WASHOE COUNTY

Integrity Communication Service

www.washoecounty.us

STAFF REPORT

800 MHZ JOINT OPERATING COMMITTEE MEETING DATE: July 16, 2021

DATE: July 12, 2021

TO: 800 MHz Joint Operating Committee

FROM: Melissa Lawney, Regional Communications Coordinator, Washoe County Technology Services 775-858-5952, mlawney@washoecounty.us

THROUGH: Quinn Korbulic, IT Manager – Regional Services, Washoe County Technology Services

SUBJECT: Recommendation to approve and recommend that the Board of County Commissioners approve expenditures for Washoe County Regional Communication System tower and shelter replacement at the Marble Bluff Communication Site at a cost not to exceed [$350,000] from the Washoe County Regional Communication System fund.

SUMMARY

Recommendation to approve expenditures for Washoe County Regional Communication System (WCRCS) tower and shelter replacement at Marble Bluff Communication Site at a cost not to exceed [$350,000] from the Washoe County Regional Communication System fund.

The Marble Bluff communication tower needs to be replaced because it is 230% overloaded and fails to meet the minimum ANSI/TIA222-H tower standard. The Telecommunications Industry Association (TIA) is accredited by the American National Standards Institute (ANSI) to develop voluntary, consensus-based industry standards for a wide variety of Information and Communication Technologies (ICT) products. These standards are used as standards for all Telecommunication related projects within the US, typically followed by Professional Engineers. The county assumes a great risk of the tower collapsing under certain weather conditions and poses a safety risk to the general public and anything within the surrounding area. This tower supports public safety radio communication around the pyramid lake area.

Due to the County's relationship with the Pyramid Lake Paiute Tribe PLPT, relative to Marble Bluff, the entities will need to negotiate additional terms that regarding ground disturbance on the reservation, including taxes owed to the Tribe. County Staff is working with PLPT to find a solution that is equitable and flexible enough to fit within our overall P25 Schedule. Additionally, it is believed that going through a smaller bid process separate from the P25/NSRS project will be more efficient for replacement of the tower and shelter.

Washoe County Strategic Objective supported by this item: Safe, Secure and Healthy Communities and Regional and Community Leadership

PREVIOUS ACTION

On April 16, 2021, the Joint Operating Committee an update to the Fiscal Year 2021-2022 budget that included additional budget authority in the amount of $905,000 for infrastructure upgrades related to aging equipment.

BACKGROUND

In January 2003, Washoe County entered an agreement with the Pyramid Lake Indian tribe for the use of the Communication site at Marble Bluff. The agreement states in section 3.1 "The Government agrees to permit the county use, and the county agrees to use from the government a portion of the existing transmitter site facility and existing building located at Marble Bluff in order for the county to construct, install and operate at it's sole expense the WCRCS transmitter site, to include indoor and outdoor transmitter equipment, a generator, air conditioning, and electrical." On June 17th, 2021, WCRCS members met with Key stakeholder for the tribe to discuss this process of moving forward. Per section 5.1 "Except as otherwise provided herein, County agrees not to alter the premises without the prior consent of the tribe, which consent shall not be unreasonably withheld."

Washoe County staff and staff from WCRCS member agencies have worked together over the last three years with L3Harris on plans to migrate from the Enhanced Digital Access Communication System (EDACS) to the P25 public safety radio standard protocol. The primary goal of the P25 Radio System Project is to provide a robust flexible system that support Public Safety communications with technology and Internet Protocol (IP) capable networking. The Radio system was established by the Washoe County Regional Communication System through a partnership with Nevada Department of transportation (NDOT), and NV Energy in 1990 with the desire to combine resources to build a radio system that covers the state of Nevada. By combining resources, all partners could save money by not having to pay for our own separate systems that would still need to communicate with one another.

Through a rigorous procurement and review process administered by NDOT, NDOT, Washoe County, and NV Energy selected a vendor to construct and implement the statewide radio system. Subsequently, NDOT, Washoe County and NV Energy each successfully negotiated and signed separate contracts for their respective portions of the radio system. Washoe County's contract with Harris Communications Corp. was signed on September 27, 2018.

Marble Bluff communication tower engineered and constructed by Los Angeles Department of Water and Power (LADWP), built between 1947-1967. This tower is an angle tension steel structure, the same structures used in 110KV transmission towers. This tower is very unique and beautifully constructed for its time. The average recommendation for tower use is 50 years and are considered for replacement thereafter. The complimenting shelter contains asbestos within the brick walls and roof. Asbestos remediation can be expensive. The current HVAC (Heating Ventilation, Air Conditioning) system is in need of replacement, which would require cutting into the side walls of the shelter, and thus requiring asbestos remediation. The roof is also in need of replacement or repair, the costs of this repair and maintenance combined is the same cost as it would be to replace the entire shelter. The current quote {21-5308-HGP (WC Marble NV - BUDGETARY) PROPOSAL (002)} only accounts for tower installation some grounding installation, equaling [$211,580].

FISCAL IMPACT

The Fiscal Year 2021-2022 Budget has sufficient budget authority in the Washoe County Regional Communications System Fund (210) in RCS Infrastructure (210300), Public Works Construction (814092), in the amount not to exceed [$350,000].

RECOMMENDATION

Approve and recommend that the Board of County Commissioners approve expenditures for Washoe County Regional Communication System tower and shelter replacement at the Marble Bluff Communication Site at a cost not to exceed [$350,000] from the Washoe County Regional Communication System fund.

POSSIBLE MOTION

Should the committee agree with staff's recommendation, a possible motion would be: "Move to approve and recommend that the Board of County Commissioners approve expenditures for Washoe County Regional Communication System tower and shelter replacement at the Marble Bluff Communication Site at a cost not to exceed [$350,000] from the Washoe County Regional Communication System fund."

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April 1, 2021

WASHOE COUNTY
1001 E. 9TH ST.
RENO, NV 89512

Attn: Melissa Lawney
(775) 771-4241

Dear Melissa:

Per your recent request, please find following our quotation for a 130' Sabre Model S4TL self-supporting tower.

If you have any questions or require further information, please feel free to contact me at (800) 369-6690, ext. 11610.

Sincerely,
SABRE INDUSTRIES

Heath Peterson
Government/Utility Sales Manager

Enclosure: Per Above

HGP:rr

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PROPOSAL

Prepared for: **WASHOE COUNTY**
1001 E. 9TH ST.
RENO, NV 89512
Attn: Melissa Lawney

Proposal No.: **21-5308-HGP**
Date: **04/01/21** **Page 1 of 5**
Reference: **130' S4TL/WC Marble, NV BUDGETARY**
Freight: **Origin**

SABRE MODEL S4TL SELF-SUPPORTING TOWER

Quantity of one (1) 130' Sabre Model S4TL self-supporting tower.

The tower will be square in design with a base width of 15' - 0" tapering to 5' - 0" at the top. The tower will utilize tubular steel for tower legs and angular steel for bracing.

See the tower profile included in this proposal for the design parameters.

The tower will be designed to support the following equipment:

	ANTENNA MODEL NUMBER (QTY)	RADOME YES	RADOME NO	ELEVATION C.O.R.	TX. LINE SIZE & TYPE	FREQUENCY	AZIMUTH TO NORTH	ANTENNA MOUNT (DESIGN)	MOUNT PROVIDED YES	MOUNT PROVIDED NO
1	(1) SC499-HWBLDF (DXX)		X	130' At Base	N/A	N/A	Unknown	One (1) 6' Sidearm	X	
2	(1) 8' x 3in Omni		X	130' At Base	(1) 1/2"	N/A	Unknown	One (1) 3' Sidearm	X	
3	(1) 6' Omni		X	130' At Base	(2) 1/2"	N/A	Unknown	One (1) 3' Sidearm	X	
4	(1) 6' Omni		X	130' At Base	(1) 7/8"	N/A	Unknown	One (1) 3' Sidearm	X	
5	(1) TTA (24in x 30in 12in)		X	130'	(2) 7/8"	N/A	Unknown	One (1) Flush Mount 2-3/8" O.D. Pipe	X	
6	(1) Camera (18"x36"x18")		X	127'	(1) Cat 5	N/A	Unknown	One (1) Flush Mount 2-3/8" O.D. Pipe	X	
7	(2) 3' Solid Dishes w/ Radome	X		124'	(2) 1/2"	6 GHz	180º, 270º	Two (2) 4-1/2" O.D. Leg-type Dish Mounts	X	
8	(1) 8' x 3in Omni		X	112' At Base	(1) 1 5/8"	N/A	Unknown	One (1) 3' Sidearm	X	
9	(1) SC499-HWBLDF (DXX)		X	110' At Base	(1) 1 5/8"	N/A	Unknown	One (1) 6' Sidearm	X	
10	(1) RFS SC3-W100B		X	67'	(1) EW105	11 GHz	207.56º	One (1) 4-1/2" O.D. Leg-type Dish Mount	X	
11	(1) 6' H.P. Dish		X	60'	(1) EW90	10 GHz	180º	One (1) 4-1/2" O.D. Leg-type Dish Mount	X	
12	(1) 8' Solid Dish W/ Radome	X		29.5'	(1) EW63	6 GHz	180º	One (1) 4-1/2" O.D. Leg-type Dish Mount	X	
13	(1) 2' Solid Dish		X	27'	(1) Cat 5	6 GHz	90º	One (1) 4-1/2" O.D. Leg-type Dish Mount	X	
14	(1) RFS PAD10-59A w/ Radome	X		20'	(1) E60	6 GHz	2.47º	One (1) 4-1/2" O.D. Leg-type Dish Mount	X	

Note: This structure has been manufactured with American made steel. (Complete Structure)
Note: This structure conforms to the design requirements of the 2018 Northern Nevada Code.

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PROPOSAL

Prepared for:	**WASHOE COUNTY**	**Proposal No.:**	**21-5308-HGP**
	1001 E. 9TH ST.	**Date:**	**04/01/21** **Page 2 of 5**
	RENO, NV 89512	**Reference:**	**130' S4TL/WC Marble, NV BUDGETARY**
	Attn: Melissa Lawney	**Freight:**	**Origin**

ITEM I ***TOWER MATERIALS*** **$61,617.00**

Materials to be provided include:

Complete tower steel and hardware (Buy American Complete Structure)
Anchor bolts and templates
Leg-to-Leg templates
Construction step bolts (see notes)
Outside climbing ladder (16") with required standoffs
One (1) waveguide support ladder * (to support sixteen (16) initial lines – 16th line on stackable hangers)
**** Stackable hangers will be provided by others***
One (1) flush mount with 2-3/8" O.D. pipe @ the 130' elevation
One (1) 6' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
One (1) flush mount with 2-3/8" O.D. pipe @ the 127' elevation
Two (2) 4-1/2" O.D. leg dish mounts each @ the 124' elevation
One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 112' elevation
One (1) 6' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 110' elevation
One (1) 4-1/2" O.D. leg dish mount @ the 67' elevation
One (1) 4-1/2" O.D. leg dish mount with one (1) stiffarm mounting assembly @ the 60' elevation
One (1) 4-1/2" O.D. leg dish mount with two (2) stiffarm mounting assemblies @ the 29.5' elevation
One (1) 4-1/2" O.D. leg dish mount @ the 27' elevation
One (1) 4-1/2" O.D. leg dish mount with two (2) stiffarm mounting assemblies @ the 20' elevation
Safety cable kit without harness (150')
One (1) Waveguide Bridge 2-Leg 2' x 10' (15' Direct Burial) with three (3) 2 level trapeze kits
One (1) 3' x 5/8" lightning rod copper clad
One (1) 2-7/8" x 15' lightning rod extension
P.E. certified tower profile and foundation drawings
Final erection drawings

ITEM II ***GEOTECHNICAL REPORT*** **$12,196.00**

Provide Geotechnical report based on one (1) boring, 50' deep.

ITEM III ***FOUNDATION INSTALLATION*** **$77,979.00**

Install foundations based on presumptive clay soil, per TIA-222-H.

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PROPOSAL

ITEM IV ***TOWER ERECTION*** **$45,677.00**

The following is included in the erection price:

Offload tower materials from truck and inventory
Erect tower steel complete
Install Outside climbing ladder (16")
Install One (1) waveguide support ladder (to support sixteen (16) initial lines – 16th line on stackable hangers)
Install One (1) flush mount with 2-3/8" O.D. pipe @ the 130' elevation
Install One (1) 6' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
Install One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
Install One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
Install One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 130' elevation
Install One (1) flush mount with 2-3/8" O.D. pipe @ the 127' elevation
Install Two (2) 4-1/2" O.D. leg dish mounts each @ the 124' elevation
Install One (1) 3' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 112' elevation
Install One (1) 6' sidearm with two (2) tiebacks with one (1) 5' mounting pipe @ the 110' elevation
Install One (1) 4-1/2" O.D. leg dish mount @ the 67' elevation
Install One (1) 4-1/2" O.D. leg dish mount with one (1) stiffarm mounting assembly @ the 60' elevation
Install One (1) 4-1/2" O.D. leg dish mount with two (2) stiffarm mounting assemblies @ the 29.5' elevation
Install One (1) 4-1/2" O.D. leg dish mount @ the 27' elevation
Install One (1) 4-1/2" O.D. leg dish mount with two (2) stiffarm mounting assemblies @ the 20' elevation
Install Safety cable kit without harness (150')
Install One (1) Waveguide Bridge 2-Leg 2' x 10' (15' Direct Burial) with three (3) 2 level trapeze kits
Install One (1) 3' x 5/8" lightning rod copper clad
Install One (1) 2-7/8" x 15' lightning rod extension
Install Ladder Standoff Bracket, Initial

ITEM V ***GROUNDING***..... **$ 5,915.00**

Install ground ring around the tower using 5/8" ground rods and #2 solid tinned copper wire. Tie into existing grounding system.

TOWER FREIGHT TO WASHOE COUNTY, NEVADA ..... **$ 7,886.00**

ANCHOR BOLT FREIGHT TO WASHOE COUNTY, NEVADA ..... **$ 492.00**

****The above pricing is for one (1) set of anchor bolts and templates, and one (1) leg-to-leg template to be shipped together in one (1) shipment to the same destination at the same time.***

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PROPOSAL

Prepared for:	**WASHOE COUNTY**	**Proposal No.:**	**21-5308-HGP**
	1001 E. 9TH ST.	**Date:**	**04/01/21**
	RENO, NV 89512	**Reference:**	**130' S4TL/WC Marble, NV BUDGETARY**
	Attn: Melissa Lawney	**Freight:**	**Origin**

NOTES: **Terms will be reviewed upon receipt of order.**

Wind induced vibrations, such as vortex shedding and harmonic oscillation/resonance, of structures of all types due to unpredictable interaction with wind and surrounding structures, exposure and terrain rarely occur. The owner's maintenance program should include observations for vibration and any resulting loosening of connecting hardware or damage to the structure. The Sabre warranty specifically excludes failure due to fatigue or similar phenomena as a result of the aforementioned behavior.

The permit package includes a profile drawing of the structure with member sizes; anchor bolt details; descriptive notes; structural calculations; a table of supported antennas, mounts and feedlines; and a foundation sketch and calculations (if applicable).

This quotation is based on ANSI/TIA-222-H and Customer provided specifications. Any information not provided by ANSI/TIA-222-H or the Customer has not been considered.

Foundation and anchor bolt designs are based strictly on ANSI/TIA-222-H. Any additional requirements may result in increased foundation size and price.

Dimensional information is preliminary only; it may change based on final engineering.

All Sabre mounts are quoted with support pipes of appropriate length for most applications if not otherwise specified. If different support pipe lengths are required at the time of the order, additional costs may be incurred.

Cable type safety climbing device provided does not include harness.

Freight charges quoted are for provided materials only. Additional freight charges may be incurred with the order of additional items.

Site must be easily accessible for trucks delivering tower steel and concrete, cranes, drill rigs, and all other equipment required to perform the job.

In the event that the existing soil conditions are found to be other than as depicted in the Soils Report and Sabre's soil parameters, Sabre may ask for an equitable adjustment to the quoted price.

Customer to secure all permits.

This quote is based on non-union, non-prevailing wages, and non-winter working conditions.

All deviations, alterations, field changes, engineering changes, or architectural changes to the implied scope of work will be bill accordingly on a time a materials basis.

Any downtime or remobilization due to circumstances beyond our control will be billed accordingly.

All antennas, transmission lines, jumpers, ground kits, hangers, and hardware are to be provided and installed by others.

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PROPOSAL

All tower materials will be hot dip galvanized as outlined in ASTM A-123.

Construction step bolts have been quoted to the 60' elevation on all three legs for safety and ease of construction. Step bolts should not be used for climbing without the use of a safety climbing device or fall protection equipment.

This proposal does not include any sales, use, excise, contractors or any other taxes not specifically detailed in this proposal.

If a Customer requests to pick up a tower, a $300.00 per truck charge may apply for dunnage and loading.

Storage charges of $350.00 per month may apply starting sixty (60) days after original scheduled ship date.

Due to material and freight price fluctuations, Sabre reserves the right to review all material and freight pricing prior to accepting any order. Any structure order placed on hold is subject to a price review at the time of its release from hold status.

Title, ownership, risk of loss, risk of material obsolescence and risk of material market value decline shall pass to the Customer upon invoicing or shipment to Customer, whichever occurs earlier in time.

Delivery of tower materials will be approximately 18 to 20 weeks after receipt of required information and contingent upon backlog at the time of order.

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This proposal is based on the terms and conditions proposed above including the attached standard terms and conditions and is subject to our review and final acceptance of your order. No other terms are valid unless signed by an authorized officer of Sabre Industries.

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Submitted By: Sabre Industries

Heath Peterson
Government/Utility Sales Manager

Acceptance of Customer:

Please enter our order for the above items
in accordance with this proposal.

Signature _____

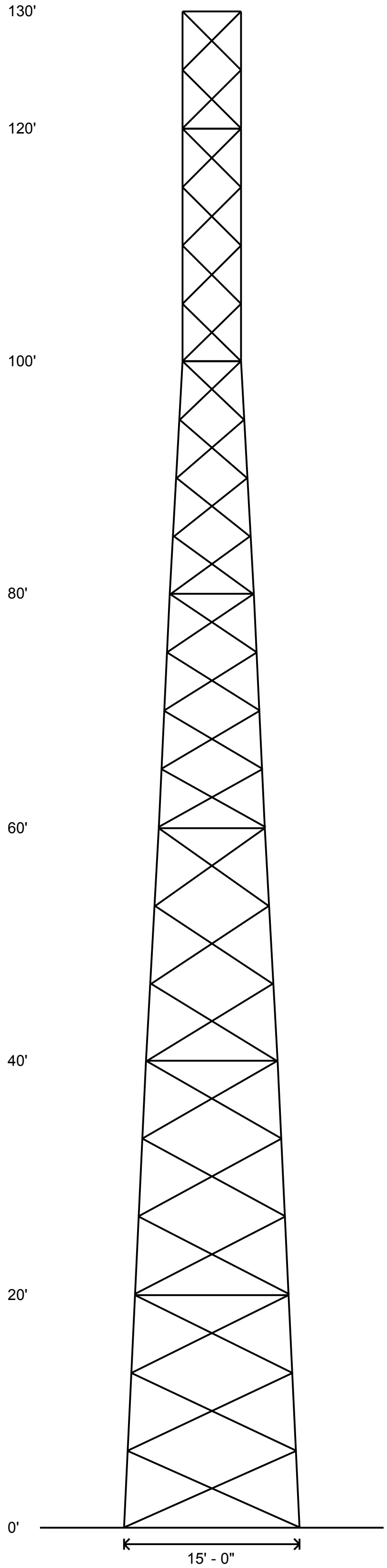
Name (print)_____

Title _____ Date _____

Purchase Order No. _____

SIZES ARE PRELIMINARY AND MAY CHANGE UPON FINAL DESIGN

Legs	Diagonals	Horizontals	Internals	Brace Bolts	Top Face Width	Panel Count/Height	Section Weight
A	B	NONE / G	NONE / J	(1) 5/8"	5'	14 @ 5'	577
2.375 OD X .344	L 2 X 2 X 3/16	NONE / G	NONE / J				1544
3.500 OD X .300	L 1 3/4 X 1 3/4 X 1/8	NONE / G	NONE / J				1674
4.000 OD X .318	L 2 X 2 X 1/8	NONE / F	NONE / D		7'		2043
4.500 OD X .337	L 2 1/2 X 2 X 3/16	NONE / E	NONE / I		9'	9 @ 6.6667'	2599
5.563 OD X .375	L 3 X 3 X 3/16	NONE / D	NONE / H		11'		3689
		NONE / C	NONE / D	(1) 3/4"	13'		3963



Design Criteria - ANSI/TIA-222-H

Wind Speed (No Ice)	130 mph
Wind Speed (Ice)	30 mph
Design Ice Thickness	0.25 in
Risk Category	III
Exposure Category	C
Topographic Factor Procedure	Method 1 (Simplified)
Topographic Category	4
Crest Height	670 ft
Ground Elevation	0 ft

Base Reactions

Total Foundation		Individual Footing	
Shear (kips)	78.91	Shear (kips)	29.71
Axial (kips)	22.82	Compression (kips)	241
Moment (ft-kips)	4996	Uplift (kips)	231
Torsion (ft-kips)	-60.31		

Material List

Display	Value
A	2.375 OD X .154
B	L 1 3/4 X 1 3/4 X 1/8
C	L 3 X 3 X 1/4
D	L 2 1/2 X 2 1/2 X 1/4
E	L 2 X 2 X 5/16
F	L 2 X 2 X 1/4
G	L 2 X 2 X 3/16
H	L 4 X 4 X 1/4
I	L 3 1/2 X 3 1/2 X 1/4
J	L 2 1/2 X 2 1/2 X 3/16

Notes

1) All legs are A500 (50 ksi Min. Yield).
2) All braces are A572 Grade 50.
3) All brace bolts are A325-X.
4) The tower model is S4TL.
5) Transmission lines are to be attached to 15 hole waveguide ladders with stackable hangers.
6) Azimuths are relative (not based on true north).
7) Foundation loads shown are maximums.
8) (4) 1 1/4" dia. x 63"-long F1554 grade 105 anchor bolts per leg.
9) All unequal angles are oriented with the short leg vertical.
10) Weights shown are estimates. Final weights may vary.
11) Use single internal bracing pattern at 40', 60', 80', 100', 120', and 130'.
12) Use X-Braced internal bracing pattern at 20'.

Sabre Industries
INNOVATION DELIVERED
Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

Quote:	**21-5308-HGP**
Customer:	WASHOE COUNTY
Site Name:	WC Marble, NV BUDGETARY
Description:	130' S4TL
Date:	3/29/2021 By: CH Page: 1

Designed Appurtenance Loading

Elev	Description	Tx-Line
135.85	(1) SC499-HWBLDF (DXX)	
134	(1) 8' x 3in Omni	
133	(1) 6' Omni	
133	(1) 6' Omni	
130	3ft Sidearm	
130	3ft Sidearm	
130	3ft Sidearm	
130	6ft Sidearm	
130	Flush Mount	
130	Lightning Rod & Extension	
130		(1) 1/2"
130		(1) 7/8"
130		(2) 1/2"
130	(1) TTA (24in x 30in 12in)	(2) 7/8"
127	Flush Mount	
127	(1) Camera (18"x36"x18")	(1) Cat 5
124	(2) Leg Dish Mount	

Elev	Description	Tx-Line
124	(2) 3' Solid Dish w/ Radome	(2) 1/2"
116	(1) 8' x 3in Omni	
115.85	(1) SC499-HWBLDF (DXX)	
112	3ft Sidearm	
112		(1) 1 5/8"
110	6ft Sidearm	
110		(1) 1 5/8"
67	Leg Dish Mount	
67	(1) SC3-W100AB	(1) EW105
60	Leg Dish Mount	
60	(1) 6' H.P. Dish	(1) EW90
29.5	Leg Dish Mount	
29.5	(1) 8' Solid Dish W/ Radome	(1) EW63
27	Leg Dish Mount	
27	(1) 2' Solid Dish	(1) Cat 5
20	Leg Dish Mount	
20	(1) PADX10-W57 AC w/ Radome	(1) E60

Quote:	**21-5308-HGP**
Customer:	WASHOE COUNTY
Site Name:	WC Marble, NV BUDGETARY
Description:	130' S4TL
Date:	3/29/2021 By: CH