



Columbia 9·1·1 Communications District

P.O. Box 998
St. Helens, OR 97051

Request for Board Approval

Continuation of Communication System Upgrade Project
Microwave Networks Inc.
Phase III

In a continuation of the upgrade of our microwave subsystem of the District's land mobile radio (LMR) system, before you is a request for approval of the next phase of this project that began in April of 2019.

Contained in this request is a copy of the original request that provides project justification as well as the legal review and justification of sole sourcing with Microwave Networks, Inc.

Background – Knowing that the microwave (MW) system is agnostic regarding what it transports and on what frequency band, as well as that regardless of what radios system is selected, the MW system would need to be replaced as part of the overall project.

Phase 1

Starting in the spring of 2019, the District embarked on a multi-phase project to upgrade this portion of our LMR system.

2019 saw the most complicated portion of the project. Clatskanie to Green Mountain. This pathway runs from the peak of Clatskanie Mountain located at 2,100' to Green Mountain located above Kalama Washington at 1,965' and a pathway of 25 miles. This pathway has historically experienced many problems due to atmospheric conditions (fog, smoke, snow, freezing rain and the Columbia river reflection).

The District decided to diversify this pathway which is in essence building two separate microwave systems tied to together and separated on the towers at different elevations in order for the smart system to find the best pathway in milliseconds switching back and forth to maintain the best path.

This investment was approved for **\$248,623.00**

This project is complete and has proven to be highly successful in that the District and it's users have not experienced any instances of signal fade or signal loss since the conclusion of the project.

Phase 2

The second phase of the MW upgrades began late winter 2021. A new MW path was rebuilt between Clatskanie Mtn and Columbia Heights located above Longview Washington and represents a 19 mile transmission.

Due to complications surrounding COVID, this project is not yet complete. However, all new radios, routers and switches are in place and are fully operational. We are waiting on the new antennas and waveguides.

This phase of the project was approved for **\$254,321.00**

Phase 3 – Current Request:

Request for Board approval for the third phase of this project. This portion of the upgrade project is broken down into two parts and will replace the remaining portion of our microwave system:

1. Existing Sites:
 - a. A new MW equipment and pathways between Dispatch and Green Mountain. This represents a 13 mile path.
 - b. New equipment and pathway between Clatskanie Mtn and Corey Hill (Vernonia), a 15 mile path.
2. New Site:
 - a. The new MW equipment for the rebuild of the Meissner site to Clatskanie Mt. 16 mile pathway.

Sub Total - \$702,105.00

Minus Discounts – (\$77,232.00) Leveraging the open contract and associated cost saving from the original contract between WCCCA & MNI

Final Quote = \$624,873.00

+ Add-on's

- Proteus MX Training – MW system technical training for up to 10 students to be conducted on site. \$12,713.00
- Shipping (estimated) \$32,000.00
- Project contingency @ 10% \$66,959.00

These three new builds represent an investment of **\$736,545.00**

All funds requested for this phase of the project are budgeted for within FY22/23 and were anticipated during the budget process.

Summary Information:

**Microwave Networks Inc.
4000 Greenbriar
Stafford, Texas 77477**

Bid / Quote \$669,586.00

Request Authorization NOT TO EXCEED - \$736,545.00



Columbia 9-1-1 Communications District

P.O. Box 998
St. Helens, OR 97051

COMMUNICATION SYSTEM UPGRADE PROJECT

Project Memorandum

Date: April 18, 2019

To: Columbia 9-1-1 CD Board of Directors

From: Mike Fletcher

Re: Sole Source Determination for Microwave Networks Inc (MNI).

Request:

It is hereby requested that the Columbia 9-1-1 Communications District Board of Directors, acting as their respective Local Contract Review Board, make a sole source determination pursuant to Oregon Revised Statute (ORS) 279B.085 and Oregon Administrative Rule (OAR) 125-247-0275 for procuring Microwave Networks Inc. (MNI) a microwave communication system for the Phase 1 portion of a microwave upgrade between Green and Clatskanie Mountain radio sites. The MNI vendor already interconnects four (4) PSAP'S (Public Safety Answering Points) and all public safety communications sites within Washington, Clackamas counties and the City of Newberg. Further that the Board's authorizes Columbia 9-1-1 to enter into a contract with MNI for path studies and related engineering, and to obtain final pricing to furnish and install the required microwave equipment for Phase 2 of the Columbia 911 CD Radio upgrade project that will interconnect Columbia 9-1-1 to WCCCA for a redundant CAD pathway.

Background/History:

Phase 1 project – During the fall of 2018, Columbia 9-1-1 experienced a radio system degradation in both signal quality and quantity based on atmospheric conditions at the time. Upon investigation and in consultation with Day Wireless, this "microwave fade" can be caused by many things in the atmosphere, (smoke, snow, fog, excessive heat & even reflections off of the Columbia River) It was also reported that this event was not a one-time event, but rather this has occurred sporadically over many years.

Further review and conducting comparisons to other radio system providers it was learned that other system operators utilize a diversified microwave path design, thus by having two microwave dishes separated by multiple feet in height, the signal can be passed back and forth to find the better of the pathways. This should not be confused as being a total solution, but could help mitigate the impacts of future weather events that has shown historically to impact C911CD.

Phase 1 of this proposed project would put in place our own diversified microwave pathway between Green and Clatskanie mountain tops.

Phase 2 project- In April of 2016, Columbia 9-1-1's Board's authorized a sole source procurement of TriTech's Inform CAD in partnership with the Metro Area joint CAD System (MAJCS) and the contract holder of this new Cad system by Washington County Consolidated Communications Agency (WCCCA).

3 of the 4 9-1-1 centers who make up the members of MAJCS (Clackamas County 9-1-1, CCOM, City of Lake Oswego 9-1-1, LOCOM and Washington County Consolidated Communications Agency, WCCCA) are connected by both underground fiber connections as well as an overhead microwave system. Microwave Networks Incorporated (MNI) equipment is the provider of this current ring of microwave technology. It is the desire of Columbia 9-1-1 to begin the process of linking our District to the existing MAJCS partners in order to put in place a microwave link as a redundant pathway for the regional CAD system.

Utilizing MNI equipment for the Columbia link will guarantee 100% compatibility with existing MNI equipment in place in Clackamas and Washington County. Finally, the use of MNI equipment and services will result in a cost savings of nearly \$60,000 by leveraging the open contract that WCCCA has with MNI.

Application:

This sole source justification applies to the analysis and engineering to create Microwave path studies, engineering reports, microwave system design and reconfiguration of existing equipment in support of the new communications sites currently in consideration and or under construction for the Communications Systems upgrade project.

Type of Contract:

It is Columbia 9-1-1's intent to enter into a fixed price contract for specific services to expand the communications system as described in detail on the attached quote and Scope of Work.

Cost:

The estimated cost of the microwave path studies and engineering services, procurement including construction for Phase 1 is \$242,623.

Columbia 9-1-1 CD will fund the project costs with the proceeds from the Equipment Reserve Fund.

This work is limited to the attached Scope of Work. This work is planned and budgeted as a part of the Microwave upgrade phase 1 of the overall C911CD radio project.

The negotiations for the pricing of new equipment and services are based upon a National Purchasing Plan known as HGACBuy <http://www.h-gac.com/coop/hgacbuy.aspx>. After the foundational pricing was established from the HGACBuy coop, WCN and MNI then further negotiated the total system price downward, leveraging WCN's existing customer status and the WCN total system volume.

The net result for Columbia 9-1-1 CD was a further price reduction from the HGAC pricing of \$57,437.00. Netting a total cost for this initial link of \$242,623.00 vs. an initial budgeted cost of \$300,060.00.

Pursuant to ORS 279B.085 (2)(a): Provide findings supporting your determination that the efficient utilization of existing goods requires the acquisition of compatible goods or services from only one source:

Microwave Networks is being recommended as the sole source for this phase of the project as they are the current supplier and integrator of the existing equipment found within MAJCS and further the Washington County, Clackamas County and Newberg (WCN) consortium. They guarantee the new designs of paths and equipment will be 100% compatible with the existing WCN MNI systems.



4000 Greenbriar Stafford, TX 77477
 Ph.: 281-263-6500; Fx: 281-263-6406
 Sales Contact: Itai Farchi
 System Engineer: SLR3
 Quote: IF20428-50
 Date: 5/23/2022
 Currency: US Dollars
 PRICE AND MATERIAL LIST

Customer: Columbia 911
 Contact: Mike Fletcher
 Location: Columbia, OR
 Freight Terms Ex Works
 Validity: 60 Days
 Delivery: 45 - 60 Days ARO w/Freqs
 Payment Terms: Net 30

Item	Description	Includes Items	Extended Cost
1.00	Proteus MX Radios & Radio Accessories	Includes items 1.01-1.11	\$200,160
2.00	Antenna System	Includes items 2.01-2.19	\$67,858
3.00	DC Power System	Includes items 3.01-3.02	\$17,390
4.00	Battery System	Includes items 4.01-4.03	\$6,756
5.00	Juniper MX 104 Redundant Routers	Includes items 5.01-5.06	\$173,052
6.00	SPARCS Network Management System (Optional)	Includes items 6.01-6.04	\$26,299
7.00	Spares	Includes items 7.01-7.02	\$10,441
8.00	MNI Services	Includes items 8.01-8.08	\$200,149
9.00	Bronze LSS (Optional)	Includes items 9.01-9.03	
	Management Concession		(\$77,232)
Grand Total Ex Works			\$624,873

Notes: All other terms and conditions as per Microwave Networks Inc. (MNI) Standard Terms and Conditions of Trade.

Pricing shown is contingent upon purchase of entire quoted bill of materials and services.

Additional charges may be applied if a particular component, brand, service, or installation partner is required by the customer.

Microwave Networks reserves the right to replace 3rd party products with alternative equipment of similar or superior function and quality.

Warranty on all 3rd party products is the original manufacturer's warranty or 1 year.

Final antenna type is subject to change based on PCN results.

Legacy and EOL equipment availability is limited and requirements for such may be filled by refurbished equipment on a case-by-case basis per customer approval.

Quote is valid for 60 days. Price will be updated and may increase after 60 days.

Change orders are subject to price increase.

Scheduled delivery dates are approximate and depend on a number of factors including availability of inventory. MNI will make commercial best efforts to accommodate customer's requested delivery schedule as long as customer provides all information required for MNI to build the order as soon as possible. Customer must take delivery of equipment on the agreed delivery date. If customer, through customer's action, inaction, or other external factors; delays the agreed delivery date, customer agrees to accept title and be invoiced for equipment on the agreed date (i.e. ship in place). Storage and handling fees may apply.

Customer is responsible for receiving, inspecting, and taking a detailed inventory of any shipments made against a valid purchase order.

Any claims of missing and/or damaged equipment must be submitted to MNI's customer service department within 15 days of receipt of shipment. Failing to contact MNI within 15 days will result in customer's waiver of any right to claim for remedy.

Microwave Networks manufactured equipment is covered by 2 years warranty after shipment, per Microwave Networks' Standard Warranty.

Installation quote is based on preliminary path information and is subject to change once path and site surveys have been finalized.

Installation quote assumes site readiness. De-installation, removal, and disposal of any existing equipment is the responsibility of the customer unless quoted specifically by Microwave Networks Inc.

Installation is expected to commence no later than 30 days after delivery of equipment. If installation is delayed by customer for any reason, additional program management and support fees may apply.

MNI is proud to support our mission critical customers on a 24/7 basis. As such, this quote is predicated on MNI having access to the worksite 24 hours a day and 7 days a week including holidays. Any restrictions

imposed by customer regarding access and/or on-site working hours are subject to additional fees.

Warranty on installation workmanship is 1 year from date of customer acceptance.



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Item	Model	Description	Unit Price						Total Qty	Extended Price
				1 Clatskaine	2 City Reservoir	3 Meissner	4 Dispatch	5 Green Mtn.		
1.00 Proteus MX Microwave Radio Terminals										
1.01	J06PE2-350G-NN0-EX32-C	Proteus MX, 06 GHz Gigabit Ethernet Radio, Hot Standby Protected, High TX Pwr, All Indoor, 32 x DS1/E1, Licensed for 300 Mbps in 60 MHz Channel	\$30,465	2	1	1	1	1	6	\$182,790
1.02	8708345-01	KIT, MX IF Cable, Std Spacing	\$58	2	1	1	1	1	6	\$348
1.03	8708337-10	W/G Kit, 6G, CPR137, No IF Cbl, NP/HSB, 1234-2	\$695	1				1	2	\$1,390
1.04	8108760-10	CHAMP Connector 24 GA Cable, MX, 32 E1/DS1 (2 cables required), 10'	\$68	2	2	2	2	2	10	\$680
1.05	9901938-01	TXM, 097-0128-0006, DS1 Customer Demarcation Panel, 28 Terminations	\$1,014	1	1	1	1	1	5	\$5,070
1.06	8209325-52	7' x 19" EIA Rack and Mount Radio	\$1,049	1	1	1	1		4	\$4,196
1.07	9901925-01	Ground Bar Kit, 72"	\$369	1	1	1	1		4	\$1,476
1.08	9900653-02	Fuse Panel, +/-48/24V	\$369	1	1	1	1		5	\$1,845
1.09	9901849-00	Flex, 6 GHz, ETG, C1202-5-36-1-2, 3', CPR137F/G	\$473	2	1	1	1		5	\$2,365
Radio Total:									\$200,160	
2.00 Antenna Systems										
2.01	9901850-00	Antenna, 6 GHz, 6' PAD, SP w/ Radome, CPR137G, 5.7-6.8GHz	\$3,420	2	1	1	1	1	6	\$20,520
2.02	9901796-06	Antenna Strut Kit, 6 Ft PAD Antenna	\$337	2	1	1	1	1	6	\$2,022
2.03	9901876-00	Pipe Mount, Universal, 4.5" x 60" for tower legs up to 16" OD	\$972	2	1	1	1	1	6	\$5,832
2.04	9900677-00	RFS, E65, Elliptical Waveguide, 5.9-7.125 GHz - per foot	\$15	320	155	100	165	160	900	\$13,500
2.05	9901796-00	RFS, C137-065FG, Elliptical Waveguide Connector, E65	\$390	4	2	2	2	2	12	\$4,680
2.06	9900928-00	RFS, PW-C137, Pressure Window, E65	\$44	2	1	1	1	1	6	\$264
2.07	9901876-03	RFS, HOIST1-158L, Hoisting Grip, E65	\$34	2	1	1	1	1	6	\$204
2.08	9901796-13	RFS, GKIT-60-065, Standard Grounding Kit, E65	\$28	7	4	2	4	4	21	\$588
2.09	9900381-00	RFS, CLAMP-114, Butterfly Hangers, Kit of 10, E65	\$29	11	6	4	6	6	33	\$957
2.10	9901878-07	Angle Adapter, 3/8" tapped hole, Stainless (ten)	\$73	11	6	4	6	6	33	\$2,409
2.11	9900827-00	3/8" x 1" Bolt Hardware Kit (ten per kit)	\$13	11	6	4	6	6	33	\$429
2.12	9901017-00	3/8" x 12" Threaded Rod & Hardware (five per kit)	\$51	4	2	2	2	2	12	\$612
2.13	9900393-00	RFS, BOOT4-065, Waveguide Boot Assembly, E65	\$47	2	1	1	1	1	6	\$282
2.14	9900869-07	Dehydrator, 115/230Vac, Rack or Wall mount, MT050C	\$4,008		1	1	1		3	\$12,024
2.15	9900869-08	MT050 Humidity Alarm Kit	\$337		1	1	1		3	\$1,011
2.16	9520384A00	Wall Shelf for Dehydrator	\$328		1	1	1		3	\$984
2.17	990034-09	Gas Distribution Manifold (w guages), 2-port w/ 25' tube per port	\$308	1	1	1	1	1	5	\$1,540
Antenna System Total:									\$67,858	



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Item	Model	Description	Unit Price	Location					Total Qty	Extended Price
				1 Clatskaine	2 City Reservoir	3 Meissner	4 Dispatch	5 Green Mtn. Columbia hgt		
3.00 DC Power System										
3.01	9901822-20	Eltek, FPS160I-ANL-VC, FPS, Intrpd Chassis	\$1,017	1	1	1	1	1	5	\$5,085
3.02	9901822-21	Eltek, SPS-FPS100-A01-VV, Controller, FPS	\$792	1	1	1	1	1	5	\$3,960
3.03	9901822-22	Eltek, 331E00116500, FPS, Blind Panel	\$27	1	1	1	1	1	5	\$135
3.04	9901822-XX	Eltek, Battery Breaker, MTRIP, G1	\$43	2	2	2	2	2	10	\$430
3.05	9901822-XX	Eltek, Load Breaker, 40A, 1P, G1	\$43	2	2	2	2	2	10	\$430
3.05	9901822-01	Eltek, 241122.105, FPS, Rectifier, 1000W	\$598							
3.06	9901858-01	Eltek, 241122.125, FPS, Rectifier, 1800W	\$680	2	2	2	2	2	10	\$6,800
3.07	9901822-25	LA1014-UU, Line Cord w/Connector	\$55	2	2	2	2	2	10	\$550
DC Power System Total:									\$17,390	
4.00 Battery System										
4.01	9901833-01	NorthStar, 4xNSB60FT, Battery, 48V, 60AH	\$1,814							
4.02	9901833-03	NorthStar, 4xNSB100FT, Battery, 48V, 100AH	\$1,971	1				1	1	\$1,971
4.03	9901833-07	NorthStar, 4xNSB190FT, Battery, 48V, 190AH (Requires 2 x 9901854-03 Battery Tray)	\$2,769		1	1	1		1	\$2,769
4.04	9901854-03	Battery Tray	\$252	1	2	2	2	1	8	\$2,016
Battery System Total:									\$6,756	
5.00 Juniper MX 104 Redundant Routers										
5.01	9901945-20	JUNIPER,MX104,Prem, Red P/S, RE,4M, AC	\$35,748		1	1	1		3	\$107,244
5.02	9901945-07	JUNIPER,20-P, SFP,GE,MIC,w/1588,MACSEC	\$13,469		2	2	2		6	\$80,814
5.03	9901857-01	JUNIPER,Sm Form Fact Plug,SFP-1GE-SX	\$106	2	2	2	2	2	10	\$1,060
5.04	9901945-08	JUNIPER,SFP-Cap of Sup 10/100/1000,1GE	\$124		2	2	2		6	\$744
5.05	9901981-02	FS.Com,1m (3ft) LC/LC,UPC,DPL,OM3,MM,PVC	\$19	2	2	2	2	2	10	\$190
5.06	CONCESSION	Equipment Management Concession	(\$17,000)						1	(\$17,000)
Juniper Routers Total:									\$173,052	
6.00 SPARCS Network Management System										
6.01	8708270-00	Kit, SPARCS EMS, Unlimited Remote, 10 Pollers (Software Only)	\$17,331						1	\$17,331
6.02	9901998-00	Dell PowerEdge R440 Rack Server + Win Server 2019	\$5,934						1	\$5,934
6.03	9901998-01	Dell 19" Rack Console w/ Cables	\$1,184						1	\$1,184
6.04	9999-SETUP	MNI Factory Setup	\$1,850						1	\$1,850
SPARCS NMS Total:									\$26,299	
7.00 Recommended Spares										
7.01	020-60025-2010	XCVR, RR1, 6 GHz, ANSI	\$7,601						1	\$7,601
7.02	8209345-18	Chnl Unit, No Fuse, No μBus, No Data Card	\$2,840						1	\$2,840
Spares Total:									\$10,441	



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Item	Model	Description	Unit Price						Total Qty	Extended Price
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8.00	MNI Services									
8.01	PATH SURVEY	Path and Site Surveys	\$14,700					1	\$14,700	
8.02	FREQ COORD	FCC Licensing Assistance	\$5,700					1	\$5,700	
8.03	FACTINT	Factory Integration & Testing	\$6,900					1	\$6,900	
8.04	PROG MGMT	Program Management	\$17,440					1	\$17,440	
8.05	INSTALL	Install, Optimize & Test Equipment Quoted	\$155,409					1	\$155,409	
8.06	FACTSTAG	Customer Witnessed Acceptance Testing in Stafford, TX (Optional)	\$6,900							
8.07	TRAINING	Proteus MX Training at Customer Location for up to 10 Students (Optional)	\$12,713							
Services Total:									\$200,149	
9.00	BRONZE LSS (Warranty, Network Health Check, Business Day Phone Support 8 AM - 5 PM CST) Optional									
9.01	BRONZELSS3	BRONZE LSS Year 3	\$9,662							
9.02	BRONZELSS4	BRONZE LSS Year 4	\$10,242							
9.03	BRONZELSS5	BRONZE LSS Year 5	\$10,856							
Bronze LSS Total:										
Sub Total									\$702,105	
Management Concession									(\$77,232)	
Grand Total, EXW: Stafford, Texas									\$624,873	



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Item	Model	Description	Unit Price	1	2	3	4	5	Total Qty	Extended Price
				Clatskaine	City Reservoir	Meissner	Dispatch	Green Mtn.		

Notes:

All other terms and conditions as per Microwave Networks Inc. (MNI) Standard Terms and Conditions of Trade.
 Pricing shown is contingent upon purchase of entire quoted bill of materials and services.
 Additional charges may be applied if a particular component, brand, service, or installation partner is required by the customer.
 Microwave Networks reserves the right to replace 3rd party products with alternative equipment of similar or superior function and quality.
 Warranty on all 3rd party products is the original manufacturer's warranty or 1 year.
 Final antenna type is subject to change based on PCN results.
 Legacy and EOL equipment availability is limited and requirements for such may be filled by refurbished equipment on a case-by-case basis per customer approval.
 Quote is valid for 60 days. Price will be updated and may increase after 60 days.
 Change orders are subject to price increase.
 Scheduled delivery dates are approximate and depend on a number of factors including availability of inventory. MNI will make commercial best efforts to accommodate customer's requested delivery schedule as long as customer provides all information required for MNI to build the order as soon as possible. Customer must take delivery of equipment on the agreed delivery date. If customer; through customer's action, inaction, or other external factors; delays the agreed delivery date, customer agrees to accept title and be invoiced for equipment on the agreed date (i.e. ship in place). Storage and handling fees may apply.
 Customer is responsible for receiving, inspecting, and taking a detailed inventory of any shipments made against a valid purchase order.
 Any claims of missing and/or damaged equipment must be submitted to MNI's customer service department within 15 days of receipt of shipment. Failing to contact MNI within 15 days will result in customer's waiver of any right to claim for remedy.
 Microwave Networks manufactured equipment is covered by 2 years warranty after shipment, per Microwave Networks' Standard Warranty.
 Installation quote is based on preliminary path information and is subject to change once path and site surveys have been finalized.
 Installation quote assumes site readiness. De-installation, removal, and disposal of any existing equipment is the responsibility of the customer unless quoted specifically by Microwave Networks Inc.
 Installation is expected to commence no later than 30 days after delivery of equipment. If installation is delayed by customer for any reason, additional program management and support fees may apply.
 MNI is proud to support our mission critical customers on a 24/7 basis. As such, this quote is predicated on MNI having access to the worksite 24 hours a day and 7 days a week including holidays. Any restrictions imposed by customer regarding access and/or on-site working hours are subject to additional fees.
 Warranty on installation workmanship is 1 year from date of customer acceptance.



Scope of Work (SOW): Installation

Customer: Columbia 911
Quote #: IF20428-50
Order #: TBD
Equipment: Proteus MX 6 GHz
Location: Columbia, OR

Date: 5/23/2022
Revision:
Salesperson: Itai Farchi
Program Mgr.: TBD
Customer Rep.: Mike Fletcher

GENERAL REQUIREMENTS:

This Scope of Work (SOW) details Microwave Networks Incorporated (MNI) and Customer responsibilities and tasks to be performed for the installation and commissioning of the equipment in the attached list.

Pricing and implementation are based on using a Microwave Networks Incorporated (MNI) selected non union work crew. MNI intends to utilize this crew in all locations and for all tasks. The requirements and tasks listed below are considered standard.

The MNI Program Manager (PM) will act as coordinator between the customer and the MNI Installation Supervisor. All requests or needs with regards to the implementation should be directed to the MNI Program Manager. To avoid confusion, the customer is asked to identify to the MNI Program Manager, in writing, all personnel who may authorize changes and perform site acceptance. This list is to be submitted to MNI prior to the start of installation.

Installation work performed by MNI or its authorized sub-contractors will conform to industry guidelines and will utilize quality materials from selected qualified suppliers. All special requirements are to be submitted in writing to the MNI Program Manager prior to the start of installation.

Unless otherwise stated in this SOW, the Customer will furnish equipment receiving, storage and staging space at the site locations. Customer will provide a staging area and secured room for MNI personnel to store documents, test equipment, and other necessary items required for the installation.

No changes to the Scope of Work (SOW) will be authorized unless agreed upon by the customer project coordinator or authorized representative and the Microwave Networks Program Manager. Changes to the SOW will be documented in writing by MNI. If the change(s) affect the sub-contractor, a request for quotation will be issued. Upon determination of cost and schedule impact, a Project Change Order Authorization (PCOA) detailing the requested changes will be forwarded to the Customer's Project Coordinator or authorized representative for signature. No changes will be performed until customer authorization is obtained.

Additional labor to this SOW will be quoted, per occurrence. Delays, as defined in the contractual terms and conditions, may be billed.

MNI will submit the SOW, which includes the project timeline (sequence of installation tasks with completion dates); to the Customer for approval at least two weeks prior to the scheduled start for installation. The customer is required to sign and return the SOW at least one week prior to the scheduled start date for installation to the MNI Program Manager. Failure to return the approved SOW could cause MNI to delay the start of installation until approval is obtained.

Site work will be performed in a progressive and contiguous manner without work stoppage due to non-MNI related tasks. All additional mobilizations, beyond the initial one, that are not directly caused by MNI, its contractors or MNI delivered equipment, will require a Project Change Authorization (PCOA) generated by the MNI Program Manager and a Customer purchase order prior to the additional mobilizations.

Relocation of existing equipment, unless otherwise specified, will be the responsibility of the customer and is to be completed before installation work commences by MNI or their authorized personnel. Relocation of existing equipment, sites and/or paths is not included in this SOW.

The customer will provide adequate & timely access to all sites.

All superstructure, Main Station Grounding, and required cable rack are assumed to be existing or to be installed by others.

Inspection of the site and verification of the installation design will be performed on initial entry to the site by MNI personnel or MNI's authorized subcontractor for engineering compliance.

General site clean up will be performed by MNI installers, on a daily basis with the trash neatly stacked for removal by the customer or placed in a customer provided receptacle.

System acceptance will be based on the Acceptance Test Procedure (ATP).

Traffic activation of a hop, link or system prior to completion of final testing and system acceptance will constitute **BENEFICIAL USE and ACCEPTANCE** of the affected portion.

GENERAL ASSUMPTIONS

Vendor equipment such as MUX, DSX panels and Channel banks will be integrated at the factory. All intra rack wiring will be installed at that time.

The customer will be responsible for all required licensing and permits unless otherwise directed by the terms and conditions of the contract.

All sites are accessible by 2-wheel drive vehicles.

Sites will have adequate space for the new equipment and suitable temperature control and lighting where work is to be performed or materials stored.

Existing towers are sized properly to support the new antenna systems. No tower analysis is included unless specifically detailed in this SOW.

SPECIFIC REQUIREMENTS:

Function	<u>MNI</u>	<u>Customer</u>
<u>ENGINEERING</u>		
Perform Transmission and System Engineering.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Furnish building and plot plan drawings and directions to the sites, if available prior to the commencement of Path survey.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Furnish floor plans and office drawings of existing sites, Showing new equipment locations, term block & fuse panel assignments, etc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perform Path Survey.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Perform Frequency Coordination and file PCN.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Prepare Frequency Coordination Applications.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provide T1 channel assignments and dropping requirements at each location.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Furnish one complete set of installation specifications and measurements for the proposed equipment ATP.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>TRANSPORTATION / STORAGE</u>		
Provide transportation for equipment and materials from MNI factory to the final destination. - Freight charges per terms of Purchase Order.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Deliver all proposed equipment to the site locations from the local Customer warehouse and inventory for discrepancies.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>SITE PREPARATION</u>		
Furnish all site improvements (fences, roads, grading, tree removal, etc.). Access roads to all work areas of each site shall be suitable and accessible to concrete trucks, truck-trailers, and all other construction equipment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provide suitable openings, channels, or ducts for cables and conductors for routing from floor-to-floor and from room-to-room.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provide Ground Bar.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Install Ground Bar.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>TOWERS</u>		
Furnish and install all towers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Determine structural capabilities of all towers and/or antenna mounting structures and perform all Structural modifications required to support, mount and adapt the proposed antennas.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Furnish and install antenna Pipe Mount(s).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Furnish and install antenna Ice Shield(s).	<input type="checkbox"/>	<input type="checkbox"/>
Furnish and install Waveguide Bridge.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Furnish and install Waveguide Messenger.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SPECIFIC REQUIREMENTS:

Function	<u>MNI</u>	<u>Customer</u>
<u>ANTENNAS / TRANSMISSION LINE</u>		
Install all antenna and transmission line including coax at radio end, terminated at ODU port.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Install Wall Feed-Thru's for coax/wave guide Transmission line.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>POWER & GROUND</u>		
Provide AC power and breakers as required.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provide ready access (within 50 feet (15 meters) of proposed Equipment locations) to a low resistance ground at each location.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Furnish and install adequate AC receptacle within 6 feet (2 meters) of the battery charger rack.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Install batteries and chargers as per quote.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Furnish and install DC Power and Ground wiring to MNI provided racks per specifications.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Label DC breakers / fuses and newly installed wiring.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>RADIO EQUIPMENT</u>		
Install cable and test all radio and auxiliary equipment proposed.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Install DSX panel as a point of demarcation for DS1s. Panel will be installed within 30 feet (10 meters) of the radio.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Furnish and install DS1 cross connections from DSX panel to buyer's Channel Banks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>CHANNEL BANKS</u>		
Channelization Engineering, develop MUX plan.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Install channel bank equipment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Furnish jumper wire and install cross connections on the distribution frame to interconnect with the buyer's equipment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Align multiplex /channel bank. (Options, levels, strapping, frequencies, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Furnish and install VF wiring from channel banks to D66 blocks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ORDER WIRE AND ALARM</u>		
Install and test Order Wire.	<input type="checkbox"/>	<input type="checkbox"/>
Install and test Alarm master, install and test remotes and control wiring from the radio equipment at each site.	<input type="checkbox"/>	<input type="checkbox"/>
Furnish & Install D66 block or similar and connect to the alarm remote, to terminate alarms at each site.	<input type="checkbox"/>	<input type="checkbox"/>
Verify alarm system database is functional.	<input type="checkbox"/>	<input type="checkbox"/>

SPECIFIC REQUIREMENTS:

Function	<u>MNI</u>	<u>Customer</u>
<u>TESTING/MISCELLANEOUS</u>		
Provide complete set of Test Equipment consisting of; Digital Multi-Meter, BER Test Set (capable of the required data rates used in the system),VT-100 terminal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Coordinate system test and alignment with the Customer. Such testing will only include acceptability of MNI installed equipment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Optimize and test system to MNI Acceptance Test Procedure (ATP).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Record test data for inclusion in the "as built" Documentation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Prepare, submit and file, if applicable, all necessary environmental impact data.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>DOCUMENTATION</u>		
Furnish one complete set of MNI Operation and Maintenance manuals with drawings for each rack.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provide one complete set of vendor provided Operation and Maintenance literature with drawings for each location.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sign a project completion notice upon completion of the activities detailed in this Scope of Work. The project completion notice may apply to the project on a per hop or per system basis, as mutually agreed upon by MNI and the Customer.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Prepare and submit a complete documentation package of equipment as installed and accepted (As Builts), to the customer three (3) weeks after system acceptance.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Assumptions:

- 1) Quote assumes all towers have climbing facilities and waveguide ladders with open slots.
- 2) Quote assumes any water towers have antenna mounting structures and waveguide ladders.
- 3) Quote assumes all towers have tie back facilities.
- 4) Any cranes or lifts required will be billed as a change.
- 5) Any re-routing or moving of existing equipment will be billed as a change.
- 6) Any required painting or welding will be provided and completed by others.
- 7) Assumes there are existing entry ports and grounding system.
- 8) Assumes all structures passed structural analysis for new antennas.
- 9) Rack locations to be provided by the end customer.
- 10) If remobilization is required, additional charges will apply.
- 11) Quoted prices are based on a ten (10) hour work day seven days per week.

It is agreed that this Scope of Work (SOW) is correct and complete for the responsibilities described above.
It is further agreed that this SOW supercedes all previous agreements, proposals and discussions.

Signed: _____
MNI Representative

Date: _____

Signed: _____
Customer Representative

Date: _____

STANDARD TERMS AND CONDITIONS OF SALE

SECTION 1 - GENERAL: All references to MNI herein shall mean Microwave Networks Incorporated, and all references to Buyer herein shall mean the customer named in a contract, purchase order, quotation, proposal, or other agreement between the parties. All quotations from MNI shall be considered solicitations of offers. All orders placed by Buyer shall be considered offers which shall be deemed accepted upon notice thereof from MNI. Buyer will provide MNI with a complete written authorization or purchase order (with frequencies and all other technical specifications required to manufacture the equipment to completion), containing necessary information, such as site name, type and quantity of radios, requested delivery date and delivery instructions. Notwithstanding any terms or conditions which may be included in Buyer's purchase order or other communication, MNI's acceptance is conditional upon Buyer's assent to the terms and conditions set forth herein or in any other binding contract or agreement between the parties incorporating these terms and conditions. MNI's failure to object to any term or condition contained in Buyer's purchase order or other communication shall not be deemed to be acceptance of such term or condition. In the absence of Buyer's written acceptance of these terms, acceptance of or payment for purchases hereunder shall constitute an acceptance of these terms and conditions. The terms and conditions set forth herein shall be deemed incorporated (as though set forth in full) into any agreement of sale entered into between MNI and Buyer unless otherwise modified in writing. MNI quotations are not firm unless expressly indicated, with a specific period of time during which the quotation will remain firm on the face thereof. MNI reserves the right, without any increase in price, to modify the design and specifications of equipment designed by MNI, provided that the modification does not adversely affect the original performance specifications as specified by MNI or as requested by the Buyer. Buyer shall not assign any interest in the contents of this quotation without the prior written consent of MNI. All orders are subject to prior credit approval. Stenographic, typographic and clerical errors are subject to correction. All headings contained in these terms and conditions are for reference purposes only and shall not in any way affect the meaning or interpretation of these terms and conditions.

SECTION 2 - SHIPPING AND HANDLING: Unless otherwise specified by Buyer and agreed to by MNI in writing, shipping and handling charges (e.g. Air, Parcel Post, Common Carrier) will be included on the applicable invoice as a separately priced item to be paid by the Buyer. Freight charges are subject to frequent change and in consideration of MNI's agreement to hold to the charges stated, Buyer agrees to pay such amount without regard to the actual charges applicable at the time of shipment. It is understood that MNI will not provide the Buyer with any copies of carrier freight bills. All packaging and packing shall be in accordance with sound commercial practice. Special export packaging, packing or crating, as required, will be quoted separately.

SECTION 3 - DELIVERY AND TITLE: Unless otherwise specified, all deliveries and risk of loss shall be determined in accordance with the FOB shipping point for domestic shipments and FCA Stafford, Texas for international shipments in accordance with Incoterms 2000. Shipping or delivery dates are best estimates only and subject to change based on MNI commitments at the time Buyer's purchase order is received and accepted. MNI reserves the right to make deliveries in installments, and contracts or other agreements between the parties shall be severable as to such installments. A delay in delivery or default of any installment shall not relieve Buyer of its obligation to accept and pay for remaining deliveries. Claims for shipment shortage or damage shall be deemed waived unless presented to MNI in writing within ten (10) days of delivery of each shipment, and failure to make any claim within ten (10) days after receipt of each product covered hereunder shall constitute an irrevocable acceptance thereof. Title to the products shall pass to Buyer upon receipt of full payment by MNI for such goods, except that in any jurisdiction in which such retention of title is not recognized, MNI shall be deemed to have retained a purchase money security interest and right of possession in the products until Buyer makes full payment. Buyer's rights to enforce such purchase money security interest and its right of possession shall be non-exclusive remedies. Buyer agrees to cooperate as necessary to assist MNI in perfecting such security interest, upon request.

Service completion dates indicated on quotations are subject to review and revision on the basis of MNI commitments at the time Buyer's order is received and accepted. All service completion dates are subject to credit approval, are approximate until confirmed in writing by MNI, and are based upon receipt of timely, accurate, and complete instructions and information from the Buyer.

SECTION 4 - ACCESS: Buyer hereby grants access to MNI to all equipment, sites, premises, and other areas where work is to be performed under these terms and conditions. MNI will make all reasonable efforts to comply with Buyer's standard rules and regulations for access, a copy of which will be furnished to MNI by Buyer upon the submission of any order to be performed under these terms and conditions. Buyer acknowledges that MNI may use non-union personnel to perform work. MNI will make all reasonable efforts to observe Buyer's procedures in cooperation with union personnel; however, Buyer agrees to indemnify and hold MNI harmless from all costs associated with the compliance of union work rules or union activities which may interfere with MNI's performance requirements.

SECTION 5 - COMMERCIAL WARRANTY: MNI manufactured products are warranted to be free from defect in material and workmanship under normal use and service for a period of two (2) years from the date of shipment. In the event of a defect during the warranty period, Buyer will return the defective item to the MNI depot repair facility for repair or replacement. Repair at MNI's option may include the replacement of parts or equipment and all replaced parts or equipment shall be the property of MNI. Parts or equipment replaced during the warranty period are warranted for the remainder of the original applicable warranty period or ninety (90) days, whichever is greater. This express warranty is extended by MNI to the original Buyer for commercial, industrial or governmental use. Such action on the part of MNI shall be the full extent of MNI's liability and Buyer's exclusive remedy for breach of warranty. Expenses of Buyer such as travel expenses are not covered by this warranty.

This warranty extends only to products manufactured by MNI, and it is expressly conditioned upon the equipment having been installed in accordance with the installation practices accepted by the telecommunications industry, the standard installation and configuration practices recommended by MNI, and the equipment having been maintained in accordance with MNI recommended standard maintenance practices. Vendor products and other equipment not manufactured by MNI are excluded, but carry their own separate limited warranties.

This warranty shall automatically terminate if the product is used in other than its normal and customary manner, has been subject to misuse, accident, neglect, or damage, is improperly disassembled or has improper alterations or repairs, or if nonconforming parts are used in the product, unless done by a service facility authorized by MNI to perform warranty service. The warranty for Network Management Systems (NMS) shall automatically terminate if software is altered, added, or removed from the platform without prior MNI approval. NMS provided by MNI do not include virus protection software and this warranty does not cover damages caused by computer viruses.

MNI warrants the operation of its equipment only with respect to its published specifications and use conditions. This warranty shall not cover any damages caused by Acts of God including, but not limited to, flood, lightning, seismic activity; and events of *Force Majeure*, such as fire, explosion, war, civil disturbance et al.

THIS MNI WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, WHICH ARE SPECIFICALLY EXCLUDED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

An authorization to return products under this warranty must be obtained from a MNI representative prior to making shipment to MNI's service location, and all returns shall be shipped freight pre-paid.

In the event that MNI provides services only, MNI warrants the performance and specifications of such services but does not warrant that such services performed will fulfill the total system requirement of the Buyer.

SECTION 6 - PATH ENGINEERING SERVICES WARRANTY

MNI warrants that the installed radio communication path will conform to Customer's multipath performance reliability objectives when MNI has performed the path survey, recommended the path design, and MNI has implemented such recommendations. This warranty is for a period of 12 months from the date of the survey or one year from the date of installation of the microwave path, whichever expires first. All MNI field activities and path propagation analysis will utilize current hardware, software, engineering practices and judgment with the goal of meeting normal Path Loss, as defined in TIA/EIA Standard RS-252-A. MNI is not responsible for paths that it does not survey, nor for changes in path design beyond those specifically allowed in the path survey report or in writing after the field survey is completed, including but not limited to changes in path design; movement in site locations; buildings or other structures built on-path after date of survey; disturbances of the terrain which may cause blockages or reflections; frequency interferences from 3rd party sources including those caused by Wifi 6E; or change of available antenna mounting space on tower. Any one of these changes will nullify this warranty, and the Customer shall in such case bear the total cost of determining that such change was the cause. MNI will not be responsible for degraded path performance when such degradation is due to such anomalous propagation conditions as: Long-term loss of fade margin due to antenna decoupling misalignment caused by widely-varying k-factor changes; Long-term loss of fade margin due to Atmospheric Boundary Layering ("ABL") causing wave front defocusing (beam spreading), signal entrapment (blackout fading), ducting, and other such occurrences. Excessive rain outage rates beyond the published crane and/or chart data used in the calculation; Degradation resulting from certain types of multipath interference attributed to unidentifiable off-path terrain features or structures; Any other technological or atmospheric condition not foreseeable through the exercise of prudent engineering knowledge and judgment. Additionally, MNI will not be responsible for degraded path performance when Non-MNI radio equipment is installed on a surveyed path; MNI radio equipment is not installed by MNI; Existing antenna and waveguide system is used without test and inspection performed by MNI. MNI designs the microwave path based upon best engineering practices and standards common to the industry, and it selects a transmission configuration based upon the most economical method for meeting the path performance objectives. When path loss or reliability objectives are not achieved, exclusive of anomalous propagation or path changes as described above, then Customer's sole remedy, and MNI's exclusive liability in connection with path engineering, shall be that MNI will provide incremental labor and material to optimize the antenna system beyond what would have been required during initial installation. Where anomalous propagation is suspected in an installed microwave path, MNI will work with the Customer to obtain reasonable evidence that such condition exists. The total retroactive costs for such study shall be the responsibility of the Customer with MNI providing in-office engineering support. The cost of relocating towers, antennas, passive reflectors or other measures required to remedy this type of problem shall solely be the responsibility of the Customer

SECTION 7 - PATENT AND COPYRIGHT INDEMNIFICATION: MNI agrees to defend, at its expense, any suits against Buyer based upon a claim that any products furnished directly infringe a United States patent, copyright, or other intellectual property right of third parties. MNI agrees to pay costs and damages finally awarded in any such suit, provided that MNI is notified promptly in writing of the suit and, at MNI's request and at its expense, is given control of said suit and all requested assistance for defense of same. If the use or sale of any products furnished hereunder is enjoined as a result of such a suit, MNI, at its option and at no expense to Buyer, shall obtain for Buyer the right of use or sale for said product(s) or shall substitute an equivalent product reasonably acceptable to Buyer and extend this indemnity thereto, or shall accept the return of product(s) and reimburse Buyer the purchase price thereof, less a charge for reasonable wear and tear. This indemnity does not extend to any suit based upon any infringement or alleged infringement of any patent or copyright by the combination of any products furnished by MNI and other elements, nor does it extend to any products of Buyer's design or formula. The foregoing states the entire liability of MNI for patent, copyright, or other intellectual property infringement.

SECTION 8 - PAYMENT: For domestic shipments, MNI's standard terms of sale are net thirty days of invoice date, subject to the approval of MNI. For export shipments, the standard payment terms are irrevocable Letter of Credit (in accordance with MNI Letter of Credit Guidelines) or Cash in Advance (as described below), unless MNI has, prior to its acceptance of Buyer's purchase order, approved in writing other credit arrangements. All payments, whether by Letter of Credit or Cash in Advance, shall be made in U.S. Dollars (US\$) by electronic funds transfer. All orders on terms of Cash in Advance require a 25% payment upon placement of the order and the balance shall be paid prior to shipment. Exceptions to the payment terms included herein shall be subject to the prior consideration and written approval of MNI. The Buyer shall make payments in full to MNI at the address stated on the MNI invoice or as otherwise specified in writing by MNI. Overdue payments are subject to a service charge of 1½% per month or the maximum legal rate, whichever is lower. To the extent permitted by applicable law, Buyer agrees to pay any and all costs and disbursements, including reasonable attorney's fees, incurred by MNI in legal proceedings to collect overdue invoices or enforce indebtedness. Buyer agrees that any and all costs or disbursements may be added to the total invoice amount already due at time of placement with an attorney or collection agency. There is a 3% fee for any payments done via credit card.

SECTION 9 - TAXES: Except for the amount, if any, of tax stated in a MNI contract, quotation, proposal, or customer purchase order, or other agreement between the parties, MNI sale prices and warranty provisions are exclusive of any amount for federal, state, local, excise, sales, use, property, retailers occupation, in-country, import, VAT or similar taxes or duties. Such prices are also exclusive of all government permit fees, license fees, customs fees and similar fees levied upon delivery of the MNI products and services.

The Buyer shall be liable for all such taxes, duties and fees, regardless of whether or not the same are separately stated by MNI, and the Buyer shall pay the amount thereof to MNI or, in lieu thereof, the Buyer shall provide MNI with a properly executed tax exemption certificate acceptable to the taxing authorities prior to delivery of MNI product. If MNI is required to pay or bear the burden of any excluded tax then the Buyer shall reimburse to MNI the full amount of any such tax payment no later than ten (10) days after receipt of an invoice.

SECTION 10 - TERMINATION, CHANGES AND DELAYS: MNI shall not be liable for any delay or failure to perform due to any cause beyond its control, including, but not limited to: events of Acts of God including, but not limited to, flood, lightning, seismic activity; and events of Force Majeure such as fire, explosion, war, civil disturbances, default of any supplier; delays caused by any government or regulatory body, frequency authorization, license grant; government intervention; inability to obtain necessary labor, material, or facilities; interruptions of transportation or utilities and strikes. The delivery schedule shall be considered extended by a period of time reasonably necessary to perform after such event(s). Notwithstanding the preceding sentence, in the event MNI is unable to wholly or partially perform due to any cause beyond its control, MNI may terminate any contract without liability to Buyer. Buyer may cancel any order due to the default of MNI upon thirty (30) days prior written notice and failure to cure by MNI.

Otherwise orders may be terminated, changed or delayed by Buyer only with the specific approval of MNI and shall be subject to termination, change or delay charges which shall include compensation for specific expenses and costs related to commitments already made in connection with the order and a reasonable allowance for the cost of overhead, general and administrative expenses and profit in accordance with MNI's standard accounting practices. Any order canceled after five (5) business days of MNI receiving a purchase order is subject to cancellation charges up to the full amount of the purchase order. Change orders may also necessitate a change in the delivery schedule or service completion date. In the event Buyer causes a delay in contract completion or delivery, MNI shall have the right to submit invoices, due and payable upon receipt, at sales value for progress to date, and Buyer shall pay the invoiced amount and all necessary storage charges and other costs incurred due to such delay.

SECTION 11 - GOVERNMENT OR IN-COUNTRY LICENSING: The Buyer is solely responsible for obtaining any licenses or other authorizations required by the FCC, Federal Aviation Administration or any other government regulatory bodies, and for complying with their rules and with the rules and regulations of any other U.S. or foreign regulatory agency, whether federal, state, local or otherwise. Neither MNI, nor any of its employees, will be an agent or representative of the Buyer in such matters or otherwise. MNI may assist in the preparation of the license application by the Buyer; however, MNI's warranty shall not be modified to the detriment of MNI, and MNI shall have no liability to Buyer or any third parties arising out of or relating to MNI rendering technical advice, facilities or service in connection with such assistance.

SECTION 12 - CONTROLLING LAW: This document shall be governed by the internal laws of the State of Texas, as applied to contracts. The parties hereby agree that this document shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods. This document is prepared and executed in the English language only and any translation of this document into any other language shall have no effect on effectiveness of or the interpretation of this document.

SECTION 13 - LIMITATION OF LIABILITY: MNI's TOTAL LIABILITY IS LIMITED TO THE NET PRICE OF THE PRODUCTS SOLD HEREUNDER, EXCLUDING ANY CHARGES STATED SEPARATELY FROM THE PRODUCT PRICE ON THE INVOICE. BUYER'S SOLE REMEDY FOR LIABILITY OF ANY KIND, INCLUDING NEGLIGENCE, WITH RESPECT TO THE EQUIPMENT AND DOCUMENTATION FURNISHED HEREUNDER IS TO REQUEST MNI, AT MNI'S OPTION, TO REFUND THE PURCHASE PRICE, EXCEPT THAT IN THE CASE OF A BREACH OF PRODUCT WARRANTY, THE BUYER'S SOLE REMEDY IS TO RETURN THE PRODUCT TO MNI FOR REPAIR IN ACCORDANCE WITH SECTION 5 OF THESE STANDARD TERMS AND CONDITIONS OF SALE.

NO ACTION SHALL BE BROUGHT FOR ANY BREACH OF THIS CONTRACT MORE THAN ONE YEAR AFTER THE ACCRUAL OF SUCH CAUSE OF ACTION EXCEPT FOR MONEY DUE UPON AN OPEN ACCOUNT. IN NO EVENT SHALL MNI BE LIABLE FOR INCREASED COSTS, LOSS OF PROFITS, LOSS OF GOODWILL, OR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR ANY REASON.

WITH RESPECT TO SERVICES, MNI LIABILITY FOR ANY PATH SURVEY, SITE SURVEY, FIELD MEASUREMENTS, OR PATH ENGINEERING IS LIMITED TO THE RE-SURVEY, RE-MEASUREMENT, OR RE-ENGINEERING OF THE PATH OR SITE. MNI DOES NOT WARRANTY PROPAGATION OR PATH PERFORMANCE. ALL SURVEYS ARE ACCURATE AS OF THE DATE THE SURVEY WAS CONDUCTED. MNI IS NOT RESPONSIBLE FOR UNCONTROLLED EVENTS, SUCH AS FUTURE BUILDING OBSTRUCTIONS OR MICROWAVE PATHS IN OR NEAR THE SURVEYED PATH OR CONTROLLED SITE, WHICH COULD CAUSE BLOCKAGE OR INTERFERENCE.

SECTION 14 - WAIVER: The failure of MNI to insist, in any one or more instances, upon the performance of any of the terms, covenants or conditions herein or to exercise any right hereunder, shall not be construed as a waiver or relinquishment of the future performance of any such term, covenant or condition, or the future exercise of such right, but the obligation of the Buyer with respect to such future performance shall continue in full force and effect.

SECTION 15 - SUBSURFACE OR STRUCTURAL CONDITIONS: The prices for any towers included in a MNI proposal are based upon normal soil conditions of E.I.A. standard RS 333 C. Should MNI encounter subsurface, structural and/or latent conditions at the site materially differing from those used in the preparation of the quotation, an equitable adjustment to the price shall be mutually agreed upon prior to installation. The Buyer is responsible for specifying tower hardware requirements. If no requirements are provided by the Buyer, MNI will provide its standard production climbing devices and no representation is made by MNI that such devices will be in compliance with OSHA's Tower Climbing Device Specifications.

SECTION 16 - US GOVERNMENT ORDERS: The provision of Executive Order No. 11246 of September 24, 1965, as amended, regarding equal employment opportunity, and the rules and regulations issued pursuant thereto, are incorporated herein by reference. Any other US Government procurement regulations which are required to be included shall be specifically and separately agreed to in writing prior to incorporation into the final agreement of sale.

SECTION 17 - SPECIAL CONDITIONS OF QUOTATION AND SALE: Supplementary to the above terms and conditions of sale, circumstances which require quotation of special terms and conditions of sale are available from MNI (Sales and/or Customer Care Departments) relating to the following: (A) Installation services (weather, employees, normal workday, FCC construction permits, realignment of existing equipment coordination, relocation of plant and equipment); (B) Frequency coordination (Buyer provided frequencies, MNI proposed frequency plan) and path survey (Buyer path survey, MNI proposed path survey); (C) MNI provided antenna installations of Buyer (antenna pipe mount, waveguide bridge, indoor waveguide runs, accessibility to building work areas, modification to Buyer's or Owner's premises, existing towers); (D) MNI provided towers (grounding (REA), tower lighting, modification to Buyer's or Owner's premises); (E) MNI provided roof mounted towers (roof reinforcing, transmission line entry, plot terrain, site accessibility, clearing and grading, tower load, future antenna loading); (F) Construction and/or civil work; (G) Dangerous or hazardous work conditions or environment; (H) PCS or PCN relocation services and related engineering services.

SECTION 18 - PROJECT DISCLAIMERS:

- Pricing shown is contingent upon purchase of entire quoted bill of materials and services.
- Additional charges may be applied if a particular component, brand, service, or installation partner is required by the customer
- Microwave Networks reserves the right to replace 3rd party products with alternative equipment of similar or superior function and quality
- Warranty on all 3rd party products is the original manufacturer's warranty or 1 year
- Final antenna type is subject to change based on PCN results
- Legacy and EOL equipment availability is limited and requirements for such may be filled by refurbished equipment on a case-by-case basis per customer approval
- Quote is valid for 60 days. Price will be updated and may increase after 60 days
- Change orders are subject to price increase
- Shipments may be held up to 90 days from receipt of PO due to factors outside of MNI's control, after which warehousing and other handling fees may apply
- Customer is responsible for receiving and taking a detailed inventory of any shipments made against a valid purchase order. Any claims of missing and/or damaged equipment must be submitted to MNI's customer service department within 15 days of shipment.
- Microwave Networks manufactured equipment is covered by 2 years warranty after shipment, per Microwave Networks' Standard Warranty

For Proteus UMX:

- Proteus UMX is covered by 1 year warranty after shipment, per Microwave Networks' Standard Warranty.
- With the use of unlicensed spectrum, any spectrum interference or resolution of that interference is not the responsibility of MNI
- Throughput and path performance for shared spectrum frequency bands is not guaranteed
- UMX radio is not recommended for mission critical applications due to inherent limitations with unlicensed spectrum

For Full turnkey or Services Only:

- Installation quote is based on preliminary path information and is subject to change once path and site surveys have been finalized
- Installation quote assumes site readiness. De-installation, removal, and disposal of any existing equipment is the responsibility of the customer unless quoted specifically by Microwave Networks Inc.
- Installation is expected to commence no later than 30 days after shipment of equipment. Installation may be delayed up to 90 days after shipment of equipment due to factors outside of MNI's control, after which additional program management and support fees may apply.
- Warranty on installation workmanship is 1 year from date of customer acceptance.

For Equipment only project or projects where MNI provides only partial installation services (i.e. Broken Turnkey):

- Microwave Networks Inc. designs and implements custom turn-key solutions and strongly recommends all customers take advantage of MNI's full turnkey services. MNI is not responsible for the workmanship of any 3rd parties selected by the customer and cannot be responsible for system turn-up and overall performance of any microwave systems not designed and installed by MNI
- All installation technicians must successfully complete Microwave Networks certification training
- If onsite troubleshooting is required by MNI, additional charges will apply

For Lifecycle support services (Gold and Platinum):

- Advanced replacements limited up to 7% of the MNI equipment purchased and subject to availability
- Interference detection services will provide notification of potential interference caused by Wi-Fi 6E. Further efforts beyond notification to resolve or mitigate the interference are subject to additional charges.

SECTION 19 - COMPLETE AGREEMENT: Buyer acknowledges that Buyer has read and understands these Standard Terms and Conditions of Sale as stated, and agrees to be bound by them and that these are the complete and exclusive statement of the agreement between the parties and supersede all proposals, oral or written, and all other communications between the parties relating to the subject matter. No modification hereof shall be binding upon either party unless such modification is in writing signed by duly authorized representatives of the parties. If any part of the terms and conditions included herein is deemed contrary to, prohibited by or invalid under applicable laws or regulations, such provision shall be deemed omitted to the extent so contrary, prohibited or invalid, but the remainder shall not be invalidated and shall be given effect as far as possible.