00
150	0.36	0.23	0.19	0.37	81.99	-42.18	1.16
180	0.21	0.39	-0.02	0.44	97.11	4.72	2.01
210	0.00	0.45	-0.23	0.39	86.11	50.53	2.32
240	0.21	0.39	-0.37	0.24	51.94	82.95	2.01
270	0.36	0.23	-0.42	0.02	3.77	93.31	1.16
300	0.41	0.00	-0.36	-0.21	-45.51	78.83	0.00
330	0.36	0.23	-0.19	-0.37	-82.69	43.39	-1.16

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	43 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.21	0.39	0.02	-0.44	-97.81	-3.51	-2.01
30	0.00	0.45	0.23	-0.39	-86.81	-49.31	-2.32
60	0.21	0.39	0.37	-0.24	-52.65	-81.74	-2.01
90	0.36	0.23	0.42	-0.02	-4.47	-92.10	-1.16
120	0.41	0.00	0.36	0.21	44.81	-77.62	0.00
150	0.36	0.23	0.19	0.37	81.99	-42.18	1.16
180	0.21	0.39	-0.02	0.44	97.11	4.72	2.01
210	0.00	0.45	-0.23	0.39	86.11	50.53	2.32
240	0.21	0.39	-0.37	0.24	51.94	82.95	2.01
270	0.36	0.23	-0.42	0.02	3.77	93.31	1.16
300	0.41	0.00	-0.36	-0.21	-45.51	78.83	0.00
330	0.36	0.23	-0.19	-0.37	-82.69	43.39	-1.16

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.21	0.39	-0.02	-0.44	-97.81	3.51	2.01
30	0.36	0.23	0.19	-0.37	-82.69	-43.39	1.16
60	0.41	0.00	0.36	-0.21	-45.51	-78.83	0.00
90	0.36	0.23	0.42	0.02	3.77	-93.31	-1.16
120	0.21	0.39	0.37	0.24	51.94	-82.95	-2.01
150	0.00	0.45	0.23	0.39	86.11	-50.53	-2.32
180	0.21	0.39	0.02	0.44	97.11	-4.72	-2.01
210	0.36	0.23	-0.19	0.37	81.99	42.18	-1.16
240	0.41	0.00	-0.36	0.21	44.81	77.62	0.00
270	0.36	0.23	-0.42	-0.02	-4.47	92.10	1.16
300	0.21	0.39	-0.37	-0.24	-52.65	81.74	2.01
330	0.00	0.45	-0.23	-0.39	-86.81	49.31	2.32

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.21	0.39	-0.02	-0.44	-97.81	3.51	2.01
30	0.36	0.23	0.19	-0.37	-82.69	-43.39	1.16
60	0.41	0.00	0.36	-0.21	-45.51	-78.83	0.00
90	0.36	0.23	0.42	0.02	3.77	-93.31	-1.16
120	0.21	0.39	0.37	0.24	51.94	-82.95	-2.01
150	0.00	0.45	0.23	0.39	86.11	-50.53	-2.32
180	0.21	0.39	0.02	0.44	97.11	-4.72	-2.01
210	0.36	0.23	-0.19	0.37	81.99	42.18	-1.16
240	0.41	0.00	-0.36	0.21	44.81	77.62	0.00
270	0.36	0.23	-0.42	-0.02	-4.47	92.10	1.16
300	0.21	0.39	-0.37	-0.24	-52.65	81.74	2.01
330	0.00	0.45	-0.23	-0.39	-86.81	49.31	2.32

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.41	0.00	0.00	-0.41	-89.63	0.00	0.00
30	0.36	0.23	0.23	-0.36	-77.53	-49.92	1.16

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	44 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
60	0.21	0.39	0.39	-0.21	-44.46	-86.46	2.01
90	0.00	0.45	0.45	0.00	0.70	-99.84	2.32
120	0.21	0.39	0.39	0.21	45.87	-86.46	2.01
150	0.36	0.23	0.23	0.36	78.93	-49.92	1.16
180	0.41	0.00	0.00	0.41	91.03	0.00	0.00
210	0.36	0.23	-0.23	0.36	78.93	49.92	-1.16
240	0.21	0.39	-0.39	0.21	45.87	86.46	-2.01
270	0.00	0.45	-0.45	0.00	0.70	99.84	-2.32
300	0.21	0.39	-0.39	-0.21	-44.46	86.46	-2.01
330	0.36	0.23	-0.23	-0.36	-77.53	49.92	-1.16

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.41	0.00	0.00	-0.41	-89.63	0.00	0.00
30	0.36	0.23	0.23	-0.36	-77.53	-49.92	1.16
60	0.21	0.39	0.39	-0.21	-44.46	-86.46	2.01
90	0.00	0.45	0.45	0.00	0.70	-99.84	2.32
120	0.21	0.39	0.39	0.21	45.87	-86.46	2.01
150	0.36	0.23	0.23	0.36	78.93	-49.92	1.16
180	0.41	0.00	0.00	0.41	91.03	0.00	0.00
210	0.36	0.23	-0.23	0.36	78.93	49.92	-1.16
240	0.21	0.39	-0.39	0.21	45.87	86.46	-2.01
270	0.00	0.45	-0.45	0.00	0.70	99.84	-2.32
300	0.21	0.39	-0.39	-0.21	-44.46	86.46	-2.01
330	0.36	0.23	-0.23	-0.36	-77.53	49.92	-1.16

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 190 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.63	0.00	0.00	-0.63	-120.17	0.00	0.00
30	0.54	0.31	0.31	-0.54	-104.17	-59.72	-5.51
60	0.31	0.54	0.54	-0.31	-60.45	-103.43	-9.55
90	0.00	0.63	0.63	0.00	-0.74	-119.43	-11.03
120	0.31	0.54	0.54	0.31	58.98	-103.43	-9.55
150	0.54	0.31	0.31	0.54	102.69	-59.72	-5.51
180	0.63	0.00	0.00	0.63	118.69	0.00	0.00
210	0.54	0.31	-0.31	0.54	102.69	59.72	5.51
240	0.31	0.54	-0.54	0.31	58.98	103.43	9.55
270	0.00	0.63	-0.63	0.00	-0.74	119.43	11.03
300	0.31	0.54	-0.54	-0.31	-60.45	103.43	9.55
330	0.54	0.31	-0.31	-0.54	-104.17	59.72	5.51

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.04	0.00	0.00	-2.04	-378.10	0.00	0.00
30	1.77	1.02	1.02	-1.77	-328.80	-183.96	-14.87
60	1.02	1.77	1.77	-1.02	-194.14	-318.62	-25.75
90	0.00	2.04	2.04	0.00	-10.18	-367.91	-29.73
120	1.02	1.77	1.77	1.02	173.77	-318.62	-25.75

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	45 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	1.77	1.02	1.02	1.77	308.44	-183.96	-14.87
180	2.04	0.00	0.00	2.04	357.73	0.00	0.00
210	1.77	1.02	-1.02	1.77	308.44	183.96	14.87
240	1.02	1.77	-1.77	1.02	173.77	318.62	25.75
270	0.00	2.04	-2.04	0.00	-10.18	367.91	29.73
300	1.02	1.77	-1.77	-1.02	-194.14	318.62	25.75
330	1.77	1.02	-1.02	-1.77	-328.80	183.96	14.87

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 190 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.31	0.54	0.00	-0.63	-119.06	-0.64	9.55
30	0.00	0.63	0.31	-0.54	-103.06	-60.35	11.03
60	0.31	0.54	0.54	-0.31	-59.35	-104.07	9.55
90	0.54	0.31	0.63	0.00	0.37	-120.07	5.51
120	0.63	0.00	0.54	0.31	60.08	-104.07	0.00
150	0.54	0.31	0.31	0.54	103.80	-60.35	-5.51
180	0.31	0.54	0.00	0.63	119.80	-0.64	-9.55
210	0.00	0.63	-0.31	0.54	103.80	59.08	-11.03
240	0.31	0.54	-0.54	0.31	60.08	102.79	-9.55
270	0.54	0.31	-0.63	0.00	0.37	118.79	-5.51
300	0.63	0.00	-0.54	-0.31	-59.35	102.79	0.00
330	0.54	0.31	-0.31	-0.54	-103.06	59.08	5.51

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.02	1.77	0.00	-2.04	-362.82	-8.82	25.75
30	0.00	2.04	1.02	-1.77	-313.53	-192.77	29.73
60	1.02	1.77	1.77	-1.02	-178.86	-327.44	25.75
90	1.77	1.02	2.04	0.00	5.09	-376.73	14.87
120	2.04	0.00	1.77	1.02	189.05	-327.44	0.00
150	1.77	1.02	1.02	1.77	323.71	-192.77	-14.87
180	1.02	1.77	0.00	2.04	373.00	-8.82	-25.75
210	0.00	2.04	-1.02	1.77	323.71	175.14	-29.73
240	1.02	1.77	-1.77	1.02	189.05	309.80	-25.75
270	1.77	1.02	-2.04	0.00	5.09	359.09	-14.87
300	2.04	0.00	-1.77	-1.02	-178.86	309.80	0.00
330	1.77	1.02	-1.02	-1.77	-313.53	175.14	14.87

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 153 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.19	0.36	-0.02	-0.41	-63.27	1.82	2.57
30	0.33	0.21	0.18	-0.35	-53.53	-28.40	1.48
60	0.38	0.00	0.33	-0.19	-29.58	-51.24	0.00
90	0.33	0.21	0.39	0.02	2.17	-60.56	-1.48
120	0.19	0.36	0.35	0.22	33.21	-53.89	-2.57
150	0.00	0.42	0.21	0.36	55.22	-33.00	-2.97
180	0.19	0.36	0.02	0.41	62.31	-3.49	-2.57
210	0.33	0.21	-0.18	0.35	52.57	26.73	-1.48

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	46 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 153 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
240	0.38	0.00	-0.33	0.19	28.61	49.56	0.00
270	0.33	0.21	-0.39	-0.02	-3.14	58.89	1.48
300	0.19	0.36	-0.35	-0.22	-34.18	52.21	2.57
330	0.00	0.42	-0.21	-0.36	-56.19	31.32	2.97

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 147 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.19	0.36	-0.02	-0.41	-60.32	1.67	2.61
30	0.33	0.21	0.18	-0.34	-51.04	-27.12	1.51
60	0.38	0.00	0.33	-0.19	-28.22	-48.87	0.00
90	0.33	0.21	0.39	0.02	2.03	-57.76	-1.51
120	0.19	0.36	0.34	0.22	31.60	-51.40	-2.61
150	0.00	0.42	0.21	0.36	52.58	-31.50	-3.01
180	0.19	0.36	0.02	0.41	59.33	-3.38	-2.61
210	0.33	0.21	-0.18	0.34	50.05	25.41	-1.51
240	0.38	0.00	-0.33	0.19	27.23	47.16	0.00
270	0.33	0.21	-0.39	-0.02	-3.02	56.05	1.51
300	0.19	0.36	-0.34	-0.22	-32.59	49.69	2.61
330	0.00	0.42	-0.21	-0.36	-53.57	29.78	3.01

RF1 RDA6-99 UHF Yagi - Elevation 40 - None A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.10	0.00	0.00	-0.10	-3.82	0.00	0.00
30	0.10	0.00	0.05	-0.08	-3.31	-1.91	0.00
60	0.10	0.00	0.08	-0.05	-1.91	-3.31	0.00
90	0.10	0.00	0.10	0.00	0.00	-3.82	0.00
120	0.10	0.00	0.08	0.05	1.91	-3.31	0.00
150	0.10	0.00	0.05	0.08	3.31	-1.91	0.00
180	0.10	0.00	0.00	0.10	3.82	0.00	0.00
210	0.10	0.00	-0.05	0.08	3.31	1.91	0.00
240	0.10	0.00	-0.08	0.05	1.91	3.31	0.00
270	0.10	0.00	-0.10	0.00	0.00	3.82	0.00
300	0.10	0.00	-0.08	-0.05	-1.91	3.31	0.00
330	0.10	0.00	-0.05	-0.08	-3.31	1.91	0.00

RF1 BA160-67-T3 Omni - Elevation 245 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.01	0.00	0.00	-1.01	-247.70	0.00	0.00
30	0.87	0.50	0.50	-0.87	-214.61	-123.48	-6.24
60	0.50	0.87	0.87	-0.50	-124.22	-213.87	-10.80
90	0.00	1.01	1.01	0.00	-0.74	-246.96	-12.47
120	0.50	0.87	0.87	0.50	122.74	-213.87	-10.80
150	0.87	0.50	0.50	0.87	213.13	-123.48	-6.24
180	1.01	0.00	0.00	1.01	246.21	0.00	0.00
210	0.87	0.50	-0.50	0.87	213.13	123.48	6.24
240	0.50	0.87	-0.87	0.50	122.74	213.87	10.80
270	0.00	1.01	-1.01	0.00	-0.74	246.96	12.47
300	0.50	0.87	-0.87	-0.50	-124.22	213.87	10.80

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	47 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RFI BA160-67-T3 Omni - Elevation 245 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	0.87	0.50	-0.50	-0.87	-214.61	123.48	6.24

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.16	0.00	0.00	-2.16	-516.02	0.00	0.00
30	1.87	1.08	1.08	-1.87	-447.96	-254.03	-12.29
60	1.08	1.87	1.87	-1.08	-261.99	-440.00	-21.29
90	0.00	2.16	2.16	0.00	-7.96	-508.06	-24.59
120	1.08	1.87	1.87	1.08	246.07	-440.00	-21.29
150	1.87	1.08	1.08	1.87	432.04	-254.03	-12.29
180	2.16	0.00	0.00	2.16	500.10	0.00	0.00
210	1.87	1.08	-1.08	1.87	432.04	254.03	12.29
240	1.08	1.87	-1.87	1.08	246.07	440.00	21.29
270	0.00	2.16	-2.16	0.00	-7.96	508.06	24.59
300	1.08	1.87	-1.87	-1.08	-261.99	440.00	21.29
330	1.87	1.08	-1.08	-1.87	-447.96	254.03	12.29

L Com HG5829EG Grid - Elevation 220 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.78	4.82	0.00	-5.56	-1227.75	-7.54	27.06
30	4.82	2.78	2.78	-4.82	-1063.85	-619.24	15.62
60	5.56	0.00	4.82	-2.78	-616.05	-1067.04	0.00
90	4.82	2.78	5.56	0.00	-4.35	-1230.94	-15.62
120	2.78	4.82	4.82	2.78	607.34	-1067.04	-27.06
150	0.00	5.56	2.78	4.82	1055.14	-619.24	-31.25
180	2.78	4.82	0.00	5.56	1219.04	-7.54	-27.06
210	4.82	2.78	-2.78	4.82	1055.14	604.16	-15.62
240	5.56	0.00	-4.82	2.78	607.34	1051.95	0.00
270	4.82	2.78	-5.56	0.00	-4.35	1215.86	15.62
300	2.78	4.82	-4.82	-2.78	-616.05	1051.95	27.06
330	0.00	5.56	-2.78	-4.82	-1063.85	604.16	31.25

SP1 HS6-K - Elevation 153 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.29	0.99	0.24	-1.01	-152.02	-40.50	13.51
30	0.00	1.15	0.57	-0.99	-149.91	-91.15	15.60
60	0.29	0.99	0.75	-0.71	-107.10	-118.31	13.51
90	0.51	0.57	0.73	-0.24	-35.05	-114.69	7.80
120	0.59	0.00	0.51	0.29	46.92	-81.26	0.00
150	0.51	0.57	0.15	0.75	116.85	-26.99	-7.80
180	0.29	0.99	-0.24	1.01	156.01	33.59	-13.51
210	0.00	1.15	-0.57	0.99	153.90	84.25	-15.60
240	0.29	0.99	-0.75	0.71	111.08	111.40	-13.51
270	0.51	0.57	-0.73	0.24	39.04	107.78	-7.80
300	0.59	0.00	-0.51	-0.29	-42.93	74.36	0.00
330	0.51	0.57	-0.15	-0.75	-112.86	20.08	7.80

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	48 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

SPI HS6-K - Elevation 147 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.29	0.98	0.24	-1.00	-144.69	-38.84	13.74
30	0.00	1.14	0.57	-0.98	-142.68	-87.10	15.86
60	0.29	0.98	0.74	-0.71	-101.89	-112.97	13.74
90	0.50	0.57	0.72	-0.24	-33.25	-109.52	7.93
120	0.58	0.00	0.50	0.29	44.84	-77.67	0.00
150	0.50	0.57	0.15	0.74	111.47	-25.96	-7.93
180	0.29	0.98	-0.24	1.00	148.78	31.76	-13.74
210	0.00	1.14	-0.57	0.98	146.77	80.01	-15.86
240	0.29	0.98	-0.74	0.71	105.98	105.89	-13.74
270	0.50	0.57	-0.72	0.24	37.34	102.44	-7.93
300	0.58	0.00	-0.50	-0.29	-40.75	70.59	0.00
330	0.50	0.57	-0.15	-0.74	-107.38	18.88	7.93

RFT OA40-41 Dipole - Elevation 190 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.01	0.00	0.00	-1.01	-192.02	0.00	0.00
30	0.87	0.50	0.50	-0.87	-166.42	-95.55	-7.82
60	0.50	0.87	0.87	-0.50	-96.48	-165.49	-13.54
90	0.00	1.01	1.01	0.00	-0.93	-191.09	-15.64
120	0.50	0.87	0.87	0.50	94.61	-165.49	-13.54
150	0.87	0.50	0.50	0.87	164.56	-95.55	-7.82
180	1.01	0.00	0.00	1.01	190.16	0.00	0.00
210	0.87	0.50	-0.50	0.87	164.56	95.55	7.82
240	0.50	0.87	-0.87	0.50	94.61	165.49	13.54
270	0.00	1.01	-1.01	0.00	-0.93	191.09	15.64
300	0.50	0.87	-0.87	-0.50	-96.48	165.49	13.54
330	0.87	0.50	-0.50	-0.87	-166.42	95.55	7.82

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.04	0.00	0.00	-2.04	-378.10	0.00	0.00
30	1.77	1.02	1.02	-1.77	-328.80	-183.96	-14.87
60	1.02	1.77	1.77	-1.02	-194.14	-318.62	-25.75
90	0.00	2.04	2.04	0.00	-10.18	-367.91	-29.73
120	1.02	1.77	1.77	1.02	173.77	-318.62	-25.75
150	1.77	1.02	1.02	1.77	308.44	-183.96	-14.87
180	2.04	0.00	0.00	2.04	357.73	0.00	0.00
210	1.77	1.02	-1.02	1.77	308.44	183.96	14.87
240	1.02	1.77	-1.77	1.02	173.77	318.62	25.75
270	0.00	2.04	-2.04	0.00	-10.18	367.91	29.73
300	1.02	1.77	-1.77	-1.02	-194.14	318.62	25.75
330	1.77	1.02	-1.02	-1.77	-328.80	183.96	14.87

72" x 22" Panels QD66512-2 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.21	0.00	0.00	-2.21	-376.83	0.00	0.00
30	1.91	0.75	0.75	-1.91	-326.80	-126.09	-11.33

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	49 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

72" x 22" Panels QD66512-2 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
60	1.11	1.29	1.29	-1.11	-190.09	-218.39	-19.62
90	0.00	1.49	1.49	0.00	-3.34	-252.17	-22.65
120	1.11	1.29	1.29	1.11	183.41	-218.39	-19.62
150	1.91	0.75	0.75	1.91	320.12	-126.09	-11.33
180	2.21	0.00	0.00	2.21	370.15	0.00	0.00
210	1.91	0.75	-0.75	1.91	320.12	126.09	11.33
240	1.11	1.29	-1.29	1.11	183.41	218.39	19.62
270	0.00	1.49	-1.49	0.00	-3.34	252.17	22.65
300	1.11	1.29	-1.29	-1.11	-190.09	218.39	19.62
330	1.91	0.75	-0.75	-1.91	-326.80	126.09	11.33

RRU 4449 B5/B12 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.26	0.00	0.00	-0.26	-44.68	0.00	0.00
30	0.23	0.05	0.05	-0.23	-38.73	-7.93	-0.71
60	0.13	0.08	0.08	-0.13	-22.49	-13.73	-1.23
90	0.00	0.09	0.09	0.00	-0.30	-15.86	-1.42
120	0.13	0.08	0.08	0.13	21.88	-13.73	-1.23
150	0.23	0.05	0.05	0.23	38.13	-7.93	-0.71
180	0.26	0.00	0.00	0.26	44.07	0.00	0.00
210	0.23	0.05	-0.05	0.23	38.13	7.93	0.71
240	0.13	0.08	-0.08	0.13	21.88	13.73	1.23
270	0.00	0.09	-0.09	0.00	-0.30	15.86	1.42
300	0.13	0.08	-0.08	-0.13	-22.49	13.73	1.23
330	0.23	0.05	-0.05	-0.23	-38.73	7.93	0.71

RRU 4426 B66 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.26	0.00	0.00	-0.26	-44.68	0.00	0.00
30	0.23	0.05	0.05	-0.23	-38.73	-7.93	-0.71
60	0.13	0.08	0.08	-0.13	-22.49	-13.73	-1.23
90	0.00	0.09	0.09	0.00	-0.30	-15.86	-1.42
120	0.13	0.08	0.08	0.13	21.88	-13.73	-1.23
150	0.23	0.05	0.05	0.23	38.13	-7.93	-0.71
180	0.26	0.00	0.00	0.26	44.07	0.00	0.00
210	0.23	0.05	-0.05	0.23	38.13	7.93	0.71
240	0.13	0.08	-0.08	0.13	21.88	13.73	1.23
270	0.00	0.09	-0.09	0.00	-0.30	15.86	1.42
300	0.13	0.08	-0.08	-0.13	-22.49	13.73	1.23
330	0.23	0.05	-0.05	-0.23	-38.73	7.93	0.71

RRU 4415 B30 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.26	0.00	0.00	-0.26	-44.68	0.00	0.00
30	0.23	0.05	0.05	-0.23	-38.73	-7.93	-0.71
60	0.13	0.08	0.08	-0.13	-22.49	-13.73	-1.23
90	0.00	0.09	0.09	0.00	-0.30	-15.86	-1.42
120	0.13	0.08	0.08	0.13	21.88	-13.73	-1.23

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	50 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4415 B30 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	0.23	0.05	0.05	0.23	38.13	-7.93	-0.71
180	0.26	0.00	0.00	0.26	44.07	0.00	0.00
210	0.23	0.05	-0.05	0.23	38.13	7.93	0.71
240	0.13	0.08	-0.08	0.13	21.88	13.73	1.23
270	0.00	0.09	-0.09	0.00	-0.30	15.86	1.42
300	0.13	0.08	-0.08	-0.13	-22.49	13.73	1.23
330	0.23	0.05	-0.05	-0.23	-38.73	7.93	0.71

RRU 8843 B2/B66 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.26	0.00	0.00	-0.26	-44.68	0.00	0.00
30	0.23	0.05	0.05	-0.23	-38.73	-7.93	-0.71
60	0.13	0.08	0.08	-0.13	-22.49	-13.73	-1.23
90	0.00	0.09	0.09	0.00	-0.30	-15.86	-1.42
120	0.13	0.08	0.08	0.13	21.88	-13.73	-1.23
150	0.23	0.05	0.05	0.23	38.13	-7.93	-0.71
180	0.26	0.00	0.00	0.26	44.07	0.00	0.00
210	0.23	0.05	-0.05	0.23	38.13	7.93	0.71
240	0.13	0.08	-0.08	0.13	21.88	13.73	1.23
270	0.00	0.09	-0.09	0.00	-0.30	15.86	1.42
300	0.13	0.08	-0.08	-0.13	-22.49	13.73	1.23
330	0.23	0.05	-0.05	-0.23	-38.73	7.93	0.71

RRU 4478 B14 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.26	0.00	0.00	-0.26	-44.68	0.00	0.00
30	0.23	0.05	0.05	-0.23	-38.73	-7.93	-0.71
60	0.13	0.08	0.08	-0.13	-22.49	-13.73	-1.23
90	0.00	0.09	0.09	0.00	-0.30	-15.86	-1.42
120	0.13	0.08	0.08	0.13	21.88	-13.73	-1.23
150	0.23	0.05	0.05	0.23	38.13	-7.93	-0.71
180	0.26	0.00	0.00	0.26	44.07	0.00	0.00
210	0.23	0.05	-0.05	0.23	38.13	7.93	0.71
240	0.13	0.08	-0.08	0.13	21.88	13.73	1.23
270	0.00	0.09	-0.09	0.00	-0.30	15.86	1.42
300	0.13	0.08	-0.08	-0.13	-22.49	13.73	1.23
330	0.23	0.05	-0.05	-0.23	-38.73	7.93	0.71

Squid DC9 (27.4 x 16.7) - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.49	0.00	0.00	-0.49	-84.25	0.00	0.00
30	0.42	0.25	0.25	-0.42	-73.15	-41.46	-3.72
60	0.25	0.42	0.42	-0.25	-42.80	-71.81	-6.45
90	0.00	0.49	0.49	0.00	-1.34	-82.92	-7.45
120	0.25	0.42	0.42	0.25	40.12	-71.81	-6.45
150	0.42	0.25	0.25	0.42	70.47	-41.46	-3.72
180	0.49	0.00	0.00	0.49	81.58	0.00	0.00
210	0.42	0.25	-0.25	0.42	70.47	41.46	3.72

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	51 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Squid DC9 (27.4 x 16.7) - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
240	0.25	0.42	-0.42	0.25	40.12	71.81	6.45
270	0.00	0.49	-0.49	0.00	-1.34	82.92	7.45
300	0.25	0.42	-0.42	-0.25	-42.80	71.81	6.45
330	0.42	0.25	-0.25	-0.42	-73.15	41.46	3.72

72" x 22" Panels QD66512-2 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.11	1.29	-0.31	-1.67	-280.83	49.64	19.62
30	0.00	1.49	0.75	-1.29	-216.72	-128.98	22.65
60	1.11	1.29	1.60	-0.57	-94.09	-273.82	19.62
90	1.91	0.75	2.03	0.31	54.20	-346.06	11.33
120	2.21	0.00	1.91	1.11	188.42	-326.35	0.00
150	1.91	0.75	1.28	1.60	272.59	-219.97	-11.33
180	1.11	1.29	0.31	1.67	284.17	-55.43	-19.62
210	0.00	1.49	-0.75	1.29	220.06	123.19	-22.65
240	1.11	1.29	-1.60	0.57	97.43	268.03	-19.62
270	1.91	0.75	-2.03	-0.31	-50.86	340.27	-11.33
300	2.21	0.00	-1.91	-1.11	-185.08	320.56	0.00
330	1.91	0.75	-1.28	-1.60	-269.25	214.18	11.33

RRU 4449 B5/B12 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	-0.07	-0.14	-22.83	12.09	1.23
30	0.00	0.09	0.05	-0.08	-13.58	-8.19	1.42
60	0.13	0.08	0.15	-0.00	-0.65	-26.34	1.23
90	0.23	0.05	0.22	0.07	12.50	-37.51	0.71
120	0.26	0.00	0.23	0.13	22.34	-38.69	0.00
150	0.23	0.05	0.17	0.15	26.23	-29.58	-0.71
180	0.13	0.08	0.07	0.14	23.14	-12.61	-1.23
210	0.00	0.09	-0.05	0.08	13.88	7.66	-1.42
240	0.13	0.08	-0.15	0.00	0.95	25.82	-1.23
270	0.23	0.05	-0.22	-0.07	-12.20	36.98	-0.71
300	0.26	0.00	-0.23	-0.13	-22.04	38.17	0.00
330	0.23	0.05	-0.17	-0.15	-25.93	29.05	0.71

RRU 4426 B66 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	-0.07	-0.14	-22.83	12.09	1.23
30	0.00	0.09	0.05	-0.08	-13.58	-8.19	1.42
60	0.13	0.08	0.15	-0.00	-0.65	-26.34	1.23
90	0.23	0.05	0.22	0.07	12.50	-37.51	0.71
120	0.26	0.00	0.23	0.13	22.34	-38.69	0.00
150	0.23	0.05	0.17	0.15	26.23	-29.58	-0.71
180	0.13	0.08	0.07	0.14	23.14	-12.61	-1.23
210	0.00	0.09	-0.05	0.08	13.88	7.66	-1.42
240	0.13	0.08	-0.15	0.00	0.95	25.82	-1.23
270	0.23	0.05	-0.22	-0.07	-12.20	36.98	-0.71
300	0.26	0.00	-0.23	-0.13	-22.04	38.17	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	52 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4426 B66 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	0.23	0.05	-0.17	-0.15	-25.93	29.05	0.71

RRU 4415 B30 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	-0.07	-0.14	-22.83	12.09	1.23
30	0.00	0.09	0.05	-0.08	-13.58	-8.19	1.42
60	0.13	0.08	0.15	-0.00	-0.65	-26.34	1.23
90	0.23	0.05	0.22	0.07	12.50	-37.51	0.71
120	0.26	0.00	0.23	0.13	22.34	-38.69	0.00
150	0.23	0.05	0.17	0.15	26.23	-29.58	-0.71
180	0.13	0.08	0.07	0.14	23.14	-12.61	-1.23
210	0.00	0.09	-0.05	0.08	13.88	7.66	-1.42
240	0.13	0.08	-0.15	0.00	0.95	25.82	-1.23
270	0.23	0.05	-0.22	-0.07	-12.20	36.98	-0.71
300	0.26	0.00	-0.23	-0.13	-22.04	38.17	0.00
330	0.23	0.05	-0.17	-0.15	-25.93	29.05	0.71

RRU 8843 B2/B66 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	-0.07	-0.14	-22.83	12.09	1.23
30	0.00	0.09	0.05	-0.08	-13.58	-8.19	1.42
60	0.13	0.08	0.15	-0.00	-0.65	-26.34	1.23
90	0.23	0.05	0.22	0.07	12.50	-37.51	0.71
120	0.26	0.00	0.23	0.13	22.34	-38.69	0.00
150	0.23	0.05	0.17	0.15	26.23	-29.58	-0.71
180	0.13	0.08	0.07	0.14	23.14	-12.61	-1.23
210	0.00	0.09	-0.05	0.08	13.88	7.66	-1.42
240	0.13	0.08	-0.15	0.00	0.95	25.82	-1.23
270	0.23	0.05	-0.22	-0.07	-12.20	36.98	-0.71
300	0.26	0.00	-0.23	-0.13	-22.04	38.17	0.00
330	0.23	0.05	-0.17	-0.15	-25.93	29.05	0.71

RRU 4478 B14 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	-0.07	-0.14	-22.83	12.09	1.23
30	0.00	0.09	0.05	-0.08	-13.58	-8.19	1.42
60	0.13	0.08	0.15	-0.00	-0.65	-26.34	1.23
90	0.23	0.05	0.22	0.07	12.50	-37.51	0.71
120	0.26	0.00	0.23	0.13	22.34	-38.69	0.00
150	0.23	0.05	0.17	0.15	26.23	-29.58	-0.71
180	0.13	0.08	0.07	0.14	23.14	-12.61	-1.23
210	0.00	0.09	-0.05	0.08	13.88	7.66	-1.42
240	0.13	0.08	-0.15	0.00	0.95	25.82	-1.23
270	0.23	0.05	-0.22	-0.07	-12.20	36.98	-0.71
300	0.26	0.00	-0.23	-0.13	-22.04	38.17	0.00
330	0.23	0.05	-0.17	-0.15	-25.93	29.05	0.71

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	53 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Squid DC9 (27.4 x 16.7) - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.25	0.42	0.00	-0.49	-82.25	-1.16	6.45
30	0.00	0.49	0.25	-0.42	-71.14	-42.62	7.45
60	0.25	0.42	0.42	-0.25	-40.79	-72.97	6.45
90	0.42	0.25	0.49	0.00	0.67	-84.07	3.72
120	0.49	0.00	0.42	0.25	42.13	-72.97	0.00
150	0.42	0.25	0.25	0.42	72.48	-42.62	-3.72
180	0.25	0.42	0.00	0.49	83.58	-1.16	-6.45
210	0.00	0.49	-0.25	0.42	72.48	40.30	-7.45
240	0.25	0.42	-0.42	0.25	42.13	70.65	-6.45
270	0.42	0.25	-0.49	0.00	0.67	81.76	-3.72
300	0.49	0.00	-0.42	-0.25	-40.79	70.65	0.00
330	0.42	0.25	-0.25	-0.42	-71.14	40.30	3.72

72" x 22" Panels QD66512-2 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.11	1.29	0.31	-1.67	-280.83	-49.64	-19.62
30	1.91	0.75	1.28	-1.60	-269.25	-214.18	-11.33
60	2.21	0.00	1.91	-1.11	-185.08	-320.56	0.00
90	1.91	0.75	2.03	-0.31	-50.86	-340.27	11.33
120	1.11	1.29	1.60	0.57	97.43	-268.03	19.62
150	0.00	1.49	0.75	1.29	220.06	-123.19	22.65
180	1.11	1.29	-0.31	1.67	284.17	55.43	19.62
210	1.91	0.75	-1.28	1.60	272.59	219.97	11.33
240	2.21	0.00	-1.91	1.11	188.42	326.35	0.00
270	1.91	0.75	-2.03	0.31	54.20	346.06	-11.33
300	1.11	1.29	-1.60	-0.57	-94.09	273.82	-19.62
330	0.00	1.49	-0.75	-1.29	-216.72	128.98	-22.65

RRU 4449 B5/B12 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	0.07	-0.14	-22.83	-12.09	-1.23
30	0.23	0.05	0.17	-0.15	-25.93	-29.05	-0.71
60	0.26	0.00	0.23	-0.13	-22.04	-38.17	0.00
90	0.23	0.05	0.22	-0.07	-12.20	-36.98	0.71
120	0.13	0.08	0.15	0.00	0.95	-25.82	1.23
150	0.00	0.09	0.05	0.08	13.88	-7.66	1.42
180	0.13	0.08	-0.07	0.14	23.14	12.61	1.23
210	0.23	0.05	-0.17	0.15	26.23	29.58	0.71
240	0.26	0.00	-0.23	0.13	22.34	38.69	0.00
270	0.23	0.05	-0.22	0.07	12.50	37.51	-0.71
300	0.13	0.08	-0.15	-0.00	-0.65	26.34	-1.23
330	0.00	0.09	-0.05	-0.08	-13.58	8.19	-1.42

RRU 4426 B66 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	0.07	-0.14	-22.83	-12.09	-1.23
30	0.23	0.05	0.17	-0.15	-25.93	-29.05	-0.71

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	54 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4426 B66 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
60	0.26	0.00	0.23	-0.13	-22.04	-38.17	0.00
90	0.23	0.05	0.22	-0.07	-12.20	-36.98	0.71
120	0.13	0.08	0.15	0.00	0.95	-25.82	1.23
150	0.00	0.09	0.05	0.08	13.88	-7.66	1.42
180	0.13	0.08	-0.07	0.14	23.14	12.61	1.23
210	0.23	0.05	-0.17	0.15	26.23	29.58	0.71
240	0.26	0.00	-0.23	0.13	22.34	38.69	0.00
270	0.23	0.05	-0.22	0.07	12.50	37.51	-0.71
300	0.13	0.08	-0.15	-0.00	-0.65	26.34	-1.23
330	0.00	0.09	-0.05	-0.08	-13.58	8.19	-1.42

RRU 4415 B30 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	0.07	-0.14	-22.83	-12.09	-1.23
30	0.23	0.05	0.17	-0.15	-25.93	-29.05	-0.71
60	0.26	0.00	0.23	-0.13	-22.04	-38.17	0.00
90	0.23	0.05	0.22	-0.07	-12.20	-36.98	0.71
120	0.13	0.08	0.15	0.00	0.95	-25.82	1.23
150	0.00	0.09	0.05	0.08	13.88	-7.66	1.42
180	0.13	0.08	-0.07	0.14	23.14	12.61	1.23
210	0.23	0.05	-0.17	0.15	26.23	29.58	0.71
240	0.26	0.00	-0.23	0.13	22.34	38.69	0.00
270	0.23	0.05	-0.22	0.07	12.50	37.51	-0.71
300	0.13	0.08	-0.15	-0.00	-0.65	26.34	-1.23
330	0.00	0.09	-0.05	-0.08	-13.58	8.19	-1.42

RRU 8843 B2/B66 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	0.07	-0.14	-22.83	-12.09	-1.23
30	0.23	0.05	0.17	-0.15	-25.93	-29.05	-0.71
60	0.26	0.00	0.23	-0.13	-22.04	-38.17	0.00
90	0.23	0.05	0.22	-0.07	-12.20	-36.98	0.71
120	0.13	0.08	0.15	0.00	0.95	-25.82	1.23
150	0.00	0.09	0.05	0.08	13.88	-7.66	1.42
180	0.13	0.08	-0.07	0.14	23.14	12.61	1.23
210	0.23	0.05	-0.17	0.15	26.23	29.58	0.71
240	0.26	0.00	-0.23	0.13	22.34	38.69	0.00
270	0.23	0.05	-0.22	0.07	12.50	37.51	-0.71
300	0.13	0.08	-0.15	-0.00	-0.65	26.34	-1.23
330	0.00	0.09	-0.05	-0.08	-13.58	8.19	-1.42

RRU 4478 B14 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.13	0.08	0.07	-0.14	-22.83	-12.09	-1.23
30	0.23	0.05	0.17	-0.15	-25.93	-29.05	-0.71
60	0.26	0.00	0.23	-0.13	-22.04	-38.17	0.00
90	0.23	0.05	0.22	-0.07	-12.20	-36.98	0.71
120	0.13	0.08	0.15	0.00	0.95	-25.82	1.23

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	55 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4478 B14 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	0.00	0.09	0.05	0.08	13.88	-7.66	1.42
180	0.13	0.08	-0.07	0.14	23.14	12.61	1.23
210	0.23	0.05	-0.17	0.15	26.23	29.58	0.71
240	0.26	0.00	-0.23	0.13	22.34	38.69	0.00
270	0.23	0.05	-0.22	0.07	12.50	37.51	-0.71
300	0.13	0.08	-0.15	-0.00	-0.65	26.34	-1.23
330	0.00	0.09	-0.05	-0.08	-13.58	8.19	-1.42

Squid DC9 (27.4 x 16.7) - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.25	0.42	0.00	-0.49	-82.25	1.16	-6.45
30	0.42	0.25	0.25	-0.42	-71.14	-40.30	-3.72
60	0.49	0.00	0.42	-0.25	-40.79	-70.65	0.00
90	0.42	0.25	0.49	0.00	0.67	-81.76	3.72
120	0.25	0.42	0.42	0.25	42.13	-70.65	6.45
150	0.00	0.49	0.25	0.42	72.48	-40.30	7.45
180	0.25	0.42	0.00	0.49	83.58	1.16	6.45
210	0.42	0.25	-0.25	0.42	72.48	42.62	3.72
240	0.49	0.00	-0.42	0.25	42.13	72.97	0.00
270	0.42	0.25	-0.49	0.00	0.67	84.07	-3.72
300	0.25	0.42	-0.42	-0.25	-40.79	72.97	-6.45
330	0.00	0.49	-0.25	-0.42	-71.14	42.62	-7.45

SP1 VFA10-HD-S - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.17	0.00	0.00	-1.17	-205.32	0.00	0.00
30	1.01	0.36	0.36	-1.01	-178.94	-60.46	-5.43
60	0.58	0.62	0.62	-0.58	-106.86	-104.72	-9.41
90	0.00	0.72	0.72	0.00	-8.40	-120.92	-10.86
120	0.58	0.62	0.62	0.58	90.07	-104.72	-9.41
150	1.01	0.36	0.36	1.01	162.15	-60.46	-5.43
180	1.17	0.00	0.00	1.17	188.53	0.00	0.00
210	1.01	0.36	-0.36	1.01	162.15	60.46	5.43
240	0.58	0.62	-0.62	0.58	90.07	104.72	9.41
270	0.00	0.72	-0.72	0.00	-8.40	120.92	10.86
300	0.58	0.62	-0.62	-0.58	-106.86	104.72	9.41
330	1.01	0.36	-0.36	-1.01	-178.94	60.46	5.43

SP1 VFA10-HD-S - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.58	0.62	-0.19	-0.83	-135.72	25.64	9.41
30	0.00	0.72	0.36	-0.62	-100.52	-67.73	10.86
60	0.58	0.62	0.81	-0.25	-37.26	-144.90	9.41
90	1.01	0.36	1.05	0.19	37.11	-185.19	5.43
120	1.17	0.00	1.01	0.58	102.66	-177.81	0.00
150	1.01	0.36	0.70	0.81	141.83	-124.73	-5.43
180	0.58	0.62	0.19	0.83	144.12	-40.18	-9.41
210	0.00	0.72	-0.36	0.62	108.92	53.19	-10.86

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	56 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

SP1 VFA10-HD-S - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
240	0.58	0.62	-0.81	0.25	45.66	130.36	-9.41
270	1.01	0.36	-1.05	-0.19	-28.71	170.65	-5.43
300	1.17	0.00	-1.01	-0.58	-94.26	163.27	0.00
330	1.01	0.36	-0.70	-0.81	-133.43	110.19	5.43

SP1 VFA10-HD-S - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.58	0.62	0.19	-0.83	-135.72	-25.64	-9.41
30	1.01	0.36	0.70	-0.81	-133.43	-110.19	-5.43
60	1.17	0.00	1.01	-0.58	-94.26	-163.27	0.00
90	1.01	0.36	1.05	-0.19	-28.71	-170.65	5.43
120	0.58	0.62	0.81	0.25	45.66	-130.36	9.41
150	0.00	0.72	0.36	0.62	108.92	-53.19	10.86
180	0.58	0.62	-0.19	0.83	144.12	40.18	9.41
210	1.01	0.36	-0.70	0.81	141.83	124.73	5.43
240	1.17	0.00	-1.01	0.58	102.66	177.81	0.00
270	1.01	0.36	-1.05	0.19	37.11	185.19	-5.43
300	0.58	0.62	-0.81	-0.25	-37.26	144.90	-9.41
330	0.00	0.72	-0.36	-0.62	-100.52	67.73	-10.86

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.75	0.00	0.00	-0.75	-129.25	0.00	0.00
30	0.65	0.38	0.38	-0.65	-112.21	-63.57	-5.71
60	0.38	0.65	0.65	-0.38	-65.68	-110.10	-9.89
90	0.00	0.75	0.75	0.00	-2.11	-127.14	-11.42
120	0.38	0.65	0.65	0.38	61.46	-110.10	-9.89
150	0.65	0.38	0.38	0.65	107.99	-63.57	-5.71
180	0.75	0.00	0.00	0.75	125.03	0.00	0.00
210	0.65	0.38	-0.38	0.65	107.99	63.57	5.71
240	0.38	0.65	-0.65	0.38	61.46	110.10	9.89
270	0.00	0.75	-0.75	0.00	-2.11	127.14	11.42
300	0.38	0.65	-0.65	-0.38	-65.68	110.10	9.89
330	0.65	0.38	-0.38	-0.65	-112.21	63.57	5.71

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.38	0.65	0.00	-0.75	-126.08	-1.83	9.89
30	0.00	0.75	0.38	-0.65	-109.05	-65.40	11.42
60	0.38	0.65	0.65	-0.38	-62.51	-111.93	9.89
90	0.65	0.38	0.75	0.00	1.05	-128.96	5.71
120	0.75	0.00	0.65	0.38	64.62	-111.93	0.00
150	0.65	0.38	0.38	0.65	111.16	-65.40	-5.71
180	0.38	0.65	0.00	0.75	128.19	-1.83	-9.89
210	0.00	0.75	-0.38	0.65	111.16	61.74	-11.42
240	0.38	0.65	-0.65	0.38	64.62	108.28	-9.89
270	0.65	0.38	-0.75	0.00	1.05	125.31	-5.71
300	0.75	0.00	-0.65	-0.38	-62.51	108.28	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	57 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	0.65	0.38	-0.38	-0.65	-109.05	61.74	5.71

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.38	0.65	0.00	-0.75	-126.08	1.83	-9.89
30	0.65	0.38	0.38	-0.65	-109.05	-61.74	-5.71
60	0.75	0.00	0.65	-0.38	-62.51	-108.28	0.00
90	0.65	0.38	0.75	0.00	1.05	-125.31	5.71
120	0.38	0.65	0.65	0.38	64.62	-108.28	9.89
150	0.00	0.75	0.38	0.65	111.16	-61.74	11.42
180	0.38	0.65	0.00	0.75	128.19	1.83	9.89
210	0.65	0.38	-0.38	0.65	111.16	65.40	5.71
240	0.75	0.00	-0.65	0.38	64.62	111.93	0.00
270	0.65	0.38	-0.75	0.00	1.05	128.96	-5.71
300	0.38	0.65	-0.65	-0.38	-62.51	111.93	-9.89
330	0.00	0.75	-0.38	-0.65	-109.05	65.40	-11.42

AL8 W leg mounted - Elevation 277 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.58	0.00	0.00	-2.58	-716.09	0.00	0.00
30	2.24	1.29	1.29	-2.24	-620.29	-357.52	-8.32
60	1.29	2.24	2.24	-1.29	-358.56	-619.25	-14.41
90	0.00	2.58	2.58	0.00	-1.04	-715.05	-16.64
120	1.29	2.24	2.24	1.29	356.49	-619.25	-14.41
150	2.24	1.29	1.29	2.24	618.21	-357.52	-8.32
180	2.58	0.00	0.00	2.58	714.01	0.00	0.00
210	2.24	1.29	-1.29	2.24	618.21	357.52	8.32
240	1.29	2.24	-2.24	1.29	356.49	619.25	14.41
270	0.00	2.58	-2.58	0.00	-1.04	715.05	16.64
300	1.29	2.24	-2.24	-1.29	-358.56	619.25	14.41
330	2.24	1.29	-1.29	-2.24	-620.29	357.52	8.32

Discrete Appurtenance Totals - No Ice

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.45	-61.78	-14080.40	-93.70	41.76
30	30.98	-53.73	-12231.27	-7066.30	-8.61
60	53.21	-31.28	-7112.20	-12152.60	-56.67
90	61.19	-0.45	-94.84	-13989.73	-89.54
120	52.77	30.50	6940.51	-12085.44	-98.42
150	30.21	53.28	12108.75	-6949.97	-80.93
180	-0.45	61.78	14025.04	40.63	-41.76
210	-30.98	53.73	12175.91	7013.23	8.61
240	-53.21	31.28	7056.84	12099.53	56.67
270	-61.19	0.45	39.48	13936.67	89.54
300	-52.77	-30.50	-6995.87	12032.37	98.42

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	58 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	-30.21	-53.28	-12164.11	6896.90	80.93

Discrete Appurtenance Pressures - Service $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K_z	q_z psf	C_{AA_C} Front ft ²	C_{AA_C} Side ft ²
5/8" x 10' lightning rod	240.0000	0.02	-5.00	2.89	333.00	1.630	12	0.63	0.63
Beacon	120.0000	0.07	5.00	2.89	329.00	1.626	12	2.40	2.40
OB light	0.0000	0.03	0.00	-10.39	200.00	1.464	11	0.50	0.50
OB light	120.0000	0.03	9.00	5.20	200.00	1.464	11	0.50	0.50
OB light	240.0000	0.03	-9.00	5.20	200.00	1.464	11	0.50	0.50
DCR- C10 (installed above 292')	240.0000	0.95	-5.43	3.14	310.00	1.606	12	89.30	89.30
3" x 30' Sch. 80	240.0000	0.31	-5.43	3.14	310.00	1.606	12	10.50	10.50
2.375 x 19.5' Huslter HX6-1448 Omni	0.0000	0.04	0.00	-14.37	245.00	1.528	11	5.00	5.00
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-11.37	235.00	1.515	11	14.80	14.80
2.375 x 19.5' Huslter HX6-1448 Omni	120.0000	0.04	12.45	7.19	245.00	1.528	11	5.00	5.00
6' Bogner Mount Heavy Duty	120.0000	0.70	9.85	5.69	235.00	1.515	11	14.80	14.80
SP1 R5 (Includes 4.5"x72" Pipe)	300.0000	0.14	-4.43	-2.56	220.00	1.494	11	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	300.0000	0.14	-4.43	-2.56	220.00	1.494	11	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	4.43	-2.56	220.00	1.494	11	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	4.43	-2.56	220.00	1.494	11	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	180.0000	0.14	0.00	5.12	220.00	1.494	11	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	180.0000	0.14	0.00	5.12	220.00	1.494	11	2.85	3.15
2.375 x 19.5' Huslter HX6-1448 Omni	0.0000	0.04	0.00	-17.55	190.00	1.449	11	5.00	5.00
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-14.55	180.00	1.432	11	14.80	14.80
2.375 x 19.5' Huslter HX6-1448 Omni	120.0000	0.04	15.20	8.77	190.00	1.449	11	5.00	5.00
6' Bogner Mount Heavy Duty	120.0000	0.70	12.60	7.27	180.00	1.432	11	14.80	14.80
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	6.11	-3.53	153.00	1.384	10	2.85	3.15
SP1 R5 (Includes 4.5"x72" Pipe)	60.0000	0.14	6.26	-3.61	147.00	1.373	10	2.85	3.15
RFI RDA6-99 UHF Yagi	0.0000	0.03	0.00	0.00	40.00	1.044	8	0.95	0.95
RFI BA160-67-T3 Omni	0.0000	0.06	0.00	-12.37	245.00	1.528	11	7.60	7.60
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-11.37	235.00	1.515	11	14.80	14.80
L Com HG5829EG Grid	60.0000	1.55	4.87	-2.81	220.00	1.494	11	38.60	38.60
SP1 HS6-K	120.0000	0.29	11.78	6.80	153.00	1.384	10	4.40	8.59
SP1 HS6-K	120.0000	0.29	12.08	6.98	147.00	1.373	10	4.40	8.59
RFI OA40-41 Dipole	0.0000	0.06	0.00	-15.55	190.00	1.449	11	8.00	8.00
6' Bogner Mount Heavy Duty	0.0000	0.70	0.00	-14.55	180.00	1.432	11	14.80	14.80

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	59 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _A C _C Front ft ²	C _A C _C Side ft ²
72" x 22" Panels	0.0000	0.22	0.00	-15.18	169.00	1.413	11	20.27	13.69
QD66512-2									
RRU 4449 B5/B12	0.0000	0.02	0.00	-15.18	169.00	1.413	11	2.41	0.86
RRU 4426 B66	0.0000	0.02	0.00	-15.18	169.00	1.413	11	2.41	0.86
RRU 4415 B30	0.0000	0.02	0.00	-15.18	169.00	1.413	11	2.41	0.86
RRU 8843 B2/B66	0.0000	0.02	0.00	-15.18	169.00	1.413	11	2.41	0.86
RRU 4478 B14	0.0000	0.02	0.00	-15.18	169.00	1.413	11	2.41	0.86
Squid DC9 (27.4 x 16.7)	0.0000	0.09	0.00	-15.18	169.00	1.413	11	4.50	4.50
72" x 22" Panels	120.0000	0.22	13.15	7.59	169.00	1.413	11	20.27	13.69
QD66512-2									
RRU 4449 B5/B12	120.0000	0.02	13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 4426 B66	120.0000	0.02	13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 4415 B30	120.0000	0.02	13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 8843 B2/B66	120.0000	0.02	13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 4478 B14	120.0000	0.02	13.15	7.59	169.00	1.413	11	2.41	0.86
Squid DC9 (27.4 x 16.7)	120.0000	0.09	13.15	7.59	169.00	1.413	11	4.50	4.50
72" x 22" Panels	240.0000	0.22	-13.15	7.59	169.00	1.413	11	20.27	13.69
QD66512-2									
RRU 4449 B5/B12	240.0000	0.02	-13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 4426 B66	240.0000	0.02	-13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 4415 B30	240.0000	0.02	-13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 8843 B2/B66	240.0000	0.02	-13.15	7.59	169.00	1.413	11	2.41	0.86
RRU 4478 B14	240.0000	0.02	-13.15	7.59	169.00	1.413	11	2.41	0.86
Squid DC9 (27.4 x 16.7)	240.0000	0.09	-13.15	7.59	169.00	1.413	11	4.50	4.50
SP1 VFA10-HD-S	0.0000	0.55	0.00	-15.18	169.00	1.413	11	11.40	7.00
SP1 VFA10-HD-S	120.0000	0.55	13.15	7.59	169.00	1.413	11	11.40	7.00
SP1 VFA10-HD-S	240.0000	0.55	-13.15	7.59	169.00	1.413	11	11.40	7.00
2-1/2" x 72" Sch. 40	0.0000	0.14	0.00	-15.18	169.00	1.413	11	6.90	6.90
2-1/2" x 72" Sch. 40	120.0000	0.14	13.15	7.59	169.00	1.413	11	6.90	6.90
2-1/2" x 72" Sch. 40	240.0000	0.14	-13.15	7.59	169.00	1.413	11	6.90	6.90
AL8 W leg mounted	0.0000	0.16	0.00	-6.45	277.00	1.568	12	17.07	17.07
Sum		12.65							
Weight:									

Discrete Appurtenance Vectors - Service

5/8" x 10' lightning rod - Elevation 333 - From Leg C								
Wind Azimuth °	F _a K	F _s K	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft	
0	0.00	0.01	0.00	-0.01	-2.10	0.12	-0.03	
30	0.01	0.00	0.00	-0.01	-1.81	-0.97	-0.02	
60	0.01	0.00	0.01	-0.00	-1.02	-1.76	0.00	
90	0.01	0.00	0.01	0.00	0.07	-2.05	0.02	
120	0.00	0.01	0.01	0.00	1.15	-1.76	0.03	
150	0.00	0.01	0.00	0.01	1.95	-0.97	0.04	
180	0.00	0.01	0.00	0.01	2.24	0.12	0.03	
210	0.01	0.00	-0.00	0.01	1.95	1.20	0.02	
240	0.01	0.00	-0.01	0.00	1.15	1.99	0.00	
270	0.01	0.00	-0.01	0.00	0.07	2.28	-0.02	
300	0.00	0.01	-0.01	-0.00	-1.02	1.99	-0.03	
330	0.00	0.01	-0.00	-0.01	-1.81	1.20	-0.04	

Beacon - Elevation 329 - From Leg B

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	60 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.02	0.00	-0.02	-8.00	-0.36	0.12
30	0.00	0.02	0.01	-0.02	-6.90	-4.47	0.14
60	0.01	0.02	0.02	-0.01	-3.89	-7.48	0.12
90	0.02	0.01	0.02	0.00	0.21	-8.58	0.07
120	0.02	0.00	0.02	0.01	4.32	-7.48	0.00
150	0.02	0.01	0.01	0.02	7.32	-4.47	-0.07
180	0.01	0.02	0.00	0.02	8.42	-0.36	-0.12
210	0.00	0.02	-0.01	0.02	7.32	3.74	-0.14
240	0.01	0.02	-0.02	0.01	4.32	6.75	-0.12
270	0.02	0.01	-0.02	0.00	0.21	7.85	-0.07
300	0.02	0.00	-0.02	-0.01	-3.89	6.75	0.00
330	0.02	0.01	-0.01	-0.02	-6.90	3.74	0.07

OB light - Elevation 200 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	0.00	0.00	-0.00	-1.25	0.00	0.00
30	0.00	0.00	0.00	-0.00	-1.12	-0.47	-0.02
60	0.00	0.00	0.00	-0.00	-0.78	-0.81	-0.04
90	0.00	0.00	0.00	0.00	-0.31	-0.94	-0.05
120	0.00	0.00	0.00	0.00	0.16	-0.81	-0.04
150	0.00	0.00	0.00	0.00	0.50	-0.47	-0.02
180	0.00	0.00	0.00	0.00	0.62	0.00	0.00
210	0.00	0.00	-0.00	0.00	0.50	0.47	0.02
240	0.00	0.00	-0.00	0.00	0.16	0.81	0.04
270	0.00	0.00	-0.00	0.00	-0.31	0.94	0.05
300	0.00	0.00	-0.00	-0.00	-0.78	0.81	0.04
330	0.00	0.00	-0.00	-0.00	-1.12	0.47	0.02

OB light - Elevation 200 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	0.00	0.00	-0.00	-0.78	-0.27	0.04
30	0.00	0.00	0.00	-0.00	-0.66	-0.74	0.05
60	0.00	0.00	0.00	-0.00	-0.31	-1.08	0.04
90	0.00	0.00	0.00	0.00	0.16	-1.21	0.02
120	0.00	0.00	0.00	0.00	0.62	-1.08	0.00
150	0.00	0.00	0.00	0.00	0.97	-0.74	-0.02
180	0.00	0.00	0.00	0.00	1.09	-0.27	-0.04
210	0.00	0.00	-0.00	0.00	0.97	0.20	-0.05
240	0.00	0.00	-0.00	0.00	0.62	0.54	-0.04
270	0.00	0.00	-0.00	0.00	0.16	0.67	-0.02
300	0.00	0.00	-0.00	-0.00	-0.31	0.54	0.00
330	0.00	0.00	-0.00	-0.00	-0.66	0.20	0.02

OB light - Elevation 200 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	0.00	0.00	-0.00	-0.78	0.27	-0.04
30	0.00	0.00	0.00	-0.00	-0.66	-0.20	-0.02
60	0.00	0.00	0.00	-0.00	-0.31	-0.54	0.00
90	0.00	0.00	0.00	0.00	0.16	-0.67	0.02

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	61 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

OB light - Elevation 200 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
120	0.00	0.00	0.00	0.00	0.62	-0.54	0.04
150	0.00	0.00	0.00	0.00	0.97	-0.20	0.05
180	0.00	0.00	0.00	0.00	1.09	0.27	0.04
210	0.00	0.00	-0.00	0.00	0.97	0.74	0.02
240	0.00	0.00	-0.00	0.00	0.62	1.08	0.00
270	0.00	0.00	-0.00	0.00	0.16	1.21	-0.02
300	0.00	0.00	-0.00	-0.00	-0.31	1.08	-0.04
330	0.00	0.00	-0.00	-0.00	-0.66	0.74	-0.05

DCR- C10 (installed above 292') - Elevation 292.00-328.00 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.46	0.79	0.00	-0.92	-281.29	5.14	-4.98
30	0.79	0.46	0.46	-0.79	-243.21	-136.99	-2.88
60	0.92	0.00	0.79	-0.46	-139.16	-241.04	0.00
90	0.79	0.46	0.92	0.00	2.97	-279.12	2.88
120	0.46	0.79	0.79	0.46	145.10	-241.04	4.98
150	0.00	0.92	0.46	0.79	249.14	-136.99	5.75
180	0.46	0.79	0.00	0.92	287.23	5.14	4.98
210	0.79	0.46	-0.46	0.79	249.14	147.27	2.88
240	0.92	0.00	-0.79	0.46	145.10	251.32	0.00
270	0.79	0.46	-0.92	0.00	2.97	289.40	-2.88
300	0.46	0.79	-0.79	-0.46	-139.16	251.32	-4.98
330	0.00	0.92	-0.46	-0.79	-243.21	147.27	-5.75

3" x 30' Sch. 80 - Elevation 292.00-328.00 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.05	0.09	0.00	-0.11	-32.45	1.68	-0.59
30	0.09	0.05	0.05	-0.09	-27.98	-15.03	-0.34
60	0.11	0.00	0.09	-0.05	-15.74	-27.27	0.00
90	0.09	0.05	0.11	0.00	0.97	-31.74	0.34
120	0.05	0.09	0.09	0.05	17.68	-27.27	0.59
150	0.00	0.11	0.05	0.09	29.92	-15.03	0.68
180	0.05	0.09	0.00	0.11	34.39	1.68	0.59
210	0.09	0.05	-0.05	0.09	29.92	18.39	0.34
240	0.11	0.00	-0.09	0.05	17.68	30.62	0.00
270	0.09	0.05	-0.11	0.00	0.97	35.10	-0.34
300	0.05	0.09	-0.09	-0.05	-15.74	30.62	-0.59
330	0.00	0.11	-0.05	-0.09	-27.98	18.39	-0.68

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 245 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.04	0.00	0.00	-0.04	-11.38	0.00	0.00
30	0.04	0.02	0.02	-0.04	-9.93	-5.39	-0.32
60	0.02	0.04	0.04	-0.02	-5.99	-9.33	-0.55
90	0.00	0.04	0.04	0.00	-0.60	-10.77	-0.63
120	0.02	0.04	0.04	0.02	4.78	-9.33	-0.55
150	0.04	0.02	0.02	0.04	8.73	-5.39	-0.32
180	0.04	0.00	0.00	0.04	10.17	0.00	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	62 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 245 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
210	0.04	0.02	-0.02	0.04	8.73	5.39	0.32
240	0.02	0.04	-0.04	0.02	4.78	9.33	0.55
270	0.00	0.04	-0.04	0.00	-0.60	10.77	0.63
300	0.02	0.04	-0.04	-0.02	-5.99	9.33	0.55
330	0.04	0.02	-0.02	-0.04	-9.93	5.39	0.32

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.14	0.00	0.00	-0.14	-41.65	0.00	0.00
30	0.12	0.07	0.07	-0.12	-37.14	-16.85	-0.82
60	0.07	0.12	0.12	-0.07	-24.81	-29.18	-1.41
90	0.00	0.14	0.14	0.00	-7.96	-33.69	-1.63
120	0.07	0.12	0.12	0.07	8.89	-29.18	-1.41
150	0.12	0.07	0.07	0.12	21.22	-16.85	-0.82
180	0.14	0.00	0.00	0.14	25.73	0.00	0.00
210	0.12	0.07	-0.07	0.12	21.22	16.85	0.82
240	0.07	0.12	-0.12	0.07	8.89	29.18	1.41
270	0.00	0.14	-0.14	0.00	-7.96	33.69	1.63
300	0.07	0.12	-0.12	-0.07	-24.81	29.18	1.41
330	0.12	0.07	-0.07	-0.12	-37.14	16.85	0.82

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 245 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.04	0.00	-0.04	-10.47	-0.52	0.55
30	0.00	0.04	0.02	-0.04	-9.03	-5.91	0.63
60	0.02	0.04	0.04	-0.02	-5.09	-9.85	0.55
90	0.04	0.02	0.04	0.00	0.30	-11.30	0.32
120	0.04	0.00	0.04	0.02	5.69	-9.85	0.00
150	0.04	0.02	0.02	0.04	9.63	-5.91	-0.32
180	0.02	0.04	0.00	0.04	11.08	-0.52	-0.55
210	0.00	0.04	-0.02	0.04	9.63	4.86	-0.63
240	0.02	0.04	-0.04	0.02	5.69	8.81	-0.55
270	0.04	0.02	-0.04	0.00	0.30	10.25	-0.32
300	0.04	0.00	-0.04	-0.02	-5.09	8.81	0.00
330	0.04	0.02	-0.02	-0.04	-9.03	4.86	0.32

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.07	0.12	0.00	-0.14	-29.71	-6.89	1.41
30	0.00	0.14	0.07	-0.12	-25.20	-23.74	1.63
60	0.07	0.12	0.12	-0.07	-12.87	-36.07	1.41
90	0.12	0.07	0.14	0.00	3.98	-40.58	0.82
120	0.14	0.00	0.12	0.07	20.83	-36.07	0.00
150	0.12	0.07	0.07	0.12	33.16	-23.74	-0.82
180	0.07	0.12	0.00	0.14	37.67	-6.89	-1.41
210	0.00	0.14	-0.07	0.12	33.16	9.95	-1.63
240	0.07	0.12	-0.12	0.07	20.83	22.28	-1.41
270	0.12	0.07	-0.14	0.00	3.98	26.80	-0.82

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	63 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
300	0.14	0.00	-0.12	-0.07	-12.87	22.28	0.00
330	0.12	0.07	-0.07	-0.12	-25.20	9.95	0.82

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.03	0.00	-0.03	-6.81	0.33	-0.13
30	0.00	0.03	0.02	-0.03	-6.08	-2.70	-0.15
60	0.01	0.03	0.02	-0.02	-3.82	-4.85	-0.13
90	0.02	0.02	0.03	-0.00	-0.62	-5.54	-0.08
120	0.03	0.00	0.02	0.01	2.64	-4.58	0.00
150	0.02	0.02	0.01	0.02	5.11	-2.23	0.08
180	0.01	0.03	-0.00	0.03	6.11	0.88	0.13
210	0.00	0.03	-0.02	0.03	5.38	3.92	0.15
240	0.01	0.03	-0.02	0.02	3.12	6.07	0.13
270	0.02	0.02	-0.03	0.00	-0.08	6.75	0.08
300	0.03	0.00	-0.02	-0.01	-3.35	5.79	0.00
330	0.02	0.02	-0.01	-0.02	-5.81	3.44	-0.08

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.03	0.00	-0.03	-6.81	0.33	-0.13
30	0.00	0.03	0.02	-0.03	-6.08	-2.70	-0.15
60	0.01	0.03	0.02	-0.02	-3.82	-4.85	-0.13
90	0.02	0.02	0.03	-0.00	-0.62	-5.54	-0.08
120	0.03	0.00	0.02	0.01	2.64	-4.58	0.00
150	0.02	0.02	0.01	0.02	5.11	-2.23	0.08
180	0.01	0.03	-0.00	0.03	6.11	0.88	0.13
210	0.00	0.03	-0.02	0.03	5.38	3.92	0.15
240	0.01	0.03	-0.02	0.02	3.12	6.07	0.13
270	0.02	0.02	-0.03	0.00	-0.08	6.75	0.08
300	0.03	0.00	-0.02	-0.01	-3.35	5.79	0.00
330	0.02	0.02	-0.01	-0.02	-5.81	3.44	-0.08

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.03	-0.00	-0.03	-6.81	-0.33	0.13
30	0.02	0.02	0.01	-0.02	-5.81	-3.44	0.08
60	0.03	0.00	0.02	-0.01	-3.35	-5.79	0.00
90	0.02	0.02	0.03	0.00	-0.08	-6.75	-0.08
120	0.01	0.03	0.02	0.02	3.12	-6.07	-0.13
150	0.00	0.03	0.02	0.03	5.38	-3.92	-0.15
180	0.01	0.03	0.00	0.03	6.11	-0.88	-0.13
210	0.02	0.02	-0.01	0.02	5.11	2.23	-0.08
240	0.03	0.00	-0.02	0.01	2.64	4.58	0.00
270	0.02	0.02	-0.03	-0.00	-0.62	5.54	0.08
300	0.01	0.03	-0.02	-0.02	-3.82	4.85	0.13
330	0.00	0.03	-0.02	-0.03	-6.08	2.70	0.15

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	64 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.03	-0.00	-0.03	-6.81	-0.33	0.13
30	0.02	0.02	0.01	-0.02	-5.81	-3.44	0.08
60	0.03	0.00	0.02	-0.01	-3.35	-5.79	0.00
90	0.02	0.02	0.03	0.00	-0.08	-6.75	-0.08
120	0.01	0.03	0.02	0.02	3.12	-6.07	-0.13
150	0.00	0.03	0.02	0.03	5.38	-3.92	-0.15
180	0.01	0.03	0.00	0.03	6.11	-0.88	-0.13
210	0.02	0.02	-0.01	0.02	5.11	2.23	-0.08
240	0.03	0.00	-0.02	0.01	2.64	4.58	0.00
270	0.02	0.02	-0.03	-0.00	-0.62	5.54	0.08
300	0.01	0.03	-0.02	-0.02	-3.82	4.85	0.13
330	0.00	0.03	-0.02	-0.03	-6.08	2.70	0.15

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.03	0.00	0.00	-0.03	-5.29	0.00	0.00
30	0.02	0.02	0.02	-0.02	-4.49	-3.31	0.08
60	0.01	0.03	0.03	-0.01	-2.29	-5.73	0.13
90	0.00	0.03	0.03	0.00	0.70	-6.62	0.15
120	0.01	0.03	0.03	0.01	3.70	-5.73	0.13
150	0.02	0.02	0.02	0.02	5.89	-3.31	0.08
180	0.03	0.00	0.00	0.03	6.69	0.00	0.00
210	0.02	0.02	-0.02	0.02	5.89	3.31	-0.08
240	0.01	0.03	-0.03	0.01	3.70	5.73	-0.13
270	0.00	0.03	-0.03	0.00	0.70	6.62	-0.15
300	0.01	0.03	-0.03	-0.01	-2.29	5.73	-0.13
330	0.02	0.02	-0.02	-0.02	-4.49	3.31	-0.08

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 220 - From Face C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.03	0.00	0.00	-0.03	-5.29	0.00	0.00
30	0.02	0.02	0.02	-0.02	-4.49	-3.31	0.08
60	0.01	0.03	0.03	-0.01	-2.29	-5.73	0.13
90	0.00	0.03	0.03	0.00	0.70	-6.62	0.15
120	0.01	0.03	0.03	0.01	3.70	-5.73	0.13
150	0.02	0.02	0.02	0.02	5.89	-3.31	0.08
180	0.03	0.00	0.00	0.03	6.69	0.00	0.00
210	0.02	0.02	-0.02	0.02	5.89	3.31	-0.08
240	0.01	0.03	-0.03	0.01	3.70	5.73	-0.13
270	0.00	0.03	-0.03	0.00	0.70	6.62	-0.15
300	0.01	0.03	-0.03	-0.01	-2.29	5.73	-0.13
330	0.02	0.02	-0.02	-0.02	-4.49	3.31	-0.08

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 190 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.04	0.00	0.00	-0.04	-8.66	0.00	0.00
30	0.04	0.02	0.02	-0.04	-7.60	-3.96	-0.37

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	65 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 190 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
60	0.02	0.04	0.04	-0.02	-4.70	-6.86	-0.63
90	0.00	0.04	0.04	0.00	-0.74	-7.92	-0.73
120	0.02	0.04	0.04	0.02	3.22	-6.86	-0.63
150	0.04	0.02	0.02	0.04	6.12	-3.96	-0.37
180	0.04	0.00	0.00	0.04	7.18	0.00	0.00
210	0.04	0.02	-0.02	0.04	6.12	3.96	0.37
240	0.02	0.04	-0.04	0.02	3.22	6.86	0.63
270	0.00	0.04	-0.04	0.00	-0.74	7.92	0.73
300	0.02	0.04	-0.04	-0.02	-4.70	6.86	0.63
330	0.04	0.02	-0.02	-0.04	-7.60	3.96	0.37

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.14	0.00	0.00	-0.14	-34.58	0.00	0.00
30	0.12	0.07	0.07	-0.12	-31.31	-12.20	-0.99
60	0.07	0.12	0.12	-0.07	-22.38	-21.13	-1.71
90	0.00	0.14	0.14	0.00	-10.18	-24.40	-1.97
120	0.07	0.12	0.12	0.07	2.02	-21.13	-1.71
150	0.12	0.07	0.07	0.12	10.95	-12.20	-0.99
180	0.14	0.00	0.00	0.14	14.21	0.00	0.00
210	0.12	0.07	-0.07	0.12	10.95	12.20	0.99
240	0.07	0.12	-0.12	0.07	2.02	21.13	1.71
270	0.00	0.14	-0.14	0.00	-10.18	24.40	1.97
300	0.07	0.12	-0.12	-0.07	-22.38	21.13	1.71
330	0.12	0.07	-0.07	-0.12	-31.31	12.20	0.99

2.375 x 19.5' Husler HX6-1448 Omni - Elevation 190 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.04	0.00	-0.04	-7.55	-0.64	0.63
30	0.00	0.04	0.02	-0.04	-6.49	-4.60	0.73
60	0.02	0.04	0.04	-0.02	-3.59	-7.50	0.63
90	0.04	0.02	0.04	0.00	0.37	-8.56	0.37
120	0.04	0.00	0.04	0.02	4.33	-7.50	0.00
150	0.04	0.02	0.02	0.04	7.23	-4.60	-0.37
180	0.02	0.04	0.00	0.04	8.29	-0.64	-0.63
210	0.00	0.04	-0.02	0.04	7.23	3.32	-0.73
240	0.02	0.04	-0.04	0.02	4.33	6.22	-0.63
270	0.04	0.02	-0.04	0.00	0.37	7.28	-0.37
300	0.04	0.00	-0.04	-0.02	-3.59	6.22	0.00
330	0.04	0.02	-0.02	-0.04	-6.49	3.32	0.37

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.07	0.12	0.00	-0.14	-19.31	-8.82	1.71
30	0.00	0.14	0.07	-0.12	-16.04	-21.02	1.97
60	0.07	0.12	0.12	-0.07	-7.11	-29.95	1.71
90	0.12	0.07	0.14	0.00	5.09	-33.22	0.99
120	0.14	0.00	0.12	0.07	17.29	-29.95	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	66 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	0.12	0.07	0.07	0.12	26.22	-21.02	-0.99
180	0.07	0.12	0.00	0.14	29.49	-8.82	-1.71
210	0.00	0.14	-0.07	0.12	26.22	3.38	-1.97
240	0.07	0.12	-0.12	0.07	17.29	12.31	-1.71
270	0.12	0.07	-0.14	0.00	5.09	15.58	-0.99
300	0.14	0.00	-0.12	-0.07	-7.11	12.31	0.00
330	0.12	0.07	-0.07	-0.12	-16.04	3.38	0.99

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 153 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.02	-0.00	-0.03	-4.65	-0.66	0.17
30	0.02	0.01	0.01	-0.02	-4.00	-2.66	0.10
60	0.03	0.00	0.02	-0.01	-2.41	-4.18	0.00
90	0.02	0.01	0.03	0.00	-0.31	-4.80	-0.10
120	0.01	0.02	0.02	0.01	1.75	-4.35	-0.17
150	0.00	0.03	0.01	0.02	3.21	-2.97	-0.20
180	0.01	0.02	0.00	0.03	3.68	-1.01	-0.17
210	0.02	0.01	-0.01	0.02	3.03	0.99	-0.10
240	0.03	0.00	-0.02	0.01	1.45	2.51	0.00
270	0.02	0.01	-0.03	-0.00	-0.66	3.12	0.10
300	0.01	0.02	-0.02	-0.01	-2.72	2.68	0.17
330	0.00	0.03	-0.01	-0.02	-4.18	1.30	0.20

SP1 R5 (Includes 4.5"x72" Pipe) - Elevation 147 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.02	-0.00	-0.03	-4.46	-0.69	0.17
30	0.02	0.01	0.01	-0.02	-3.85	-2.60	0.10
60	0.03	0.00	0.02	-0.01	-2.33	-4.04	0.00
90	0.02	0.01	0.03	0.00	-0.33	-4.63	-0.10
120	0.01	0.02	0.02	0.01	1.63	-4.21	-0.17
150	0.00	0.03	0.01	0.02	3.02	-2.89	-0.20
180	0.01	0.02	0.00	0.03	3.47	-1.02	-0.17
210	0.02	0.01	-0.01	0.02	2.86	0.88	-0.10
240	0.03	0.00	-0.02	0.01	1.34	2.33	0.00
270	0.02	0.01	-0.03	-0.00	-0.66	2.92	0.10
300	0.01	0.02	-0.02	-0.01	-2.62	2.49	0.17
330	0.00	0.03	-0.01	-0.02	-4.01	1.17	0.20

RF1 RDA6-99 UHF Yagi - Elevation 40 - None A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.00	0.00	-0.01	-0.25	0.00	0.00
30	0.01	0.00	0.00	-0.01	-0.22	-0.13	0.00
60	0.01	0.00	0.01	-0.00	-0.13	-0.22	0.00
90	0.01	0.00	0.01	0.00	0.00	-0.25	0.00
120	0.01	0.00	0.01	0.00	0.13	-0.22	0.00
150	0.01	0.00	0.00	0.01	0.22	-0.13	0.00
180	0.01	0.00	0.00	0.01	0.25	0.00	0.00
210	0.01	0.00	-0.00	0.01	0.22	0.13	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	67 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RFI RDA6-99 UHF Yagi - Elevation 40 - None A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
240	0.01	0.00	-0.01	0.00	0.13	0.22	0.00
270	0.01	0.00	-0.01	0.00	0.00	0.25	0.00
300	0.01	0.00	-0.01	-0.00	-0.13	0.22	0.00
330	0.01	0.00	-0.00	-0.01	-0.22	0.13	0.00

RFI BA160-67-T3 Omni - Elevation 245 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.07	0.00	0.00	-0.07	-17.12	0.00	0.00
30	0.06	0.03	0.03	-0.06	-14.92	-8.19	-0.41
60	0.03	0.06	0.06	-0.03	-8.93	-14.18	-0.72
90	0.00	0.07	0.07	0.00	-0.74	-16.38	-0.83
120	0.03	0.06	0.06	0.03	7.45	-14.18	-0.72
150	0.06	0.03	0.03	0.06	13.44	-8.19	-0.41
180	0.07	0.00	0.00	0.07	15.63	0.00	0.00
210	0.06	0.03	-0.03	0.06	13.44	8.19	0.41
240	0.03	0.06	-0.06	0.03	7.45	14.18	0.72
270	0.00	0.07	-0.07	0.00	-0.74	16.38	0.83
300	0.03	0.06	-0.06	-0.03	-8.93	14.18	0.72
330	0.06	0.03	-0.03	-0.06	-14.92	8.19	0.41

6' Bogner Mount Heavy Duty - Elevation 235 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.14	0.00	0.00	-0.14	-41.65	0.00	0.00
30	0.12	0.07	0.07	-0.12	-37.14	-16.85	-0.82
60	0.07	0.12	0.12	-0.07	-24.81	-29.18	-1.41
90	0.00	0.14	0.14	0.00	-7.96	-33.69	-1.63
120	0.07	0.12	0.12	0.07	8.89	-29.18	-1.41
150	0.12	0.07	0.07	0.12	21.22	-16.85	-0.82
180	0.14	0.00	0.00	0.14	25.73	0.00	0.00
210	0.12	0.07	-0.07	0.12	21.22	16.85	0.82
240	0.07	0.12	-0.12	0.07	8.89	29.18	1.41
270	0.00	0.14	-0.14	0.00	-7.96	33.69	1.63
300	0.07	0.12	-0.12	-0.07	-24.81	29.18	1.41
330	0.12	0.07	-0.07	-0.12	-37.14	16.85	0.82

L Com HG5829EG Grid - Elevation 220 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.18	0.32	0.00	-0.37	-85.48	-7.54	1.79
30	0.32	0.18	0.18	-0.32	-74.61	-48.11	1.04
60	0.37	0.00	0.32	-0.18	-44.92	-77.80	0.00
90	0.32	0.18	0.37	0.00	-4.35	-88.67	-1.04
120	0.18	0.32	0.32	0.18	36.21	-77.80	-1.79
150	0.00	0.37	0.18	0.32	65.90	-48.11	-2.07
180	0.18	0.32	0.00	0.37	76.77	-7.54	-1.79
210	0.32	0.18	-0.18	0.32	65.90	33.02	-1.04
240	0.37	0.00	-0.32	0.18	36.21	62.71	0.00
270	0.32	0.18	-0.37	0.00	-4.35	73.58	1.04
300	0.18	0.32	-0.32	-0.18	-44.92	62.71	1.79

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	68 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

L Com HG5829EG Grid - Elevation 220 - From Face B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	0.00	0.37	-0.18	-0.32	-74.61	33.02	2.07

SPI HS6-K - Elevation 153 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.07	0.02	-0.07	-8.22	-5.91	0.90
30	0.00	0.08	0.04	-0.07	-8.08	-9.27	1.03
60	0.02	0.07	0.05	-0.05	-5.24	-11.07	0.90
90	0.03	0.04	0.05	-0.02	-0.46	-10.83	0.52
120	0.04	0.00	0.03	0.02	4.97	-8.61	0.00
150	0.03	0.04	0.01	0.05	9.61	-5.01	-0.52
180	0.02	0.07	-0.02	0.07	12.21	-1.00	-0.90
210	0.00	0.08	-0.04	0.07	12.07	2.36	-1.03
240	0.02	0.07	-0.05	0.05	9.23	4.16	-0.90
270	0.03	0.04	-0.05	0.02	4.45	3.92	-0.52
300	0.04	0.00	-0.03	-0.02	-0.99	1.71	0.00
330	0.03	0.04	-0.01	-0.05	-5.62	-1.89	0.52

SPI HS6-K - Elevation 147 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.07	0.02	-0.07	-7.69	-5.88	0.91
30	0.00	0.08	0.04	-0.07	-7.55	-9.08	1.05
60	0.02	0.07	0.05	-0.05	-4.85	-10.80	0.91
90	0.03	0.04	0.05	-0.02	-0.30	-10.57	0.53
120	0.04	0.00	0.03	0.02	4.88	-8.46	0.00
150	0.03	0.04	0.01	0.05	9.30	-5.03	-0.53
180	0.02	0.07	-0.02	0.07	11.77	-1.20	-0.91
210	0.00	0.08	-0.04	0.07	11.64	2.00	-1.05
240	0.02	0.07	-0.05	0.05	8.94	3.72	-0.91
270	0.03	0.04	-0.05	0.02	4.38	3.49	-0.53
300	0.04	0.00	-0.03	-0.02	-0.79	1.38	0.00
330	0.03	0.04	-0.01	-0.05	-5.21	-2.05	0.53

RFI OA40-41 Dipole - Elevation 190 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.07	0.00	0.00	-0.07	-13.60	0.00	0.00
30	0.06	0.03	0.03	-0.06	-11.91	-6.34	-0.52
60	0.03	0.06	0.06	-0.03	-7.27	-10.97	-0.90
90	0.00	0.07	0.07	0.00	-0.93	-12.67	-1.04
120	0.03	0.06	0.06	0.03	5.40	-10.97	-0.90
150	0.06	0.03	0.03	0.06	10.04	-6.34	-0.52
180	0.07	0.00	0.00	0.07	11.74	0.00	0.00
210	0.06	0.03	-0.03	0.06	10.04	6.34	0.52
240	0.03	0.06	-0.06	0.03	5.40	10.97	0.90
270	0.00	0.07	-0.07	0.00	-0.93	12.67	1.04
300	0.03	0.06	-0.06	-0.03	-7.27	10.97	0.90
330	0.06	0.03	-0.03	-0.06	-11.91	6.34	0.52

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	69 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

6' Bogner Mount Heavy Duty - Elevation 180 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.14	0.00	0.00	-0.14	-34.58	0.00	0.00
30	0.12	0.07	0.07	-0.12	-31.31	-12.20	-0.99
60	0.07	0.12	0.12	-0.07	-22.38	-21.13	-1.71
90	0.00	0.14	0.14	0.00	-10.18	-24.40	-1.97
120	0.07	0.12	0.12	0.07	2.02	-21.13	-1.71
150	0.12	0.07	0.07	0.12	10.95	-12.20	-0.99
180	0.14	0.00	0.00	0.14	14.21	0.00	0.00
210	0.12	0.07	-0.07	0.12	10.95	12.20	0.99
240	0.07	0.12	-0.12	0.07	2.02	21.13	1.71
270	0.00	0.14	-0.14	0.00	-10.18	24.40	1.97
300	0.07	0.12	-0.12	-0.07	-22.38	21.13	1.71
330	0.12	0.07	-0.07	-0.12	-31.31	12.20	0.99

72" x 22" Panels QD66512-2 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.15	0.00	0.00	-0.15	-28.11	0.00	0.00
30	0.13	0.05	0.05	-0.13	-24.79	-8.36	-0.75
60	0.07	0.09	0.09	-0.07	-15.72	-14.48	-1.30
90	0.00	0.10	0.10	0.00	-3.34	-16.72	-1.50
120	0.07	0.09	0.09	0.07	9.04	-14.48	-1.30
150	0.13	0.05	0.05	0.13	18.11	-8.36	-0.75
180	0.15	0.00	0.00	0.15	21.43	0.00	0.00
210	0.13	0.05	-0.05	0.13	18.11	8.36	0.75
240	0.07	0.09	-0.09	0.07	9.04	14.48	1.30
270	0.00	0.10	-0.10	0.00	-3.34	16.72	1.50
300	0.07	0.09	-0.09	-0.07	-15.72	14.48	1.30
330	0.13	0.05	-0.05	-0.13	-24.79	8.36	0.75

RRU 4449 B5/B12 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.00	0.00	-0.02	-3.25	0.00	0.00
30	0.02	0.00	0.00	-0.02	-2.85	-0.53	-0.05
60	0.01	0.01	0.01	-0.01	-1.77	-0.91	-0.08
90	0.00	0.01	0.01	0.00	-0.30	-1.05	-0.09
120	0.01	0.01	0.01	0.01	1.17	-0.91	-0.08
150	0.02	0.00	0.00	0.02	2.24	-0.53	-0.05
180	0.02	0.00	0.00	0.02	2.64	0.00	0.00
210	0.02	0.00	-0.00	0.02	2.24	0.53	0.05
240	0.01	0.01	-0.01	0.01	1.17	0.91	0.08
270	0.00	0.01	-0.01	0.00	-0.30	1.05	0.09
300	0.01	0.01	-0.01	-0.01	-1.77	0.91	0.08
330	0.02	0.00	-0.00	-0.02	-2.85	0.53	0.05

RRU 4426 B66 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.00	0.00	-0.02	-3.25	0.00	0.00
30	0.02	0.00	0.00	-0.02	-2.85	-0.53	-0.05

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	70 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4426 B66 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
60	0.01	0.01	0.01	-0.01	-1.77	-0.91	-0.08
90	0.00	0.01	0.01	0.00	-0.30	-1.05	-0.09
120	0.01	0.01	0.01	0.01	1.17	-0.91	-0.08
150	0.02	0.00	0.00	0.02	2.24	-0.53	-0.05
180	0.02	0.00	0.00	0.02	2.64	0.00	0.00
210	0.02	0.00	-0.00	0.02	2.24	0.53	0.05
240	0.01	0.01	-0.01	0.01	1.17	0.91	0.08
270	0.00	0.01	-0.01	0.00	-0.30	1.05	0.09
300	0.01	0.01	-0.01	-0.01	-1.77	0.91	0.08
330	0.02	0.00	-0.00	-0.02	-2.85	0.53	0.05

RRU 4415 B30 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.00	0.00	-0.02	-3.25	0.00	0.00
30	0.02	0.00	0.00	-0.02	-2.85	-0.53	-0.05
60	0.01	0.01	0.01	-0.01	-1.77	-0.91	-0.08
90	0.00	0.01	0.01	0.00	-0.30	-1.05	-0.09
120	0.01	0.01	0.01	0.01	1.17	-0.91	-0.08
150	0.02	0.00	0.00	0.02	2.24	-0.53	-0.05
180	0.02	0.00	0.00	0.02	2.64	0.00	0.00
210	0.02	0.00	-0.00	0.02	2.24	0.53	0.05
240	0.01	0.01	-0.01	0.01	1.17	0.91	0.08
270	0.00	0.01	-0.01	0.00	-0.30	1.05	0.09
300	0.01	0.01	-0.01	-0.01	-1.77	0.91	0.08
330	0.02	0.00	-0.00	-0.02	-2.85	0.53	0.05

RRU 8843 B2/B66 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.00	0.00	-0.02	-3.25	0.00	0.00
30	0.02	0.00	0.00	-0.02	-2.85	-0.53	-0.05
60	0.01	0.01	0.01	-0.01	-1.77	-0.91	-0.08
90	0.00	0.01	0.01	0.00	-0.30	-1.05	-0.09
120	0.01	0.01	0.01	0.01	1.17	-0.91	-0.08
150	0.02	0.00	0.00	0.02	2.24	-0.53	-0.05
180	0.02	0.00	0.00	0.02	2.64	0.00	0.00
210	0.02	0.00	-0.00	0.02	2.24	0.53	0.05
240	0.01	0.01	-0.01	0.01	1.17	0.91	0.08
270	0.00	0.01	-0.01	0.00	-0.30	1.05	0.09
300	0.01	0.01	-0.01	-0.01	-1.77	0.91	0.08
330	0.02	0.00	-0.00	-0.02	-2.85	0.53	0.05

RRU 4478 B14 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.00	0.00	-0.02	-3.25	0.00	0.00
30	0.02	0.00	0.00	-0.02	-2.85	-0.53	-0.05
60	0.01	0.01	0.01	-0.01	-1.77	-0.91	-0.08
90	0.00	0.01	0.01	0.00	-0.30	-1.05	-0.09
120	0.01	0.01	0.01	0.01	1.17	-0.91	-0.08

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	71 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4478 B14 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	0.02	0.00	0.00	0.02	2.24	-0.53	-0.05
180	0.02	0.00	0.00	0.02	2.64	0.00	0.00
210	0.02	0.00	-0.00	0.02	2.24	0.53	0.05
240	0.01	0.01	-0.01	0.01	1.17	0.91	0.08
270	0.00	0.01	-0.01	0.00	-0.30	1.05	0.09
300	0.01	0.01	-0.01	-0.01	-1.77	0.91	0.08
330	0.02	0.00	-0.00	-0.02	-2.85	0.53	0.05

Squid DC9 (27.4 x 16.7) - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.03	0.00	0.00	-0.03	-6.84	0.00	0.00
30	0.03	0.02	0.02	-0.03	-6.10	-2.75	-0.25
60	0.02	0.03	0.03	-0.02	-4.09	-4.76	-0.43
90	0.00	0.03	0.03	0.00	-1.34	-5.50	-0.49
120	0.02	0.03	0.03	0.02	1.41	-4.76	-0.43
150	0.03	0.02	0.02	0.03	3.42	-2.75	-0.25
180	0.03	0.00	0.00	0.03	4.16	0.00	0.00
210	0.03	0.02	-0.02	0.03	3.42	2.75	0.25
240	0.02	0.03	-0.03	0.02	1.41	4.76	0.43
270	0.00	0.03	-0.03	0.00	-1.34	5.50	0.49
300	0.02	0.03	-0.03	-0.02	-4.09	4.76	0.43
330	0.03	0.02	-0.02	-0.03	-6.10	2.75	0.25

72" x 22" Panels QD66512-2 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.07	0.09	-0.02	-0.11	-17.06	0.59	1.30
30	0.00	0.10	0.05	-0.09	-12.81	-11.25	1.50
60	0.07	0.09	0.11	-0.04	-4.68	-20.86	1.30
90	0.13	0.05	0.13	0.02	5.15	-25.65	0.75
120	0.15	0.00	0.13	0.07	14.05	-24.34	0.00
150	0.13	0.05	0.09	0.11	19.64	-17.29	-0.75
180	0.07	0.09	0.02	0.11	20.40	-6.38	-1.30
210	0.00	0.10	-0.05	0.09	16.15	5.47	-1.50
240	0.07	0.09	-0.11	0.04	8.02	15.07	-1.30
270	0.13	0.05	-0.13	-0.02	-1.81	19.86	-0.75
300	0.15	0.00	-0.13	-0.07	-10.71	18.56	0.00
330	0.13	0.05	-0.09	-0.11	-16.30	11.50	0.75

RRU 4449 B5/B12 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	-0.00	-0.01	-1.37	0.56	0.08
30	0.00	0.01	0.00	-0.01	-0.76	-0.79	0.09
60	0.01	0.01	0.01	-0.00	0.10	-1.99	0.08
90	0.02	0.00	0.01	0.00	0.97	-2.73	0.05
120	0.02	0.00	0.02	0.01	1.62	-2.81	0.00
150	0.02	0.00	0.01	0.01	1.88	-2.21	-0.05
180	0.01	0.01	0.00	0.01	1.68	-1.08	-0.08
210	0.00	0.01	-0.00	0.01	1.06	0.26	-0.09

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	72 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4449 B5/B12 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
240	0.01	0.01	-0.01	0.00	0.20	1.47	-0.08
270	0.02	0.00	-0.01	-0.00	-0.67	2.21	-0.05
300	0.02	0.00	-0.02	-0.01	-1.32	2.29	0.00
330	0.02	0.00	-0.01	-0.01	-1.58	1.68	0.05

RRU 4426 B66 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	-0.00	-0.01	-1.37	0.56	0.08
30	0.00	0.01	0.00	-0.01	-0.76	-0.79	0.09
60	0.01	0.01	0.01	-0.00	0.10	-1.99	0.08
90	0.02	0.00	0.01	0.00	0.97	-2.73	0.05
120	0.02	0.00	0.02	0.01	1.62	-2.81	0.00
150	0.02	0.00	0.01	0.01	1.88	-2.21	-0.05
180	0.01	0.01	0.00	0.01	1.68	-1.08	-0.08
210	0.00	0.01	-0.00	0.01	1.06	0.26	-0.09
240	0.01	0.01	-0.01	0.00	0.20	1.47	-0.08
270	0.02	0.00	-0.01	-0.00	-0.67	2.21	-0.05
300	0.02	0.00	-0.02	-0.01	-1.32	2.29	0.00
330	0.02	0.00	-0.01	-0.01	-1.58	1.68	0.05

RRU 4415 B30 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	-0.00	-0.01	-1.37	0.56	0.08
30	0.00	0.01	0.00	-0.01	-0.76	-0.79	0.09
60	0.01	0.01	0.01	-0.00	0.10	-1.99	0.08
90	0.02	0.00	0.01	0.00	0.97	-2.73	0.05
120	0.02	0.00	0.02	0.01	1.62	-2.81	0.00
150	0.02	0.00	0.01	0.01	1.88	-2.21	-0.05
180	0.01	0.01	0.00	0.01	1.68	-1.08	-0.08
210	0.00	0.01	-0.00	0.01	1.06	0.26	-0.09
240	0.01	0.01	-0.01	0.00	0.20	1.47	-0.08
270	0.02	0.00	-0.01	-0.00	-0.67	2.21	-0.05
300	0.02	0.00	-0.02	-0.01	-1.32	2.29	0.00
330	0.02	0.00	-0.01	-0.01	-1.58	1.68	0.05

RRU 8843 B2/B66 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	-0.00	-0.01	-1.37	0.56	0.08
30	0.00	0.01	0.00	-0.01	-0.76	-0.79	0.09
60	0.01	0.01	0.01	-0.00	0.10	-1.99	0.08
90	0.02	0.00	0.01	0.00	0.97	-2.73	0.05
120	0.02	0.00	0.02	0.01	1.62	-2.81	0.00
150	0.02	0.00	0.01	0.01	1.88	-2.21	-0.05
180	0.01	0.01	0.00	0.01	1.68	-1.08	-0.08
210	0.00	0.01	-0.00	0.01	1.06	0.26	-0.09
240	0.01	0.01	-0.01	0.00	0.20	1.47	-0.08
270	0.02	0.00	-0.01	-0.00	-0.67	2.21	-0.05
300	0.02	0.00	-0.02	-0.01	-1.32	2.29	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	73 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 8843 B2/B66 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	0.02	0.00	-0.01	-0.01	-1.58	1.68	0.05

RRU 4478 B14 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	-0.00	-0.01	-1.37	0.56	0.08
30	0.00	0.01	0.00	-0.01	-0.76	-0.79	0.09
60	0.01	0.01	0.01	-0.00	0.10	-1.99	0.08
90	0.02	0.00	0.01	0.00	0.97	-2.73	0.05
120	0.02	0.00	0.02	0.01	1.62	-2.81	0.00
150	0.02	0.00	0.01	0.01	1.88	-2.21	-0.05
180	0.01	0.01	0.00	0.01	1.68	-1.08	-0.08
210	0.00	0.01	-0.00	0.01	1.06	0.26	-0.09
240	0.01	0.01	-0.01	0.00	0.20	1.47	-0.08
270	0.02	0.00	-0.01	-0.00	-0.67	2.21	-0.05
300	0.02	0.00	-0.02	-0.01	-1.32	2.29	0.00
330	0.02	0.00	-0.01	-0.01	-1.58	1.68	0.05

Squid DC9 (27.4 x 16.7) - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.03	0.00	-0.03	-4.83	-1.16	0.43
30	0.00	0.03	0.02	-0.03	-4.09	-3.91	0.49
60	0.02	0.03	0.03	-0.02	-2.08	-5.92	0.43
90	0.03	0.02	0.03	0.00	0.67	-6.66	0.25
120	0.03	0.00	0.03	0.02	3.42	-5.92	0.00
150	0.03	0.02	0.02	0.03	5.43	-3.91	-0.25
180	0.02	0.03	0.00	0.03	6.17	-1.16	-0.43
210	0.00	0.03	-0.02	0.03	5.43	1.59	-0.49
240	0.02	0.03	-0.03	0.02	3.42	3.60	-0.43
270	0.03	0.02	-0.03	0.00	0.67	4.34	-0.25
300	0.03	0.00	-0.03	-0.02	-2.08	3.60	0.00
330	0.03	0.02	-0.02	-0.03	-4.09	1.59	0.25

72" x 22" Panels QD66512-2 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.07	0.09	0.02	-0.11	-17.06	-0.59	-1.30
30	0.13	0.05	0.09	-0.11	-16.30	-11.50	-0.75
60	0.15	0.00	0.13	-0.07	-10.71	-18.56	0.00
90	0.13	0.05	0.13	-0.02	-1.81	-19.86	0.75
120	0.07	0.09	0.11	0.04	8.02	-15.07	1.30
150	0.00	0.10	0.05	0.09	16.15	-5.47	1.50
180	0.07	0.09	-0.02	0.11	20.40	6.38	1.30
210	0.13	0.05	-0.09	0.11	19.64	17.29	0.75
240	0.15	0.00	-0.13	0.07	14.05	24.34	0.00
270	0.13	0.05	-0.13	0.02	5.15	25.65	-0.75
300	0.07	0.09	-0.11	-0.04	-4.68	20.86	-1.30
330	0.00	0.10	-0.05	-0.09	-12.81	11.25	-1.50

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	74 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 4449 B5/B12 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	0.00	-0.01	-1.37	-0.56	-0.08
30	0.02	0.00	0.01	-0.01	-1.58	-1.68	-0.05
60	0.02	0.00	0.02	-0.01	-1.32	-2.29	0.00
90	0.02	0.00	0.01	-0.00	-0.67	-2.21	0.05
120	0.01	0.01	0.01	0.00	0.20	-1.47	0.08
150	0.00	0.01	0.00	0.01	1.06	-0.26	0.09
180	0.01	0.01	-0.00	0.01	1.68	1.08	0.08
210	0.02	0.00	-0.01	0.01	1.88	2.21	0.05
240	0.02	0.00	-0.02	0.01	1.62	2.81	0.00
270	0.02	0.00	-0.01	0.00	0.97	2.73	-0.05
300	0.01	0.01	-0.01	-0.00	0.10	1.99	-0.08
330	0.00	0.01	-0.00	-0.01	-0.76	0.79	-0.09

RRU 4426 B66 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	0.00	-0.01	-1.37	-0.56	-0.08
30	0.02	0.00	0.01	-0.01	-1.58	-1.68	-0.05
60	0.02	0.00	0.02	-0.01	-1.32	-2.29	0.00
90	0.02	0.00	0.01	-0.00	-0.67	-2.21	0.05
120	0.01	0.01	0.01	0.00	0.20	-1.47	0.08
150	0.00	0.01	0.00	0.01	1.06	-0.26	0.09
180	0.01	0.01	-0.00	0.01	1.68	1.08	0.08
210	0.02	0.00	-0.01	0.01	1.88	2.21	0.05
240	0.02	0.00	-0.02	0.01	1.62	2.81	0.00
270	0.02	0.00	-0.01	0.00	0.97	2.73	-0.05
300	0.01	0.01	-0.01	-0.00	0.10	1.99	-0.08
330	0.00	0.01	-0.00	-0.01	-0.76	0.79	-0.09

RRU 4415 B30 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	0.00	-0.01	-1.37	-0.56	-0.08
30	0.02	0.00	0.01	-0.01	-1.58	-1.68	-0.05
60	0.02	0.00	0.02	-0.01	-1.32	-2.29	0.00
90	0.02	0.00	0.01	-0.00	-0.67	-2.21	0.05
120	0.01	0.01	0.01	0.00	0.20	-1.47	0.08
150	0.00	0.01	0.00	0.01	1.06	-0.26	0.09
180	0.01	0.01	-0.00	0.01	1.68	1.08	0.08
210	0.02	0.00	-0.01	0.01	1.88	2.21	0.05
240	0.02	0.00	-0.02	0.01	1.62	2.81	0.00
270	0.02	0.00	-0.01	0.00	0.97	2.73	-0.05
300	0.01	0.01	-0.01	-0.00	0.10	1.99	-0.08
330	0.00	0.01	-0.00	-0.01	-0.76	0.79	-0.09

RRU 8843 B2/B66 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	0.00	-0.01	-1.37	-0.56	-0.08
30	0.02	0.00	0.01	-0.01	-1.58	-1.68	-0.05

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	75 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

RRU 8843 B2/B66 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
60	0.02	0.00	0.02	-0.01	-1.32	-2.29	0.00
90	0.02	0.00	0.01	-0.00	-0.67	-2.21	0.05
120	0.01	0.01	0.01	0.00	0.20	-1.47	0.08
150	0.00	0.01	0.00	0.01	1.06	-0.26	0.09
180	0.01	0.01	-0.00	0.01	1.68	1.08	0.08
210	0.02	0.00	-0.01	0.01	1.88	2.21	0.05
240	0.02	0.00	-0.02	0.01	1.62	2.81	0.00
270	0.02	0.00	-0.01	0.00	0.97	2.73	-0.05
300	0.01	0.01	-0.01	-0.00	0.10	1.99	-0.08
330	0.00	0.01	-0.00	-0.01	-0.76	0.79	-0.09

RRU 4478 B14 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	0.00	-0.01	-1.37	-0.56	-0.08
30	0.02	0.00	0.01	-0.01	-1.58	-1.68	-0.05
60	0.02	0.00	0.02	-0.01	-1.32	-2.29	0.00
90	0.02	0.00	0.01	-0.00	-0.67	-2.21	0.05
120	0.01	0.01	0.01	0.00	0.20	-1.47	0.08
150	0.00	0.01	0.00	0.01	1.06	-0.26	0.09
180	0.01	0.01	-0.00	0.01	1.68	1.08	0.08
210	0.02	0.00	-0.01	0.01	1.88	2.21	0.05
240	0.02	0.00	-0.02	0.01	1.62	2.81	0.00
270	0.02	0.00	-0.01	0.00	0.97	2.73	-0.05
300	0.01	0.01	-0.01	-0.00	0.10	1.99	-0.08
330	0.00	0.01	-0.00	-0.01	-0.76	0.79	-0.09

Squid DC9 (27.4 x 16.7) - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.03	0.00	-0.03	-4.83	1.16	-0.43
30	0.03	0.02	0.02	-0.03	-4.09	-1.59	-0.25
60	0.03	0.00	0.03	-0.02	-2.08	-3.60	0.00
90	0.03	0.02	0.03	0.00	0.67	-4.34	0.25
120	0.02	0.03	0.03	0.02	3.42	-3.60	0.43
150	0.00	0.03	0.02	0.03	5.43	-1.59	0.49
180	0.02	0.03	0.00	0.03	6.17	1.16	0.43
210	0.03	0.02	-0.02	0.03	5.43	3.91	0.25
240	0.03	0.00	-0.03	0.02	3.42	5.92	0.00
270	0.03	0.02	-0.03	0.00	0.67	6.66	-0.25
300	0.02	0.03	-0.03	-0.02	-2.08	5.92	-0.43
330	0.00	0.03	-0.02	-0.03	-4.09	3.91	-0.49

SP1 VFA10-HD-S - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.08	0.00	0.00	-0.08	-21.45	0.00	0.00
30	0.07	0.02	0.02	-0.07	-19.70	-4.01	-0.36
60	0.04	0.04	0.04	-0.04	-14.92	-6.94	-0.62
90	0.00	0.05	0.05	0.00	-8.40	-8.02	-0.72
120	0.04	0.04	0.04	0.04	-1.87	-6.94	-0.62

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	76 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

SP1 VFA10-HD-S - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	0.07	0.02	0.02	0.07	2.91	-4.01	-0.36
180	0.08	0.00	0.00	0.08	4.66	0.00	0.00
210	0.07	0.02	-0.02	0.07	2.91	4.01	0.36
240	0.04	0.04	-0.04	0.04	-1.87	6.94	0.62
270	0.00	0.05	-0.05	0.00	-8.40	8.02	0.72
300	0.04	0.04	-0.04	-0.04	-14.92	6.94	0.62
330	0.07	0.02	-0.02	-0.07	-19.70	4.01	0.36

SP1 VFA10-HD-S - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.04	0.04	-0.01	-0.05	-5.08	-5.09	0.62
30	0.00	0.05	0.02	-0.04	-2.75	-11.28	0.72
60	0.04	0.04	0.05	-0.02	1.45	-16.40	0.62
90	0.07	0.02	0.07	0.01	6.38	-19.07	0.36
120	0.08	0.00	0.07	0.04	10.73	-18.58	0.00
150	0.07	0.02	0.05	0.05	13.32	-15.06	-0.36
180	0.04	0.04	0.01	0.05	13.48	-9.45	-0.62
210	0.00	0.05	-0.02	0.04	11.14	-3.26	-0.72
240	0.04	0.04	-0.05	0.02	6.95	1.86	-0.62
270	0.07	0.02	-0.07	-0.01	2.02	4.53	-0.36
300	0.08	0.00	-0.07	-0.04	-2.33	4.04	0.00
330	0.07	0.02	-0.05	-0.05	-4.93	0.52	0.36

SP1 VFA10-HD-S - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.04	0.04	0.01	-0.05	-5.08	5.09	-0.62
30	0.07	0.02	0.05	-0.05	-4.93	-0.52	-0.36
60	0.08	0.00	0.07	-0.04	-2.33	-4.04	0.00
90	0.07	0.02	0.07	-0.01	2.02	-4.53	0.36
120	0.04	0.04	0.05	0.02	6.95	-1.86	0.62
150	0.00	0.05	0.02	0.04	11.14	3.26	0.72
180	0.04	0.04	-0.01	0.05	13.48	9.45	0.62
210	0.07	0.02	-0.05	0.05	13.32	15.06	0.36
240	0.08	0.00	-0.07	0.04	10.73	18.58	0.00
270	0.07	0.02	-0.07	0.01	6.38	19.07	-0.36
300	0.04	0.04	-0.05	-0.02	1.45	16.40	-0.62
330	0.00	0.05	-0.02	-0.04	-2.75	11.28	-0.72

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.05	0.00	0.00	-0.05	-10.54	0.00	0.00
30	0.04	0.02	0.02	-0.04	-9.41	-4.22	-0.38
60	0.02	0.04	0.04	-0.02	-6.33	-7.30	-0.66
90	0.00	0.05	0.05	0.00	-2.11	-8.43	-0.76
120	0.02	0.04	0.04	0.02	2.11	-7.30	-0.66
150	0.04	0.02	0.02	0.04	5.19	-4.22	-0.38
180	0.05	0.00	0.00	0.05	6.32	0.00	0.00
210	0.04	0.02	-0.02	0.04	5.19	4.22	0.38

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	77 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
240	0.02	0.04	-0.04	0.02	2.11	7.30	0.66
270	0.00	0.05	-0.05	0.00	-2.11	8.43	0.76
300	0.02	0.04	-0.04	-0.02	-6.33	7.30	0.66
330	0.04	0.02	-0.02	-0.04	-9.41	4.22	0.38

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.04	0.00	-0.05	-7.38	-1.83	0.66
30	0.00	0.05	0.02	-0.04	-6.25	-6.04	0.76
60	0.02	0.04	0.04	-0.02	-3.16	-9.13	0.66
90	0.04	0.02	0.05	0.00	1.05	-10.26	0.38
120	0.05	0.00	0.04	0.02	5.27	-9.13	0.00
150	0.04	0.02	0.02	0.04	8.36	-6.04	-0.38
180	0.02	0.04	0.00	0.05	9.49	-1.83	-0.66
210	0.00	0.05	-0.02	0.04	8.36	2.39	-0.76
240	0.02	0.04	-0.04	0.02	5.27	5.47	-0.66
270	0.04	0.02	-0.05	0.00	1.05	6.60	-0.38
300	0.05	0.00	-0.04	-0.02	-3.16	5.47	0.00
330	0.04	0.02	-0.02	-0.04	-6.25	2.39	0.38

2-1/2" x 72" Sch. 40 - Elevation 169 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.02	0.04	0.00	-0.05	-7.38	1.83	-0.66
30	0.04	0.02	0.02	-0.04	-6.25	-2.39	-0.38
60	0.05	0.00	0.04	-0.02	-3.16	-5.47	0.00
90	0.04	0.02	0.05	0.00	1.05	-6.60	0.38
120	0.02	0.04	0.04	0.02	5.27	-5.47	0.66
150	0.00	0.05	0.02	0.04	8.36	-2.39	0.76
180	0.02	0.04	0.00	0.05	9.49	1.83	0.66
210	0.04	0.02	-0.02	0.04	8.36	6.04	0.38
240	0.05	0.00	-0.04	0.02	5.27	9.13	0.00
270	0.04	0.02	-0.05	0.00	1.05	10.26	-0.38
300	0.02	0.04	-0.04	-0.02	-3.16	9.13	-0.66
330	0.00	0.05	-0.02	-0.04	-6.25	6.04	-0.76

AL8 W leg mounted - Elevation 277 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.17	0.00	0.00	-0.17	-48.45	0.00	0.00
30	0.15	0.09	0.09	-0.15	-42.10	-23.71	-0.55
60	0.09	0.15	0.15	-0.09	-24.75	-41.06	-0.96
90	0.00	0.17	0.17	0.00	-1.04	-47.42	-1.10
120	0.09	0.15	0.15	0.09	22.67	-41.06	-0.96
150	0.15	0.09	0.09	0.15	40.03	-23.71	-0.55
180	0.17	0.00	0.00	0.17	46.38	0.00	0.00
210	0.15	0.09	-0.09	0.15	40.03	23.71	0.55
240	0.09	0.15	-0.15	0.09	22.67	41.06	0.96
270	0.00	0.17	-0.17	0.00	-1.04	47.42	1.10
300	0.09	0.15	-0.15	-0.09	-24.75	41.06	0.96

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	78 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

AL8 W leg mounted - Elevation 277 - From Leg A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
330	0.15	0.09	-0.09	-0.15	-42.10	23.71	0.55

Discrete Appurtenance Totals - Service

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.03	-4.10	-959.54	-30.99	2.77
30	2.05	-3.56	-836.92	-493.35	-0.57
60	3.53	-2.07	-497.47	-830.64	-3.76
90	4.06	-0.03	-32.13	-952.46	-5.94
120	3.50	2.02	434.39	-826.18	-6.53
150	2.00	3.53	777.11	-485.64	-5.37
180	-0.03	4.10	904.18	-22.08	-2.77
210	-2.05	3.56	781.56	440.29	0.57
240	-3.53	2.07	442.11	777.57	3.76
270	-4.06	0.03	-23.23	899.39	5.94
300	-3.50	-2.02	-489.75	773.11	6.53
330	-2.00	-3.53	-832.47	432.57	5.37

Dish Pressures - No Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	K_z	A_A ft ²	q_z psf
220.00	5' Grid Dish (L Com HG2430G)	300.0000	0.18	-4.00	-2.31	1.494	19.63	169
220.00	5' Grid Dish (L Com HG2430G)	300.0000	0.18	-4.00	-2.31	1.494	19.63	169
220.00	5' Grid Dish (L Com HG2430G)	60.0000	0.18	4.00	-2.31	1.494	19.63	169
220.00	5' Grid Dish (L Com HG2430G)	60.0000	0.18	4.00	-2.31	1.494	19.63	169
220.00	5' Grid Dish (L Com HG2430G)	180.0000	0.18	0.00	4.62	1.494	19.63	169
220.00	5' Grid Dish (L Com HG2430G)	180.0000	0.18	0.00	4.62	1.494	19.63	169
153.00	HPS-6.4 (6' HP)	0.0000	0.25	0.00	-14.11	1.384	32.78	157
147.00	mWAVE P-9A72GN-S 6' Grid Dish	0.0000	0.08	0.00	-14.45	1.373	28.27	156
156.00	HPS-6.4 (6' HP)	120.0000	0.25	12.07	6.97	1.390	32.78	158
150.00	mWAVE P-9A72GN-S 6' Grid Dish	120.0000	0.08	12.37	7.14	1.378	28.27	156
	Sum Weight:		1.74					

Dish Vectors - No Ice

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face A											
Wind Azimuth °	C_A	C_S	C_M	F_A K	F_S K	F_M kip-ft	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	-0.000680	-0.000710	-0.000131	-0.75	-0.78	-0.72	-0.26	-1.05	-232.48	57.56	-4.35
30	-0.000130	-0.000620	-0.000111	-0.14	-0.68	-0.61	0.22	-0.66	-146.70	-47.26	-3.78
60	0.000600	-0.000720	-0.000135	0.66	-0.80	-0.75	0.97	-0.36	-79.05	-213.05	-4.42
90	0.001180	-0.000590	-0.000098	1.30	-0.65	-0.54	1.45	0.09	18.79	-319.33	-3.55

<i>Valmont</i> 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job 510330	Page 79 of 103
	Project U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client 3A Group, LLC	Designed by JS

Job 510330	Page 79 of 103
Project U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
Client 3A Group, LLC	Designed by JS

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face A											
Wind Azimuth °	C_A	C_S	C_M	F_A	F_S	F_M	V_x	V_z	OTM_x	OTM_z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
120	0.001370	0.000000	0.000000	1.51	0.00	0.00	1.31	0.76	166.06	-287.62	0.00
150	0.001180	0.000590	0.000098	1.30	0.65	0.54	0.80	1.22	267.15	-175.94	3.55
180	0.000600	0.000720	0.000135	0.66	0.80	0.75	0.18	1.02	224.03	-38.07	4.42
210	-0.000130	0.000620	0.000111	-0.14	0.68	0.61	-0.47	0.52	114.28	103.42	3.78
240	-0.000680	0.000710	0.000131	-0.75	0.78	0.72	-1.04	0.30	66.39	230.12	4.35
270	-0.001220	0.000520	0.000095	-1.35	0.57	0.52	-1.45	-0.18	-39.22	320.68	3.18
300	-0.001520	0.000000	0.000000	-1.68	0.00	0.00	-1.45	-0.84	-185.12	320.64	0.00
330	-0.001220	-0.000520	-0.000095	-1.35	-0.57	-0.52	-0.88	-1.17	-258.11	194.31	-3.18

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face A											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	-0.000680	-0.000710	-0.000131	-0.75	-0.78	-0.72	-0.26	-1.05	-232.48	57.56	-4.35
30	-0.000130	-0.000620	-0.000111	-0.14	-0.68	-0.61	0.22	-0.66	-146.70	-47.26	-3.78
60	0.000600	-0.000720	-0.000135	0.66	-0.80	-0.75	0.97	-0.36	-79.05	-213.05	-4.42
90	0.001180	-0.000590	-0.000098	1.30	-0.65	-0.54	1.45	0.09	18.79	-319.33	-3.55
120	0.001370	0.000000	0.000000	1.51	0.00	0.00	1.31	0.76	166.06	-287.62	0.00
150	0.001180	0.000590	0.000098	1.30	0.65	0.54	0.80	1.22	267.15	-175.94	3.55
180	0.000600	0.000720	0.000135	0.66	0.80	0.75	0.18	1.02	224.03	-38.07	4.42
210	-0.000130	0.000620	0.000111	-0.14	0.68	0.61	-0.47	0.52	114.28	103.42	3.78
240	-0.000680	0.000710	0.000131	-0.75	0.78	0.72	-1.04	0.30	66.39	230.12	4.35
270	-0.001220	0.000520	0.000095	-1.35	0.57	0.52	-1.45	-0.18	-39.22	320.68	3.18
300	-0.001520	0.000000	0.000000	-1.68	0.00	0.00	-1.45	-0.84	-185.12	320.64	0.00
330	-0.001220	-0.000520	-0.000095	-1.35	-0.57	-0.52	-0.88	-1.17	-258.11	194.31	-3.18

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face B											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	-0.000680	0.000710	0.000131	-0.75	0.78	0.72	0.26	-1.05	-232.48	-57.56	4.35
30	-0.001220	0.000520	0.000095	-1.35	0.57	0.52	0.88	-1.17	-258.11	-194.31	3.18
60	-0.001520	0.000000	0.000000	-1.68	0.00	0.00	1.45	-0.84	-185.12	-320.64	0.00
90	-0.001220	-0.000520	-0.000095	-1.35	-0.57	-0.52	1.45	-0.18	-39.22	-320.68	-3.18
120	-0.000680	-0.000710	-0.000131	-0.75	-0.78	-0.72	1.04	0.30	66.39	-230.12	-4.35
150	-0.000130	-0.000620	-0.000111	-0.14	-0.68	-0.61	0.47	0.52	114.28	-103.42	-3.78
180	0.000600	-0.000720	-0.000135	0.66	-0.80	-0.75	-0.18	1.02	224.03	38.07	-4.42
210	0.001180	-0.000590	-0.000098	1.30	-0.65	-0.54	-0.80	1.22	267.15	175.94	-3.55
240	0.001370	0.000000	0.000000	1.51	0.00	0.00	-1.31	0.76	166.06	287.62	0.00
270	0.001180	0.000590	0.000098	1.30	0.65	0.54	-1.45	0.09	18.79	319.33	3.55
300	0.000600	0.000720	0.000135	0.66	0.80	0.75	-0.97	-0.36	-79.05	213.05	4.42
330	-0.000130	0.000620	0.000111	-0.14	0.68	0.61	-0.22	-0.66	-146.70	47.26	3.78

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face B											
Wind Azimuth °	C_A	C_S	C_M	F_A	F_S	F_M	V_x	V_z	OTM_x	OTM_z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	-0.000680	0.000710	0.000131	-0.75	0.78	0.72	0.26	-1.05	-232.48	-57.56	4.35
30	-0.001220	0.000520	0.000095	-1.35	0.57	0.52	0.88	-1.17	-258.11	-194.31	3.18
60	-0.001520	0.000000	0.000000	-1.68	0.00	0.00	1.45	-0.84	-185.12	-320.64	0.00
90	-0.001220	-0.000520	-0.000095	-1.35	-0.57	-0.52	1.45	-0.18	-39.22	-320.68	-3.18
120	-0.000680	-0.000710	-0.000131	-0.75	-0.78	-0.72	1.04	0.30	66.39	-230.12	-4.35
150	-0.000130	-0.000620	-0.000111	-0.14	-0.68	-0.61	0.47	0.52	114.28	-103.42	-3.78
180	0.000600	-0.000720	-0.000135	0.66	-0.80	-0.75	-0.18	1.02	224.03	38.07	-4.42
210	0.001180	-0.000590	-0.000098	1.30	-0.65	-0.54	-0.80	1.22	267.15	175.94	-3.55
240	0.001370	0.000000	0.000000	1.51	0.00	0.00	-1.31	0.76	166.06	287.62	0.00
270	0.001180	0.000590	0.000098	1.30	0.65	0.54	-1.45	0.09	18.79	319.33	3.55
300	0.000600	0.000720	0.000135	0.66	0.80	0.75	-0.97	-0.36	-79.05	213.05	4.42
330	-0.000130	0.000620	0.000111	-0.14	0.68	0.61	-0.22	-0.66	-146.70	47.26	3.78

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face C

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 80 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.001370	0.000000	0.000000	1.51	0.00	0.00	0.00	-1.51	-332.12	0.00	0.00
30	0.001180	0.000590	0.000098	1.30	0.65	0.54	0.65	-1.30	-285.94	-143.39	3.55
60	0.000600	0.000720	0.000135	0.66	0.80	0.75	0.80	-0.66	-144.99	-174.98	4.42
90	-0.000130	0.000620	0.000111	-0.14	0.68	0.61	0.68	0.14	32.43	-150.68	3.78
120	-0.000680	0.000710	0.000131	-0.75	0.78	0.72	0.78	0.75	166.09	-172.55	4.35
150	-0.001220	0.000520	0.000095	-1.35	0.57	0.52	0.57	1.35	297.33	-126.38	3.18
180	-0.001520	0.000000	0.000000	-1.68	0.00	0.00	0.00	1.68	370.24	0.00	0.00
210	-0.001220	-0.000520	-0.000095	-1.35	-0.57	-0.52	-0.57	1.35	297.33	126.38	-3.18
240	-0.000680	-0.000710	-0.000131	-0.75	-0.78	-0.72	-0.78	0.75	166.09	172.55	-4.35
270	-0.000130	-0.000620	-0.000111	-0.14	-0.68	-0.61	-0.68	0.14	32.43	150.68	-3.78
300	0.000600	-0.000720	-0.000135	0.66	-0.80	-0.75	-0.80	-0.66	-144.99	174.98	-4.42
330	0.001180	-0.000590	-0.000098	1.30	-0.65	-0.54	-0.65	-1.30	-285.94	143.39	-3.55

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face C											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.001370	0.000000	0.000000	1.51	0.00	0.00	0.00	-1.51	-332.12	0.00	0.00
30	0.001180	0.000590	0.000098	1.30	0.65	0.54	0.65	-1.30	-285.94	-143.39	3.55
60	0.000600	0.000720	0.000135	0.66	0.80	0.75	0.80	-0.66	-144.99	-174.98	4.42
90	-0.000130	0.000620	0.000111	-0.14	0.68	0.61	0.68	0.14	32.43	-150.68	3.78
120	-0.000680	0.000710	0.000131	-0.75	0.78	0.72	0.78	0.75	166.09	-172.55	4.35
150	-0.001220	0.000520	0.000095	-1.35	0.57	0.52	0.57	1.35	297.33	-126.38	3.18
180	-0.001520	0.000000	0.000000	-1.68	0.00	0.00	0.00	1.68	370.24	0.00	0.00
210	-0.001220	-0.000520	-0.000095	-1.35	-0.57	-0.52	-0.57	1.35	297.33	126.38	-3.18
240	-0.000680	-0.000710	-0.000131	-0.75	-0.78	-0.72	-0.78	0.75	166.09	172.55	-4.35
270	-0.000130	-0.000620	-0.000111	-0.14	-0.68	-0.61	-0.68	0.14	32.43	150.68	-3.78
300	0.000600	-0.000720	-0.000135	0.66	-0.80	-0.75	-0.80	-0.66	-144.99	174.98	-4.42
330	0.001180	-0.000590	-0.000098	1.30	-0.65	-0.54	-0.65	-1.30	-285.94	143.39	-3.55

HPS-6.4 (6' HP) - Elevation 153 - From Leg A											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	-0.002600	0.000000	0.000000	-4.44	0.00	0.00	0.00	-4.44	-683.33	0.00	0.00
30	-0.002450	-0.000450	-0.000158	-4.19	-0.77	-1.74	0.77	-4.19	-644.11	-117.66	-12.59
60	-0.001820	-0.001120	-0.000266	-3.11	-1.91	-2.94	1.91	-3.11	-479.39	-292.84	-29.93
90	-0.000280	-0.001600	-0.000251	-0.48	-2.73	-2.77	2.73	-0.48	-76.74	-418.34	-41.34
120	0.002420	-0.000940	0.000022	4.14	-1.61	0.24	1.61	4.14	629.22	-245.78	-22.42
150	0.003100	-0.000600	0.000133	5.30	-1.03	1.47	1.03	5.30	807.01	-156.88	-13.00
180	0.003230	0.000000	0.000000	5.52	0.00	0.00	0.00	5.52	841.00	0.00	0.00
210	0.003100	0.000600	-0.000133	5.30	1.03	-1.47	-1.03	5.30	807.01	156.88	13.00
240	0.002420	0.000940	-0.000022	4.14	1.61	-0.24	-1.61	4.14	629.22	245.78	22.42
270	-0.000280	0.001600	0.000251	-0.48	2.73	2.77	-2.73	-0.48	-76.74	418.34	41.34
300	-0.001820	0.001120	0.000266	-3.11	1.91	2.94	-1.91	-3.11	-479.39	292.84	29.93
330	-0.002450	0.000450	0.000158	-4.19	0.77	1.74	-0.77	-4.19	-644.11	117.66	12.59

mWAVE P-9A72GN-S 6' Grid Dish - Elevation 147 - From Leg A											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	-0.001520	0.000000	0.000000	-2.22	0.00	0.00	0.00	-2.22	-327.70	0.00	0.00
30	-0.001220	-0.000520	-0.000095	-1.78	-0.76	-0.83	0.76	-1.78	-263.25	-111.71	-11.82
60	-0.000680	-0.000710	-0.000131	-0.99	-1.04	-1.15	1.04	-0.99	-147.24	-152.53	-16.14
90	-0.000130	-0.000620	-0.000111	-0.19	-0.91	-0.97	0.91	-0.19	-29.08	-133.20	-14.07
120	0.000600	-0.000720	-0.000135	0.88	-1.05	-1.18	1.05	0.88	127.74	-154.68	-16.39
150	0.001180	-0.000590	-0.000098	1.72	-0.86	-0.86	0.86	1.72	252.34	-126.75	-13.32
180	0.001370	0.000000	0.000000	2.00	0.00	0.00	0.00	2.00	293.16	0.00	0.00
210	0.001180	0.000590	0.000098	1.72	0.86	0.86	-0.86	1.72	252.34	126.75	13.32
240	0.000600	0.000720	0.000135	0.88	1.05	1.18	-1.05	0.88	127.74	154.68	16.39
270	-0.000130	-0.000620	-0.000111	-0.19	0.91	0.97	-0.91	-0.19	-29.08	133.20	14.07
300	-0.000680	0.000710	0.000131	-0.99	1.04	1.15	-1.04	-0.99	-147.24	152.53	16.14
330	-0.001220	0.000520	0.000095	-1.78	0.76	0.83	-0.76	-1.78	-263.25	111.71	11.82

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 81 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

HPS-6.4 (6' HP) - Elevation 156 - From Leg B											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	0.002420	0.000940	-0.000022	4.15	1.61	-0.24	-2.79	-3.47	-540.07	432.18	22.23
30	-0.000280	0.001600	0.000251	-0.48	2.75	2.78	1.79	-2.14	-331.69	-282.07	41.03
60	-0.001820	0.001120	0.000266	-3.12	1.92	2.95	3.67	-0.10	-14.31	-574.83	29.72
90	-0.002450	0.000450	0.000158	-4.20	0.77	1.75	4.03	1.43	225.33	-631.20	12.51
120	-0.002600	0.000000	0.000000	-4.46	0.00	0.00	3.86	2.23	349.73	-605.75	0.00
150	-0.002450	-0.000450	-0.000158	-4.20	-0.77	-1.75	3.25	2.77	433.97	-510.75	-12.51
180	-0.001820	-0.001120	-0.000266	-3.12	-1.92	-2.95	1.74	3.23	504.97	-275.03	-29.72
210	-0.000280	-0.001600	-0.000251	-0.48	-2.75	-2.78	-0.96	2.62	410.13	146.22	-41.03
240	0.002420	-0.000940	0.000022	4.15	-1.61	0.24	-4.40	-0.68	-104.24	683.80	-22.23
270	0.003100	-0.000600	0.000133	5.32	-1.03	1.47	-5.12	-1.77	-274.07	795.93	-12.87
300	0.003230	0.000000	0.000000	5.54	0.00	0.00	-4.80	-2.77	-430.57	745.76	0.00
330	0.003100	0.000600	-0.000133	5.32	1.03	-1.47	-4.09	-3.55	-552.26	635.32	12.87

mWAVE P-9A72GN-S 6' Grid Dish - Elevation 150 - From Leg B											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	0.000600	0.000720	0.000135	0.88	1.06	1.19	-0.23	-1.36	-202.75	34.15	16.28
30	-0.000130	0.000620	0.000111	-0.19	0.91	0.98	0.62	-0.69	-103.33	-94.02	13.97
60	-0.000680	0.000710	0.000131	-1.00	1.04	1.15	1.39	-0.40	-59.94	-208.79	16.03
90	-0.001220	0.000520	0.000095	-1.79	0.76	0.84	1.93	0.23	35.72	-290.83	11.73
120	-0.001520	0.000000	0.000000	-2.23	0.00	0.00	1.93	1.12	167.88	-290.79	0.00
150	-0.001220	-0.000520	-0.000095	-1.79	-0.76	-0.84	1.17	1.56	234.00	-176.35	-11.73
180	-0.000680	-0.000710	-0.000131	-1.00	-1.04	-1.15	0.34	1.40	210.79	-52.48	-16.03
210	-0.000130	-0.000620	-0.000111	-0.19	-0.91	-0.98	-0.29	0.88	133.09	42.47	-13.97
240	0.000600	-0.000720	-0.000135	0.88	-1.06	-1.19	-1.29	0.47	71.80	192.66	-16.28
270	0.001180	-0.000590	-0.000098	1.73	-0.87	-0.86	-1.93	-0.12	-16.83	288.93	-13.23
300	0.001370	0.000000	0.000000	2.01	0.00	0.00	-1.74	-1.01	-150.23	260.21	0.00
330	0.001180	0.000590	0.000098	1.73	0.87	0.86	-1.07	-1.62	-241.80	159.04	13.23

Dish Totals - No Ice

Wind Azimuth °	V _x	V _z	OTM _x	OTM _z	Torque
	K	K	kip-ft	kip-ft	kip-ft
0	-3.02	-18.74	-3348.00	466.33	38.51
30	7.44	-15.08	-2723.90	-1375.37	36.50
60	14.44	-8.33	-1519.18	-2646.33	-0.32
90	16.79	1.11	179.24	-3054.95	-37.07
120	14.73	11.98	2071.65	-2677.57	-38.81
150	10.00	17.52	3084.85	-1782.20	-44.65
180	2.09	19.59	3486.53	-327.51	-45.76
210	-6.82	16.69	2960.09	1283.80	-34.59
240	-14.63	8.43	1521.59	2657.49	0.30
270	-17.88	-2.44	-372.72	3217.78	35.22
300	-15.94	-11.60	-2025.73	2868.68	46.08
330	-10.19	-17.42	-3082.94	1793.64	44.60

Dish Pressures - Service

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z psf
-----------------	---------------------	------------------------	-------------	---------------------------	---------------------------	----------------	-----------------------------------	-----------------------

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 82 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z psf
220.00	5' Grid Dish (L Com HG2430G)	300.0000	0.18	-4.00	-2.31	1.494	19.63	11
220.00	5' Grid Dish (L Com HG2430G)	300.0000	0.18	-4.00	-2.31	1.494	19.63	11
220.00	5' Grid Dish (L Com HG2430G)	60.0000	0.18	4.00	-2.31	1.494	19.63	11
220.00	5' Grid Dish (L Com HG2430G)	60.0000	0.18	4.00	-2.31	1.494	19.63	11
220.00	5' Grid Dish (L Com HG2430G)	180.0000	0.18	0.00	4.62	1.494	19.63	11
220.00	5' Grid Dish (L Com HG2430G)	180.0000	0.18	0.00	4.62	1.494	19.63	11
153.00	HPS-6.4 (6' HP)	0.0000	0.25	0.00	-14.11	1.384	32.78	10
147.00	mWAVE P-9A72GN-S 6' Grid Dish	0.0000	0.08	0.00	-14.45	1.373	28.27	10
156.00	HPS-6.4 (6' HP)	120.0000	0.25	12.07	6.97	1.390	32.78	10
150.00	mWAVE P-9A72GN-S 6' Grid Dish	120.0000	0.08	12.37	7.14	1.378	28.27	10
	Sum Weight:		1.74					

Dish Vectors - Service

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face A											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	-0.000680	-0.000710	-0.000131	-0.05	-0.05	-0.05	-0.02	-0.07	-15.80	4.49	-0.29
30	-0.000130	-0.000620	-0.000111	-0.01	-0.05	-0.04	0.01	-0.04	-10.12	-2.46	-0.25
60	0.000600	-0.000720	-0.000135	0.04	-0.05	-0.05	0.06	-0.02	-5.63	-13.46	-0.29
90	0.001180	-0.000590	-0.000098	0.09	-0.04	-0.04	0.10	0.01	0.86	-20.50	-0.24
120	0.001370	0.000000	0.000000	0.10	0.00	0.00	0.09	0.05	10.62	-18.40	0.00
150	0.001180	0.000590	0.000098	0.09	0.04	0.04	0.05	0.08	17.33	-10.99	0.24
180	0.000600	0.000720	0.000135	0.04	0.05	0.05	0.01	0.07	14.47	-1.85	0.29
210	-0.000130	0.000620	0.000111	-0.01	0.05	0.04	-0.03	0.03	7.19	7.53	0.25
240	-0.000680	0.000710	0.000131	-0.05	0.05	0.05	-0.07	0.02	4.01	15.93	0.29
270	-0.001220	0.000520	0.000095	-0.09	0.04	0.03	-0.10	-0.01	-2.99	21.94	0.21
300	-0.001520	0.000000	0.000000	-0.11	0.00	0.00	-0.10	-0.06	-12.66	21.93	0.00
330	-0.001220	-0.000520	-0.000095	-0.09	-0.04	-0.03	-0.06	-0.08	-17.50	13.56	-0.21

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face A											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	-0.000680	-0.000710	-0.000131	-0.05	-0.05	-0.05	-0.02	-0.07	-15.80	4.49	-0.29
30	-0.000130	-0.000620	-0.000111	-0.01	-0.05	-0.04	0.01	-0.04	-10.12	-2.46	-0.25
60	0.000600	-0.000720	-0.000135	0.04	-0.05	-0.05	0.06	-0.02	-5.63	-13.46	-0.29
90	0.001180	-0.000590	-0.000098	0.09	-0.04	-0.04	0.10	0.01	0.86	-20.50	-0.24
120	0.001370	0.000000	0.000000	0.10	0.00	0.00	0.09	0.05	10.62	-18.40	0.00
150	0.001180	0.000590	0.000098	0.09	0.04	0.04	0.05	0.08	17.33	-10.99	0.24
180	0.000600	0.000720	0.000135	0.04	0.05	0.05	0.01	0.07	14.47	-1.85	0.29
210	-0.000130	0.000620	0.000111	-0.01	0.05	0.04	-0.03	0.03	7.19	7.53	0.25
240	-0.000680	0.000710	0.000131	-0.05	0.05	0.05	-0.07	0.02	4.01	15.93	0.29
270	-0.001220	0.000520	0.000095	-0.09	0.04	0.03	-0.10	-0.01	-2.99	21.94	0.21
300	-0.001520	0.000000	0.000000	-0.11	0.00	0.00	-0.10	-0.06	-12.66	21.93	0.00
330	-0.001220	-0.000520	-0.000095	-0.09	-0.04	-0.03	-0.06	-0.08	-17.50	13.56	-0.21

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face B											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	-0.000680	0.000710	0.000131	-0.05	0.05	0.05	0.02	-0.07	-15.80	-4.49	0.29
30	-0.001220	0.000520	0.000095	-0.09	0.04	0.03	0.06	-0.08	-17.50	-13.56	0.21
60	-0.001520	0.000000	0.000000	-0.11	0.00	0.00	0.10	-0.06	-12.66	-21.93	0.00
90	-0.001220	-0.000520	-0.000095	-0.09	-0.04	-0.03	0.10	-0.01	-2.99	-21.94	-0.21
120	-0.000680	-0.000710	-0.000131	-0.05	-0.05	-0.05	0.07	0.02	4.01	-15.93	-0.29

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 83 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face B											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
150	-0.000130	-0.000620	-0.000111	-0.01	-0.05	-0.04	0.03	0.03	7.19	-7.53	-0.25
180	0.000600	-0.000720	-0.000135	0.04	-0.05	-0.05	-0.01	0.07	14.47	1.85	-0.29
210	0.001180	-0.000590	-0.000098	0.09	-0.04	-0.04	-0.05	0.08	17.33	10.99	-0.24
240	0.001370	0.000000	0.000000	0.10	0.00	0.00	-0.09	0.05	10.62	18.40	0.00
270	0.001180	0.000590	0.000098	0.09	0.04	0.04	-0.10	0.01	0.86	20.50	0.24
300	0.000600	0.000720	0.000135	0.04	0.05	0.05	-0.06	-0.02	-5.63	13.46	0.29
330	-0.000130	0.000620	0.000111	-0.01	0.05	0.04	-0.01	-0.04	-10.12	2.46	0.25

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face B											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	-0.000680	0.000710	0.000131	-0.05	0.05	0.05	0.02	-0.07	-15.80	-4.49	0.29
30	-0.001220	0.000520	0.000095	-0.09	0.04	0.03	0.06	-0.08	-17.50	-13.56	0.21
60	-0.001520	0.000000	0.000000	-0.11	0.00	0.00	0.10	-0.06	-12.66	-21.93	0.00
90	-0.001220	-0.000520	-0.000095	-0.09	-0.04	-0.03	0.10	-0.01	-2.99	-21.94	-0.21
120	-0.000680	-0.000710	-0.000131	-0.05	-0.05	-0.05	0.07	0.02	4.01	-15.93	-0.29
150	-0.000130	-0.000620	-0.000111	-0.01	-0.05	-0.04	0.03	0.03	7.19	-7.53	-0.25
180	0.000600	-0.000720	-0.000135	0.04	-0.05	-0.05	-0.01	0.07	14.47	1.85	-0.29
210	0.001180	-0.000590	-0.000098	0.09	-0.04	-0.04	-0.05	0.08	17.33	10.99	-0.24
240	0.001370	0.000000	0.000000	0.10	0.00	0.00	-0.09	0.05	10.62	18.40	0.00
270	0.001180	0.000590	0.000098	0.09	0.04	0.04	-0.10	0.01	0.86	20.50	0.24
300	0.000600	0.000720	0.000135	0.04	0.05	0.05	-0.06	-0.02	-5.63	13.46	0.29
330	-0.000130	0.000620	0.000111	-0.01	0.05	0.04	-0.01	-0.04	-10.12	2.46	0.25

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face C											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	0.001370	0.000000	0.000000	0.10	0.00	0.00	0.00	-0.10	-21.25	0.00	0.00
30	0.001180	0.000590	0.000098	0.09	0.04	0.04	0.04	-0.09	-18.19	-9.51	0.24
60	0.000600	0.000720	0.000135	0.04	0.05	0.05	0.05	-0.04	-8.84	-11.60	0.29
90	-0.000130	0.000620	0.000111	-0.01	0.05	0.04	0.05	0.01	2.93	-9.99	0.25
120	-0.000680	0.000710	0.000131	-0.05	0.05	0.05	0.05	0.05	11.79	-11.44	0.29
150	-0.001220	0.000520	0.000095	-0.09	0.04	0.03	0.04	0.09	20.49	-8.38	0.21
180	-0.001520	0.000000	0.000000	-0.11	0.00	0.00	0.00	0.11	25.33	0.00	0.00
210	-0.001220	-0.000520	-0.000095	-0.09	-0.04	-0.03	-0.04	0.09	20.49	8.38	-0.21
240	-0.000680	-0.000710	-0.000131	-0.05	-0.05	-0.05	-0.05	0.05	11.79	11.44	-0.29
270	-0.000130	-0.000620	-0.000111	-0.01	-0.05	-0.04	-0.05	0.01	2.93	9.99	-0.25
300	0.000600	-0.000720	-0.000135	0.04	-0.05	-0.05	-0.05	-0.04	-8.84	11.60	-0.29
330	0.001180	-0.000590	-0.000098	0.09	-0.04	-0.04	-0.04	-0.09	-18.19	9.51	-0.24

5' Grid Dish (L Com HG2430G) - Elevation 220 - From Face C											
Wind Azimuth °	C _A	C _S	C _M	F _A	F _S	F _M	V _x	V _z	OTM _x	OTM _z	Torque
				K	K	kip-ft	K	K	kip-ft	kip-ft	kip-ft
0	0.001370	0.000000	0.000000	0.10	0.00	0.00	0.00	-0.10	-21.25	0.00	0.00
30	0.001180	0.000590	0.000098	0.09	0.04	0.04	0.04	-0.09	-18.19	-9.51	0.24
60	0.000600	0.000720	0.000135	0.04	0.05	0.05	0.05	-0.04	-8.84	-11.60	0.29
90	-0.000130	0.000620	0.000111	-0.01	0.05	0.04	0.05	0.01	2.93	-9.99	0.25
120	-0.000680	0.000710	0.000131	-0.05	0.05	0.05	0.05	0.05	11.79	-11.44	0.29
150	-0.001220	0.000520	0.000095	-0.09	0.04	0.03	0.04	0.09	20.49	-8.38	0.21
180	-0.001520	0.000000	0.000000	-0.11	0.00	0.00	0.00	0.11	25.33	0.00	0.00
210	-0.001220	-0.000520	-0.000095	-0.09	-0.04	-0.03	-0.04	0.09	20.49	8.38	-0.21
240	-0.000680	-0.000710	-0.000131	-0.05	-0.05	-0.05	-0.05	0.05	11.79	11.44	-0.29
270	-0.000130	-0.000620	-0.000111	-0.01	-0.05	-0.04	-0.05	0.01	2.93	9.99	-0.25
300	0.000600	-0.000720	-0.000135	0.04	-0.05	-0.05	-0.05	-0.04	-8.84	11.60	-0.29
330	0.001180	-0.000590	-0.000098	0.09	-0.04	-0.04	-0.04	-0.09	-18.19	9.51	-0.24

HPS-6.4 (6' HP) - Elevation 153 - From Leg A
--

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page 84 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date 11:34:11 04/20/22
	Client	3A Group, LLC	Designed by JS

Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	-0.002600	0.000000	0.000000	-0.29	0.00	0.00	0.00	-0.29	-48.61	0.00	0.00
30	-0.002450	-0.000450	-0.000158	-0.28	-0.05	-0.12	0.05	-0.28	-46.00	-7.80	-0.83
60	-0.001820	-0.001120	-0.000266	-0.21	-0.13	-0.19	0.13	-0.21	-35.08	-19.42	-1.99
90	-0.000280	-0.001600	-0.000251	-0.03	-0.18	-0.18	0.18	-0.03	-8.38	-27.74	-2.74
120	0.002420	-0.000940	0.000022	0.27	-0.11	0.02	0.11	0.27	38.43	-16.30	-1.49
150	0.003100	-0.000600	0.000133	0.35	-0.07	0.10	0.07	0.35	50.22	-10.40	-0.86
180	0.003230	0.000000	0.000000	0.37	0.00	0.00	0.00	0.37	52.48	0.00	0.00
210	0.003100	0.000600	-0.000133	0.35	0.07	-0.10	-0.07	0.35	50.22	10.40	0.86
240	0.002420	0.000940	-0.000022	0.27	0.11	-0.02	-0.11	0.27	38.43	16.30	1.49
270	-0.000280	0.001600	0.000251	-0.03	0.18	0.18	-0.18	-0.03	-8.38	27.74	2.74
300	-0.001820	0.001120	0.000266	-0.21	0.13	0.19	-0.13	-0.21	-35.08	19.42	1.99
330	-0.002450	0.000450	0.000158	-0.28	0.05	0.12	-0.05	-0.28	-46.00	7.80	0.83

mWAVE P-9A72GN-S 6' Grid Dish - Elevation 147 - From Leg A											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	-0.001520	0.000000	0.000000	-0.15	0.00	0.00	0.00	-0.15	-22.81	0.00	0.00
30	-0.001220	-0.000520	-0.000095	-0.12	-0.05	-0.06	0.05	-0.12	-18.54	-7.41	-0.78
60	-0.000680	-0.000710	-0.000131	-0.07	-0.07	-0.08	0.07	-0.07	-10.84	-10.11	-1.07
90	-0.000130	-0.000620	-0.000111	-0.01	-0.06	-0.06	0.06	-0.01	-3.01	-8.83	-0.93
120	0.000600	-0.000720	-0.000135	0.06	-0.07	-0.08	0.07	0.06	7.39	-10.26	-1.09
150	0.001180	-0.000590	-0.000098	0.11	-0.06	-0.06	0.06	0.11	15.65	-8.41	-0.88
180	0.001370	0.000000	0.000000	0.13	0.00	0.00	0.00	0.13	18.36	0.00	0.00
210	0.001180	0.000590	0.000098	0.11	0.06	0.06	-0.06	0.11	15.65	8.41	0.88
240	0.000600	0.000720	0.000135	0.06	0.07	0.08	-0.07	0.06	7.39	10.26	1.09
270	-0.000130	0.000620	0.000111	-0.01	0.06	0.06	-0.06	-0.01	-3.01	8.83	0.93
300	-0.000680	0.000710	0.000131	-0.07	0.07	0.08	-0.07	-0.07	-10.84	10.11	1.07
330	-0.001220	0.000520	0.000095	-0.12	0.05	0.06	-0.05	-0.12	-18.54	7.41	0.78

HPS-6.4 (6' HP) - Elevation 156 - From Leg B											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.002420	0.000940	-0.000022	0.28	0.11	-0.02	-0.18	-0.23	-34.19	25.84	1.47
30	-0.000280	0.001600	0.000251	-0.03	0.18	0.18	0.12	-0.14	-20.37	-21.52	2.72
60	-0.001820	0.001120	0.000266	-0.21	0.13	0.20	0.24	-0.01	0.68	-40.93	1.97
90	-0.002450	0.000450	0.000158	-0.28	0.05	0.12	0.27	0.10	16.57	-44.67	0.83
120	-0.002600	0.000000	0.000000	-0.30	0.00	0.00	0.26	0.15	24.82	-42.98	0.00
150	-0.002450	-0.000450	-0.000158	-0.28	-0.05	-0.12	0.22	0.18	30.40	-36.69	-0.83
180	-0.001820	-0.001120	-0.000266	-0.21	-0.13	-0.20	0.12	0.21	35.11	-21.05	-1.97
210	-0.000280	0.001600	0.000251	-0.03	0.18	0.18	-0.06	0.17	28.82	6.88	-2.72
240	0.002420	-0.000940	0.000022	0.28	-0.11	0.02	-0.29	-0.05	-5.29	42.53	-1.47
270	0.003100	-0.000600	0.000133	0.35	-0.07	0.10	-0.34	-0.12	-16.55	49.96	-0.85
300	0.003230	0.000000	0.000000	0.37	0.00	0.00	-0.32	-0.18	-26.93	46.64	0.00
330	0.003100	0.000600	-0.000133	0.35	0.07	-0.10	-0.27	-0.24	-35.00	39.31	0.85

mWAVE P-9A72GN-S 6' Grid Dish - Elevation 150 - From Leg B											
Wind Azimuth °	C _A	C _S	C _M	F _A K	F _S K	F _M kip-ft	V _x K	V _z K	OTM _x kip-ft	OTM _z kip-ft	Torque kip-ft
0	0.000600	0.000720	0.000135	0.06	0.07	0.08	-0.02	-0.09	-12.91	1.34	1.08
30	-0.000130	0.000620	0.000111	-0.01	0.06	0.06	0.04	-0.05	-6.32	-7.16	0.93
60	-0.000680	0.000710	0.000131	-0.07	0.07	0.08	0.09	-0.03	-3.44	-14.77	1.06
90	-0.001220	0.000520	0.000095	-0.12	0.05	0.06	0.13	0.02	2.90	-20.21	0.78
120	-0.001520	0.000000	0.000000	-0.15	0.00	0.00	0.13	0.07	11.67	-20.21	0.00
150	-0.001220	-0.000520	-0.000095	-0.12	-0.05	-0.06	0.08	0.10	16.05	-12.62	-0.78
180	-0.000680	-0.000710	-0.000131	-0.07	-0.07	-0.08	0.02	0.09	14.51	-4.40	-1.06
210	-0.000130	-0.000620	-0.000111	-0.01	-0.06	-0.06	-0.02	0.06	9.36	1.89	-0.93
240	0.000600	-0.000720	-0.000135	0.06	-0.07	-0.08	-0.09	0.03	5.29	11.85	-1.08
270	0.001180	-0.000590	-0.000098	0.11	-0.06	-0.06	-0.13	-0.01	-0.58	18.24	-0.88
300	0.001370	0.000000	0.000000	0.13	0.00	0.00	-0.12	-0.07	-9.43	16.33	0.00
330	0.001180	0.000590	0.000098	0.11	0.06	0.06	-0.07	-0.11	-15.50	9.62	0.88

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	85 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Dish Totals - Service

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	-0.20	-1.24	-224.22	27.18	2.55
30	0.49	-1.00	-182.84	-94.94	2.42
60	0.96	-0.55	-102.95	-179.22	-0.02
90	1.11	0.07	9.67	-206.32	-2.46
120	0.98	0.79	135.16	-181.29	-2.57
150	0.66	1.16	202.35	-121.92	-2.96
180	0.14	1.30	228.99	-25.46	-3.03
210	-0.45	1.11	194.08	81.39	-2.29
240	-0.97	0.56	98.69	172.48	0.02
270	-1.19	-0.16	-26.93	209.64	2.34
300	-1.06	-0.77	-136.54	186.49	3.06
330	-0.68	-1.15	-206.65	115.20	2.96

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	121.12					
Bracing Weight	51.54					
Total Member Self-Weight	172.66			-41.62	-43.42	
Total Weight	199.65			-41.62	-43.42	
Wind 0 deg - No Ice		-2.58	-414.70	-64293.35	359.75	90.63
Wind 30 deg - No Ice		197.36	-344.10	-53446.68	-30670.95	213.82
Wind 60 deg - No Ice		339.42	-196.51	-30713.71	-53039.46	81.25
Wind 90 deg - No Ice		398.87	0.66	72.82	-62458.50	-273.41
Wind 120 deg - No Ice		358.88	210.71	32822.12	-56035.98	-371.71
Wind 150 deg - No Ice		198.88	345.63	53797.55	-31039.74	-171.36
Wind 180 deg - No Ice		1.64	392.56	60932.43	-299.76	-97.88
Wind 210 deg - No Ice		-196.74	345.71	53604.36	30500.55	-211.92
Wind 240 deg - No Ice		-359.50	208.10	32348.08	55934.42	-81.27
Wind 270 deg - No Ice		-399.96	-2.00	-344.82	62542.50	271.55
Wind 300 deg - No Ice		-340.18	-198.84	-31144.23	53185.64	378.99
Wind 330 deg - No Ice		-199.06	-345.52	-53874.16	30972.35	171.31
Total Weight	199.65			-41.62	-43.42	
Wind 0 deg - Service		-0.17	-27.50	-4290.70	-3.81	6.01
Wind 30 deg - Service		13.09	-22.82	-3571.43	-2061.51	14.18
Wind 60 deg - Service		22.51	-13.03	-2063.97	-3544.80	5.39
Wind 90 deg - Service		26.45	0.04	-22.46	-4169.39	-18.13
Wind 120 deg - Service		23.80	13.97	2149.20	-3743.51	-24.65
Wind 150 deg - Service		13.19	22.92	3540.12	-2085.96	-11.36
Wind 180 deg - Service		0.11	26.03	4013.25	-47.54	-6.49
Wind 210 deg - Service		-13.05	22.92	3527.31	1994.89	-14.05
Wind 240 deg - Service		-23.84	13.80	2117.77	3681.45	-5.39
Wind 270 deg - Service		-26.52	-0.13	-50.15	4119.64	18.01
Wind 300 deg - Service		-22.56	-13.19	-2092.52	3499.17	25.13
Wind 330 deg - Service		-13.20	-22.91	-3599.78	2026.17	11.36

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	86 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	Dead+Wind 0 deg - Service
27	Dead+Wind 30 deg - Service
28	Dead+Wind 60 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 120 deg - Service
31	Dead+Wind 150 deg - Service
32	Dead+Wind 180 deg - Service
33	Dead+Wind 210 deg - Service
34	Dead+Wind 240 deg - Service
35	Dead+Wind 270 deg - Service
36	Dead+Wind 300 deg - Service
37	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	328 - 320	Leg	Max Tension	7	1.23	0.50	0.04
			Max. Compression	18	-2.87	1.47	0.07
			Max. Mx	6	0.75	1.86	-0.07
			Max. My	24	-0.76	0.21	-2.96
			Max. Vy	18	-1.32	1.47	0.07
			Max. Vx	12	1.84	0.21	-1.24
		Diagonal	Max Tension	22	2.69	0.00	0.00
			Max. Compression	10	-2.27	0.00	0.00
			Max. Mx	22	-1.13	0.03	0.00
			Max. My	10	-1.14	0.02	-0.01
			Max. Vy	22	0.01	0.03	0.00
			Max. Vx	10	-0.00	0.00	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	87 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	320 - 300	Top Girt	Max Tension	19	0.40	0.00	0.00
			Max. Compression	2	-0.50	0.00	0.00
		Leg	Max. Mx	22	-0.46	-0.06	0.00
			Max. My	24	-0.33	0.00	0.00
			Max. Vy	22	0.02	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
			Max Tension	15	28.62	2.61	0.84
			Max. Compression	18	-32.99	11.67	0.08
			Max. Mx	18	-32.99	11.67	0.08
			Max. My	12	-2.24	0.09	-7.79
			Max. Vy	18	-2.80	11.67	0.08
			Max. Vx	24	-2.79	-0.11	6.15
		Diagonal	Max Tension	22	13.42	0.00	0.00
			Max. Compression	10	-13.89	0.00	0.00
T3	300 - 280	Leg	Max. Mx	20	4.02	0.05	0.01
			Max. My	11	-13.81	-0.01	-0.05
			Max. Vy	20	0.02	0.05	0.01
			Max. Vx	11	0.01	-0.01	-0.05
			Max Tension	15	97.26	6.05	2.14
			Max. Compression	18	-106.79	15.99	-0.61
		Diagonal	Max. Mx	18	-106.79	15.99	-0.61
			Max. My	12	-2.89	0.05	-12.30
			Max. Vy	18	-2.84	15.99	-0.61
			Max. Vx	24	-2.75	0.05	12.30
			Max Tension	22	22.75	0.00	0.00
			Max. Compression	10	-24.11	0.00	0.00
		Leg	Max. Mx	18	14.06	0.31	-0.01
			Max. My	11	-18.79	-0.16	-0.15
			Max. Vy	18	-0.07	0.31	-0.01
			Max. Vx	11	-0.02	-0.16	-0.15
T4	280 - 260	Leg	Max Tension	23	174.14	0.67	-1.62
			Max. Compression	18	-191.05	12.68	-0.38
			Max. Mx	18	-151.19	15.27	-0.69
			Max. My	24	-4.11	0.10	12.00
			Max. Vy	10	-2.74	15.27	-1.52
			Max. Vx	24	-2.03	0.10	12.00
		Diagonal	Max Tension	4	19.26	0.00	0.00
			Max. Compression	2	-20.21	0.00	0.00
			Max. Mx	2	8.66	0.19	0.02
			Max. My	2	-19.93	-0.10	0.10
			Max. Vy	2	-0.05	0.19	0.02
			Max. Vx	2	-0.02	0.00	0.00
		Leg	Max Tension	23	247.98	-1.27	-0.09
			Max. Compression	18	-272.51	18.16	-2.82
			Max. Mx	14	245.88	-18.36	0.11
			Max. My	20	-5.79	-0.41	-25.54
			Max. Vy	10	-2.36	15.78	-1.53
			Max. Vx	20	3.48	-0.41	-25.54
T5	260 - 240	Diagonal	Max Tension	2	20.48	0.00	0.00
			Max. Compression	2	-21.37	0.00	0.00
			Max. Mx	20	3.48	0.20	0.01
			Max. My	14	-19.44	0.01	-0.12
			Max. Vy	20	0.05	0.20	0.01
			Max. Vx	14	0.02	0.00	0.00
		Leg	Max Tension	23	294.99	-35.56	-3.78
			Max. Compression	2	-326.42	37.30	-0.37
			Max. Mx	10	-325.50	37.63	3.61
			Max. My	8	-9.44	-0.11	26.56
			Max. Vy	11	-4.25	37.62	3.62
			Max. Vx	20	-4.42	-0.41	-7.99
		Diagonal	Max Tension	15	34.53	0.00	0.00
T6	240 - 220	Leg					

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	88 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	220 - 200	Leg	Max. Compression	2	-37.81	0.00	0.00
			Max. Mx	6	27.78	-0.46	-0.04
			Max. My	4	-34.10	0.12	-0.15
			Max. Vy	6	-0.09	-0.46	-0.04
			Max. Vx	4	0.02	0.00	0.00
			Max Tension	23	400.25	24.11	-2.10
			Max. Compression	10	-443.19	43.41	2.00
			Max. Mx	10	-443.19	43.41	2.00
			Max. My	8	-14.42	0.07	18.68
			Max. Vy	10	-5.02	43.41	2.00
			Max. Vx	4	-7.45	-0.64	-11.29
			Max Tension	12	41.52	0.00	0.00
			Max. Compression	12	-43.17	0.00	0.00
			Max. Mx	10	32.19	-0.51	-0.05
T8	200 - 180	Leg	Max. My	21	-37.52	0.12	0.20
			Max. Vy	10	0.10	-0.51	-0.05
			Max. Vx	21	-0.02	0.12	0.20
			Max Tension	23	505.43	16.19	1.27
			Max. Compression	10	-562.61	46.67	2.85
			Max. Mx	10	-562.61	46.67	2.85
			Max. My	20	-18.13	-0.49	-33.15
			Max. Vy	11	-4.94	46.66	2.85
			Max. Vx	20	3.84	-0.49	-33.15
			Max Tension	12	43.58	0.00	0.00
			Max. Compression	12	-44.43	0.00	0.00
			Max. Mx	22	33.34	-0.43	0.06
			Max. My	20	-23.32	-0.25	0.12
			Max. Vy	22	-0.11	-0.43	0.06
T9	180 - 160	Leg	Max. Vx	20	-0.01	0.00	0.00
			Max Tension	23	615.62	20.96	2.66
			Max. Compression	10	-690.71	90.62	6.42
			Max. Mx	10	-690.71	90.62	6.42
			Max. My	8	-26.03	-0.30	60.83
			Max. Vy	11	-10.43	90.57	6.45
			Max. Vx	8	-7.95	-0.30	60.83
			Max Tension	22	54.12	0.00	0.00
			Max. Compression	10	-57.78	0.00	0.00
			Max. Mx	6	43.86	-0.70	-0.08
			Max. My	22	-47.76	-0.26	0.23
			Max. Vy	6	-0.17	-0.70	-0.08
			Max. Vx	22	-0.02	0.00	0.00
			Max Tension	23	750.23	-2.36	1.00
T10	160 - 140	Leg	Max. Compression	10	-842.57	79.79	6.53
			Max. Mx	10	-842.57	79.79	6.53
			Max. My	20	-32.49	1.02	-53.68
			Max. Vy	3	-7.88	78.83	-4.26
			Max. Vx	16	-5.68	1.47	52.36
			Max Tension	12	68.41	0.00	0.00
			Max. Compression	24	-69.98	0.00	0.00
			Max. Mx	22	48.69	-0.79	0.09
			Max. My	22	-61.52	-0.32	0.30
			Max. Vy	22	-0.19	-0.79	0.09
			Max. Vx	22	-0.03	0.00	0.00
			Max Tension	23	897.15	9.36	0.73
			Max. Compression	10	-1005.72	76.22	3.10
			Max. Mx	10	-1005.72	76.22	3.10
T11	140 - 120	Leg	Max. My	8	-36.35	0.40	43.05
			Max. Vy	10	-6.41	76.22	3.10
			Max. Vx	8	-3.30	0.40	43.05
			Max Tension	12	73.73	0.00	0.00
			Max. Compression	24	-75.72	0.00	0.00
		Diagonal	Max Tension	12	73.73	0.00	0.00
			Max. Compression	24	-75.72	0.00	0.00

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	89 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T12	120 - 100	Leg	Max. Mx	22	50.85	-0.87	0.09
			Max. My	22	-66.91	-0.37	0.29
			Max. Vy	22	-0.20	-0.87	0.09
			Max. Vx	22	-0.03	0.00	0.00
		Diagonal	Max Tension	23	1043.81	5.70	3.02
			Max. Compression	10	-1168.90	76.83	4.36
			Max. Mx	11	-1157.21	76.83	4.37
			Max. My	20	-46.99	0.26	-59.70
			Max. Vy	11	-6.20	76.83	4.37
			Max. Vx	20	4.44	0.26	-59.70
			Max Tension	24	74.68	0.00	0.00
			Max. Compression	12	-77.02	0.00	0.00
			Max. Mx	22	52.34	-0.96	0.09
			Max. My	22	-68.62	-0.45	0.32
			Max. Vy	22	-0.22	-0.96	0.09
			Max. Vx	22	-0.03	0.00	0.00
			Max Tension	23	1186.35	-5.33	0.79
			Max. Compression	10	-1327.85	65.87	1.87
T13	100 - 80	Leg	Max. Mx	10	-1327.85	65.87	1.87
			Max. My	20	-53.80	1.21	-42.08
			Max. Vy	10	-5.09	65.87	1.87
			Max. Vx	16	-2.60	1.24	41.27
		Diagonal	Max Tension	12	78.58	0.00	0.00
			Max. Compression	12	-82.01	0.00	0.00
			Max. Mx	10	55.61	-1.56	-0.12
			Max. My	22	-71.15	-0.50	0.27
			Max. Vy	22	-0.30	-1.54	0.16
			Max. Vx	22	-0.02	0.00	0.00
			Max Tension	23	1332.33	-29.20	0.29
			Max. Compression	10	-1494.85	34.32	0.42
			Max. Mx	11	-1479.71	34.45	0.43
			Max. My	20	-62.48	-0.52	-38.89
			Max. Vy	3	-2.37	34.04	-0.01
			Max. Vx	16	-2.59	-0.51	38.37
			Max Tension	12	83.03	0.00	0.00
			Max. Compression	12	-85.01	0.00	0.00
T14	80 - 60	Leg	Max. Mx	22	59.13	-1.49	0.15
			Max. My	22	-76.40	-0.69	0.32
			Max. Vy	22	-0.31	-1.49	0.15
			Max. Vx	22	-0.03	0.00	0.00
		Diagonal	Max Tension	23	1471.02	-42.74	-0.99
			Max. Compression	10	-1653.11	29.26	-0.23
			Max. Mx	11	-1632.66	43.17	1.08
			Max. My	20	-65.40	-1.42	-42.75
			Max. Vy	22	-2.88	-43.15	-1.00
			Max. Vx	16	3.11	-1.38	42.10
			Max Tension	12	86.88	0.00	0.00
			Max. Compression	12	-89.68	0.00	0.00
			Max. Mx	22	65.87	-1.59	0.14
			Max. My	10	-87.91	-0.55	-0.30
			Max. Vy	22	-0.33	-1.59	0.14
			Max. Vx	10	0.02	0.00	0.00
			Max Tension	23	1615.57	-48.64	-1.02
			Max. Compression	10	-1821.43	23.66	-0.33
T15	60 - 40	Leg	Max. Mx	10	-1815.31	51.55	1.06
			Max. My	24	-66.31	-1.80	55.00
			Max. Vy	19	3.27	51.24	0.37
			Max. Vx	24	-3.24	-1.80	55.00
		Diagonal	Max Tension	12	88.95	0.00	0.00
			Max. Compression	12	-90.50	0.00	0.00
			Max. Mx	22	63.13	-1.58	0.16

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	90 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T17	20 - 0	Leg	Max. My	22	-82.73	-1.04	0.40
			Max. Vy	22	-0.34	-1.58	0.16
			Max. Vx	22	-0.03	0.00	0.00
			Max Tension	23	1747.47	-62.26	-1.78
			Max. Compression	10	-1975.78	-41.07	-1.87
			Max. Mx	22	1730.72	-62.91	-1.80
		Diagonal	Max. My	20	-82.73	-2.42	-71.37
			Max. Vy	11	6.80	62.76	1.84
			Max. Vx	20	-5.79	-2.42	-71.37
			Max Tension	12	95.06	0.00	0.00
			Max. Compression	10	-98.76	0.00	0.00
			Max. Mx	10	69.79	-1.67	-0.10
			Max. My	22	-18.83	-1.30	0.29
			Max. Vy	20	-0.36	-1.66	0.07
			Max. Vx	22	-0.02	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	2048.60	216.98	-123.96
	Max. H _x	18	2048.60	216.98	-123.96
	Max. H _z	7	-1806.35	-198.28	113.05
	Min. Vert	7	-1806.35	-198.28	113.05
	Min. H _x	7	-1806.35	-198.28	113.05
	Min. H _z	18	2048.60	216.98	-123.96
Leg B	Max. Vert	10	2058.97	-214.05	-130.19
	Max. H _x	23	-1816.99	195.61	119.97
	Max. H _z	23	-1816.99	195.61	119.97
	Min. Vert	23	-1816.99	195.61	119.97
	Min. H _x	10	2058.97	-214.05	-130.19
	Min. H _z	10	2058.97	-214.05	-130.19
Leg A	Max. Vert	2	2039.42	1.55	249.37
	Max. H _x	21	70.35	34.61	5.87
	Max. H _z	2	2039.42	1.55	249.37
	Min. Vert	15	-1795.75	-1.65	-228.21
	Min. H _x	9	57.64	-34.52	4.30
	Min. H _z	15	-1795.75	-1.65	-228.21

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	199.65	-0.00	0.00	-41.56	-43.40	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	239.58	-2.58	-414.70	-64487.09	352.48	91.24
0.9 Dead+1.0 Wind 0 deg - No Ice	179.69	-2.58	-414.70	-64427.23	365.33	91.09
1.2 Dead+1.0 Wind 30 deg - No Ice	239.58	197.35	-344.09	-53608.26	-30769.67	214.40
0.9 Dead+1.0 Wind 30 deg - No Ice	179.69	197.35	-344.09	-53556.40	-30733.99	214.36

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	91 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

<i>Load Combination</i>	<i>Vertical K</i>	<i>Shear_x K</i>	<i>Shear_z K</i>	<i>Overturning Moment, M_x kip-ft</i>	<i>Overturning Moment, M_z kip-ft</i>	<i>Torque kip-ft</i>
Ice						
1.2 Dead+1.0 Wind 60 deg - No Ice	239.58	339.41	-196.51	-30810.77	-53201.14	80.96
0.9 Dead+1.0 Wind 60 deg - No Ice	179.69	339.41	-196.51	-30775.59	-53148.96	81.04
1.2 Dead+1.0 Wind 90 deg - No Ice	239.58	398.87	0.66	61.86	-62647.67	-274.50
0.9 Dead+1.0 Wind 90 deg - No Ice	179.69	398.87	0.66	74.39	-62588.51	-274.33
1.2 Dead+1.0 Wind 120 deg - No Ice	239.58	358.88	210.71	32907.61	-56207.06	-372.58
0.9 Dead+1.0 Wind 120 deg - No Ice	179.69	358.88	210.71	32896.00	-56152.64	-372.35
1.2 Dead+1.0 Wind 150 deg - No Ice	239.58	198.87	345.63	53945.28	-31136.47	-171.70
0.9 Dead+1.0 Wind 150 deg - No Ice	179.69	198.87	345.63	53918.18	-31100.54	-171.50
1.2 Dead+1.0 Wind 180 deg - No Ice	239.58	1.64	392.56	61099.52	-308.89	-98.39
0.9 Dead+1.0 Wind 180 deg - No Ice	179.69	1.64	392.56	61067.23	-295.61	-98.26
1.2 Dead+1.0 Wind 210 deg - No Ice	239.58	-196.74	345.71	53751.19	30578.21	-212.44
0.9 Dead+1.0 Wind 210 deg - No Ice	179.69	-196.74	345.71	53724.32	30568.86	-212.40
1.2 Dead+1.0 Wind 240 deg - No Ice	239.58	-359.50	208.10	32432.76	56087.09	-80.99
0.9 Dead+1.0 Wind 240 deg - No Ice	179.69	-359.50	208.10	32421.52	56058.98	-81.07
1.2 Dead+1.0 Wind 270 deg - No Ice	239.58	-399.96	-2.00	-356.98	62714.30	272.58
0.9 Dead+1.0 Wind 270 deg - No Ice	179.69	-399.96	-2.00	-344.15	62681.26	272.40
1.2 Dead+1.0 Wind 300 deg - No Ice	239.58	-340.17	-198.84	-31243.19	53330.03	379.76
0.9 Dead+1.0 Wind 300 deg - No Ice	179.69	-340.17	-198.84	-31207.69	53303.84	379.54
1.2 Dead+1.0 Wind 330 deg - No Ice	239.58	-199.06	-345.52	-54037.05	31054.67	171.67
0.9 Dead+1.0 Wind 330 deg - No Ice	179.69	-199.06	-345.52	-53984.83	31044.87	171.46
Dead+Wind 0 deg - Service	199.65	-0.17	-27.50	-4312.83	-16.77	6.04
Dead+Wind 30 deg - Service	199.65	13.09	-22.82	-3591.78	-2079.46	14.20
Dead+Wind 60 deg - Service	199.65	22.51	-13.03	-2080.49	-3566.12	5.37
Dead+Wind 90 deg - Service	199.65	26.45	0.04	-34.17	-4192.50	-18.18
Dead+Wind 120 deg - Service	199.65	23.80	13.97	2142.79	-3765.62	-24.70
Dead+Wind 150 deg - Service	199.65	13.19	22.92	3537.08	-2104.01	-11.39
Dead+Wind 180 deg - Service	199.65	0.11	26.03	4011.04	-60.60	-6.52
Dead+Wind 210 deg - Service	199.65	-13.05	22.92	3524.20	1986.79	-14.07
Dead+Wind 240 deg - Service	199.65	-23.84	13.80	2111.28	3677.50	-5.37
Dead+Wind 270 deg - Service	199.65	-26.52	-0.13	-61.93	4116.72	18.05
Dead+Wind 300 deg - Service	199.65	-22.56	-13.19	-2109.15	3494.48	25.18
Dead+Wind 330 deg - Service	199.65	-13.20	-22.91	-3620.22	2018.15	11.39

Solution Summary

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	92 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-199.65	0.00	0.00	199.65	-0.00	0.000%
2	-2.58	-239.58	-414.70	2.58	239.58	414.70	0.000%
3	-2.58	-179.69	-414.70	2.58	179.69	414.70	0.000%
4	197.36	-239.58	-344.10	-197.35	239.58	344.09	0.000%
5	197.36	-179.69	-344.10	-197.35	179.69	344.09	0.000%
6	339.42	-239.58	-196.51	-339.41	239.58	196.51	0.000%
7	339.42	-179.69	-196.51	-339.41	179.69	196.51	0.000%
8	398.87	-239.58	0.66	-398.87	239.58	-0.66	0.000%
9	398.87	-179.69	0.66	-398.87	179.69	-0.66	0.000%
10	358.88	-239.58	210.71	-358.88	239.58	-210.71	0.000%
11	358.88	-179.69	210.71	-358.88	179.69	-210.71	0.000%
12	198.88	-239.58	345.63	-198.87	239.58	-345.63	0.000%
13	198.88	-179.69	345.63	-198.87	179.69	-345.63	0.000%
14	1.64	-239.58	392.56	-1.64	239.58	-392.56	0.000%
15	1.64	-179.69	392.56	-1.64	179.69	-392.56	0.000%
16	-196.74	-239.58	345.71	196.74	239.58	-345.71	0.000%
17	-196.74	-179.69	345.71	196.74	179.69	-345.71	0.000%
18	-359.50	-239.58	208.10	359.50	239.58	-208.10	0.000%
19	-359.50	-179.69	208.10	359.50	179.69	-208.10	0.000%
20	-399.96	-239.58	-2.00	399.96	239.58	2.00	0.000%
21	-399.96	-179.69	-2.00	399.96	179.69	2.00	0.000%
22	-340.18	-239.58	-198.84	340.17	239.58	198.84	0.000%
23	-340.18	-179.69	-198.84	340.17	179.69	198.84	0.000%
24	-199.06	-239.58	-345.52	199.06	239.58	345.52	0.000%
25	-199.06	-179.69	-345.52	199.06	179.69	345.52	0.000%
26	-0.17	-199.65	-27.50	0.17	199.65	27.50	0.000%
27	13.09	-199.65	-22.82	-13.09	199.65	22.82	0.000%
28	22.51	-199.65	-13.03	-22.51	199.65	13.03	0.000%
29	26.45	-199.65	0.04	-26.45	199.65	-0.04	0.000%
30	23.80	-199.65	13.97	-23.80	199.65	-13.97	0.000%
31	13.19	-199.65	22.92	-13.19	199.65	-22.92	0.000%
32	0.11	-199.65	26.03	-0.11	199.65	-26.03	0.000%
33	-13.05	-199.65	22.92	13.05	199.65	-22.92	0.000%
34	-23.84	-199.65	13.80	23.84	199.65	-13.80	0.000%
35	-26.52	-199.65	-0.13	26.52	199.65	0.13	0.000%
36	-22.56	-199.65	-13.19	22.56	199.65	13.19	0.000%
37	-13.20	-199.65	-22.91	13.20	199.65	22.91	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00008454
2	Yes	10	0.00000001	0.00005810
3	Yes	10	0.00000001	0.00005623
4	Yes	10	0.00000001	0.00006083
5	Yes	10	0.00000001	0.00005892
6	Yes	10	0.00000001	0.00006326
7	Yes	10	0.00000001	0.00006130
8	Yes	10	0.00000001	0.00006068
9	Yes	10	0.00000001	0.00005878
10	Yes	10	0.00000001	0.00005791
11	Yes	10	0.00000001	0.00005605
12	Yes	10	0.00000001	0.00006074
13	Yes	10	0.00000001	0.00005883
14	Yes	10	0.00000001	0.00006330

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	93 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

15	Yes	10	0.00000001	0.00006134
16	Yes	10	0.00000001	0.00006082
17	Yes	10	0.00000001	0.00005891
18	Yes	10	0.00000001	0.00005801
19	Yes	10	0.00000001	0.00005614
20	Yes	10	0.00000001	0.00006073
21	Yes	10	0.00000001	0.00005880
22	Yes	10	0.00000001	0.00006325
23	Yes	10	0.00000001	0.00006127
24	Yes	10	0.00000001	0.00006079
25	Yes	10	0.00000001	0.00005887
26	Yes	10	0.00000001	0.00005012
27	Yes	10	0.00000001	0.00004944
28	Yes	10	0.00000001	0.00004921
29	Yes	10	0.00000001	0.00004916
30	Yes	10	0.00000001	0.00004952
31	Yes	10	0.00000001	0.00004883
32	Yes	10	0.00000001	0.00004867
33	Yes	10	0.00000001	0.00004889
34	Yes	10	0.00000001	0.00004977
35	Yes	10	0.00000001	0.00004947
36	Yes	10	0.00000001	0.00004952
37	Yes	10	0.00000001	0.00004966

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	328 - 320	3.668	26	0.1028	0.0162
T2	320 - 300	3.483	26	0.1027	0.0159
T3	300 - 280	3.008	26	0.0993	0.0116
T4	280 - 260	2.556	26	0.0893	0.0067
T5	260 - 240	2.161	26	0.0784	0.0067
T6	240 - 220	1.824	26	0.0676	0.0082
T7	220 - 200	1.528	30	0.0581	0.0084
T8	200 - 180	1.270	30	0.0522	0.0075
T9	180 - 160	1.035	30	0.0482	0.0067
T10	160 - 140	0.820	30	0.0435	0.0057
T11	140 - 120	0.625	30	0.0383	0.0047
T12	120 - 100	0.456	30	0.0325	0.0037
T13	100 - 80	0.314	30	0.0262	0.0028
T14	80 - 60	0.204	30	0.0194	0.0022
T15	60 - 40	0.122	30	0.0140	0.0016
T16	40 - 20	0.063	30	0.0083	0.0010
T17	20 - 0	0.023	34	0.0042	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
328.00	5/8" x 10' lightning rod	26	3.668	0.1028	0.0162	209714
322.86	DCR- C10 (installed above 292')	26	3.549	0.1028	0.0161	204642
317.71	DCR- C10 (installed above 292')	26	3.429	0.1026	0.0157	168722
312.57	DCR- C10 (installed above 292')	26	3.307	0.1022	0.0148	380802

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	94 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
307.43	DCR- C10 (installed above 292')	26	3.184	0.1015	0.0136	371579
302.29	DCR- C10 (installed above 292')	26	3.062	0.1001	0.0122	148549
297.14	DCR- C10 (installed above 292')	26	2.941	0.0980	0.0109	106025
292.00	DCR- C10 (installed above 292')	26	2.822	0.0957	0.0097	91101
277.00	AL8 W leg mounted	26	2.493	0.0876	0.0060	69311
235.00	2.375 x 19.5' Huslter HX6-1448 Omni	30	1.746	0.0650	0.0084	143322
220.00	5' Grid Dish (L Com HG2430G)	30	1.528	0.0581	0.0084	103510
200.00	OB light	30	1.270	0.0522	0.0075	238832
180.00	2.375 x 19.5' Huslter HX6-1448 Omni	30	1.035	0.0482	0.0067	249288
169.00	(2) 72" x 22" Panels QD66512-2	30	0.914	0.0457	0.0061	233983
156.00	HPS-6.4 (6' HP)	30	0.779	0.0425	0.0055	212856
153.00	HPS-6.4 (6' HP)	30	0.749	0.0418	0.0053	206463
150.00	mWAVE P-9A72GN-S 6' Grid Dish	30	0.719	0.0410	0.0052	200437
147.00	mWAVE P-9A72GN-S 6' Grid Dish	30	0.690	0.0402	0.0050	194752
40.00	RFI RDA6-99 UHF Yagi	30	0.063	0.0083	0.0010	272961

Maximum Tower Deflections - Design Wind

<i>Section No.</i>	<i>Elevation</i>	<i>Horz. Deflection</i>	<i>Gov. Load Comb.</i>	<i>Tilt</i>	<i>Twist</i>
	<i>ft</i>	<i>in</i>		<i>°</i>	<i>°</i>
T1	328 - 320	54.960	10	1.5267	0.2448
T2	320 - 300	52.160	10	1.5252	0.2402
T3	300 - 280	44.987	10	1.4870	0.1757
T4	280 - 260	38.225	10	1.3322	0.1016
T5	260 - 240	32.340	10	1.1641	0.1021
T6	240 - 220	27.341	10	1.0000	0.1241
T7	220 - 200	22.905	10	0.8623	0.1265
T8	200 - 180	19.044	10	0.7776	0.1137
T9	180 - 160	15.529	10	0.7188	0.1006
T10	160 - 140	12.298	10	0.6512	0.0859
T11	140 - 120	9.387	10	0.5740	0.0707
T12	120 - 100	6.854	10	0.4874	0.0558
T13	100 - 80	4.723	10	0.3929	0.0427
T14	80 - 60	3.071	10	0.2915	0.0330
T15	60 - 40	1.840	10	0.2097	0.0241
T16	40 - 20	0.948	10	0.1247	0.0156
T17	20 - 0	0.342	10	0.0629	0.0076

Critical Deflections and Radius of Curvature - Design Wind

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
328.00	5/8" x 10' lightning rod	10	54.960	1.5267	0.2448	14027
322.86	DCR- C10 (installed above 292')	10	53.166	1.5258	0.2431	13689
317.71	DCR- C10 (installed above 292')	10	51.348	1.5245	0.2363	11479
312.57	DCR- C10 (installed above 292')	10	49.503	1.5212	0.2229	30590
307.43	DCR- C10 (installed above 292')	10	47.648	1.5131	0.2048	37246
302.29	DCR- C10 (installed above 292')	10	45.801	1.4973	0.1847	11869

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	Page
	510330	95 of 103
	Project	Date
	U-38 x 328' - WTPM Radio Paraiso, PR	11:34:11 04/20/22
	Client	Designed by
	3A Group, LLC	JS

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
297.14	DCR- C10 (installed above 292')	10	43.979	1.4711	0.1648	8128
292.00	DCR- C10 (installed above 292')	10	42.196	1.4351	0.1459	6861
277.00	AL8 W leg mounted	10	37.281	1.3061	0.0899	5028
235.00	2.375 x 19.5' Huslter HX6-1448 Omni	10	26.182	0.9616	0.1273	9714
220.00	5' Grid Dish (L Com HG2430G)	10	22.905	0.8623	0.1265	7259
200.00	OB light	10	19.044	0.7776	0.1137	16253
180.00	2.375 x 19.5' Huslter HX6-1448 Omni	10	15.529	0.7188	0.1006	17067
169.00	(2) 72" x 22" Panels QD66512-2	10	13.715	0.6832	0.0927	16145
156.00	HPS-6.4 (6' HP)	10	11.688	0.6365	0.0829	14630
153.00	HPS-6.4 (6' HP)	10	11.240	0.6252	0.0806	14094
150.00	mWAVE P-9A72GN-S 6' Grid Dish	10	10.799	0.6138	0.0783	13595
147.00	mWAVE P-9A72GN-S 6' Grid Dish	10	10.366	0.6021	0.0760	13130
40.00	RFI RDA6-99 UHF Yagi	10	0.948	0.1247	0.0156	18089

Bolt Design Data

Section No.	Elevation	Component Type	Bolt Grade	Bolt Size	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
	ft			in						
T1	328	Leg	A325N	1.0000	6	0.21	54.52	0.004 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	2.69	13.03	0.206 ✓	1	Member Block Shear
		Top Girt	A325N	1.0000	1	0.40	13.06	0.030 ✓	1	Member Block Shear
T2	320	Leg	A325N	1.0000	6	4.77	54.52	0.087 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	13.42	17.37	0.773 ✓	1	Member Block Shear
T3	300	Leg	A325N	1.0000	6	16.21	54.52	0.297 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	22.75	27.42	0.830 ✓	1	Member Block Shear
T4	280	Leg	A325N	1.0000	6	29.02	54.52	0.532 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	19.26	23.61	0.816 ✓	1	Member Block Shear
T5	260	Leg	A325N	1.2500	6	41.33	87.22	0.474 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	20.48	23.61	0.867 ✓	1	Member Block Shear
T6	240	Leg	A325N	1.0000	12	24.58	54.52	0.451 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	34.53	36.98	0.934 ✓	1	Gusset Bearing
T7	220	Leg	A325N	1.2500	12	33.35	87.22	0.382 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	2	20.76	31.38	0.662 ✓	1	Member Block Shear
T8	200	Leg	A325N	1.2500	18	28.08	87.22	0.322 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	2	21.79	31.38	0.694 ✓	1	Member Block Shear
T9	180	Leg	A325N	1.2500	24	25.65	87.22	0.294 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	2	27.06	50.73	0.533 ✓	1	Member Block Shear
T10	160	Leg	A325N	1.2500	24	31.26	87.22	0.358 ✓	1	Bolt Tension

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	96 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T11	140	Diagonal	A325N	1.0000	2	34.21	50.73	0.674 ✓	1	Member Block Shear
		Leg	A325N	1.2500	24	37.38	87.22	0.429 ✓	1	Bolt Tension
T12	120	Diagonal	A325N	1.0000	2	36.87	50.73	0.727 ✓	1	Member Block Shear
		Leg	A325N	1.2500	24	43.49	87.22	0.499 ✓	1	Bolt Tension
T13	100	Diagonal	A325N	1.0000	2	37.34	50.73	0.736 ✓	1	Member Block Shear
		Leg	A325N	1.2500	30	39.55	87.22	0.453 ✓	1	Bolt Tension
T14	80	Diagonal	A325N	1.0000	2	39.29	59.87	0.656 ✓	1	Member Block Shear
		Leg	A325N	1.2500	30	44.41	87.22	0.509 ✓	1	Bolt Tension
T15	60	Diagonal	A325N	1.0000	2	41.52	62.61	0.663 ✓	1	Member Block Shear
		Leg	A325N	1.2500	30	49.03	87.22	0.562 ✓	1	Bolt Tension
T16	40	Diagonal	A325N	1.0000	2	43.44	62.61	0.694 ✓	1	Member Block Shear
		Leg	A325N	1.2500	30	53.85	87.22	0.617 ✓	1	Bolt Tension
T17	20	Diagonal	A325N	1.0000	2	44.48	62.61	0.710 ✓	1	Member Block Shear
		Leg	F1554-105	1.7500	24	72.81	178.07	0.409 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	2	47.53	62.61	0.759 ✓	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	328 - 320	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	8.00	8.00	42.8 K=1.00	3.6816	-2.87	164.52	0.017 ¹ ✓
T2	320 - 300	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	20.00	10.00	42.8 K=1.00	3.6816	-32.99	164.52	0.201 ¹ ✓
T3	300 - 280	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	20.00	10.00	42.8 K=1.00	3.6816	-106.80	164.52	0.649 ¹ ✓
T4	280 - 260	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7 K=1.00	5.3014	-191.05	248.43	0.769 ¹ ✓
T5	260 - 240	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	20.03	10.02	30.6 K=1.00	7.2158	-272.51	347.96	0.783 ¹ ✓
T6	240 - 220	#12ZG-58 -2.00" - 0.875" conn.-TR3-(Pirod 195638)	20.03	20.03	48.8 K=1.00	9.4248	-326.42	401.94	0.812 ¹ ✓
T7	220 - 200	#12ZG-58 -2.75"-0.875 -DB-0.625"-HP-TR4-(Pirod 196953)	20.03	20.03	48.6 K=1.00	17.8187	-443.19	761.31	0.582 ¹ ✓

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	97 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	200 - 180	#12/18-58 -3.50"-0.875 -DB-0.625"-HP-TR6-(Pirod 217974)	20.03	20.03	48.3 K=1.00	28.8634	-562.61	1236.12	0.455 ¹ ✓
T9	180 - 160	#18/12- (58KSI) Transition - 3.50" - 0.875" Brace - 1.00' DB (Pirod 259976)	20.03	20.03	32.5 K=1.00	28.8634	-690.71	1377.68	0.501 ¹ ✓
T10	160 - 140	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	20.03	20.03	32.5 K=1.00	28.8634	-842.57	1377.68	0.612 ¹ ✓
T11	140 - 120	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	20.03	20.03	32.5 K=1.00	28.8634	-1005.72	1377.68	0.730 ¹ ✓
T12	120 - 100	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	20.03	20.03	32.5 K=1.00	28.8634	-1168.90	1377.68	0.848 ¹ ✓
T13	100 - 80	#18/Double Rod Trans (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 243892)	20.03	20.03	32.5 K=1.00	28.8634	-1327.85	1377.68	0.964 ¹ ✓
T14	80 - 60	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	20.03	20.03	32.4 K=1.00	37.6991	-1494.85	1800.10	0.830 ¹ ✓
T15	60 - 40	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	20.03	20.03	32.4 K=1.00	37.6991	-1653.11	1800.10	0.918 ¹ ✓
T16	40 - 20	#18 Double Rod (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244114)	20.03	20.03	32.3 K=1.00	53.1616	-1821.43	2540.10	0.717 ¹ ✓
T17	20 - 0	#18 Double Rod BASE (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 260789)	20.03	20.03	32.3 K=1.00	53.1616	-1975.78	2540.10	0.778 ¹ ✓

¹ P_u / φP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L _d ft	Kl/r	φP _n K	A in ²	V _u K	φV _n K	Stress Ratio
T1	328 - 320	0.5	1.43	96.1	192.18	0.1963	1.84	4.53	0.407 ✓
T2	320 - 300	0.5	1.43	96.1	192.18	0.1963	2.99	4.53	0.662 ✓
T3	300 - 280	0.5	1.43	96.1	192.18	0.1963	2.87	4.53	0.638 ✓
T4	280 - 260	0.5	1.42	95.2	276.74	0.1963	2.94	4.57	0.650 ✓
T5	260 - 240	0.5	1.40	94.4	376.67	0.1963	3.48	4.61	0.759 ✓
T6	240 - 220	0.625	1.39	74.6	491.97	0.3068	4.94	8.61	0.586 ✓
T7	220 - 200	0.625	1.35	72.6	930.14	0.3068	7.40	8.74	0.861 ✓
T8	200 - 180	0.625	1.32	70.8	1506.67	0.3068	4.99	8.86	0.574 ✓

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	98 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in ²	V_u K	ϕV_n K	Stress Ratio
T9	180 - 160	0.875	1.67	91.3	1506.67	0.6013	10.64	20.25	0.536
T10	160 - 140	0.875	1.67	91.3	1506.67	0.6013	8.02	20.25	0.407
T11	140 - 120	0.875	1.67	91.3	1506.67	0.6013	6.42	20.25	0.325
T12	120 - 100	0.875	1.67	91.3	1506.67	0.6013	5.74	20.25	0.315
T13	100 - 80	0.875	1.67	91.3	1506.67	0.6013	5.07	20.25	0.259
T14	80 - 60	0.875	1.90	52.1	1967.89	0.6013	2.76	54.37	0.085
T15	60 - 40	0.875	1.90	52.1	1967.89	0.6013	3.34	54.37	0.099
T16	40 - 20	0.875	1.59	87.3	2775.04	0.6013	3.41	21.35	0.199
T17	20 - 0	0.875	1.59	87.3	2775.04	0.6013	6.63	21.35	0.353

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	328 - 320	L2 1/2x2 1/2x3/16	10.90	5.24	127.0 K=1.00	0.9020	-2.27	16.00	0.142 ¹
T2	320 - 300	L2 1/2x2 1/2x1/4	12.30	5.94	145.3 K=1.00	1.1900	-13.89	16.14	0.861 ¹
T3	300 - 280	L3 1/2x3 1/2x5/16	12.30	5.94	107.5 K=1.04	2.0900	-24.11	51.73	0.466 ¹
T4	280 - 260	L3x3x5/16	13.35	6.76	137.7 K=1.00	1.7800	-20.21	26.86	0.752 ¹
T5	260 - 240	L3x3x5/16	14.87	7.50	152.9 K=1.00	1.7800	-19.47	21.80	0.893 ¹
T6	240 - 220	2L3 1/2x3 1/2x1/4	23.21	12.21	134.3 K=1.00	3.3750	-37.81	53.56	0.706 ¹
T7	220 - 200	2L4x4x1/4	24.40	12.64	121.1 K=1.00	3.8800	-43.17	75.77	0.570 ¹
T8	200 - 180	2L4x4x1/4	25.68	13.24	125.5 K=0.99	3.8800	-44.43	70.56	0.630 ¹
T9	180 - 160	2L4x4x3/8	26.44	13.53	129.2 K=0.98	5.7200	-57.78	98.05	0.589 ¹
T10	160 - 140	2L4x4x3/8	27.87	14.23	134.4 K=0.97	5.7200	-69.98	90.67	0.772 ¹
T11	140 - 120	2L4x4x3/8	29.37	14.96	139.8 K=0.96	5.7200	-75.72	83.76	0.904 ¹
T12	120 - 100	2L4x4x3/8	30.93	15.72	145.5 K=0.95	5.7200	-77.02	77.35	0.996 ¹
T13	100 - 80	2L5x5x3/8	32.53	16.51	125.4 K=0.99	7.2200	-82.01	131.43	0.624 ¹

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	99 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T14	80 - 60	2L5x5x3/8	33.71	17.06	128.6 K=0.98	7.2200	-85.01	124.92	0.681 ¹ ✓
T15	60 - 40	2L5x5x3/8	35.40	17.91	133.6 K=0.97	7.2200	-89.68	115.86	0.774 ¹ ✓
T16	40 - 20	2L5x5x3/8	37.13	18.76	138.6 K=0.96	7.2200	-90.50	107.60	0.841 ¹ ✓
T17	20 - 0	2L5x5x3/8	38.81	19.60	143.5 K=0.95	7.2200	-98.76	100.41	0.984 ¹ ✓

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	328 - 320	L3x3x3/16	10.00	8.62	173.5 K=1.00	1.0900	-0.50	10.36	0.048 ¹ ✓

¹ P_u / φP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	328 - 320	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	8.00	8.00	42.8	3.6816	1.23	192.18	0.006 ¹ ✓
T2	320 - 300	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	20.00	10.00	42.8	3.6816	28.62	192.18	0.149 ¹ ✓
T3	300 - 280	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	20.00	10.00	42.8	3.6816	97.26	192.18	0.506 ¹ ✓
T4	280 - 260	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7	5.3014	174.14	276.74	0.629 ¹ ✓
T5	260 - 240	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	20.03	10.02	30.6	7.2158	247.98	376.67	0.658 ¹ ✓
T6	240 - 220	#12ZG-58 -2.00" - 0.875" conn.-TR3-(Pirod 195638)	20.03	20.03	48.8	9.4248	294.99	491.97	0.600 ¹ ✓
T7	220 - 200	#12ZG-58 -2.75"-0.875 -DB-0.625"-HP-TR4-(Pirod 196953)	20.03	20.03	48.6	17.8187	400.25	930.14	0.430 ¹ ✓
T8	200 - 180	#12/18-58 -3.50"-0.875	20.03	20.03	48.3	28.8634	505.43	1506.67	0.335 ¹ ✓

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	100 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
		-DB-0.625"-HP-TR6-(Pirod 217974)							✓
T9	180 - 160	#18/12- (58KSI) Transition - 3.50" - 0.875" Brace - 1.00' DB (Pirod 259976)	20.03	20.03	32.5	28.8634	615.62	1506.67	0.409 ¹ ✓
T10	160 - 140	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	20.03	20.03	32.5	28.8634	750.23	1506.67	0.498 ¹ ✓
T11	140 - 120	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	20.03	20.03	32.5	28.8634	897.15	1506.67	0.595 ¹ ✓
T12	120 - 100	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	20.03	20.03	32.5	28.8634	1043.81	1506.67	0.693 ¹ ✓
T13	100 - 80	#18/Double Rod Trans (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 243892)	20.03	20.03	32.5	28.8634	1186.35	1506.67	0.787 ¹ ✓
T14	80 - 60	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	20.03	20.03	32.4	37.6991	1332.33	1967.89	0.677 ¹ ✓
T15	60 - 40	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	20.03	20.03	32.4	37.6991	1471.02	1967.89	0.748 ¹ ✓
T16	40 - 20	#18 Double Rod (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244114)	20.03	20.03	32.3	53.1616	1615.57	2775.04	0.582 ¹ ✓
T17	20 - 0	#18 Double Rod BASE (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 260789)	20.03	20.03	32.3	53.1616	1747.47	2775.04	0.630 ¹ ✓

¹ P_u / φP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L _d ft	Kl/r	φP _n K	A in ²	V _u K	φV _n K	Stress Ratio
T1	328 - 320	0.5	1.43	96.1	192.18	0.1963	1.84	4.53	0.407 ✓
T2	320 - 300	0.5	1.43	96.1	192.18	0.1963	2.99	4.53	0.662 ✓
T3	300 - 280	0.5	1.43	96.1	192.18	0.1963	2.87	4.53	0.638 ✓
T4	280 - 260	0.5	1.42	95.2	276.74	0.1963	2.94	4.57	0.650 ✓
T5	260 - 240	0.5	1.40	94.4	376.67	0.1963	3.48	4.61	0.759 ✓
T6	240 - 220	0.625	1.39	74.6	491.97	0.3068	4.94	8.61	0.586 ✓
T7	220 - 200	0.625	1.35	72.6	930.14	0.3068	7.40	8.74	0.861 ✓
T8	200 - 180	0.625	1.32	70.8	1506.67	0.3068	4.99	8.86	0.574 ✓

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	101 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in ²	V_u K	ϕV_n K	Stress Ratio
T9	180 - 160	0.875	1.67	91.3	1506.67	0.6013	10.64	20.25	0.536
T10	160 - 140	0.875	1.67	91.3	1506.67	0.6013	8.02	20.25	0.407
T11	140 - 120	0.875	1.67	91.3	1506.67	0.6013	6.42	20.25	0.325
T12	120 - 100	0.875	1.67	91.3	1506.67	0.6013	5.74	20.25	0.315
T13	100 - 80	0.875	1.67	91.3	1506.67	0.6013	5.07	20.25	0.259
T14	80 - 60	0.875	1.90	52.1	1967.89	0.6013	2.76	54.37	0.085
T15	60 - 40	0.875	1.90	52.1	1967.89	0.6013	3.34	54.37	0.099
T16	40 - 20	0.875	1.59	87.3	2775.04	0.6013	3.41	21.35	0.199
T17	20 - 0	0.875	1.59	87.3	2775.04	0.6013	6.63	21.35	0.353

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	328 - 320	L2 1/2x2 1/2x3/16	10.90	5.24	84.0	0.5183	2.69	25.27	0.106 ¹
T2	320 - 300	L2 1/2x2 1/2x1/4	12.30	5.94	96.0	0.6816	13.42	33.23	0.404 ¹
T3	300 - 280	L3 1/2x3 1/2x5/16	12.30	5.94	68.4	1.3038	22.75	63.56	0.358 ¹
T4	280 - 260	L3x3x5/16	13.35	6.76	90.7	1.0713	19.26	52.23	0.369 ¹
T5	260 - 240	L3x3x5/16	14.87	7.50	100.4	1.0713	20.48	52.23	0.392 ¹
T6	240 - 220	2L3 1/2x3 1/2x1/4	23.21	12.21	136.1	2.1563	34.53	105.12	0.328 ¹
T7	220 - 200	2L4x4x1/4	24.40	12.64	124.0	2.5350	41.52	123.58	0.336 ¹
T8	200 - 180	2L4x4x1/4	25.68	13.24	129.8	2.5350	43.58	123.58	0.353 ¹
T9	180 - 160	2L4x4x3/8	26.44	13.53	135.1	3.6572	54.12	178.29	0.304 ¹
T10	160 - 140	2L4x4x3/8	27.87	14.23	141.9	3.6572	68.41	178.29	0.384 ¹
T11	140 - 120	2L4x4x3/8	29.37	14.96	149.0	3.6572	73.73	178.29	0.414 ¹
T12	120 - 100	2L4x4x3/8	30.93	15.72	156.4	3.6572	74.68	178.29	0.419 ¹
T13	100 - 80	2L5x5x3/8	32.53	16.51	129.4	4.7822	78.58	233.13	0.337 ¹
T14	80 - 60	2L5x5x3/8	33.71	17.06	133.8	4.7822	83.03	233.13	0.356 ¹

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	102 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T15	60 - 40	2L5x5x3/8	35.40	17.91	140.3	4.7822	86.88	233.13	0.373 ¹ ✓
T16	40 - 20	2L5x5x3/8	37.13	18.76	146.9	4.7822	88.95	233.13	0.382 ¹ ✓
T17	20 - 0	2L5x5x3/8	38.81	19.60	153.3	4.7822	95.06	233.13	0.408 ¹ ✓

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	328 - 320	L3x3x3/16	10.00	8.62	115.0	0.6593	0.40	32.14	0.012 ¹ ✓

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	328 - 320	Leg	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	1	-2.87	164.52	40.7	Pass
T2	320 - 300	Leg	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	14	-31.78	164.52	66.2	Pass
T3	300 - 280	Leg	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	28	-106.80	164.52	64.9	Pass
T4	280 - 260	Leg	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	43	-191.05	248.43	76.9	Pass
T5	260 - 240	Leg	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	58	-272.51	347.96	78.3	Pass
T6	240 - 220	Leg	#12ZG-58 -2.00" - 0.875" conn.-TR3-(Pirod 195638)	75	-326.42	401.94	81.2	Pass
T7	220 - 200	Leg	#12ZG-58 -2.75"-0.875 -DB-0.625"-HP-TR4-(Pirod 196953)	84	-442.69	761.31	86.1	Pass
T8	200 - 180	Leg	#12/18-58 -3.50"-0.875 -DB-0.625"-HP-TR6-(Pirod 217974)	92	-562.61	1236.12	57.4	Pass
T9	180 - 160	Leg	#18/12- (58KSI) Transition - 3.50" - 0.875" Brace - 1.00' DB (Pirod 259976)	101	-690.71	1377.68	53.6	Pass
T10	160 - 140	Leg	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	110	-842.57	1377.68	61.2	Pass
T11	140 - 120	Leg	#18 (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244221)	119	-1005.72	1377.68	73.0	Pass
T12	120 - 100	Leg	#18 (58KSI) - 3.50" - 0.875"	128	-1168.90	1377.68	84.8	Pass

Valmont 1545 Pidco Drive Plymouth, IN Phone: (574) 936-4221 FAX: (574) 936-6458	Job	510330	Page	103 of 103
	Project	U-38 x 328' - WTPM Radio Paraiso, PR	Date	11:34:11 04/20/22
	Client	3A Group, LLC	Designed by	JS

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T13	100 - 80	Leg	Brace - 1.00" DB (Pirod 244221) #18/Double Rod Trans (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 243892)	137	-1327.85	1377.68	96.4	Pass
T14	80 - 60	Leg	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	146	-1494.85	1800.10	83.0	Pass
T15	60 - 40	Leg	#18 Double Rod (58KSI) - 3.00" - 0.875" Brace - 1.00" DB (Pirod 244015)	155	-1653.11	1800.10	91.8	Pass
T16	40 - 20	Leg	#18 Double Rod (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 244114)	164	-1821.43	2540.10	71.7	Pass
T17	20 - 0	Leg	#18 Double Rod BASE (58KSI) - 3.50" - 0.875" Brace - 1.00" DB (Pirod 260789)	173	-1975.78	2540.10	77.8	Pass
T1	328 - 320	Diagonal	L2 1/2x2 1/2x3/16	8	-2.27	16.00	14.2	Pass
T2	320 - 300	Diagonal	L2 1/2x2 1/2x1/4	17	-13.89	16.14	20.6 (b)	Pass
T3	300 - 280	Diagonal	L3 1/2x3 1/2x5/16	32	-24.11	51.73	86.1	Pass
T4	280 - 260	Diagonal	L3x3x5/16	50	-20.21	26.86	46.6	Pass
T5	260 - 240	Diagonal	L3x3x5/16	66	-19.47	21.80	83.0 (b)	Pass
T6	240 - 220	Diagonal	2L3 1/2x3 1/2x1/4	80	-37.81	53.56	75.2	Pass
T7	220 - 200	Diagonal	2L4x4x1/4	87	-43.17	75.77	81.6 (b)	Pass
T8	200 - 180	Diagonal	2L4x4x1/4	96	-44.43	70.56	89.3	Pass
T9	180 - 160	Diagonal	2L4x4x3/8	105	-57.78	98.05	70.6	Pass
T10	160 - 140	Diagonal	2L4x4x3/8	115	-69.98	90.67	93.4 (b)	Pass
T11	140 - 120	Diagonal	2L4x4x3/8	124	-75.72	83.76	57.0	Pass
T12	120 - 100	Diagonal	2L4x4x3/8	132	-77.02	77.35	66.2 (b)	Pass
T13	100 - 80	Diagonal	2L5x5x3/8	141	-82.01	131.43	63.0	Pass
T14	80 - 60	Diagonal	2L5x5x3/8	150	-85.01	124.92	69.4 (b)	Pass
T15	60 - 40	Diagonal	2L5x5x3/8	159	-89.68	115.86	58.9	Pass
T16	40 - 20	Diagonal	2L5x5x3/8	168	-90.50	107.60	77.4	Pass
T17	20 - 0	Diagonal	2L5x5x3/8	177	-98.76	100.41	84.1	Pass
T1	328 - 320	Top Girt	L3x3x3/16	5	-0.50	10.36	98.4	Pass
							Summary	
							Leg (T13)	Pass
							Diagonal (T12)	Pass
							Top Girt (T1)	Pass
							Bolt Checks	Pass
							RATING =	Pass

SELF-SUPPORT TOWER FOUNDATION DESIGN SUMMARY

3A Group, LLC
WTPM Radio Paraiso, PR

U- 38 328
A- 510330

V 2.5

Pier Dimensions		
Pier diameter, d_i :	7.00	ft
Depth, D:	80.0	ft
Ext. above grade, E:	0.50	ft
Bell diameter, b_d :	none	ft
Volume, V_o :	114.74	cy / leg

Reinforcement Design		
Rebar	m_c :	36 verticals
	size, s_{-c} :	11 equally spaced in 6.5' cage
Ties	size, s_{-t} :	4 default hook
	m_{-t} :	77 tie qty
Horizontal Rebar in top 6in of pier for temp. & shrinkage?: YES per TIA-222-H 9.6		

* Rebar quantities shown above are per pier

Anchor Bolts		
P/N:	286397	80" long, 2.25" diameter

Foundation Loading		
Max Corner Reactions		
Shear/Leg, S:	251.00 kips	x 1.004 = 252.00 kips
Moment/Leg, M:	0.00 ft-kips	x 1.004 = 0.00 ft-kips
Compression/Leg, C:	2059.00 kips	x 1.004 = 2067.24 kips
Uplift/Leg, U:	1817.00 kips	x 1.004 = 1824.27 kips

Soil Information Per:	
Super Foundation Specialist, Corp. Job # E-346-B dated August 21, 2018	

Site Parameters	
Ultimate Bearing, B_c :	30.000 ksf
Ultimate P_p :	2.900 kcf
Ult. Skin Friction, SF :	1.438 ksf
Seismic Design Cat.:	D
Depth neglected, N:	5.00 ft
Neglect bottom, N_b :	none ft

Additional Notes:

* No foundation modifications listed.

* See attached "Foundation Notes" for further information.

Material Properties		
Steel tensile str, F_y :	60000	psi
Conc. Comp. str, F'_c :	4500	psi
Conc. Density, δ :	150.0	pcf
Clear cover, cc:	3.00	in

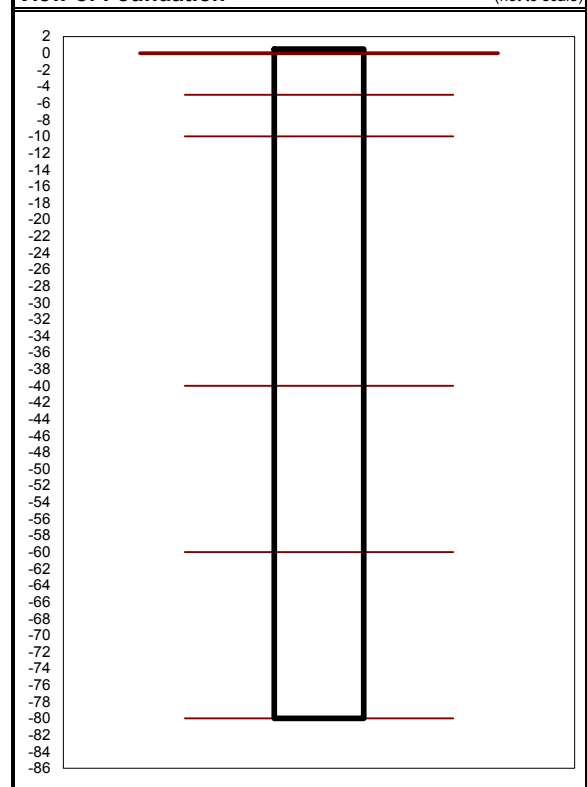
Tower design conforms to the following:

* International Building Code (IBC)

* ANSI TIA-222-H

* Building Code Requirements for Reinforced Concrete (ACI 318-14)

View of Foundation (not to scale)



FOUNDATION NOTES

- 1 THE ON-SITE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE INSITU SOIL STRENGTHS MEET OR EXCEED THOSE PARAMETERS GIVEN IN THE SOIL REPORT.
- 2 A TEMPORARY, FULL LENGTH STEEL CASING MAY BE REQUIRED DURING INSTALLATION.
- 3 DRILLING SLURRY MAY BE REQUIRED TO MAINTAIN AN OPEN EXCAVATION DURING DRILLING AND CONCRETE PLACEMENT.
- 4 ANY METHOD OR TECHNIQUE USED TO STABILIZE THE DRILLED HOLE IS SOLE RESPONSIBILITY OF THE DRILLING CONTRACTOR

SST DRILLED PIER FOUNDATION

3A Group, LLC
WTPM Radio Paraiso, PR

U- 38.0 328
A- 510330

V 2.5

Design Summary	
Pier diameter:	7.00 ft
Design depth:	80.0 ft
Concrete volume:	114.74 cu.yd. each

Use #4 circular ties.
Min. concrete compressive strength to be 4500 psi.
Use anchor bolt p/n 135616

Maximum Loading	
Max. Uplift, U_{max} :	1824.27 kips/leg
Max. Comp., C_{max} :	2621.50 kips/leg
Max. Shear, S_{max} :	252.00 kips/leg

Soil per: Super Foundation Specialist, Corp.
Job # E-346-B dated August 21, 2018

Ultimate bearing: 30.000 ksf
Ultimate S F (uplift): 1.438 ksf
Ultimate S F (comp.): 1.438 ksf

Skin friction by: Given										Uplift Resistance				Compression Resistance		
Layer #	From (ft)	To (ft)	Cont. layer length (ft)	Pier diameter (ft)	Cohesion (ksf)	Phi (deg)	Unit weight of soil (pcf)	Overburden pressure (ksf)	Average overburden pressure (ksf)	Factored skin friction (ksf)	Factored friction force (kips)	Factored concrete weight (kips)	Uplift Resist. (kips)	Factored skin friction (ksf)	Factored friction force (kips)	Factored bearing capacity (ksf)
1	0.00	5.00	5.00	7.00	1.500	0.000	110.0	0.550	0.275	0.000	0.00	28.57	28.57	0.000	0.00	-
2	5.00	10.00	5.00	7.00	1.500	0.000	110.0	1.100	0.825	0.750	82.47	25.98	108.44	0.750	82.47	-
3	10.00	40.00	30.00	7.00	2.000	0.000	115.0	4.550	2.825	0.825	544.28	155.86	700.14	0.825	544.28	-
4	40.00	60.00	20.00	7.00	3.000	0.000	120.0	6.950	5.750	1.238	544.28	103.91	648.19	1.238	544.28	-
5	60.00	80.00	20.00	7.00	4.500	0.000	120.0	9.350	8.150	1.650	725.71	103.91	829.62	1.650	725.71	22.50
Lateral pressure coefficient = 0.5										Total Uplift Capacity (kips) =				Total friction capacity (kips) =		
										2314.97				1896.74		
										OK				Factored Tip capacity (kips) =		
														865.90		
														Total Comp. Capacity (kips) =		
														2762.64		
														OK		

Weighted Average Skin Friction (ultimate) = uplift 1.438 ksf compression 1.438 ksf

Reinforcement Design:

Concrete Clear Cover (in) = 3.00

# of bars	Bar size #	Area per bar (sq.in.)	Clear spacing (in.)	Bar area (sq.in.)	Steel required (sq.in.)	Ultimate Lateral Resist. (kcf) *	Minimum length (ft) **
36	11	1.56	5.40	56.16	55.42	2.900	13.63

* see Passive (attached)
* see Broms method (attached)
*** see Maximum Factored Moment of a Circular Section (attached).

Minimum area of steel is OK
Minimum pier length is OK
Rebar spacing is OK

Moment Check (ft-k)	
Induced *	1603.27
φ Capacity ***	3134.68
OK	

Equivalent Weighted Average Cohesion

Layer	From (ft)	To (ft)	Layer Length (ft)	Neglect?	Cohesion (ksf)	Weighted Cohesion (ksf)
1	0.00	5.00	0.00	y	1.500	0.00
2	5.00	10.00	5.00	n	1.500	7.50
3	10.00	40.00	30.00	n	2.000	60.00
4	40.00	60.00	20.00	n	3.000	60.00
5	60.00	80.00	20.00	n	4.500	90.00
6	80.00	80.00	0.00	n	0.000	0.00
7	80.00	80.00	0.00	n	0.000	0.00
8	80.00	80.00	0.00	n	0.000	0.00
9	80.00	80.00	0.00	n	0.000	0.00
10	80.00	80.00	0.00	n	0.000	0.00
11	80.00	80.00	0.00	n	0.000	0.00
12	80.00	80.00	0.00	n	0.000	0.00
13	80.00	80.00	0.00	n	0.000	0.00
14	80.00	80.00	0.00	n	0.000	0.00
15	80.00	80.00	0.00	n	0.000	0.00
16	80.00	80.00	0.00	n	0.000	0.00
17	80.00	80.00	0.00	n	0.000	0.00
18	80.00	80.00	0.00	n	0.000	0.00
19	80.00	80.00	0.00	n	0.000	0.00
20	80.00	80.00	0.00	n	0.000	0.00
Bell	80.00	80.00	0.00	n	0.000	0.00
Total =			75.00		Total =	217.50

Weighted Average Equivalent Cohesion =	2.90	(ksf)
--	------	-------

Broms Method for Laterally Loaded Caissons ,Piles,or Piers in Clay

(Reference "Drilled Shafts: Construction Procedures and Design Methods", ADSC No. ADSC-TL-4, August 1988

revised for LRFD

Diameter of pier, d_i :	7.00	ft	S/leg	M/leg
Extension above grade, E :	0.50	ft	(kips)	(k-ft)
Neglect at ground surface, N :	5.00	ft		
Ultimate Passive Pressure, P_p :	2.900	kcf	LC	252.00
Reduction Factor, f :	0.75			0
Nominal Passive Pressure ($P_p * f$), P_{pa} :	2.175	kcf		
# of pier dia. P_p acts over, N_d :	3.00			

Depth to
Max. M, F
(ft)

$$F = S / ((N_d / 3) * 9 * P_p * d_i)$$

LC

1.38

Solved
Brom's
Equation
for G_a (ft)

$$G_a = \sqrt{((S * (E + N + F / 2) + M) / ((N_d / 3) * 2.25 * P_{pa} * d_i))}$$

LC

6.75

Minimum
length of
pier, L (ft)

$$L = E + N + F + G_a$$

LC

13.63

Minimum length req'd, L: 13.63 ft

Max
induced
moment,
 M_u (k-ft)

$$M_u = S * (E + N + F) + M - (N_d / 3 * 9 * P_{pa} * d_i * F^2 / 2)$$

LC

1603.27

**THIS SPREADSHEET IS SET UP FOR A MAXIMUM OF 56 BARS.
MAXIMUM FACTORED MOMENT OF A CIRCULAR SECTION**

Loading	
(negative for compression)	
Axial load =	1824.27 kips

Foundation	
<i>Concrete</i>	
Pier diameter =	7.00 ft
Pier area =	5541.8 in ²
<i>Reinforcement</i>	
Clear cover =	3.00 in
Cage diameter =	6.30 ft
Bar size =	11
Bar diameter =	1.410 in
Bar area =	1.561 in ²
Number of bars =	36

Material Strengths	
Concrete compressive strength =	4500 psi
Reinforcement yield strength =	60000 psi
Modulus of elasticity =	29000 ksi
Reinforcement yield strain =	0.00207 (per ACI 10.3.5 - OK)
Limiting compressive strain =	0.003

2493.80

Seismic	
SDC=	D
Are hooks required?	yes

Minimum Area of Steel

Required area of steel = 55.42 in²
 Actual area of steel = 56.21 in²
 Bar spacing = 5.40 in

OK

Axial Loading

Load factor = 1.00
 Reduction factor = 0.65575 (per ACI 9.3.1 & 2)
 Factored axial load = 1824.27 kips

Neutral Axis

Distance from extreme edge to neutral axis = 7.79 in
 Equivalent compression zone factor = 0.825 (per ACI 10.2.7.3)
 Distance from extreme edge to
 Equivalent compression zone factor = 6.43 in
 Distance from centroid to neutral axis = 34.21 in

Compression Zone

Area of steel in compression zone = 4.68 in²
 Angle from centroid of pier to intersection of
 equivalent compression zone and edge of pier = 32.12 deg
 Area of concrete in compression = 194.62 in²
 Force in concrete = $0.85 \cdot f'_c \cdot (\text{Acc} - \text{steel in comp zone})$ = 726.49 kips (per ACI 10.3.6.2)
 Total reinforcement forces = -2550.75 kips
 Factored axial load = 1824.27 kips
 Force in concrete = -726.49 kips

Sum of the forces in concrete = 0.00 kips

OK

Maximum Moment

First moment of the concrete area in compression about the centroid = 7426.44 in³
 Distance between centroid of concrete in compression and centroid of pier = 38.16 in
 Moment of concrete in compression = 27722.41 in-kips
 Total reinforcement moment = 29641.41 in-kips
 Nominal moment strength of column = 57363.82 in-kips
 Factored moment strength of column = 37616.16 in-kips 3134.68 ft-kips

Maximum allowable moment of the pier = 3134.68 ft-kips

Individual Bars

Bar #	Angle from first bar (deg)	Distance to centroid (in)	Distance to neutral axis (in)	Distance to equivalent comp. zone (in)	Strain	Area of steel in compression (in ²)	Axial force (kips)	Moment (in-kips)
1	0.00	0.00	-34.21	-35.57	-0.01317	0.00	-93.69	0.00
2	10.00	6.56	-27.64	-29.01	-0.01064	0.00	-93.69	-614.87
3	20.00	12.93	-21.28	-22.64	-0.00819	0.00	-93.69	-1211.06
4	30.00	18.90	-15.31	-16.67	-0.00589	0.00	-93.69	-1770.45
5	40.00	24.29	-9.91	-11.28	-0.00382	0.00	-93.69	-2276.05
6	50.00	28.95	-5.25	-6.62	-0.00202	0.00	-91.56	-2650.90
7	60.00	32.73	-1.47	-2.84	-0.00057	0.00	-25.70	-841.14
8	70.00	35.52	1.31	-0.05	0.0005	0.00	22.83	810.79
9	80.00	37.22	3.01	1.65	0.00116	1.56	52.55	1955.89
10	90.00	37.80	3.59	2.23	0.00138	1.56	62.56	2364.30
11	100.00	37.22	3.01	1.65	0.00116	1.56	52.55	1955.89
12	110.00	35.52	1.31	-0.05	0.0005	0.00	22.83	810.79
13	120.00	32.73	-1.47	-2.84	-0.00057	0.00	-25.70	-841.14
14	130.00	28.95	-5.25	-6.62	-0.00202	0.00	-91.56	-2650.90
15	140.00	24.29	-9.91	-11.28	-0.00382	0.00	-93.69	-2276.05
16	150.00	18.90	-15.31	-16.67	-0.00589	0.00	-93.69	-1770.45
17	160.00	12.93	-21.28	-22.64	-0.00819	0.00	-93.69	-1211.06
18	170.00	6.56	-27.64	-29.01	-0.01064	0.00	-93.69	-614.87
19	180.00	0.00	-34.21	-35.57	-0.01317	0.00	-93.69	0.00
20	190.00	-6.56	-40.77	-42.13	-0.01569	0.00	-93.69	614.87
21	200.00	-12.93	-47.13	-48.50	-0.01814	0.00	-93.69	1211.06
22	210.00	-18.90	-53.10	-54.47	-0.02044	0.00	-93.69	1770.45
23	220.00	-24.29	-58.50	-59.86	-0.02252	0.00	-93.69	2276.05
24	230.00	-28.95	-63.16	-64.52	-0.02431	0.00	-93.69	2712.49
25	240.00	-32.73	-66.94	-68.30	-0.02576	0.00	-93.69	3066.51
26	250.00	-35.52	-69.72	-71.09	-0.02684	0.00	-93.69	3327.36
27	260.00	-37.22	-71.43	-72.79	-0.02749	0.00	-93.69	3487.11
28	270.00	-37.80	-72.00	-73.36	-0.02771	0.00	-93.69	3540.90
29	280.00	-37.22	-71.43	-72.79	-0.02749	0.00	-93.69	3487.11
30	290.00	-35.52	-69.72	-71.09	-0.02684	0.00	-93.69	3327.36
31	300.00	-32.73	-66.94	-68.30	-0.02576	0.00	-93.69	3066.51
32	310.00	-28.95	-63.16	-64.52	-0.02431	0.00	-93.69	2712.49
33	320.00	-24.29	-58.50	-59.86	-0.02252	0.00	-93.69	2276.05
34	330.00	-18.90	-53.10	-54.47	-0.02044	0.00	-93.69	1770.45
35	340.00	-12.93	-47.13	-48.50	-0.01814	0.00	-93.69	1211.06
36	350.00	-6.56	-40.77	-42.13	-0.01569	0.00	-93.69	614.87

DEVELOPMENT LENGTH CHECK OF PIER REINFORCEMENT

Foundation:	Pier diameter =	7.0	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	6.5	ft	Cover between top of pier and cage =	3.00	in.
	Rebar size =	11		Compressive strength of concrete =	4500	psi
	Number of bars =	36		Rebar yield strength =	60000	psi
	Clear spacing =	5.40	in.			
	Are there hooks?	n				
	Check Compression?	n				

Anchor Steel:	Part number:	286397	
	Embedment length =	67.5	in.
	Bolt Diameter =	2.25	

Anchor Plate:	Part number:	282999	
	Plate width =	37	in.

Required development length (compression) =	999.00	in.	Min. Anchor Bolt Embedment per TIA-222-H 9.6 =	54.81	in.
Required development length (tension) =	37.83	in.	Actual Anchor Bolt Embedment =	Interface!L65	in.
Available development length =	41.000	in.			

OK

The length available in the pier for the development of the vertical reinforcement exceeds the required length (ACI 318-14, section 25.4).

CHECK EMBEDMENT PLATE CLEARANCE IN THE PIER

Foundation:	Pier diameter =	7.0	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	6.5	ft	Minimum cover between A/S and cage =	3.00	in.

Anchor Steel:	Part number:	286397		Angle of anchor steel in foundation =	0	degrees
	Embedment length =	67.5	in.			

Anchor Plate:	Part number:	282999	
	Largest plate width =	37.00	in.
	Bolt Diameter =	2.25	in.
	Minimum cage diameter =	43.00	in.
	Actual cage diameter =	78	in.

OK

The available space exceeds the minimum cage diameter required for anchor steel installed in the pier at an angle.



; YchYW b]WU`-bj Ygh[Uh]cb`Zcf`
9l]gh]b[`7 ca a i b]WU]cbg`Hck Yf`
5 H' H'F]bWU]G]hY`
F]bWU]Z'D'F`"

>cV`Bc`"9!" (*!6`

5i [i gh&%Z&\$%`

Prepared for:

Eng. José Santiago
AW Solutions, Inc.
300 Crown Oak Centre Drive
Longwood, FL 32750

Prepared by:

SUPER FOUNDATION SPECIALIST, CORP.
ENGINEERING DEPARTMENT
PMB 3 Box 2020
Barceloneta, PR 00617-2020

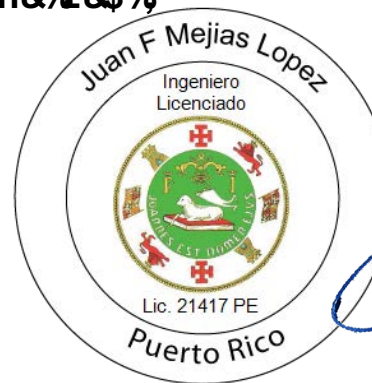


; YchYW b]WU`-bj Ygh[Uhcb`Zcf`
 9l]gh]b[`7 ca a i b]WU]cbg`Hck Yf`
 5 H' H'F]bVOb`G]hY`
 F]bVObžD'F`"

>cV`Bc`"9!" (*!6`

5i [i gh&%ž&\$%`

Prepared by:



Fecha de Expiración: 2021-07-07

08/21/18

Juan F. Mejías López, P.E., Lic. #21417

Date

Chief Engineer – Super Foundation Specialist, Corp.

This report consists of 27 pages

H56 @ 'C: '7 CBH9 BHG'

1.	INTRODUCTION	1
2.	SITE & PROJECT DESCRIPTION	2
2.1	Location	2
2.2	Topography.....	2
2.3	Project Description	2
3.	GEOLOGIC SETTING	3
3.1	Review of USGS Geologic Map	3
4.	FIELD EXPLORATION	3
5.	LABORATORY TESTING.....	4
6.	SUBSURFACE CONDITIONS	5
6.1	Soil Conditions	5
6.2	Groundwater conditions	6
7.	GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS	6
7.1	Earthquake Recommendations	6
7.2	Discussion.....	6
8.	GENERAL CONDITIONS	10
8.1	Post-Investigation Services.....	10
8.2	Uncertainties and Limitations.....	11
9.	REFERENCES	12
9.1	Standards, Codes, and Procedures Cited	12

Appendix A	-	Figures
1.		Site Location Map
2.		Geologic Map
3.		Site Aerial View
4.		Boring Location Plan

Appendix B	-	Boring Log
------------	---	------------

Appendix C	-	CIAPR Stamp
------------	---	-------------

; YchYW b]WU' -bj Ygh[Uhcb'Zcf''
9l]gh]b['7 ca a i b]WU]cbg'Hck Yf''
5 H/ H'F]bVOb'G]hY'
F]bVObžD'F''
.
.
.

>cV'Bc''9!' (*!6'
.
.
.

%' -BHFC8I 7HCB'

A geotechnical investigation has been requested for the existing Radio Paraiso Communication tower site within the Municipality of Rincón, Puerto Rico. This report summarizes the current geotechnical data obtained during the subsoil exploration for the proposed project based on the information submitted to this office by Eng. José Santiago, authorized representative of AW Solutions Inc. The investigation presents a discussion on the geologic setting, subsoil conditions found, field and laboratory test results, and our geotechnical recommendations for the intended project.

A previous investigation was performed by us for this site. The previous boring reached a depth of about fifty (50) feet below existing surface. However, proposed tower reactions loads are relatively high. Consequently, the proposed drilled shafts need to be longer than fifty (50) feet. We recommended a SPT boring for depths deeper than fifty (50) feet to obtain study subsoil conditions below the depth of fifty (50) feet. This report presents the results and provide parameters for this subsoil exploration for depths deeper than fifty (50) feet.

The exploration follow instructions from Eng. Santiago, as per AW Solutions purchase order No. 10739.

1.0 PROJECT DESCRIPTION

1.1 SITE LOCATION

The project site is located at the State Road PR-411 Km 7.5 in the Atalaya Ward. This is in the Municipality of Rincón, Puerto Rico. The Site Location Map taken from the USGS 7.5 Minutes Rincón Topographic Map is included as **Figure 1** in Appendix A depicting the approximate site location.

1.2 SITE ELEVATION

Information obtained from the aforementioned topographic quadrangle shows that the site elevation is in the order of 340 meters above mean sea level. The site lies atop a hill with slope to the north. Topography within the site is relatively flat.

1.3 PROPOSED TOWER

The proposed project consists in the construction of a new telecommunication self-supported tower, with a height of 400-feet as measured from ground surface. Maximum tower reactions per leg consists of the following:

Shear load: 323 kips
Compression: 2,608 kips
Uplift: 2,255 kips

Based on submitted information and observed conditions, no changes in grading are anticipated.

The designer and owner are alerted that if any of the considerations herewith mentioned are not in accordance with project true conditions we shall be alerted in order to verify submitted recommendations. In addition, we also shall be alerted in case the designer notes conditions and/or aspects of the project that were overlooked in this report.

' " ; 9C@C; 7`G9HH-B; '

The information concerning the soils and geologic setting of the study area was obtained from a review of readily available published literature.

' '% FYJ]Yk`cZI G; G'; Yc`c[]WAUd'

The site has been mapped as Hydrogeologic Map of Puerto Rico and Adjacent Islands, prepared for the U.S. Geological Survey by Reginald P. Briggs and J. P. Akers (1965). According to this map, the project site is mostly covered by Volcanic rocks. The aforementioned map describes this unit as follows:

“TKs, siltstone, conglomerate, lava, tuff, and tuffaceous breccia largely deposited in a marine environment”

Figure 2 included in Appendix A is a fragment of the Geologic Map of the area with the site marked and the boundaries of the geological unit delineated on it.

(" `: 9@9LD@CF5HCB'

The first part of this investigation consisted of one (1) geotechnical test boring drilled to a depth of fifty (50) feet below existing surface on May 4, 2018. The second part of this investigation consisted of extending that same boring from about fifty (50) feet to about ninety (90) feet below existing surface. The second part of this exploration was performed from August 15 to August 16, 2018. A more in depth discussion with a general description of the subsurface conditions is further presented in Section 6 of this report.

The first part of this investigation was performed using a Truck-Mounted Drilling Rig, CME¹—45 Model. While the second part of the investigation was performed using a Trailer-Mounted Drilling Rig, CME-55 Model. The hammer used for the Standard Penetration Testing was a 140-

¹ Central Mine Equipment.

lb. Safety hammer. The Standard Penetration Test (SPT) as described in ASTM D 1586 was used to determine the “N_{SPT}” value and disturbed soil sampling for visual-manual descriptions in accordance with ASTM D 2488. A standard configuration consisting of a 1.375” ID split barrel (sampler) is used as testing probe and for sample recuperation in this sampling method. The sampler attached at the end of a solid string of drill rods is advanced for an 18-in. or 24-in. interval, depending on the sampler length, using a 140-lb hammer dropped through a 30-in. free fall. The sampler used during this investigation was 24-in. in length. The blows required to advance the hole for each 6-in. are recorded in a field-boring log. The standard penetration resistance, or “N_{SPT}” value, is the sum of the blows required for the second and third 6-in. drives. The hole is then cleaned to the top of the next interval to be sampled and the procedure is repeated.

The samples and field logs, were collected, secured and transported to our laboratory for routine testing. Samples are secured and transported according to the practice described in ASTM D4220. Routine testing includes natural moisture content and unconfined compressive strength on cohesive samples when samples condition allows it.

Figure 3 included in Appendix A, shows the location of the exploration boring on a portion of a site plan provided by the client.

) " @ 6 CF 5 HCF MH 9 GH B; "

Laboratory testing consisted of natural water content determination and manual-visual description. Unconfined compressive strength values were also obtained from some of the cohesive samples by means of penetrometer.

The water content tests were performed in accordance with ASTM D 2216 *Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*.

Manual-visual description of samples was performed in accordance with ASTM D 2488 *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure.)*

Laboratory results together with the material description and lithologic changes with depth were recorded on a soil boring log as part of the Appendix B.

* " **GI 6 GI F: 579'7CB8 ~~H~~CBG'**

* "% **GcJ'7cbX]hcbg'**

The general subsoil conditions observed from the soil samples correspond to those discussed earlier in the geologic setting. Basically, subsoil conditions detected consists of a two-layered soil stratigraphy. These are; residual soils overlying weathered rock from parent rock formation.

First layer – Residual Soils:

Samples from this layer were predominantly described as silt or clayey silt. This layer extends to a depth of about seventy-nine (79) feet below existing surface. The Standard Penetration Test (SPT) showed “N” values ranging from 9 blows per foot (bpf) to refusal (more than 100 bpf), predominantly higher than 10 bpf with general tendency to increase with depth. The moisture content ranged from 12 to 46 percent, predominantly higher than 30 percent.

Second layer – Weathered Rock:

Samples from this layer consists mostly of sandy silt. Rock fragments were encountered at the bottom of the boring about ninety (90) feet deep. The SPT showed “N” values of refusal. The moisture content ranged from 17 to 30 percent.

The above given soil characteristics correspond to a general description of the subsoil conditions prevailing at the project site. On account of the generalized form that the subsoil profile has been presented above, we encourage the reader to refer to the boring log for detailed information on the soil characteristics at the borings locations.

***"&" ; fci bXk UHf`Wt bX]hcbg`**

The groundwater table (GWT) at the site was not encountered during drilling operations within the maximum explored depth. However, it should be noted that the groundwater table is always being affected by natural factors such as the distance from water sources, the permeability of the subsoil, the topography of the area, and the amount of precipitation. Moreover, it should be taken into account that whenever changes in the topography of a site are made, changes in the groundwater characteristics of the region frequently occur. Such conditions are difficult to detect within the normal scope of time of the exploration. Usually, springs are detected during the construction period, when excavations or ground surface stripping are made.

+"" ; 9CH97 <B=7 5 @7 CB7 @ G-CBG'5 B8 'F97 CAA9 B8 5 H-CBG'

+ "% 9UH ei U_YFYWta a YbXUHjcbg`

According to the International Building Code (2009) Table 1613.5.2, the soils at the site fall into the Soil Profile Type S_D. For the Municipality of Rincón, the Spectral Response Accelerations are 1.24 and 0.40 at periods of 0.2 seconds and 1.0 seconds, respectively. These values consider a 5% critical damping, recurrence of 2,475 years (probability of exceedance of 2% in 50 years).

+ "&" 8]gW gg]cb`

Due to space restrictions at the existing telecommunications tower facility, recommendations herewith provided are drilled shafts (caissons) to support the proposed tower. We strongly recommend that proposed caissons are no bigger than seven (7) feet in diameter and ninety feet long. Caissons drilling rigs available for this job are of limited capacity. Bigger rigs with more torque capacity are difficult to transport to this site and require a lot of space to operate.

+ " ` 8 f]`YX`G\ Uzg'5` hfbUHj Y`

7.3.1 Lateral Capacity Analysis

The analysis of a drilled shaft under lateral load is a problem in soil-structure interaction; that is, the deflection of the shaft is dependent on the soil response and the soil response is a function of

pile deflection. Iteration must be employed because the soil response is a non-linear function of shaft deflection and of position along the length of the shaft.

Two principal types of failure are identified in shafts subjected to lateral loads; a soil failure and a shaft failure. The soil failure is characterized by excessive deflection of the shaft and is usually associated with short penetrations. A shaft failure occurs when the bending moment becomes larger than the bending resistance of the shaft. Examination of curves of deflections and bending moment versus depth shows that in almost all cases maximum deflections and moments occur over a short length of the shaft.

The capacities producing a deflection of about 0.25" may be safely considered to be within elastic ranges. Beyond the elastic range of this analysis, the elastic soil medium is replaced by a series of infinitely close, independent, elastic springs. The stiffness of these springs may then be written as:

Where K is termed $K = \frac{P, lbs/inch}{y, inch}$ modulus of the horizontal subgrade reaction. Expressing the modulus as a function of depth.

Where: $K_x = K_h \left(\frac{x}{L_s} \right)^n$ = Soil

reaction

Y = Lateral deflection
 K_h = Value of K at the tip of the pile
 x = Any length along the pile
 n = a coefficient $< = > 1$

•Taking $n = 1$ for sands

$$K_x = \frac{K_h}{L_s} x = n_h x$$

Where n_h = constant of modulus of horizontal subgrade reaction.

Table 1 shows the soil parameters that may be used for lateral load analysis.

Table 1 - Soil Parameters for Lateral Load Analysis

Depth	Soil Type	Effect. Unit Weight	Internal Friction Angle (Φ)	Soil Cohesion (C)	P-y Modulus (K)	Strain Param. ϵ_{50}
0-10 ft.	Stiff Clay	110 pcf	0°	1,500 psf	500 pci	0.007
10-40 ft.	Very Stiff Clay	115 pcf	0°	2,000 psf	1,000 pci	0.005
40-60 ft	Very Stiff Clay	120 pcf	0°	3,000 psf	1,000 pci	0.005
60-80 ft	Hard Clay	120 pcf	0°	4,500 psf	2,000 pci	0.004
80-90+ ft	Very Dense Sand	130 pcf	48°	0 psf	275 pci	n/a

The structural engineer shall design foundations based on soil parameters herewith submitted and verify or modify them according to their best knowledge and experience.

7.3.2 Axial Capacity Analysis

The drilled shafts will derive their capacity thru friction and thru end bearing. Considering the small amount of drilled shafts to be constructed, axial load tests are not economically feasible. Consequently, parameters provided are rather conservative.

The analysis of drilled shafts under axial loads was performed using the computer software SHAFT V. 6.0 developed by Ensoft. SHAFT is a computer program used to evaluate the axial capacity and the short-term, load-settlement curves of drilled shafts or bored piles in various types of soils. In general, the majority of axial capacity methods used by SHAFT are based on the latest FHWA manual. The analytical methods employed by SHAFT are based on experimental data obtained from hundreds of well-instrumented axial load tests of full-sized drilled shafts.

Table 2 shows the values of unit skin friction and unit end bearing that may be used for the design of drilled shafts under axial loads. Values provided are ultimate.

Table 2– Ultimate Skin Friction and End Bearing

Layer	Ultimate Unit Skin Friction*	Ultimate Unit End Bearing
0-5 ft.	0 ksf	0 ksf
5-10 ft.	1.0 ksf	0 ksf
10-40 ft.	1.1 ksf	5 ksf
40-60 ft.	1.65 ksf	10 ksf
60-80 ft.	2.2 ksf	20 ksf
80-90 + ft.	2.8 ksf	30 ksf

* Drilled shaft self weight may be added to ultimate tension capacities.

7.3.3 Construction Procedures and Specifications

It is strongly recommended that American Concrete Institute document *ACI 336.1: Specification for the Construction of Drilled Piers* is included as part of project documents to be followed during construction.

Construction of drilled shafts can be generally divided into wet and dry techniques. The two processes are distinctly different. Dry hole construction allows inspection of both the full length and base of the shaft. Wet-hole construction is used, for instance, where groundwater conditions require hole stabilization. The location of the groundwater table, combined with the types of subsurface materials, dictate whether drilled shaft construction can be drilled wet or dry.

The wet-hole casing method usually utilize mineral (usually bentonite) or polymer mixes as a drill fluid (so called slurry). The drilling mud assures the stability of the uncased hole while and after the drilling process. Once the hole has been drilled to the predetermined depth, the reinforcing steel is lowered into the hole and concrete is placed through a sealed tremie pipe inserted to the hole bottom. The concrete occupying the shaft displaces the slurry mud and the operations are considered finished when relatively clean concrete appears at the top of the hole.

Free fall method of concrete pouring shall not be allowed unless otherwise approved by geotechnical engineer or his representative at the field. There are certain conditions in which free fall method may be permitted.

Based on subsoil conditions detected, we understand that the dry-hole method may be employed. Any method or technique used to stabilize the hole is sole responsibility of the drilling contractor.

Although the essence of drilling and casting a drilled shaft is relatively simple, there are certain requirements that need to be fulfilled in order to achieve good results. Specifications shall be strictly followed. Since this is a specialized work, only pre-qualifying bidders with previous job experience in similar projects should be allowed.

, " ; 9B9F5 @7 CB8 ~~H~~CBG'

, "% Dcgh**h**j Ygh[U]cb'GYf j]Wg'

During final design and during construction it may be necessary to modify recommendations made in this report to account for new information or the occurrence of situations that were not considered in preparing these recommendations. For that reason, geotechnical design cannot be considered complete until construction is complete, and the Geotechnical Engineer providing future services must necessarily review all geological and geotechnical data, conclusions, and recommendations and either confirm the conclusions and recommendations or recommend changes to them. Future geotechnical services are an important and necessary continuation of this investigation.

Foundation and grading plans as well as specifications related to construction should be reviewed by a qualified Geotechnical Engineer to verify that the intent of the recommendations presented in this report has been properly interpreted and incorporated into the contract documents. These were not prepared to the time this exploration was performed.

A qualified Geotechnical Engineer should perform Geotechnical observation and testing during excavation, foundation construction, and concrete casting. The purposes of the geotechnical observation and testing are to correlate the findings of this and future investigations with actual subsurface conditions exposed during construction, and to provide revised or supplemental recommendations, if necessary. The geotechnical observation and testing will also confirm that foundations are founded in the recommended soils and that suitable fill and backfill soils are placed upon competent materials and properly compacted to meet the project specifications..

, "& I bWfHJbH'Yg'UbX'@a JHJcbg'

Only a very small portion of the subsurface conditions at the site had been observed and/or tested. The possibility of subsurface conditions differing from those assumed and developed in this investigation cannot be discounted. Conclusions and recommendations presented in this report are based upon our understanding of the subsoil conditions depicted by the borings drilled and the assumption that the subsurface conditions do not deviate appreciably from those disclosed by the field exploration.

Professional judgments presented in this report are based on an evaluation of the technical information gathered and our general experience in the field of Geotechnical Engineering. We do not guarantee the performance of the project in any respect, only that the engineering work and judgment rendered meet the standard of care of the geotechnical profession at this time.

- " F9: 9F9B79G'

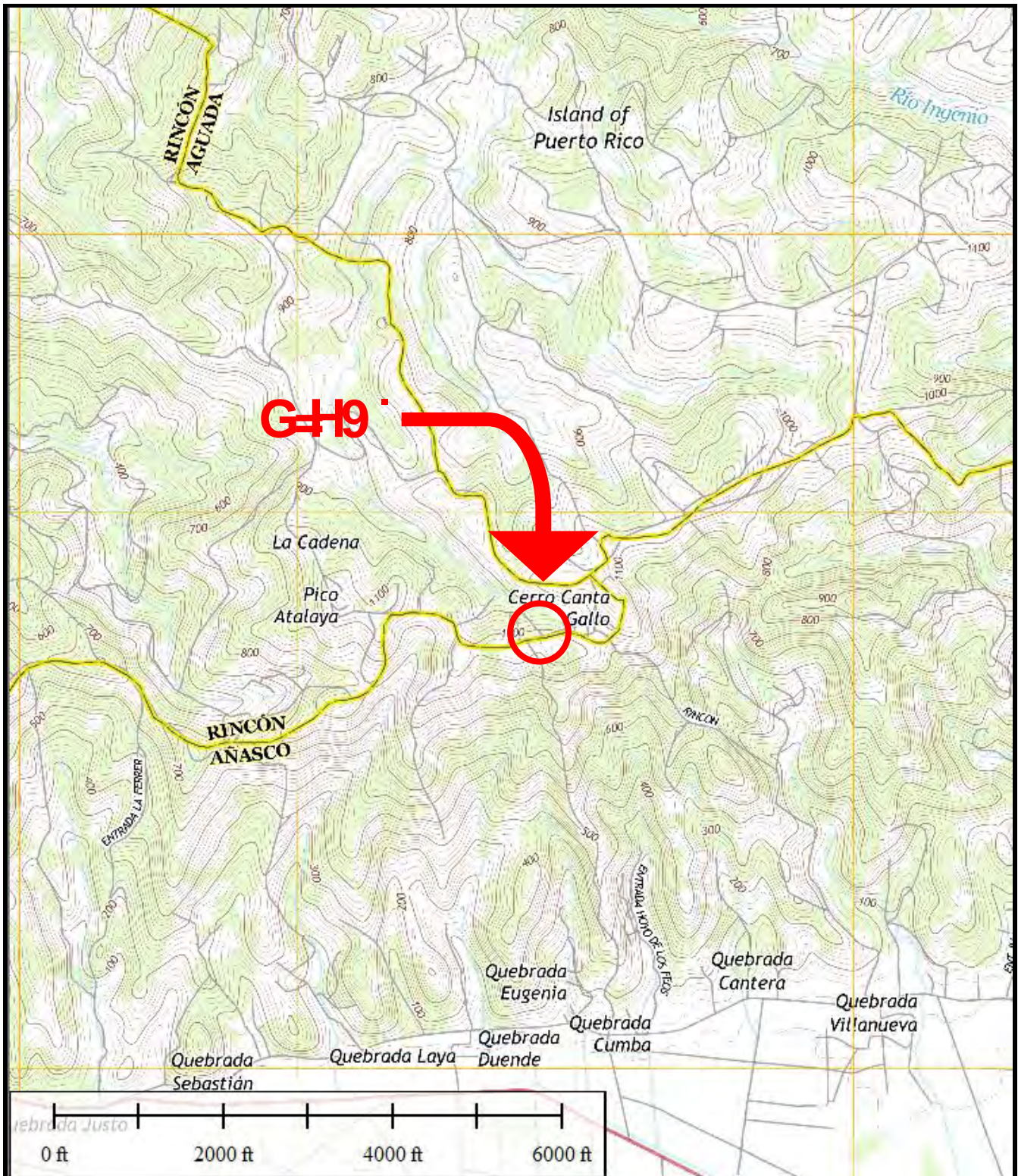
- Briggs, Reginald P. et al., 1965 Hydrogeologic Map of Puerto Rico: U.S. Geol. Survey Map HA-197
- USGS, 1966 Rincón Topographic Quadrangle, Puerto Rico 7.5-Minute Series (Topographic): U.S. Geological Survey.
- Coduto, Donald P., 1994. *Foundation Design-Principles and Practices*, Prentice Hall, Inc., New Jersey.
- Das, Braja M., 1994. *Principles of Geotechnical Engineering*, 3rd Edition International Thomson Publishing, U.S.
- Peck, Ralph B., Hanson, Walter E. and Thornburn, Thomas H., 1974. *Foundation Engineering*, 2nd ed. John Wiley & Sons, New York.
- Prakash, Shamsheer and Sharma, Hari D., 1990. *Pile Foundations in Engineering Practice*, John Wiley & Sons, Inc., New York.
- Kulhawy, F.H., Mayne, P.W., 1990. *Manual on Estimating Soil Properties for Foundation Design*, Electric Power Research Institute, California, U.S.

- "% GHLbXUfXgž7 cXYgžUbX'Df cWYXi fYg'7 JhYX'

- ASTM D 1586 "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils." *Annual Book of ASTM Standards - Volume 04.08 - Soil and Rock (I):D420 to D5779.*
- ASTM D 2488 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)." *Annual Book of ASTM Standards - Volume 04.08 - Soil and Rock (I):D420 to D5779.*
- ASTM D 4220 "Standard Practices for Preserving and Transporting Soil Samples." *Annual Book of ASTM Standards - Volume 04.08 - Soil and Rock (I):D420 to D5779.*
- ASTM D 2216 "Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass." *Annual Book of ASTM Standards. Volume 04.08 - Soil and Rock (I):D420 to D5779.*

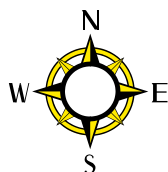
5 DD9 B8 ± 5'

FIGURES



GI D9F': CI B8 5H-CB'GD97-5 @GHZ7 CFD"
ENGINEERING DEPARTMENT

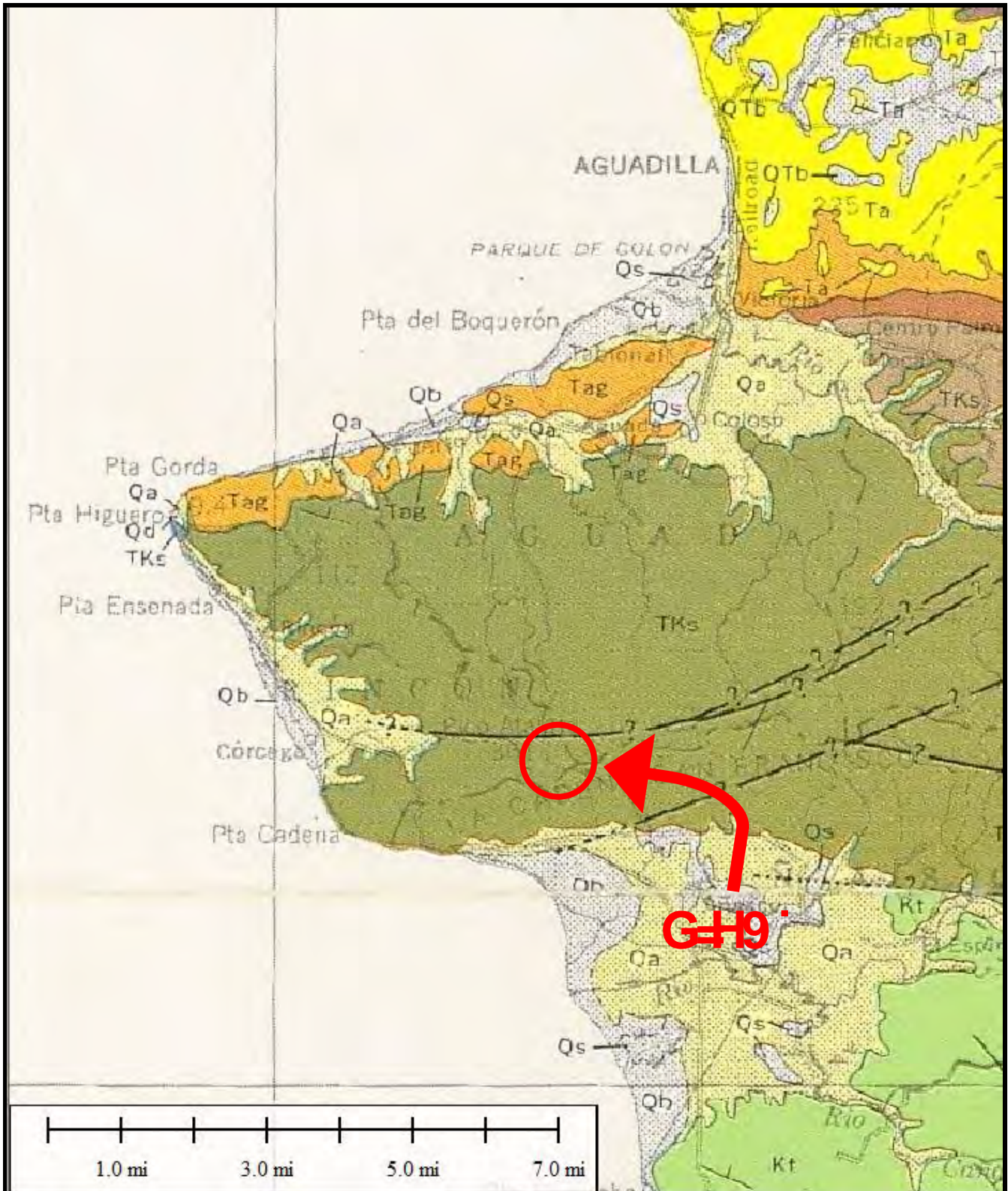
PMB 3 P.O. BOX 2020
BARCELONETA, PR 00617-2020
TEL/FAX (787) 846-0614



SCALE:
AS SHOWN

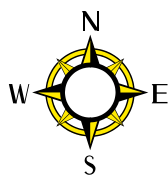
; YchYW b]WU' ðj Ygh[U]cb'Zcf'
DfcdcgYX'7 ca a i b]WU]cbg'Hck Yf''
5H' H'F]bWOb'G]H'ZF]bWOb'ZD'F''
:][''%: fU[a YbhcZI G; G'+) 'A]bi H'g'
F]bWOb'Hcdc[fUd\]WEi UXfUb['YZ&\$%

Project No.: E-346



GI D9F': CI B8 5 HCB GD97 5 @GHZ7 CFD"
ENGINEERING DEPARTMENT

PMB 3 P.O. BOX 2020
BARCELONETA, PR 00617-2020
TEL/FAX (787) 846-0614



SCALE:
AS SHOWN

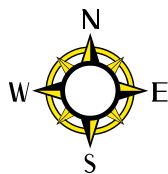
; YchW b]WU' ðj Ygh[U]cb Zcf'
DfcdcgYX'7 ca a i b]WU]cbg'Hck Yf''
5 H' H'F]bWb'G]hZf]bWbZ'D'F''
:]l''&<nXfc[Yc'c[]WAUd'cZDi Yf'hc'F]Wc'
UbX'5X'UWbh-g'UbXg'
fF"D'6f]] [gZ>"D'5_YfgZ%*) L

Project No.: E-346



GI D9F : CI B8 5 HCB GD97 5 @GHZ7CFD"
ENGINEERING DEPARTMENT

PMB 3 P.O. BOX 2020
BARCELONETA, PR 00617-2020
TEL/FAX (787) 846-0614

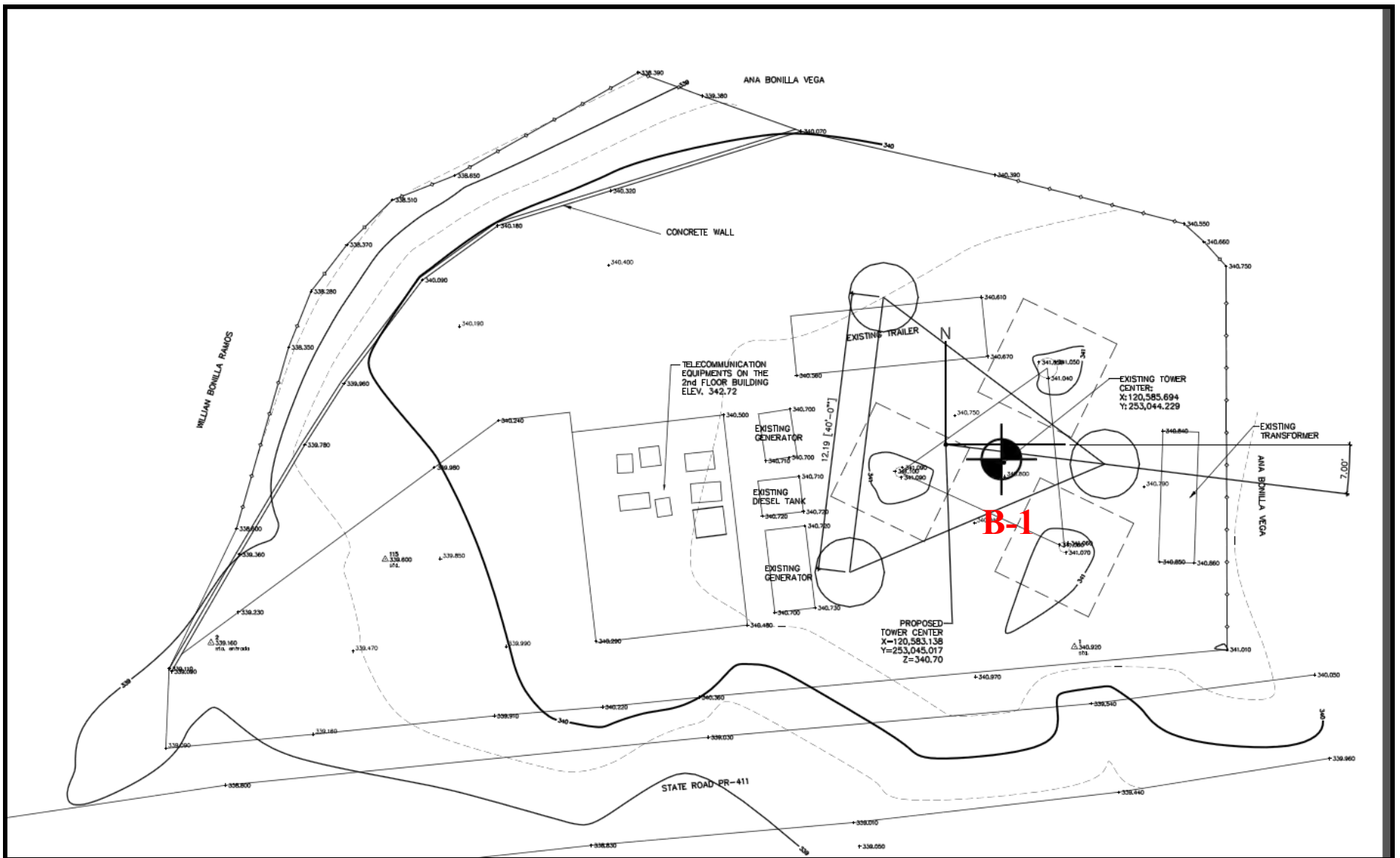


SCALE:
AS SHOWN

; YchYW b]WU' -bj Ygh[U]cb'Z:f'
DfcdcgYX'7 ca a i b]WU]cbg'Hck Yf''
5 H' H'F]bWb'G]hYZF]bWbZ'D'F''

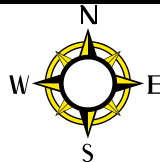
:]L''' G]h'5 Yf]U'J]Yk'

Project No.: E-346



GI D9F': CI B85HCB'GD97-5 @GHZ7CFD"
ENGINEERING DEPARTMENT

PMB 3 P.O. BOX 2020
BARCELONETA, PR 00617-2020
TEL/FAX (787) 846-0614



SCALE: NTS

; YchYW b]WU' b] Ygh[U]cb'Zf'DfcdcgYX'7 ca a i b]WU]cbg'Hck Yf''
5H' H'F]bVb'G]hYZF]bVb'Z'D'F''

:][i fY(. 5ddfcl]a UY'6cf]b[' @WU]cb'

Project No.: E-346

5 DD9 B8 ± 6'
BORING LOG

Project: Proposed Communications Tower AT&T Rincon Site

Project Location: Rincon, PR

Project Number: E-346

Key to Log of Boring

Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	UC, tsf	Percent Fines	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

- 1** Elevation (feet): Elevation (MSL, feet).
- 2** Depth (feet): Depth in feet below the ground surface.
- 3** Sample Type: Type of soil sample collected at the depth interval shown.
- 4** Sample Number: Sample identification number.
- 5** Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
- 6** USCS Symbol: USCS symbol of the subsurface material.
- 7** Graphic Log: Graphic depiction of the subsurface material encountered.
- 8** MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
- 9** Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
- 10** UC, tsf: Unconfined compressive strength, in tons per square foot.
- 11** Percent Fines: The percent fines (soil passing the No. 200 Sieve) in the sample. WA indicates a Wash Sieve, SA indicates a Sieve Analysis.
- 12** REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity

COMP: Compaction test

CONS: One-dimensional consolidation test

LL: Liquid Limit, percent

PI: Plasticity Index, percent

SA: Sieve analysis (percent passing No. 200 Sieve)

UC: Unconfined compressive strength test, Qu, in ksf

WA: Wash sieve (percent passing No. 200 Sieve)

TYPICAL MATERIAL GRAPHIC SYMBOLS

	Bentonite		Clayey GRAVEL to Gravelly CLAY (GC-CL)
	Bentonite chips		Silty GRAVEL (GM)
	Bentonite powder		Silty GRAVEL to Clayey GRAVEL (GM-GC)
	Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)		Silty GRAVEL to Gravelly SILT (GM-MH)
	Fat CLAY/SILT (CH-MH)		Silty GRAVEL to Gravelly SILT (GM-ML)
	Lean CLAY, CLAY w/SAND, SANDY CLAY (CL)		Poorly graded GRAVEL with Silt (GP-GM)
	Claystone		Granite
	Lean-Fat CLAY, CLAY w/SAND, SANDY CLAY		Gravel
	Cuttings		Grout
	Lean CLAY/PEAT (CL-OL)		Well graded GRAVEL (GW)
	AF		Well graded GRAVEL with Silt (GW-GM)
	Clayey GRAVEL (GC)		Poorly to Well graded GRAVEL (GW-GP)
	SILTY CLAY (CL-ML)		Poorly graded GRAVEL (GP)
	Boulders		Artificial Fill
	Clayey GRAVEL to Gravelly CLAY (GC-CH)		SILT, SILT w/SAND, SANDY SILT (MH)

	SILT, SILT with SAND, SANDY SILT (ML-MH)
	High plasticity PEAT (OH)
	Low to High plasticity PEAT (OL-OH)
	Sandstone
	Clayey SAND (SC)
	Clayey SAND to Sandy CLAY (SC-CH)
	Clayey SAND to Sandy CLAY (SC-CL)
	Shale
	Silt
	Siltstone
	Silty SAND (SM)
	Silty SAND to Sandy SILT (SM-MH)
	Silty SAND to Sandy SILT (SM-ML)
	Silty to Clayey SAND (SM-SC)
	Poorly graded SAND (SP)

	Poorly graded SAND with Clay (SP-SC)
	Well graded SAND (SW)
	Well graded SAND with Clay (SW-SC)
	Well graded SAND with Silt (SW-SM)
	SILT, SILT w/SAND, SANDY SILT (ML)
	Bentonite plug
	Asphaltic Concrete (AC)
	Poorly graded SAND with Silt (SP-SM)
	Black Rock - fine grained, exhibiting a bedding
	Gray rock, large grain size
	Topsoil
	Clayey Sand
	Low plasticity PEAT (OL)
	LIMESTONE
	Weathered Rock

TYPICAL SAMPLER GRAPHIC SYMBOLS

	Shelby Tube (Thin-walled, fixed head)		Other sampler now modified		2.5-inch-OD Modified California w/ brass liners
	Shelby Tube (Thin-walled, fixed head)		Auger sampler		Grab Sample
	Bulk Sample		CME Sampler		Pitcher Sample
	3-inch-OD California w/ brass rings		2-inch-OD unlined split spoon (SPT)		

OTHER GRAPHIC SYMBOLS

	Water level (at time of drilling, ATD)
	Water level (after waiting a given time)
	Minor change in material properties within a stratum
	Inferred or gradational contact between strata
	Queried contact between strata

GENERAL NOTES

- 1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- 2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Project: Proposed Communications Tower AT&T Rincon Site
Project Location: Rincon, PR
Project Number: E-346

Log of Boring B-1

Sheet 1 of 3

Date(s) Drilled May 4, 2018, August 15, 2018 and August 16, 2018	Logged By J. Mejias, PE	Checked By J. Mejias, P.E.
Drilling Method Hollow Stem Auger	Drill Bit Size/Type 2.5 inch soil bit	Total Depth of Borehole 89.25 feet bgs
Drill Rig Type CME 45	Drilling Contractor SFS Corp.	Approximate Surface Elevation 2248 feet MSL
Groundwater Level and Date Measured Not Encountered ATD	Sampling Method(s) SPT	Hammer Data 140 lb, 30" in drop, safety
Borehole Backfill Cuttings, Tamped	Location Rincon, PR	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	UC, tsf	Percent Fines	REMARKS AND OTHER TESTS
	0		1	9	CL-ML		RESIDUAL SOIL: Clayey SILT, medium plasticity, stiff, crumbles under hand pressure, yellowish red.	46.1	0.75		
2245			2	14	CL-ML		AS ABOVE, oxidation veinlets, very stiff, yellowish brown.	41.9	2.5		
	5		3	15	CL-ML		AS ABOVE, light red.	12.3			
			4	15	CL-ML		AS ABOVE.	44.1	2.5		
2240			5	13	CL-ML		AS ABOVE, stiff to very stiff, brown and black, relic rock texture.	20.4			
	10										
2235			6	17	CL-ML		AS ABOVE, very stiff, brown, light red and black.	41			
	15										
2230			7	17	ML		SILT, low plasticity, very stiff, brownish yellow, oxidation veinlets.	41.8			
	20										
2225			8	20	ML		AS ABOVE, trace sand, dark brown.	44.3			
	25										
2220			9	20	ML		AS ABOVE, relic rock texture, light red and black.	39.2			
	30										













Project: Proposed Communications Tower AT&T Rincon Site

Project Location: Rincon, PR

Project Number: E-346

Log of Boring B-1

Sheet 2 of 3

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	UC, tsf	Percent Fines	REMARKS AND OTHER TESTS
30					ML		SILT, low plasticity, very stiff, brownish yellow, oxidation veinlets. (cont.)				
2215	33		10	20	ML		AS ABOVE.	39.9			
2210	38		11	27	ML		AS ABOVE, very stiff to hard.	36.5			
2205	43		12	31	ML		AS ABOVE, hard.	33.3			
2200	48		13	19	ML		AS ABOVE, with Sand, very fine sand, brown.	39.1			
2195	53		14	24	ML		AS ABOVE, yellowish brown.	35.1			
2190	58		15	69	ML		AS ABOVE, oxidations veins.	34.2			
60											

Project: Proposed Communications Tower AT&T Rincon Site

Project Location: Rincon, PR

Project Number: E-346

Log of Boring B-1

Sheet 3 of 3

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	UC, tsf	Percent Fines	REMARKS AND OTHER TESTS
60			15	69	ML		SILT, low plasticity, very stiff, brownish yellow, oxidation veinlets. (cont.)	34.2			
2185											
65			16	63	ML		AS ABOVE.	32.6			
2180											
70			17	92/11	ML		AS ABOVE, light brown.	31.5			
2175											
75			18	67	ML		AS ABOVE, some sand, very fine sand.	31.8			
2170											
80			19	98/10"	WR		Weathered Rock sampled as Sandy SILT, non plastic, some gravel, oxidation veins, yellowish brown.	29.7			
2165											
85			20	97/11"	WR		AS ABOVE, brownish gray.	25.2			
2160											
90			21	50/2"	WR		Gravel, Sand and Silt matrix, very dark gray. Bottom of Boring at 89.25 feet bgs	16.9			

APPENDIX C

CIAPR STAMP



COLEGIO DE INGENIEROS Y AGRIMENSORES
DE PUERTO RICO

PO Box 363845 * San Juan, Puerto Rico * 00936-3845
Tel. 787-758-2250 * Fax. 787-758-7639

ESTAMPILLA DIGITAL ESPECIAL (EDE)

Ing. Juan F. Mejías López, PE



Práctica de: Ingeniería
Licencia: 21417
Renglón: Documento
Descripción del Trabajo: Investigaciones
Fecha de Emisión: 2018-08-22
Monto Emitido: \$8
Número de Serie: 9840-3553-2273-4291
Número de Caso: E-346-B
Proyecto / Unidad: GEO INV COMM TOWER
Rol del Profesional: Consultor



Certificación:

El profesional certifica con la emisión de la estampilla digital especial del Colegio de Ingenieros y Agrimensores de Puerto Rico el haber cumplido con las disposiciones de la Sección 11 de la Ley 319 del 15 de mayo de 1938, según enmendada.

La colocación del sello profesional constituye la cancelación de la estampilla digital especial



RINCON DROP & SWAP

SITE NAME:

FA#:

ADDRESS:

SITE TYPE:

PROJECT DESCRIPTION:

PROPERTY INFORMATION

SITE COORDINATES:

JURISDICTION:

COUNTY:

APPLICANT / LESSEE:

ADDRESS:

PROPERTY OWNER:

POLICE CONTACT:

FIRE CONTACT:

POWER COMPANY:

TELCO COMPANY:

VEHICULAR USE:

ADA ACCESSIBILITY COMPLIANCE:

HURRICANE EVACUATION PLAN:

PROJECT TEAM

PROPERTY MANAGEMENT FIRM:

ADDRESS:

PHONE:

FAX:

ENGINEERING FIRM:

ADDRESS:

CONTACT:

PHONE:

APPROVALS

AT&T RF ENGINEER:

AT&T OPERATIONS:

AT&T TRANSPORT ENGINEER:

CONSTRUCTION MANAGER:

SITE ACQ./OWNER:

DRAWING INDEX

SHEET	SHEET DESCRIPTION	DATE	REV
T1	TITLE SHEET	09/06/2018	A
SI-1	EXISTING SITE PLAN	09/06/2018	A
SI-2	PROPOSED SITE PLAN	09/06/2018	A
C1	PROPOSED TOWER SITE PLAN	09/06/2018	A
C2	TOWER ELEVATION	09/06/2018	A
C3	CES PLAN	09/06/2018	A
C4	PROPOSED GROUNDING PLAN	09/06/2018	A
C5	DETAILS	09/06/2018	A
C6	DETAILS	09/06/2018	A



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



CALLE 22 AA-1 RIVERVIEW
BAYAMON, PR 00961
TEL: 787.395.7272

YO, JOSE SANTIAGO CON LICENCIA PR.P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIEN CERTIFICO QUE ENTIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CODIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PUBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y DISCIPLINARIA POR LA OGPE.

DRAWN BY: ACR

CHECKED BY: J.A.S.

A 09/06/18 ISSUED FOR REVIEW

REV DATE DESCRIPTION



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

FA#:

10015372

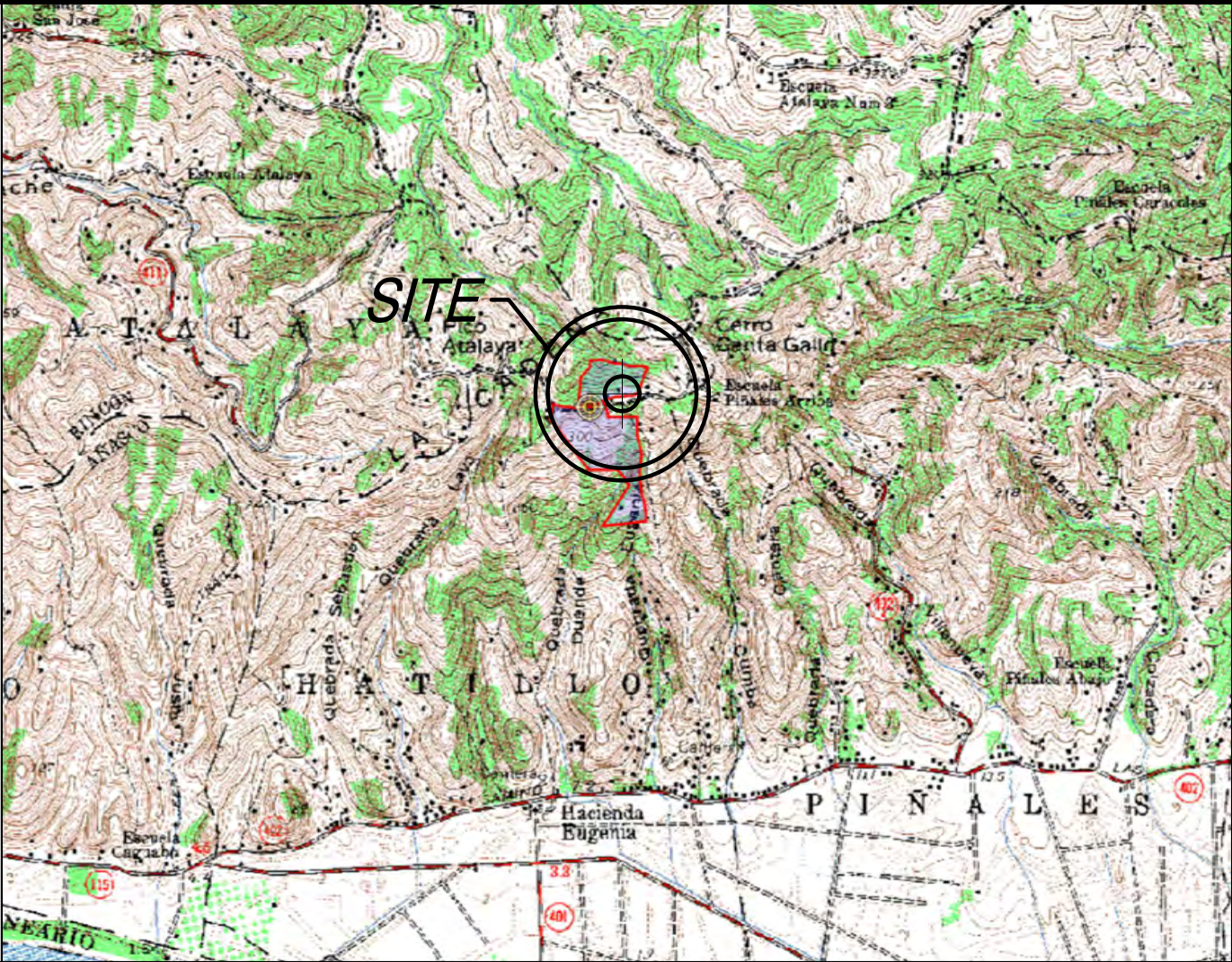
SITE TYPE: TEMPORARY MONOPOLE

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

T1



DRIVING DIRECTIONS

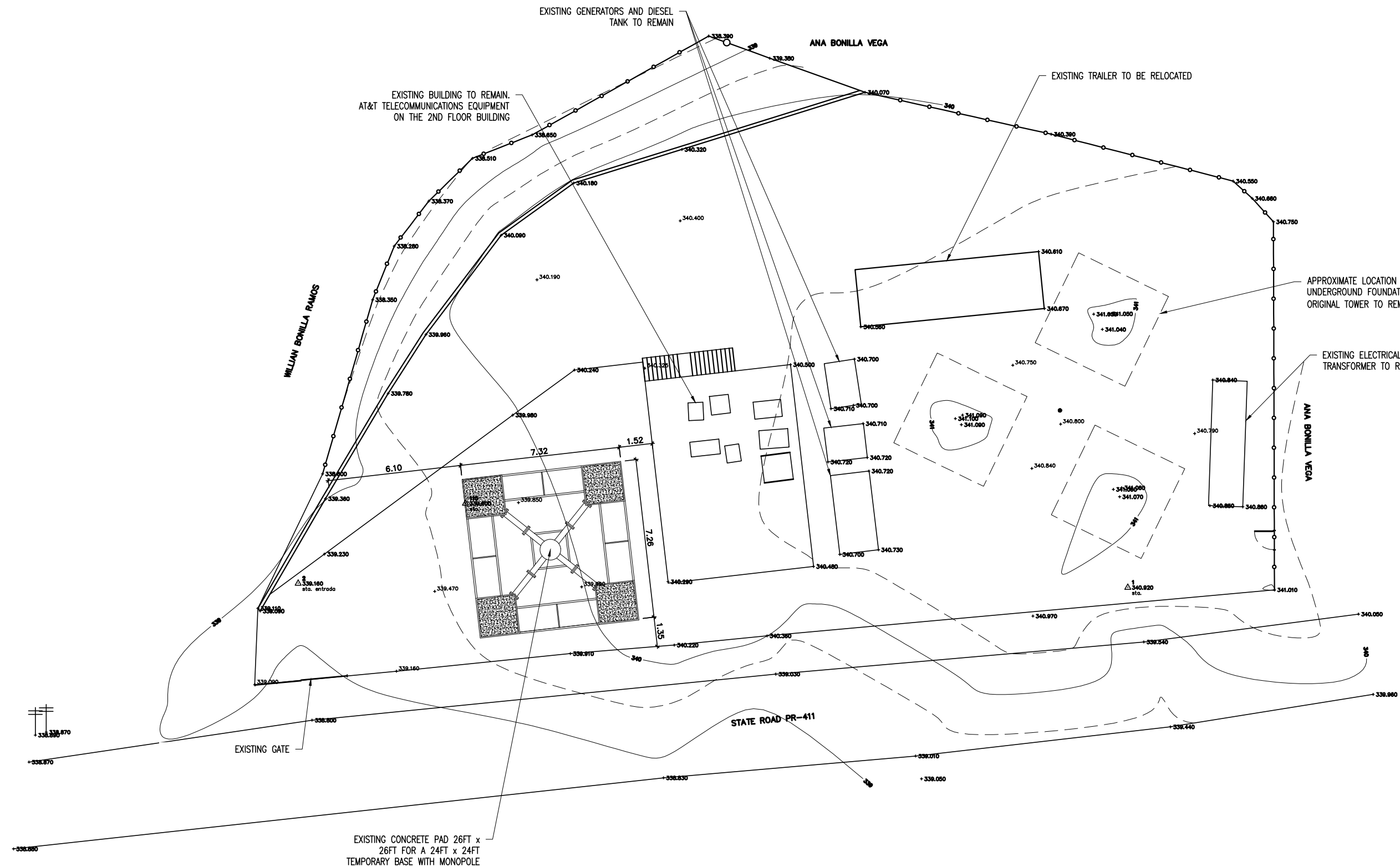
FROM LUIS MUÑOZ MARIN INTERNATIONAL AIRPORT :HEAD NORTHEAST ON PUENTE TEODORO MOSCOSO (150 M) / CONTINUE ONTO AV. AEROPUERTO (450 M) / SLIGHT RIGHT (100 M) / TURN RIGHT TOWARD MARGINAL AEROPUERTO (400 M) SHARP RIGHT ONTO MARGINAL AEROPUERTO (400 M) / CONTINUE STRAIGHT ONTO PUENTE TEODORO MOSCOSO (87 M) / SLIGHT RIGHT ONTO THE RAMP TO EXPRESO ROMÁN BALDORIOY DE CASTRO/PR-26 (600 M) / KEEP LEFT AT THE FORK AND MERGE ONTO EXPRESO ROMÁN BALDORIOY DE CASTRO/PR-26 (290 M) / MERGE ONTO EXPRESO ROMÁN BALDORIOY DE CASTRO/PR-26 (4.8 KM) / TAKE THE EXIT TOWARD EXPRESO JOSÉ DE DIEGO/PR-22 W (500 M) / CONTINUE ONTO EXPRESO JOSÉ DE DIEGO/PR-22 W (2.0 KM) / SLIGHT RIGHT TO STAY ON EXPRESO JOSÉ DE DIEGO/PR-22 W (3.2 KM) / CONTINUE STRAIGHT TO STAY ON EXPRESO JOSÉ DE DIEGO/PR-22 W / PARTIAL TOLL ROAD (7.0 KM) / KEEP LEFT TO CONTINUE ON PR-22 EXPRESS / PARTIAL TOLL ROAD (10.2 KM) / MERGE ONTO EXPRESO JOSÉ DE DIEGO/PR-22 W / PARTIAL TOLL ROAD (61.1 KM) / EXIT ON THE LEFT ONTO CARR PUERTO RICO 2 O/PR-2 W (950 M) / MERGE ONTO CARR PUERTO RICO 2 O/PR-2 W (55.8 KM) / SLIGHT RIGHT TOWARD PR-419 (64 M) / CONTINUE ONTO PR-419 (2.9 KM) / TURN LEFT ONTO PR-411 (1.7 KM) / TURN LEFT (200 M) / TURN RIGHT / DESTINATION WILL BE ON THE RIGHT (200 M).

GENERAL VICINITY MAP



UNDERGROUND SERVICE ALERT
CALL DTOP, "DIRECTORIA DE
EXCAVACIONES, DEMOLICIONES &
TUBERIAS" 787-722-2929 EXT.2277
48 HRS BEFORE ANY CONSTRUCTION
BEGINS





1 EXISTING SITE PLAN
SCALE: 1/16"=1'-0"



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



CALLE 22 AA-1 RIVERVIEW
BAYAMON, PR 00961
TEL: 787.395.7272

YO, JOSE SANTIAGO CON LICENCIA, P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑE ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIEN CERTIFICO QUE ENTIENDO QUE DICHO PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CODIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PUBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y DISCIPLINARIA POR LA OGP.

DRAWN BY: ACR CHECKED BY: J.A.S.

A	09/06/18	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

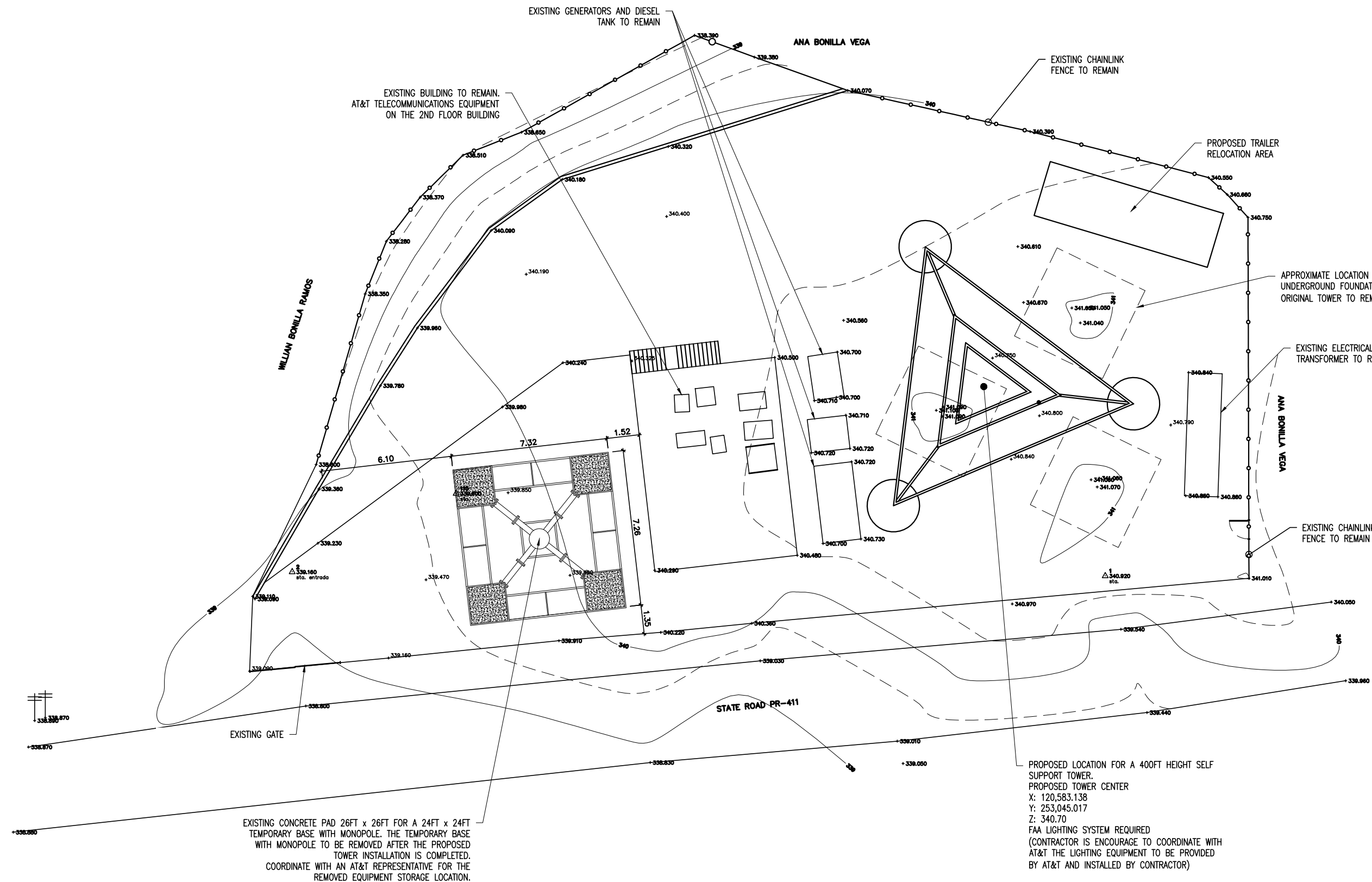
ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

FA#: 10015372
SITE TYPE: TEMPORARY MONOPOLE
SHEET TITLE:

EXISTING SITE PLAN

SHEET NUMBER:

SI-1



1 PROPOSED SITE PLAN
SCALE: 1/16"=1'-0"



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



CALLE 22 AA-1 RIVERVIEW
BAYAMON, PR 00961
TEL: 787.395.7272

YO, JOSE SANTIAGO CON LICENCIA, PR. P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑÉ ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTIENDO QUE DICHO PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCIÓN. RECONOZCO QUE CUALQUIER DECLARACIÓN FALSA O FALSIFICACIÓN DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MÍ, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCIÓN JUDICIAL Y DISCIPLINARIA POR LA OGP.

DRAWN BY: ACR CHECKED BY: J.A.S.

A	09/06/18	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

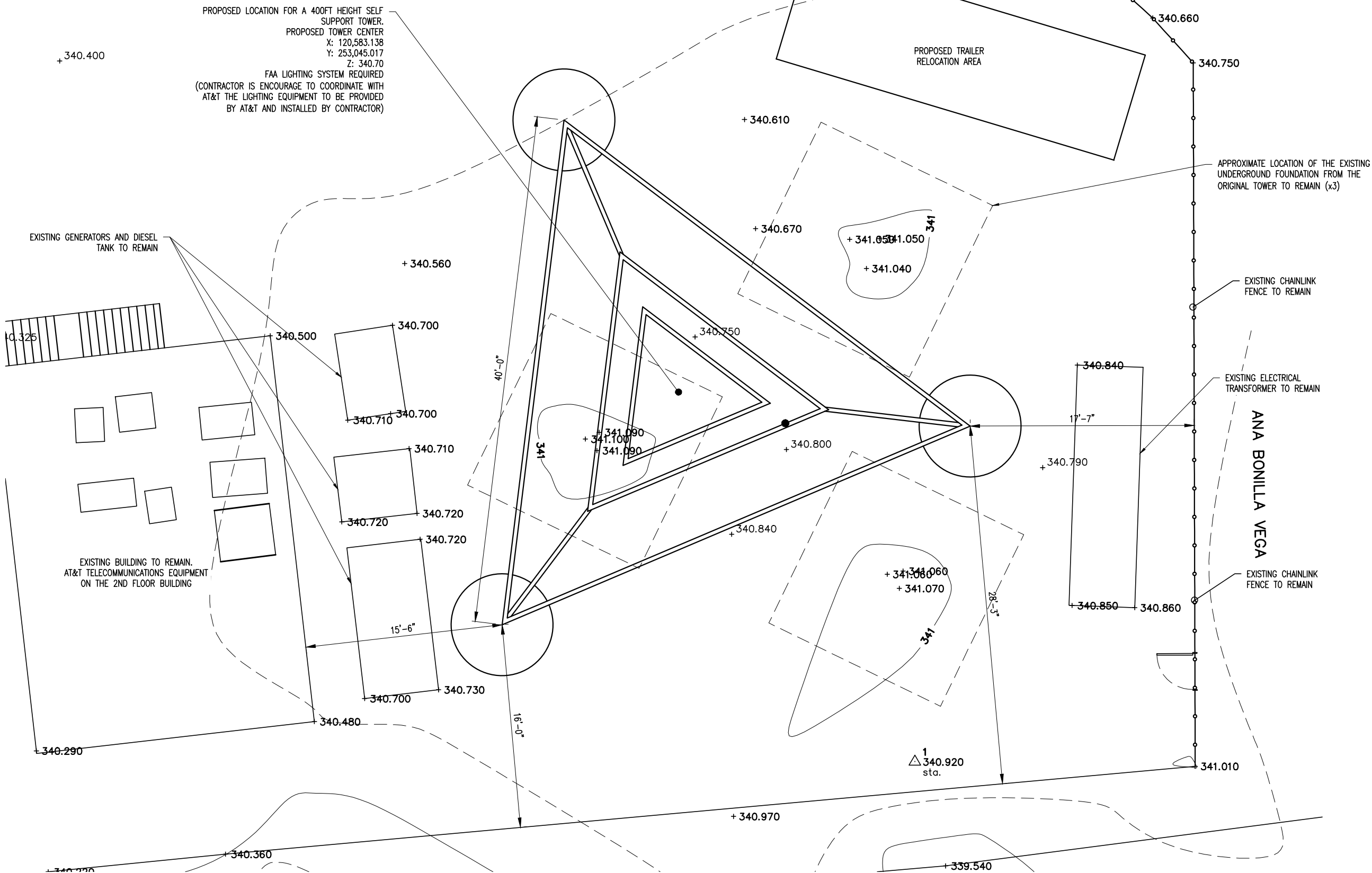
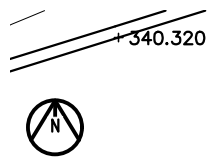
ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

FA#: 10015372
SITE TYPE: TEMPORARY MONOPOLE
SHEET TITLE:

PROPOSED SITE PLAN

SHEET NUMBER:

SI-2



1 PROPOSED TOWER SITE PLAN
SCALE: 1/8"=1'-0"



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



CALLE 22 AA-1 RIVERVIEW
BAYAMON, PR 00961
TEL: 787.395.7272

YO, JOSE SANTIAGO CON LICENCIA, PR. P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIEN CERTIFICO QUE ENTIENDO QUE DICHO PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CODIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PUBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y DISCIPLINARIA POR LA OGPE.

DRAWN BY: ACR CHECKED BY: J.A.S.

A 09/06/18 ISSUED FOR REVIEW

REV	DATE	DESCRIPTION



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

FA#: 10015372

SITE TYPE: TEMPORARY MONOPOLE

SHEET TITLE:

**PROPOSED TOWER
SITE PLAN**

SHEET NUMBER:

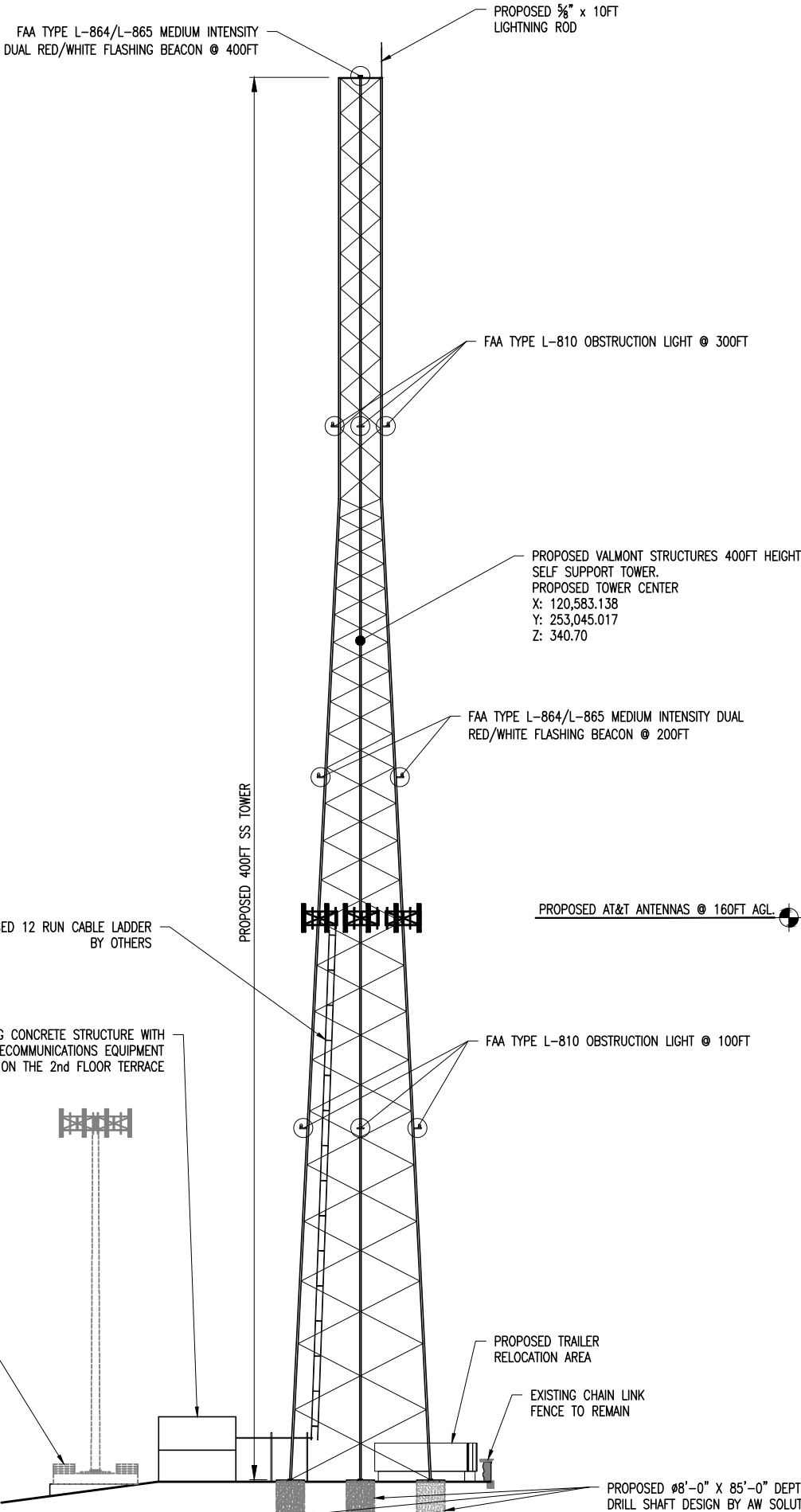
C1

NOTES:

- IF THE STRUCTURAL ANALYSIS FOR THIS SITE WAS PERFORMED BY OTHERS, AW SOLUTIONS INC. & AW SOLUTIONS PUERTO RICO, LLC. ACCEPTS NO LIABILITY FOR THE STRUCTURAL CAPACITY OF THIS TOWER. THE CONTRACTOR SHALL COORDINATE WITH AND COMPLY WITH THE PROVISIONS OF THE STRUCTURAL ANALYSIS PRIOR TO THE INSTALLATION OF ANTENNAS AND COAX ON THIS TOWER.
- REFER TO STRUCTURAL ANALYSIS OR STRUCTURAL LETTER FOR APPROVAL OF ADDITION OF NEW MOUNTS APPURTENANCES.
- IF STRUCTURAL ANALYSIS SHOWS NEED FOR MOUNTS REINFORCEMENT, REFER TO ADDITIONAL DRAWING SET DEDICATED SPECIFICALLY TO REINFORCEMENT FOR THIS SITE.
- REFER TO STRUCTURAL ANALYSIS FOR REQUIRED PROVISIONS FOR COAXIAL CABLE SUPPORT AND CONFIGURATION.
- ALL THE CARRIERS APPURTENANCES MAY NOT BE SHOWN IN ELEVATION. REFER TO STRUCTURAL ANALYSIS.
- TOWER ELEVATION SCHEMATIC ONLY.
- FOR TOWER DESIGN DRAWINGS AND PROFILE REFER TO VALMONT STRUCTURES TOWER DESIGN, JOB #2815671.
- REFER TO VALMONT STRUCTURES TOWER DESIGN, JOB #2815671, FOR ALL THE TELECOMMUNICATIONS EQUIPMENT NEED TO BE RELOCATED TO THE NEW TOWER.

TOWER LIGHTS

- FAA LIGHTING SYSTEM REQUIRED (SPECIFICATIONS NOT AVAILABLE YET) (CONTRACTOR IS ENCOURAGED TO COORDINATE WITH AT&T THE LIGHTING EQUIPMENT TO BE PROVIDED BY AT&T AND INSTALLED BY THE CONTRACTOR).



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



YO, JOSE SANTIAGO CON LICENCIA, PR. P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y DISCIPLINARIA POR LA OGPE.

DRAWN BY: ACR CHECKED BY: J.A.S.

REV	DATE	DESCRIPTION
A	09/06/18	ISSUED FOR REVIEW



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

FA#: 10015372

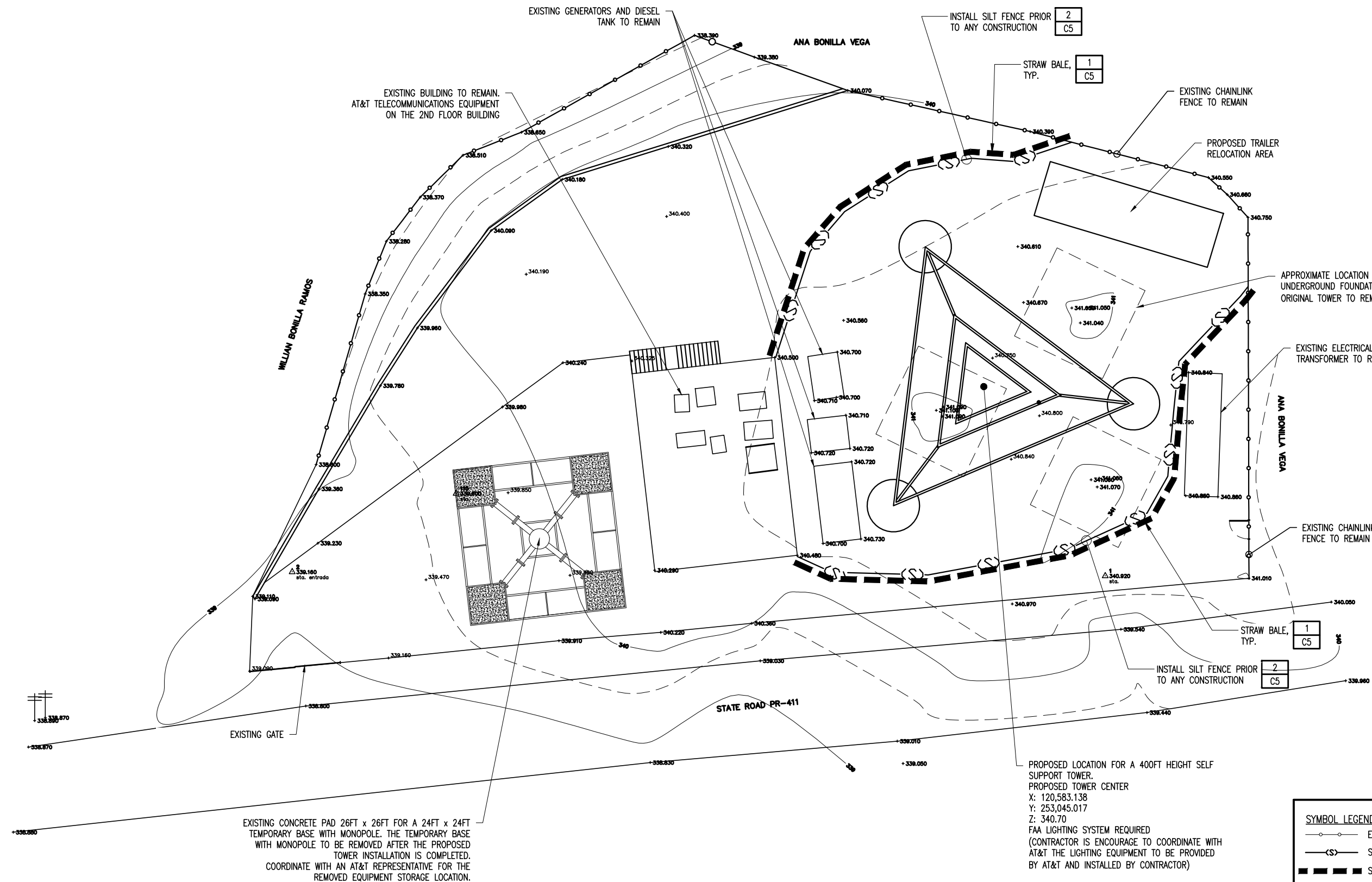
SITE TYPE: TEMPORARY MONOPOLE

SHEET TITLE:

TOWER ELEVATION

SHEET NUMBER:

C2



1 PROPOSED SITE PLAN
SCALE: 1/16"=1'-0"

SYMBOL LEGEND	
	EXISTING FENCE
	SILT FENCE
	STRAW BALES
	1 REPRESENTS DETAIL # C7 REPRESENTS SHEET#
	NOTE 1 REPRESENTS NOTE SHT E7 REPRESENTS SHEET#



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



CALLE 22 AA-1 RIVERVIEW
BAYAMON, PR 00961
TEL: 787.395.7272

YO, JOSE SANTIAGO CON LICENCIA, PR. P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIEN CERTIFICO QUE ENTIENDO QUE DICHO PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CODIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PUBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y DISCIPLINARIA POR LA OGPE.

DRAWN BY: ACR CHECKED BY: J.A.S.

A	09/06/18	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

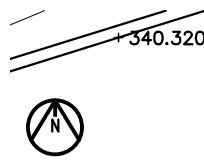
FA#: 10015372
SITE TYPE: TEMPORARY MONOPOLE

SHEET TITLE:

CES PLAN

SHEET NUMBER:

C3

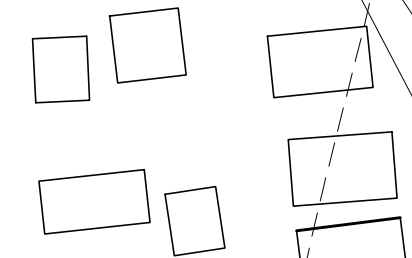
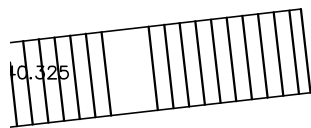


+ 340.320

+ 340.400

PROPOSED LOCATION FOR A 400FT HEIGHT SELF
SUPPORT TOWER.
PROPOSED TOWER CENTER
X: 120,583.138
Y: 253,045.017
Z: 340.70
FAA LIGHTING SYSTEM REQUIRED
(CONTRACTOR IS ENCOURAGE TO COORDINATE WITH
AT&T THE LIGHTING EQUIPMENT TO BE PROVIDED
BY AT&T AND INSTALLED BY CONTRACTOR)

EXISTING GENERATORS AND DIESEL
TANK TO REMAIN



EXISTING BUILDING TO REMAIN.
AT&T TELECOMMUNICATIONS EQUIPMENT
ON THE 2ND FLOOR BUILDING

PROPOSED TRAILER
RELOCATION AREA

EXISTING CHAINLINK
FENCE TO REMAIN

APPROXIMATE LOCATION OF THE EXISTING
UNDERGROUND FOUNDATION FROM THE
ORIGINAL TOWER TO REMAIN (x3)

EXISTING CHAINLINK
FENCE TO REMAIN

EXISTING ELECTRICAL
TRANSFORMER TO REMAIN

ANA BONILLA VEGA

EXISTING CHAINLINK
FENCE TO REMAIN

1
340.920
sta.

**NOTE:

1. CONTRACTOR SHALL FIELD VERIFY THE EXISTING GROUND LEADS RESISTIVITY PRIOR TO UTILIZATION FOR AT&T EQUIPMENT GROUNDING.
2. PROVIDE GROUND ROD TO CORNER FENCES IN CASE THAT EXISTING FENCE IS NOT GROUNDED.
3. EXISTING GROUND SHALL BE CONNECTED TO NEW TOWER GROUND RING.

SYMBOL LEGEND

- GROUND INSPECTION WELL
- GROUND ROD
- EXOTHERMIC WELD
- NEW GROUNDING AS SPECIFIED ON ELECTRICAL SHEET.

- 1 REPRESENTS DETAIL #
- C7 REPRESENTS SHEET #

- NOTE 1 REPRESENTS NOTE
- SHT E7 REPRESENTS SHEET #



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



CALLE 22 AA-1 RIVERVIEW
BAYAMON, PR 00961
TEL: 787.395.7272

YO, JOSE SANTIAGO CON LICENCIA, PR. P.E. #16274,
CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑO
ESTOS PLANOS Y LAS ESPECIFICACIONES
COMPLEMENTARIAS. TAMBIEN CERTIFICO QUE
ENTIENDO QUE DICHO PLANOS Y
ESPECIFICACIONES CUMPLEN CON LAS
DISPOSICIONES APPLICABLES DEL REGLAMENTO
CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE
LOS REGLAMENTOS Y CODIGOS DE LAS AGENCIAS,
JUNTAS REGLAMENTADORAS O CORPORACIONES
PUBLICAS CON JURISDICCION. RECONOZCO QUE
CUALQUIER DECLARACION FALSA O FALSIFICACION
DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN
CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI,
MIS AGENTES O EMPLEADOS, O POR OTRAS
PERSONAS CON MI CONOCIMIENTO, ME HACEN
RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y
DISCIPLINARIA POR LA OGP.

DRAWN BY: ACR CHECKED BY: J.A.S.

A 09/06/18 ISSUED FOR REVIEW

REV	DATE	DESCRIPTION
-----	------	-------------



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING
UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER
THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN
WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH
THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

FA#: 10015372

SITE TYPE: TEMPORARY MONOPOLE

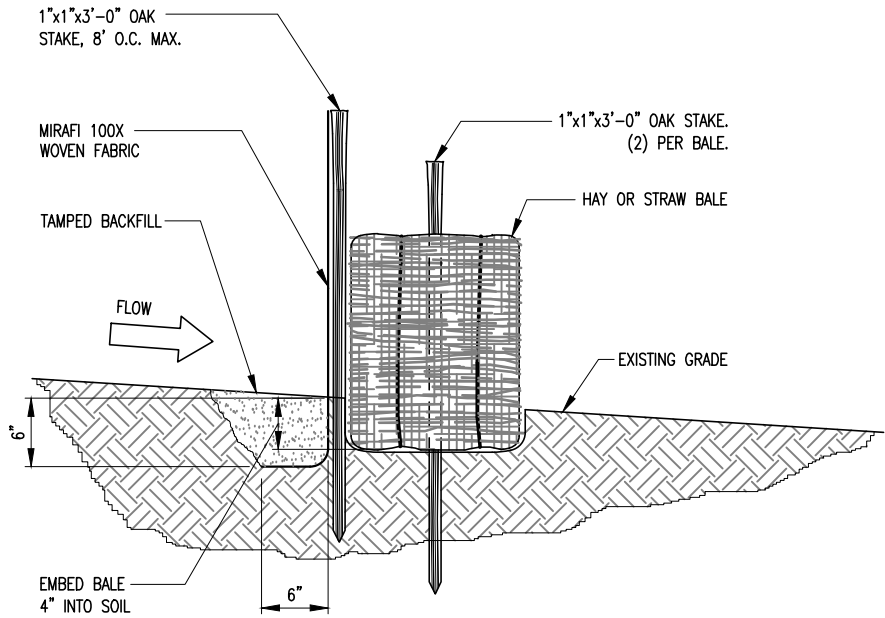
SHEET TITLE:

**PROPOSED
GROUNDING PLAN**

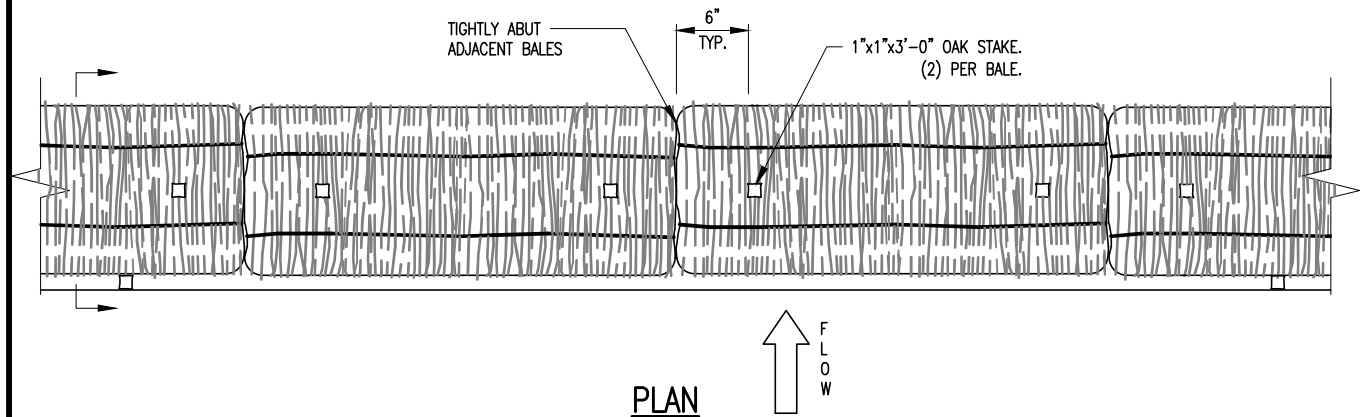
SHEET NUMBER:

C4

1 **PROPOSED GROUNDINGPLAN**
SCALE: 1/4"=1'-0"



SECTION



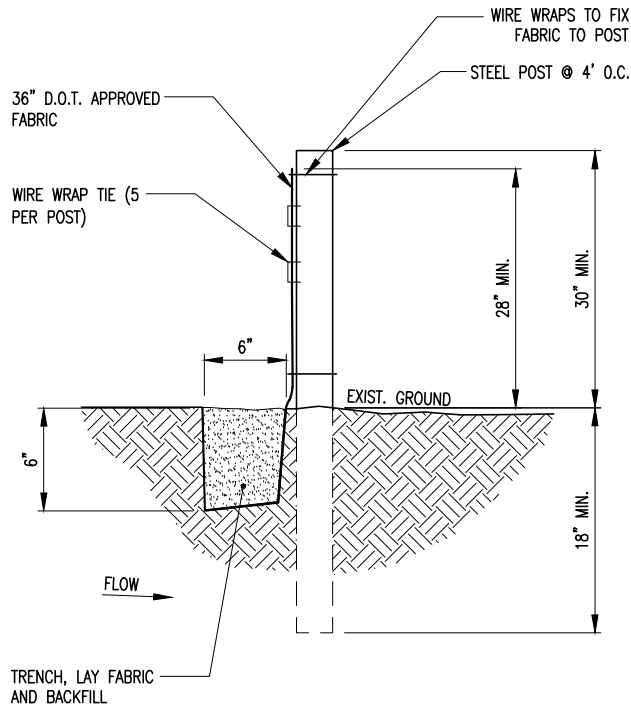
PLAN

1 SILT FENCE & STRAW BALE DIKE DETAIL
SCALE: NTS

2 SILT FENCE DETAIL

SCALE: NTS

1. THE FILTER FABRIC USED SHALL BE TYPE I OR II AND SHALL COMPLY W/ ALL NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
2. SILT FENCE HEIGHT SHALL BE A MINIMUM OF 2.5 FEET ABOVE GROUND HEIGHT.
3. CONSTRUCT SILT FENCE OF A CONTINUOUS ROLL CUT THE LENGTH OF THE BARRIER TO AVOID JOINTS. FABRIC TO BE FASTENED SECURELY TO FENCE POSTS WITH 1 INCH STAPLES OR TIE WIRES.
4. SUPPORT FABRIC WITH WOVEN WIRE MESH (TOP AND BOTTOM WIRES SHALL BE 10 GA., OTHER WIRES SHALL BE AT LEAST 12.5 GA.). OPENING SHALL BE 6" MAX. SPACING. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO POSTS WITH 1" STAPLES, NAILS OR TIE WIRES.
5. POST FOR SILT FENCE SHALL BE STEEL.
6. FENCE POST SPACING SHALL NOT EXCEED 4 FEET O.C.
7. EXCAVATE A TRENCH APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UP SLOPE FROM THE BARRIER. BACK FILL THE TRENCH WITH #57 STONE PLACED OVER THE FILTER FABRIC.
8. DO NOT ATTACH FILTER FABRIC TO EXISTING FENCES, TREES, ETC.
9. REMOVE FENCING FOLLOWING STABILIZATION OF SLOPES AND ALL DISTURBED AREAS.



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



YO, JOSE SANTIAGO CON LICENCIA, PR. P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIEN CERTIFICO QUE ENTIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CODIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PUBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y DISCIPLINARIA POR LA OGPE.

DRAWN BY: ACR CHECKED BY: J.A.S.

A	09/06/18	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

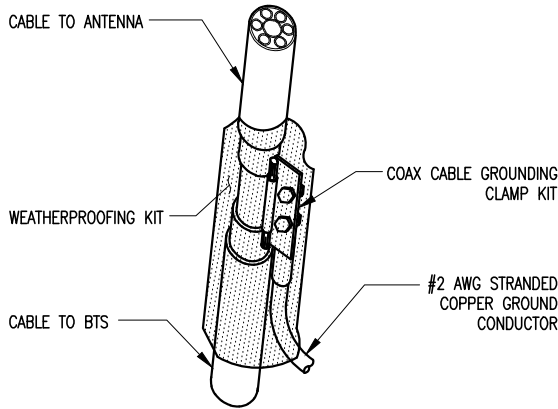
FA#: 10015372
SITE TYPE: TEMPORARY MONOPOLE

SHEET TITLE:

DETAILS

SHEET NUMBER:

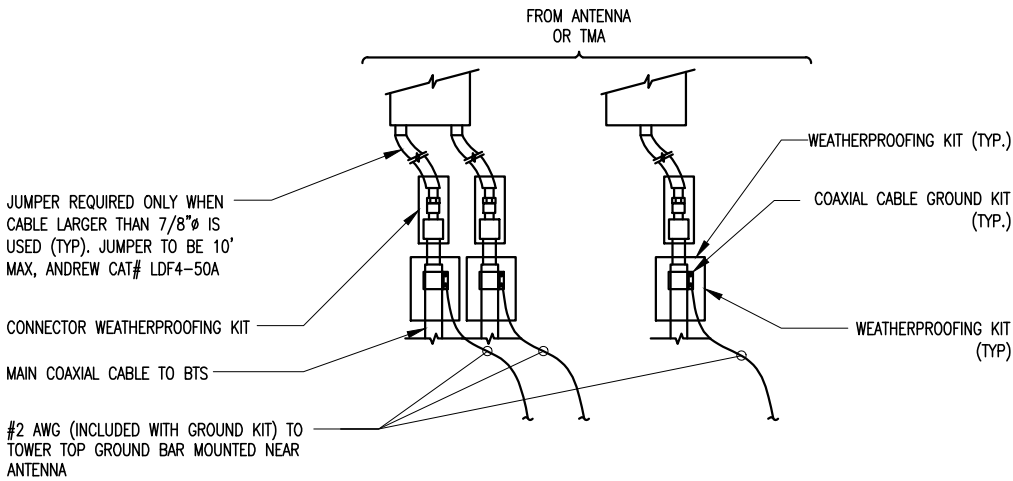
C5



1 COAXIAL CABLE GROUND KIT

SCALE: NTS

- DO NOT INSTALL CABLE GROUND KIT AT A BEND IN CABLE.
- ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
- 2-1/2" Ø MAX FOR TX/RX ANTENNA CABLES.
- 1-1/4" Ø MAX FOR GPS ANTENNA CABLES.

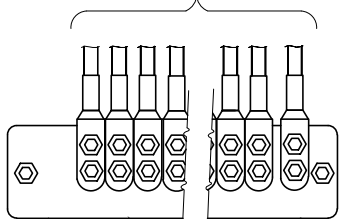


2 CONNECTION OF GROUND WIRES TO UPPER CGB @ ANTENNAS

SCALE: NTS

- DO NOT INSTALL CABLE GROUND KIT AT A BEND.
- ALWAYS DIRECT GROUND WIRE DOWN TO COAXIAL GROUND BAR.
- ANTENNAS SHOWN ARE DIAGRAMMATICAL ONLY, ACTUAL CONFIGURATION VARIES.

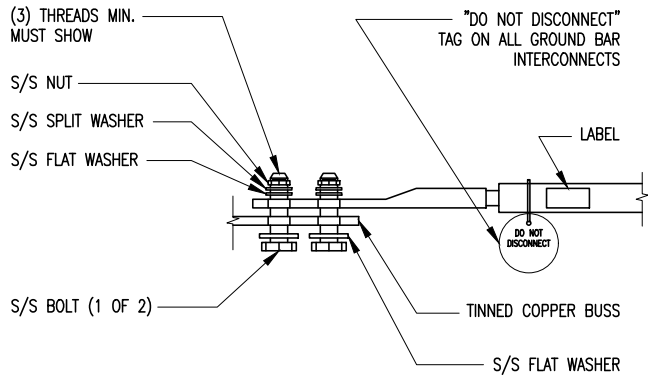
#6 AWG THWN FROM ANTENNA COAX GROUND KIT. #2 AWG BTCW FROM ANTENNA MAST OR MOUNTING BRACKET.



4 GROUND WIRE INSTALLATION TO COAX GROUND BAR

SCALE: NTS

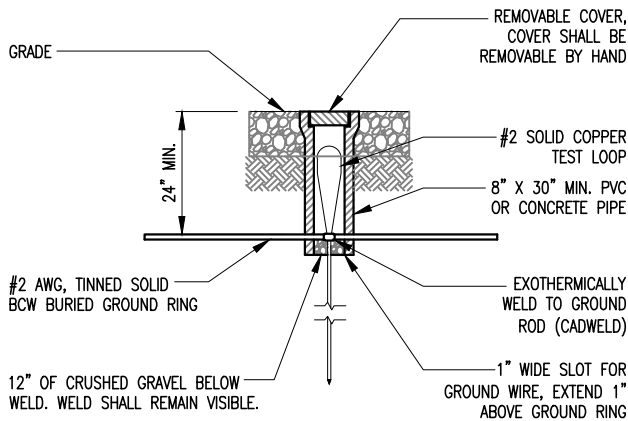
- SUBCONTRACTOR TO UTILIZE NO-OX ON ALL LUG CONNECTIONS.
- SIMILAR INSTALLATION FOR TOP AND MIDDLE (IF APPLICABLE) TOWER GROUND BARS AND FOR COAX ENTRY PORT GROUND BARS.
- BACK-BOLTING HAS BEEN CARRIER APPROVED.



5 LUG DETAIL

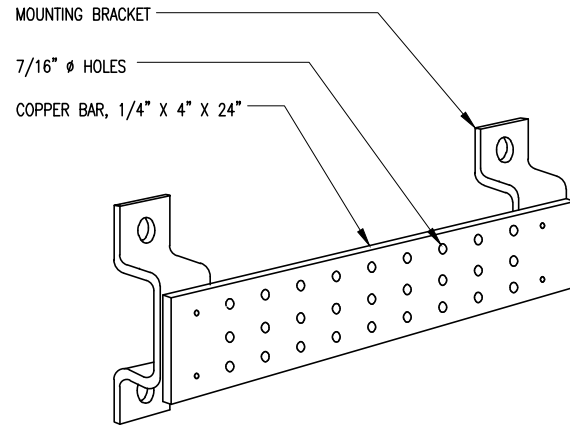
SCALE: NTS

- ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL. COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND BEFORE MATING.
- ALL EXPOSED, EASILY ACCESSIBLE GROUND BARS SHALL BE TAGGED "DO NOT DISCONNECT."
- COAT ALL BARRELS WITH ANTI-OXIDATION COMPOUND BEFORE CRIMPING.



6 GROUND INSPECTION TEST WELL

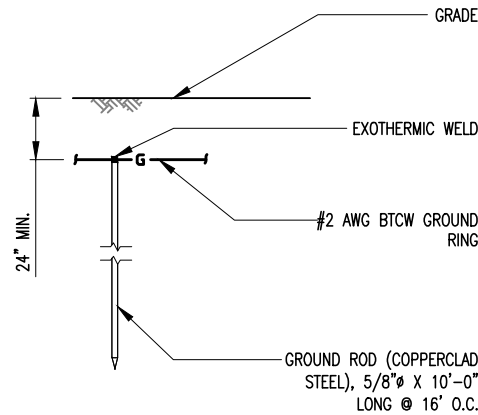
SCALE: NTS



3 TYPICAL GROUND BAR

SCALE: NTS

- TOP & MIDDLE (IF REQUIRED) GROUND BARS.
- CONNECTIONS PLUS 50% FUTURE CAPACITY.
- WELDING GROUND BAR TO TOWER PROHIBITED. USE MECHANICAL CONNECTION ONLY.
- ENSURE THAT GROUND BAR SIZE AND HOLE SPACING IS SUFFICIENT TO ALLOW FOR NO OVERLAPPING OF GROUND LUG WASHERS.



7 GROUND ROD DETAIL

SCALE: NTS

- GROUND ROD TO BE DRIVEN 10' VERTICALLY.



111 EAST SAINT PETER ST.
CARENCRO, LA 70520
P: 850-232-7951
F: 337-565-2923



AT&T MOBILITY CORPORATION
103 ORTEGON AVE.
GUAYNABO, PR, 00966



CALLE 22 AA-1 RIVERVIEW
BAYAMON, PR 00961
TEL: 787.395.7272

YO, JOSE SANTIAGO CON LICENCIA, PR. P.E. #16274, CERTIFICO QUE SOY EL PROFESIONAL QUE DISEÑO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIEN CERTIFICO QUE ENTIENDO QUE DICHO PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO SIN CONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL Y DISCIPLINARIA POR LA OGP.

DRAWN BY: ACR CHECKED BY: J.A.S.

REV	DATE	DESCRIPTION
A	09/06/18	ISSUED FOR REVIEW



JOSE SANTIAGO
LIC. #16274

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT, UNLESS EXPLICITLY AGREED TO BY AW SOLUTIONS IN WRITING. AW SOLUTIONS, INC. DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME: AT&T RINCON

ADDRESS: AVENIDA MARAVILLAS DEL PICO
(ACCESIBLE DESDE PR-411 KM 11.5)
BARRIO ATALAYA, RINCON PR

FA#: 10015372
SITE TYPE: TEMPORARY MONOPOLE

SHEET TITLE:

DETAILS

SHEET NUMBER:

C6

EXHIBIT D

INVOICE



3A GROUP, LLC
PO BOX 9497
Caguas, PR 00726-9497
(787) 602-0342

Date 6/6/2022
Invoice No. 22010622-001

BILL TO

Iglesia Adventista del Séptimo Día
Asociación Puertorriqueña del Oeste
Pr. Héctor Acevedo Irizarry, Presidente
PO Box 1629, Mayagüez, PR 00681
hacevedo@wtpm.org
Payment Terms: See below.

SITE / LOCATION

Project: WTPM Self-Supporting Tower Installation &
Foundations Construction
Location: Bo. Atalaya, PR-412 K5 H5 Int. Rincón, PR 00610

ITEM	DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	Aplicación de Pago No. 1: 25% del monto del contrato despues de recibida orden de compra o contrato firmado.	1	161,591.25	161,591.25
2	Monto del Contrato: \$646,365.00			0.00
3				0.00
4				0.00
5				0.00
6				0.00
7				0.00
8				0.00
9				0.00
10				0.00

Remarks / Payment Instructions:

PLEASE REMIT PAYMENT TO:

3A GROUP, LLC
Banco Popular de Puerto Rico
Routing Number: 021502011
Account Number: 041-111141
SWIFT: BPPRRSX

SUBTOTAL	161,591.25
TAX RATE	0%
TOTAL TAX	0.00
Balance Due	\$ 161,591.25

Thank you for your business.