FEASIBILITY STUDY REPORT

CIRC HOTEL

1740 POLK STREET, HOLLYWOOD

BROWARD COUNTY, FLORIDA

Prepared for:

BROWARD COUNTY COMMISSIONERS

March 29, 2019

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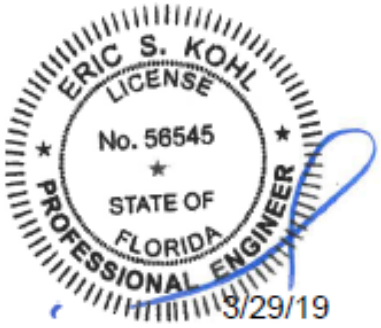
EXECUTIVE SUMMARY

Motorola Solutions, Broward County Staff, Mission Critical Partners and KCI Technologies, Inc. have completed the feasibility study of the CIRC Hotel as tasked by the Broward County Commissioners. The report that follows highlights the numerous tasks and hours spent examining the building, underlying systems and components in order to determine the suitability of the building to provide a communication site for Broward County's Emergency Communication System. Our underlying intent was to design the system with the optimal requirements as they would be with a tower and communication site specifically designed for the Communication System. This is important to consider as any deviation from the requirements and design criteria would result in some form of degradation to the overall communication system, so was not considered specifically within this study. Several examples will be highlighted throughout the report.

Our team has concluded that while the CIRC is a viable candidate, it will require design sacrifices resulting in a sub-optimal communication system, will be a much higher lifetime cost and will result in a longer timeline for implementation and delay the completion of the overall radio system project.

This report will offer further insight into several key areas, with the most important being the RF coverage and building suitability (electrical, structural, construction). Regulatory items have been initiated, but have not been approved by the underlying Federal or State agencies, such as FAA study and the NEPA. Contractors have been solicited to provide quotes to be utilized in the construction estimates as well as timelines for the construction within their specific area of expertise or construction. Key floors have had X-Ray testing completed to ensure a viable path for conduits as well as crane vendors and helicopter experts have been engaged to provide recommendations as to means of delivering materials to the roof.

Finally, the report is not meant to provide an opinion either for or against the use of the CIRC, but is intended to provide factual information. This will assist the Broward County Administration and Commissioners ability to make an informed decision about whether or not the CIRC Hotel would provide the best candidate for one of the radio sites to the Emergency Communication System for the Citizens and First Responders who will rely on this system for life safety emergencies. The report does not provide a pro or con opinion, but simply provide the underlying facts on areas investigated and preliminary designs.



A. PURPOSE / BACKGROUND

Pursuant to the request of the Broward County Commissioners, our team was tasked to conduct a feasibility study of the CIRC Hotel.

The feasibility evaluation team is comprised of the following companies/organizations

Broward County Communication Staff
Mission Critical Partners (Broward County Radio Consultant)
Motorola Solutions with HICAPS
KCI Technologies, Inc.
Wood PLC
Rathgeber/Goss Associates
Pro Scan Surface Imaging

To complete this study we were provided the following information:

- Complete design drawings for the building, including the Architectural, Electrical, Structural and Mechanical drawings.

Our team completed numerous site visits to the building, including the following:

- Site visits on two days in January, three days in February and two in March to include the X-Ray testing.

B. CONDITIONS INVESTIGATED

The building is located at 1740 Polk Street, Hollywood, Broward County, Florida.

The proposed power source is FPL with a 400 amp, 3 Phase Service that will be routed in a parallel fashion to reduce the size of the conductors from the FPL vault in the garage to the equipment room on the roof.

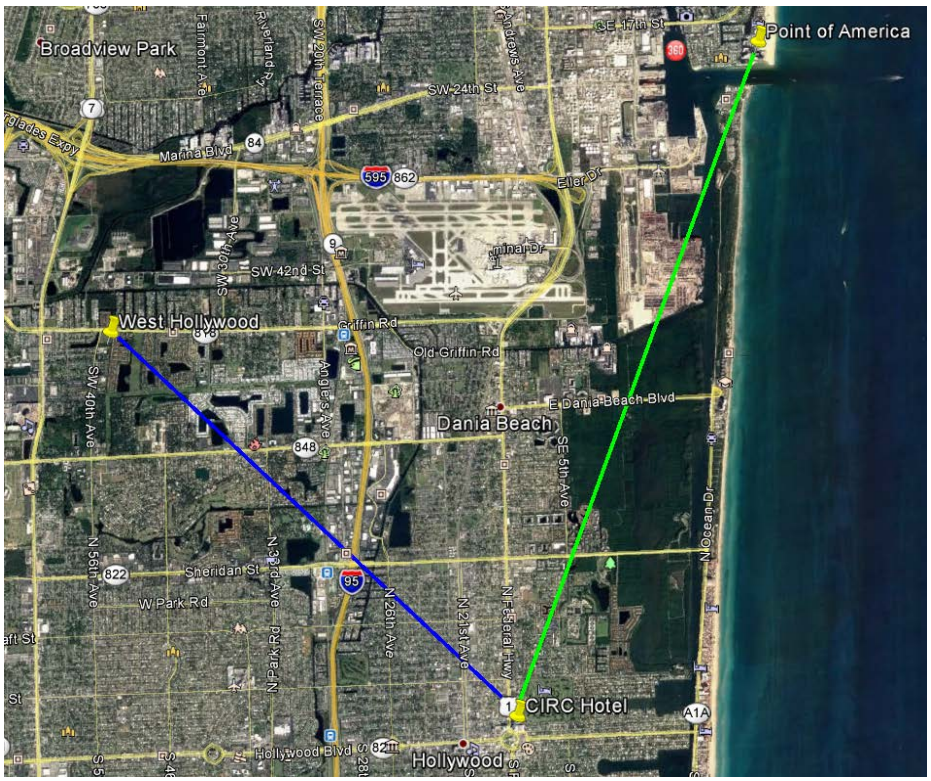
The wind loading used in the structural design of the appurtenances for a Risk Category III, Topographic Category 1 and Exposure Category C.

Loading Case	Code	Wind Speed and Ice Loading
1	2017 Florida Building Code and ANSI/TIA-222-G for Broward County, Florida	180 mph (ultimate 3 second gust), No ice *139 mph (nominal 3 second gust), No ice

*- Conversion based on 2017 Florida Building Code, Section 1609.1.1 Determination of wind loads, Exception 5.

ANTENNA PLACEMENT / DESIGN CONSIDERATIONS

The CIRC Hotel will have two primary microwave links, one to the Point of America site and the other to the West Hollywood site. These are shown in the diagram below:



The best location of the microwave antennas is on the outer parapet wall. This provides the clearest path without any shadowing or RF emission hazards. Microwave communication systems have a very tight bandwidth (1.3 degrees), but have a very concentrated RF emission, which requires the area in front of the microwave to be left clear to be in compliance with the FCC guidelines on human exposure. Due to the size of the microwave dish, 8-ft and the desired azimuths to the receive antennas, the microwave will need to be elevated above the parapet wall to be able to rotate it. This is going to be very difficult to achieve with the high wind speed and limited area to attach to on the parapet wall, so we had to use multiple standoffs attached back to the parapet wall as well as the roof surface to achieve. This will also be very visible. Please refer to the photo simulations in Appendix I as well as the lease/construction estimate drawings for an indication of the location of the microwaves viewed from street level as well as plan and elevation views.

As stated in the original letter, dated January 21, we explained the design issues for the microwave antenna were not so much structural in nature, but more from a serviceability standpoint with several tiebacks to stabilize the microwave in high winds. Please refer to the Construction Drawings provided in Appendix A for more detail on the microwave installation. Please note that these contain several attachments to the roof, which will require penetrations through the roof membrane.

For the parapet wall design, KCI utilized a 4-inch pipe mast with four kicker arms to provide sufficient lateral restraint of the smaller pipe diameter. Two will be to the adjacent parapet wall and two will be down to the roof floor level. We also will attach stabilizer arms to the outside of the microwave antenna, which will then be connected to one of the kicker attachments, either on the wall or the roof slab.

The site also will be designed for six (6) omni antennas for receive and transmit capabilities.

These antennas will be placed on the upper roof of the building and attached to the inner parapet walls near the air conditioners as shown in the photo below. The microwaves considered are 8-ft RFS antennas to ensure future capacity within the design. The Receive antennas are Sinclair SC412 and the Transmit antennas are RFI CC807 antennas. The SC412 antennas are 5-inch diameter x 21-ft tall and the CC807 antennas are 3-inch diameter x 17.5-ft tall.

The omni antennas are easier from a design/construction aspect, but still should not experience significant movement, particularly at the base. These are elevated on a 10-ft pipe mast in order to limit the shadowing. The omni antennas are fiberglass and have been known to crack or break with excessive movement. This movement can also cause cracking and other serviceability concerns in the structure they are attached to. Therefore, KCI chose a 4 inch pipe, which can be attached back to the wall in several locations to resist all of the loads as well as the overturning moment. These will be situated 10-ft above the top of the wall, which provides a clear view of all sides of the roof from an RF perspective taken from the antenna centerline and the underlying 2.5 degree vertical beam width. This ensures shadowing of the antenna with respect to the rooftop will be minimized. The RF safety of these antennas is not a concern based on the wattage of the RF output. The additional elevation will also reduce any potential for RF exposure.

The structural analysis of the antennas as well as supporting appurtenances is included in Appendix C.

EQUIPMENT ROOM AND GENERATOR DESIGN CONSIDERATIONS

KCI also examined the equipment room to be built within the boiler room to house the County radio equipment. The boiler room is vented to the outdoors, which allows the possible intrusion of water into this room along with the risk of leaking from the boiler. The room also has sprinkler systems that also create a potential hazard to the County equipment. The area provided for the County equipment contains one of the two floor drains for the room. Based on this as in any potential flood area, we recommend that the floor be elevated eight (8) inches similar to the adjacent boilers in the room. The 8 inches will allow drainage pipes to be placed underneath the floor to the drain as well as protect the County equipment. We recommend that masonry walls be utilized along with a roof system for physical security as well as keeping the conditioned space enclosed. Four HVAC wall mounted units will be attached to the 20-ft wall on the boiler side with drain pipes routed to the floor drain to catch the condensation from the units. The equipment loading includes a large bank of batteries that will significantly contribute to the floor loading. Typically, we try to locate this over an underlying beam or column, but the space provided does not provide this in the location of the batteries, so the slab will need to support the loading.

Fire Suppression System to be Relocated

Raised floor slab and evidence of standing water


Column interference in Equipment Room Location


Vents near wall penetration location

KCI engaged the assistance of a third party structural engineering company, Rathgeber/Goss Associates (RGA) to conduct the floor slab analysis. The slab is a post tensioned concrete slab. The results of the analysis show that the floor is not capable of supporting the loads. This is a significant problem as the analysis utilized a light weight 5 inch insulation with 3 inch concrete cover slab design to generate the 8 inches of desired elevation. Please refer to Appendix D for the analysis results as well as company fact sheet about RGA.

We asked RGA for suggestions to reinforce the slab to accommodate the loads. Their recommendations are as follows:

1. The creation of a cast-in-place concrete drop cap. The construction of this would involve many vertical dowels into the existing slab and column. This can be difficult in a PT building due to the congestion of reinforcing at columns.
2. Concrete beams can be installed. You would need 2 at adjacent faces of the column. These could span to other adjacent columns. The shear force would be transferred to the column via dowels. This can also be difficult due to column rebar and the number of bars required to resist the forces involved. It will also require coordination with dowels and the PT.
3. Steel beams can be installed in a similar manner as the concrete beams. Again, you would need two on adjacent faces spanning to near columns. Anchor plates would be installed as the connections and the beams would be grouted in place in the shear plan area near the column.
4. Steel collar shear reinforcing is also an option. This would involve a series of plates that create a custom collar that encircles the column at all 4 sides. Think of large stiffened angles that are installed at the top of the column at all 4 sides. Large steel plates are then installed on each face. The whole assembly is

then welded together. Through bolts are installed to transfer the force from the plate assembly to the column.

Many of these will be difficult to implement without significant impediment to the floor below. All of them are expensive and will add time to the overall construction timeline.

The electrical service requirements of 400 amps is the requirement for the equipment room's power source. KCI was provided the electrical design information and conducted a site visit with the electrical engineer who designed the building's system. A follow on visit with the electrical contractor provided additional information. We initially had concerns with locating a clear routing up through the low voltage electrical closets to the 24th floor where we can then utilize three existing 2 ½" conduits that traverse horizontally to the electrical room on the lower roof. Pro Scan completed X-Ray testing of the floor in the rooms where existing conduits were not available. The X-Ray testing shows that there are some potential locations for new conduits to be safely installed to support the power for the new service. The Lease / Construction drawings provide further detail of the riser diagram and core drilling locations for the new conduits and the proposed use of existing conduits/core drill holes to the roof. Our team recommends that the core drilling and conduit placement/use be incorporated into the lease that the building owner will provide this. This will ensure that the conduit locations are handled within the lease (as the locations may deviate some based on some of the underlying inaccuracies in the testing as well as unidentified obstructions).

After a few changes, our team was provided the location of the generator that we agree will work best for the County equipment. This location is on the 4th Floor of the garage in the Northeast corner along the east wall. We have begun the design for a service station style refueling of the diesel fuel for the generator. This is the current setup of the existing generators for Publix as well as the CIRC hotel and residences. The generator will be enclosed within a masonry enclosure to provide security and additional noise reduction. Please refer to the Lease / Construction Drawings in Appendix A for further details.

The Automatic transfer switch will be located within an electrical closet on the 4th Floor of the garage in the Northwest Corner, which allows for an easy drop down to the FPL electrical vault located in the garage in that same vicinity. From the FPL vault we will route the conduits to the low voltage electrical closets and then up as described previously. Other than the typical construction challenges of working on an existing building, we don't feel that there will be any significant concerns with the installation of the electrical service. X-Ray testing will need to be engaged during any core drilling so that time needs to be included within the construction timeline.

RADIO FREQUENCY CONSIDERATIONS

The Radio Frequency design is the most important element within the design following the basic building capability to house/support the installation. Please refer to the White Paper generated by Mission Critical Partners (MCP) for details on the shadowing effects of the rooftop as well as possible height restriction impacts.

Our team submitted the FAA notification on the electronic website and received almost immediate feedback that the location was in restricted airspace for one of the nearby airports. Please refer to the Appendix F showing the specific airports potentially impacted, which includes Fort Lauderdale/Hollywood International, North Perry and Miami Opa Locka Executive airports. North Perry airport (HWO) is the one that is of most concern as our building is shown to be directly in line with the runway. The potential impact of this may be to restrict our antenna to the height of the existing building and any attachments. As shown on the 2C letter, refer to Appendix E, the height of the tallest appurtenance is at 310.9', which is one of the spires of the tower. Our requested height is 330-ft to the top of the antenna in order to minimize the shadowing effects of the roof. The MCP white paper shows more detail as to the impact of a possible height reduction of the antennas.

The next area of concern for the antennas is the possible requirement for stealth (concealing the antennas) or painting them to match the building. This has not become a concern yet, but in most building installations is often desired by the building owners for aesthetic reasons. The lease agreements to date show this potential requirement in the update letter provided by the County attorney memo with the following statement:

"Because final design and installation issues cannot be resolved prior to completion of the feasibility study, the lease is currently structured to require the County to obtain the landlord's post-lease approval for the specific installation, and would allow the landlord to reject the proposed installation for reasons including aesthetic concerns."

Our team reached out to the microwave manufacturer, Aviat as well as to the design team of Motorola. The concern is whether or not the coverage or the microwave path will be guaranteed with the introduction of RF friendly stealth material. Neither Motorola Solutions nor Aviat would guarantee the capabilities without actual testing. This could potentially create some significant issues, if the reliability can't be guaranteed prior to installation. Aviat provided their warranty information as shown in the Appendices, which even includes a loss of warranty for painting the antennas. Motorola Solutions RF engineers were a little bit more open to the possibility, but would not commit until the actual stealth solution was designed and tested along with manufacturer guarantees. I have found in past carrier projects that there is always some loss of coverage from stealth, but in those cases the added capabilities from the site were acceptable. In this particular case, I would not be able to support that statement as this site needs to be as close to perfect as possible and the addition of the stealth could result in a less than satisfactory system, which for emergency communications would be unacceptable.

I would therefore, have to recommend that if stealth is required either by the owner or by the State Historical Preservation Office (SHPO), this site would not be utilized in favor of a traditional tower. Please note that we have not received any feedback yet from the State Historical Preservation Office yet and as we are 250-ft from a historical area, this may be a requirement for their agreement to the location as part of a Memorandum of Understanding (MOU).

CONSTRUCTION CONSIDERATIONS AND COST

Our team engaged several of the contractors specialized in radio system installation and building construction to develop a cost estimate as well as determine the estimated construction timeline. Due to the complexity of an installation within a building, particularly this one where only a stationary crane or helicopter may be used to get the building materials to the roof, it is very difficult to develop an accurate timeline or cost.

The W group working with Motorola Solutions met with the crane company on Tuesday, March 26 to investigate the feasibility of utilizing a crane on the site and was told that only a stationary, built up crane (similar to those used in high rise construction) would be feasible for this project. This would require numerous days of road closures, on either Polk street or closing a minimum of 2 lanes on the roundabout, as well as a one to two day setup time prior to and after the loading. Care would also need to be exercised in the vicinity due to the inherent risk of utilizing the large crane in such a confined area. This could possibly result in tenants being asked to leave their rooms/houses during the operation.

The helicopter was even more restrictive in that the FAA has some very specific requirements due to the proximity to the airports and occupancy. These were the specific recommendations for use of the helicopter provided by the Lumry Company Incorporated who will complete the congested area plan for the helicopter, if or when required:

“The area in question is undoubtedly a “Congested” area by FAA standards and will require a congested area plan approved by the FAA. To gain approval for this plan the BASIC requirements are a sterile area provided for helicopter operations. This includes closing all roads, walking paths, or any other access to the area by people NOT associated with the lifting process. The top three floors must be evacuated and remain so during the lifts as per the FAA guidance paper 8900.1.”

Both of these requirements will generate additional hardships on the neighbors and tenants of the buildings, not mentioning the numerous business, such as Publix located in the vicinity or the large park across the street. Traditional cranes or other lifting methods that are used on the other condominiums or rooftops that the County has are different from this building in that due to the aesthetic and architectural design have a tiered layout rendering the other methods incompatible or unsafe.

The overall construction budgetary cost is in the range of $2.1 million dollars to $2.8 million dollars depending on the materials transport method utilized with a projected construction completion date of May 12, 2020. This triggers the system optimization and testing, which adds another 4 months beyond this date for the final system acceptance. Please refer to the appendix for further details on timeline.

Please refer to the appropriate appendices as well as the MCP white paper for further details on the cost and timeline from the project. A couple of potential lease fees were also included as the lease cost must be considered within the cost comparison as this will add up to a significant cost over time versus the traditional tower site.

C. CONCLUSIONS

The CIRC building is a feasible solution for the communication system, but will most likely result in some form of degraded capacity. The primary conditions relating to this are the following:

- The concrete floor slab in the equipment room will not support the elevated slab and equipment configuration without modifications. The other option, if modifications aren't acceptable or feasible based on building use, the equipment will need to be reduced or additional risk of flooding will have to be assumed by not elevating the floor slab.
- The FAA may not allow the proposed height of the antennas. The advisory notice was not very positive upon filing and so the worst case result will be the inability to elevate the antennas higher than the tallest appurtenance on the building. This will result in increased shadowing of the communication signal and a degraded system.
- The site may require stealth or concealment of the microwaves or omni antennas for aesthetics. This may be generated by the owner or the State Historical Preservation Office to limit the negative view associated with the communication antennas. This would negate the coverage guarantee or void the microwave path warranty due to the potential degrading of the signal from the stealth wall or box. This cannot be completely determined until final testing occurs after installation.

The construction cost of the CIRC facility is considerably higher than the cost of the similar tower site by over $1.5 million dollars, with the tower site construction budgetary estimate of $750,000. The lease cost, not included in this cost estimate, will be a significant burden over the life of the communication system.

The primary benefit of the CIRC is the fact that it is an existing tall structure, so that the view shed will not be further negatively impacted nor any of the park will be off limits to the Broward County citizens. This is always a challenge to weigh emotional considerations against technical or cost ones.

D. NEXT STEPS

The next steps are as follows and some of them will be based upon the decision of the Broward County Commissioners. Assuming that the CIRC is chosen as the radio site, we intend to:

1. Meet with the CIRC to go over the findings and discuss the lease / construction estimate drawings to obtain the owner's input and approval.
2. Develop Construction Permit drawings for the construction of the site.
3. Support the County Attorney in the lease negotiations and final lease approval.
4. Submit for the building permit.
5. React to the FAA final requirements as well as the NEPA/SHPO requirements, which will be complete by then. Please note that these may have significant negative impacts as described within the report as to the system degradation.
6. Begin construction upon receipt of permit, lease and all regulatory approval.

Please refer to the timeline provided within the appendices for further details.

APPENDICES FOR FEASIBILITY STUDY
FOR
CIRC HOTEL

Prepared for:
Broward County Commission

March 29, 2019
KCI J.O.: 011900093B

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APPENDIX A

LEASE / CONSTRUCTION ESTIMATION DRAWINGS

MOTOROLA SOLUTIONS

CIRC HOTEL

SITE ADDRESS:
1780 POLK STREET
HOLLYWOOD, FLORIDA 33020

PROJECT: PROPOSED RADIO SITE

JURISDICTION: BROWARD COUNTY

GENERAL NOTES

1. ALL REFERENCES TO OWNER HEREIN SHALL BE CONSTRUED TO MEAN MOTOROLA SOLUTIONS OR IT'S DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.
3. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
4. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERCEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
5. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
6. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THE TESTING AGENCY PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
7. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OFGOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCEWITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
9. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCAL BUILDING CODE AND MOTOROLA R56 STANDARDS AND SPECIFICATIONS, 2017 EDITION.
10. ALL PENETRATIONS THROUGH ROOF SHALL REQUIRE DIRECTION FROM, AND COORDINATION WITH, THE EXISTING ROOFING CONTRACTOR.
11. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
12. RADIO EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
13. CONSTRUCTION SITE SHALL BE CLEANED OF DEBRIS AT THE END OF EACH WORK DAY.

STRUCTURAL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE A.I.S.C. SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS- ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN INCLUDING THE COMMENTARY AND THE A.I.S.C. CODE OF STANDARD PRACTICE.
2. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36. ALL STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
3. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) D.1.1/D1.1M2015 STRUCTURAL WELDING CODE. STEEL WELD ELECTRODES SHALL BE E70XX.
4. ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
5. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY NORTH AND INFORM OWNER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
6. ALL CAST IN PLACE CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318 AND ACI 301, AND SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI (U.O.N.). CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL UNLESS OTHERWISE NOTED. MINIMUM CONCRETE COVER SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.
7. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, DEFORMED BILLET STEEL BARS. WELDED WIRE FABRIC REINFORCING SHALL CONFORM TO ASTM A185.
8. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST A.I.S.C. SPECIFICATIONS AND SHALL BE GALVANIZED.
9. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS.
10. HOT-DIP GALVANIZE ITEMS SPECIFIED TO BE ZINC-COATED, AND SHALL CONFORM TO ASTM 123, A153 AND A163 AS APPLICABLE.
11. REPAIR DAMAGED HOT-DIPPED GALVANIZED COATINGS AS A RESULT OF WELDING OR CUTTING (FLAME) OR EXCESSIVELY ROUGH HANDLING DURING SHIPMENT OR ERECTION SHALL CONFORM TO ASTM A780. IF APPLYING STICK OR THICK PASTE MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING, CLEAN AREAS TO BE REPAIRED AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS. WITH STICK OR PASTE, SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL.
12. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTRUCTIONS/ SPECIFICATIONS IF NO INFORMATION IS CONTAINED IN THESE PLANS OR IF THE MANUFACTURER'S SPECIFICATIONS ARE STRICTER.
13. CONTRACTOR SHALL CONTACT ADVANCED ROOFING PRIOR TO ANY WORK THAT WILL PENETRATE THE ROOF. CONTACT INFO: [TBD]

CODES STATEMENT

THE CONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION IN THE REGION WHERE THE WORK IS TO BE PERFORMED. THE CURRENT EDITION OF THE CODES AND STANDARDS IN EFFECT ON THE DATE OF AWARD OF CONTRACT SHALL GOVERN THE DESIGN PARAMETERS.

BUILDING CODE: FLORIDA BUILDING CODE (FBC) 2017 6TH EDITION.

ELECTRICAL CODE: NATIONAL ELECTRICAL CODE, 2014 EDITION.

MECHANICAL CODE: FBC MECHANICAL CODE, 2017 6TH EDITION.

FIRE CODE: FLORIDA FIRE PREVENTION CODE, 2017 6TH EDITION.

LIGHTNING PROTECTION CODE: NFPA 780 2017 EDITION.

SITE GROUNDING SHALL COMPLY WITH MOTOROLA STANDARD R56, 2017 EDITION.

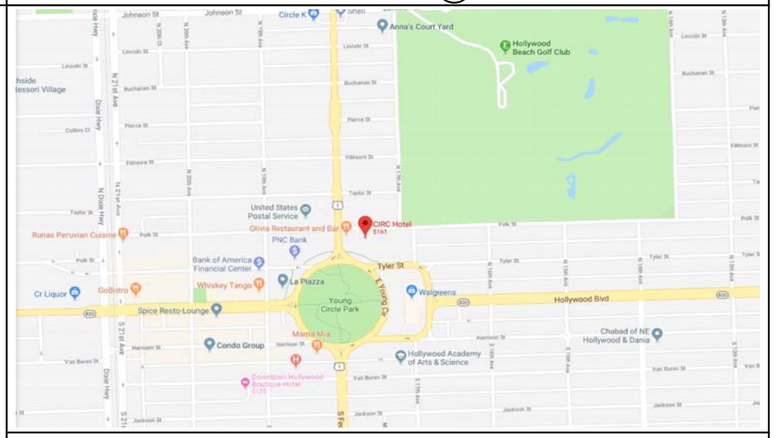
THE CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AMERICAN INSTITUTE OF STEEL CONSTRUCTION, LRFD 14TH EDITION, TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES: TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR ELECTRONIC EQUIPMENT.

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY C3 AND HIGH SYSTEM EXPOSURE.)

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS, TELCORDIA GR-1503,COAXIAL CONNECTIONS, ANSI T1-311, FOR TELECOM DC POWER SYSTEMS AND TELECOM ENVIRONMENTAL PROTECTION.

VICINITY MAP



SHEET INDEX

Sunshine State 811 One Call

SUNSHINE STATE ONE CALL OF FLORIDA, INC. 1-800-432-4770 STOP-CALL 48 HOURS BEFORE YOU DIG!

DESIGN CRITERIA

DESIGN WIND SPEED:
180 MPH ULTIMATE (3-SECOND GUST)
138 MPH NOMINAL (3-SECOND GUST)

IMPORTANCE FACTOR: 1.0
EXPOSURE CATEGORY: D
RISK CATEGORY: III

IN ACCORDANCE WITH FLORIDA
BUILDING CODE 2017 (6TH EDITION)

PROJECT TEAM

ENGINEER

KCI TECHNOLOGIES, INC.
4041 CRESCENT PARK DRIVE
RIVERVIEW, FLORIDA 33578

ENGINEER:
ERIC S. KOHL, P.E.
FL. LICENSE NO. 56545

MOTOROLA

JERRY MONTELEONE
773-858-4762
JERRY.MONTELEONE@MOTOROLASOLUTIONS.COM

PROJECT DATA

PARCEL NUMBER:	514215021080
	514215021030
	514215021020
	514215021010
	514215020920
	514215020930
	514215020940
	514215020960
	514215020950
	514215020990
OWNER:	HOLLYWOOD CIRCLE LLC
LATITUDE:	N 26°13'49.92"/26.230534
LONGITUDE:	W -080°05'25.74"/-80.090486
JURISDICTION:	BROWARD COUNTY, FLORIDA

LEASE EXHIBIT, NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE		BY:
A	03/29/19	90% SUBMITTAL	TW
B			
C			
D			
E			
F			

DRAWN BY: TW
CHECKED BY: EK
APPROVED BY: JF

KCI TECHNOLOGIES
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CIRC HOTEL

1780 POLK STREET
HOLLYWOOD, FLORIDA 33020

ENGINEER:
JAMES T. FENNELL, PE
FL LICENSE NO. 63808

SCALE: AS NOTED

DATE: 03/01/2019

KCI JOB NUMBER: **011900093B**

SHEET TITLE

TITLE SHEET

SHEET

T-1

GENERAL NOTES:

1. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.
2. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
3. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERCEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
4. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
5. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THE TESTING AGENCY PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
6. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
8. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCAL BUILDING CODE AND MOTOROLA R56 STANDARDS AND SPECIFICATIONS, 2017 EDITION.
9. ALL PENETRATIONS THROUGH ROOF SHALL REQUIRE DIRECTION FROM, AND COORDINATION WITH, THE EXISTING ROOFING CONTRACTOR.
10. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
11. RADIO EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
12. CONSTRUCTION SITE SHALL BE CLEANED OF DEBRIS AT THE END OF EACH WORK DAY.

UTILITIES

1. CONTRACTOR SHALL CONTACT A SUBSURFACE UTILITY LOCATOR FOR LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. LOCATION OF EXISTING SEWER, WATER LINES, GAS LINES, CONDUITS OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. CONTRACTOR ASSUMES SOLE RESPONSIBILITY FOR VERIFYING LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES (INCLUDING TEST PITS BY HAND IF NECESSARY) IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS, OR IF THERE APPEARS TO BE A CONFLICT.
2. CONTRACTOR SHALL COORDINATE ALL UTILITY CONNECTIONS WITH APPROPRIATE UTILITY OWNERS AND CONSTRUCTION MANAGER.
3. DAMAGE BY THE CONTRACTOR TO UTILITIES OR PROPERTY OF OTHERS, INCLUDING EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRECONSTRUCTION CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CLIENT. FOR GRASSED AREAS SEED AND MULCH SHALL BE ACCEPTABLE.
4. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER. THE REQUIREMENTS FOR AND LIMITS OF OVERHEAD AND/OR UNDERGROUND ELECTRICAL SERVICE.
5. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF NEW UNDERGROUND TELEPHONE SERVICE WITH THE TELEPHONE UTILITY AND THE OWNER'S REQUIREMENTS.
6. ALL UNDERGROUND UTILITIES SHALL BE INSTALLED AND TESTED SATISFACTORY PRIOR TO COMMENCING ANY PAVING OPERATIONS WHERE SUCH UTILITIES ARE WITHIN THE LIMITS OF PAVEMENT.

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS PER FLORIDA BUILDING CODE (FBC) 2017 6TH EDITION.
2. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE A.I.S.C. SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS- ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN INCLUDING THE COMMENTARY AND THE A.I.S.C. CODE OF STANDARD PRACTICE.
3. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36. ALL STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
4. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) D1.1 2010. STRUCTURAL WELDING CODE-STEEL WELD ELECTRODES SHALL BE E70XX.
5. ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
6. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY NORTH AND INFORM OWNER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
7. ALL CAST IN PLACE CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318-11 AND ACI 301-05, AND SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI (U.O.N.). CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL UNLESS OTHERWISE NOTED. MINIMUM CONCRETE COVER SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.
8. ALL REINFORCING STEEL SHALL CONFORM TO ASTM 615 GRADE 60, DEFORMED BILLET STEEL BARS. WELDED WIRE FABRIC REINFORCING SHALL CONFORM TO ASTM A185.
9. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST A.I.S.C. SPECIFICATIONS.
10. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS.
11. HOT-DIP GALVANIZE ITEMS SPECIFIED TO BE ZINC-COATED, AFTER FABRICATION WHERE PRACTICAL. GALVANIZING: ASTM A 123, ASTM, A 153/A 153M OR ASTM A 653/A 653M, G90, AS APPLICABLE.
12. REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A 780 OR BY APPLICATION OF STICK OR THICK PASTE MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED, AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS. IN STICK OR PASTE, SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL. 13. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTRUCTIONS/SPECIFICATIONS IF NO INFORMATION IS CONTAINED IN THESE PLANS OR IF THE MANUFACTURER'S SPECIFICATIONS ARE STRICTER.
13. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTRUCTIONS/ SPECIFICATIONS IF NO INFORMATION IS CONTAINED IN THESE PLANS OR IF THE MANUFACTURER'S SPECIFICATIONS ARE STRICTER.

PERMITS

1. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENTAL AGENCIES.
2. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
3. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND THE ACI 318-14, "BUILDING REQUIREMENTS FOR STRUCTURAL CONCRETE".
4. THE CONTRACTOR SHALL NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
5. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. IF THE MATERIAL, AFTER REWORKING, REMAINS UNSUITABLE THEN THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL AT HIS EXPENSE. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFT MATERIAL SHALL BE REWORKED OR REPLACED.
6. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.
7. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE.
8. ALL DIMENSIONS SHALL BE VERIFIED WITH THE PLANS (LATEST REVISION) PRIOR TO COMMENCING CONSTRUCTION. NOTIFY THE OWNER IMMEDIATELY IF DISCREPANCIES ARE DISCOVERED. THE CONTRACTOR SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

PAINTING:

1. CONTRACTOR TO COORDINATE PAINTING REQUIREMENTS WITH OWNER.
2. PAINT COLORS SHALL BE SELECTED TO MATCH EXISTING COLORS AND TEXTURES.
3. PROVIDE THE BEST QUALITY GRADE OF COATINGS AS REGULARLY MANUFACTURED BY APPROVED PAINT MATERIAL MANUFACTURERS. MATERIALS NOT DISPLAYING THE MANUFACTURER'S IDENTIFICATION AS A STANDARD, BEST-GRADE PRODUCT WILL NOT BE ACCEPTABLE.
4. PROVIDE UNDERCOAT PAINT PRODUCED BY THE SAME MANUFACTURER AS THE FINISH COATS. USE ONLY THINNERS APPROVED BY THE PAINT MANUFACTURER AND USE ONLY WITHIN RECOMMENDED LIMITS.
5. COMPLETELY COVER TO PROVIDE AN OPAQUE, SMOOTH SURFACE OF UNIFORM FINISH, COLOR, APPEARANCE AND COVERAGE, CLOUDINESS, SPOTTINGS, HOLIDAYS, LAPS, BRUSHMARKS, RUNS, SAGS, ROPINESS, OR OTHER SURFACE IMPERFECTIONS WILL NOT BE ACCEPTABLE.
6. FERROUS METALS
   SHOP PRIMED:
   1. TOUCH-UP COAT - RED OXIDE METAL PRIMER
   2. FINISH COATS - SEMI-GLOSS-ALKYD ENAMEL

MISCELLANEOUS

1. ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLES SHALL CONFORM TO ASTM A307 OR ASTM 36. ALL STRUCTURAL FASTNERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8 " MIN. DIA. BEARING TYPE CONNECTIONS WITH THREADS EXCLUDED FROM THE PLANE. ALL EXPOSED FASTENERS, NUTS, AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. ALL ANCHORS INTO CONCRETE SHALL BE STAINLESS STEEL.
2. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
3. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY NORTH AND NOTIFY CONSULTANT OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
4. PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
5. THOROUGHLY REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTIONS.
6. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS TO BE A MIN. OF 8" RADIUS AND NOT LESS THAN 90 DEGREES.
7. FOR GROUNDING TO BUILDING FRAME, USE EXOTHERMIC WELD OR A LISTED 8 SQ. INCH BOLTED PRESSURE PLATE ACCORDING TO NFPA 780 STANDARDS.
8. FOR ALL EXTERNAL GROUND CONNECTIONS, CLAMPS AND CADWELDS, APPLY A LIBERAL PROTECTIVE COATING OR AN ANTI-OXIDE COMPOUND SUCH AS 'NO-OXIDE A' BY DEARBORN CHEMICAL COMPANY. ANTI- OXIDANT SHALL BE COMPATIBLE WITH METALS BEING BONDED. SURFACES TO BE BONDED SHALL BE CLEANED TO BARE METAL.
9. REPAIR ALL METAL SURFACES THAT HAVE BEEN CUT OR DAMAGED BY REMOVING ANY EXISTING RUST TO BARE METAL AND APPLYING COLD GALVANIZATION.
10. ALL COAXIAL CABLE WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE AT DISTANCES NOT TO EXCEED 3' OR THE CABLE MANUFACTURERS SPECIFICATIONS WHICHEVER IS LESS, WITH HARDWARE SPECIFIED IN THE COAXIAL CABLE ROUTING DETAILS OF THE SUPPLIED STRUCTURAL REPORT.
11. THE COAXIAL ANTENNA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PERFORMING AND SUPPLYING THREE (3) TYPE-WRITTEN SWEEP TESTS (ANTENNA RETURN LOSS TEST). THIS TEST SHALL BE PERFORMED TO THE SPECIFICATIONS AND PARAMETERS OUTLINED BY THE RADIO FREQUENCY ENGINEER. THIS TEST SHALL BE PERFORMED PRIOR TO FINAL ACCEPTANCE OF THE SITE.
12. THE COAXIAL ANTENNA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PERFORMING AND SUPPLYING THREE (3) TYPE-WRITTEN TIME DOMAIN EFLECTOMETER TESTS TO VERIFY CABLE LENGTH AND TO CHECK FOR WATER DAMAGE.
13. VAPOR WRAP WILL BE USED TO SEAL ALL CONNECTIONS.
14. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE WILL BE 1/2" DIA. AND SHALL NOT EXCEED 6'-0".
15. ALL MAIN TRANSMISSION CABLES WILL BE TERMINATED AT A POLYPHASER PROTECTOR LOCATED WITHIN 2'-0" OF THE ENTRY POINT INTO THE EQUIPMENT SHELTER.
16. ANTENNA CABLE LENGTHS HAVE BEEN DETERMINED BASED ON THESE PLANS. CABLE LENGTHS LISTED ARE APPROXIMATED AND ARE NOT INTENDED TO BE USED FOR FABRICATION. DUE TO FIELD CONDITIONS, ACTUAL CABLE LENGTHS VARY. CONTRACTOR MUST FIELD VERIFY ANTENNA CABLE LENGTHS PRIOR TO ORDER.
17. ALL MAIN CABLES WILL BE COLOR CODED AT FOUR LOCATIONS: A) AT ANTENNA PRIOR TO JUMPER, B) AT THE BOTTOM OF THE TOWER, C) EXTERIOR PART OF THE WAVEGUIDE ENTRY PORT (AT THE SHELTER/CABINET WALL), D) INTERIOR OF THE SHELTER/CABINET.
18. ALL MAIN CABLES WILL BE GROUNDED AT: A) AT THE ANTENNA MOUNTING PIPE, B) EVERY 50' TO 75' IN HIGH LIGHTNING AREAS, C) AT THE BOTTOM OF THE TOWER, D) PRIOR TO ENTERING EQUIPMENT SHELTER/CABINET (WITHIN 1' OF ENTRY).
19. PROVIDE AT LEAST 6" SLACK IN THE MAIN COAXIAL CABLES AT THE TOWER TOP TO PROVIDE FOR FUTURE CONNECTOR REPLACEMENT. SLACK DOES NOT CONSTITUTE CREATING A LOOP OR COIL. ALL TRANSMISSION LINES SHOULD BE AT A DOWNWARD DIRECTION.
20. PROVIDE A CABLE DRIP LOOP AT THE BOTTOM OF THE TOWER BELOW THE TOWER BOTTOM GROUND CONNECTIONS AND AS THE CABLE TRANSITIONS TO THE SHELTER/CABINET.
21. CABLE SUPPORT RODS INSIDE SHELTER SHALL BE CUT 2" BELOW LOWER SUPPORT PLATE AND SHALL BE COVERED WITH A RUBBER CAP.
22. PROPOSED METER AND DISCONNECT SHALL BE LABELED WITH AN ENGRAVED PLATE WITH SITE ID NUMBER, SITE NAME, AND ADDRESS.
23. ALL UNISTRUT CUTS AND ANY METAL ENDS WITH RAW EDGES SHALL BE COLD GALVANIZED AND COVERED WITH A PLASTIC/RUBBER CAP.
24. TRAPEZE RODS WILL BE CUT 4 INCHES FROM THE BOTTOM OF THE BUS AND CAPPED WITH RUBBER CAPS.
25. ANY METALLIC OBJECTS WILL BE GROUNDED WITHIN 10 FEET OF ANY PROPOSED EQUIPMENT. FENCING SHALL BE BONDED IF WITHIN 20 FEET OF ANY PROPOSED EQUIPMENT.
26. TOWER GROUND TO BE NOT MORE THAN 2 OR 3 FEET FROM TRANSITION (BEND).
27. THE SEAM BETWEEN THE BUILDING AND THE CONCRETE SLAB WILL BE GROUTED WITH APPROVED COMPOUND, INCLUDING ANY GAP BETWEEN PAD AND STOOP.

LEASE EXHIBIT, NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE		BY:
A	03/29/19	90% SUBMITTAL	TW
B			
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F			

DRAWN BY: TW
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SCALE: AS NOTED

DATE: 03/01/2019

KCI JOB NUMBER: **011900093B**

SHEET TITLE

GENERAL NOTES

SHEET

N-1

ROOF NOTES

1. TEMPORARY ROOF PROTECTION - PROVIDE TEMPORARY PROTECTION USING 3/4" STYROFOAM PADDING AGAINST THE ROOFING MATERIAL WITH 3/4" PLYWOOD BETWEEN THE PADDING AND ANY EQUIPMENT, MATERIALS, AND TOOLS STORED ON THE ROOF. THE ROOF AROUND WORKING AREAS SHALL ALSO BE TEMPORARILY PROTECTED AS WELL AS THE PATHS BETWEEN THE WORK AREA AND ROOF ENTRY DOORS. THE METHOD OF PROTECTION SHALL ALSO COMPLY WITH ANY ROOF WARRANTY THAT MAY BE IN EFFECT. IF PENETRATING SUBSTANCES, SUCH AS ACIDS, CHEMICALS, OR TOOLS ARE TO BE USED DURING CONSTRUCTION, PROVIDE ADDITIONAL PROTECTION TO PREVENT ROOF DAMAGE.

2. EXISTING ROOF CONDITION - PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL RECORD THE CONDITION OF THE ROOF BY PHOTOGRAPHING ALL AREAS THAT WILL BE AFFECTED. AT HIS DISCRETION THE CONTRACTOR MAY PHOTOGRAPH ANY OTHER STRUCTURES WITHIN PROXIMITY TO WORK AREAS, IN ORDER TO RECORD T7HEIR CONDITION ALSO. THESE PHOTOGRAPHS SHALL BE ASSEMBLED IN A NOTEBOOK IDENTIFYING EACH PHOTOGRAPH WITH LOCATION AND OBJECT PICTURED. A SUMMARY OF THE INSPECTION OF THE ROOF STATING IT'S CONDITION SHALL ACCOMPANY THE PHOTOS AND SHALL BE PROVIDED TO THE CLIENT PRIOR TO COMMENCING THE WORK. IF THE CONDITION OF THE ROOF IS IN A POOR STATE, THE CONTRACTOR SHALL NOTIFY THE CLIENT IMMEDIATELY. A MEETING WILL BE ARRANGED TO ENSURE WORK WILL PROCEED WITHOUT DISPUTE OF ROOF RESTORATION RESPONSIBILITY.

3. WATER PROTECTION - THE CONTRACTOR SHALL PROVIDE PROTECTION FROM WATER PENETRATION DURING THE INSTALLATION OF ROOF PENETRATING SUPPORT SYSTEMS OR ANY OTHER ROOF PENETRATING PROCEDURE. METHODS OF PROTECTION SHALL COMPLY WITH ANY ROOF WARRANTY IN EFFECT.

4. FIRE PROTECTION - COMPLY WITH OSHA STANDARDS THROUGHOUT THE PROJECT. WHEN OPERATING TOOLS THAT PRODUCE SPARKS, FLAME OR HEAT, THE CONTRACTOR WILL DESIGNATE AN INDIVIDUAL TO STAND-BY THE INDIVIDUAL OPERATING THE TOOL WITH A 20 LB. ABC FIRE EXTINGUISHER WITH IT'S PIN REMOVED AND READY TO USE IN CASE OF A FIRE. THE CONTRACTOR SHALL PROVIDE AT ALL TIMES ONE PROPERLY CHARGED 20 LBS. ABC FIRE EXTINGUISHER WITHIN CLOSE PROXIMITY TO THE WORK AREA. THE FIRE EXTINGUISHER SHALL HAVE BEEN INSPECTED WITHIN THE PAST YEAR. IT SHALL BE KEPT IN A CONSPICUOUS LOCATION AND EASILY ACCESSIBLE. PATHS TO THE FIRE EXTINGUISHER AND OTHER FIRE FIGHTING EQUIPMENT SHALL BE KEPT CLEAR.

5. REINSTATEMENT - ANY ROOFING, PAVEMENT, FOOTPATH, CURB, GUTTERS, WALLS, FLOORS, SERVICES, AND EXISTING FEATURES OR OTHER PROPERTIES DISTURBED OR DESTROYED DURING CONSTRUCTION SHALL BE REINSTATED BY THE CONTRACTOR TO A CONDITION AT LEAST EQUAL TO THAT EXISTING BEFORE COMMENCEMENT OF OPERATIONS AT NO COST TO THE OWNER OR THE CLIENT.

6. REPAIRS - THE CONTRACTOR SHALL USE THE EXISTING ROOFING WARRANTY CONTRACTOR TO REPAIR HOLES, DAMAGES, AND ALTERATIONS TO THE ROOF. IF EXCESSIVE COSTS ARE ASSOCIATED WITH THIS ROOFING CONTRACTOR, THE CONTRACTOR SHALL NOTIFY THE CLIENT OF THE SITUATION AND AGREE UPON AN ALTERNATE ROOFING CONTRACTOR TO PERFORM THE WORK.

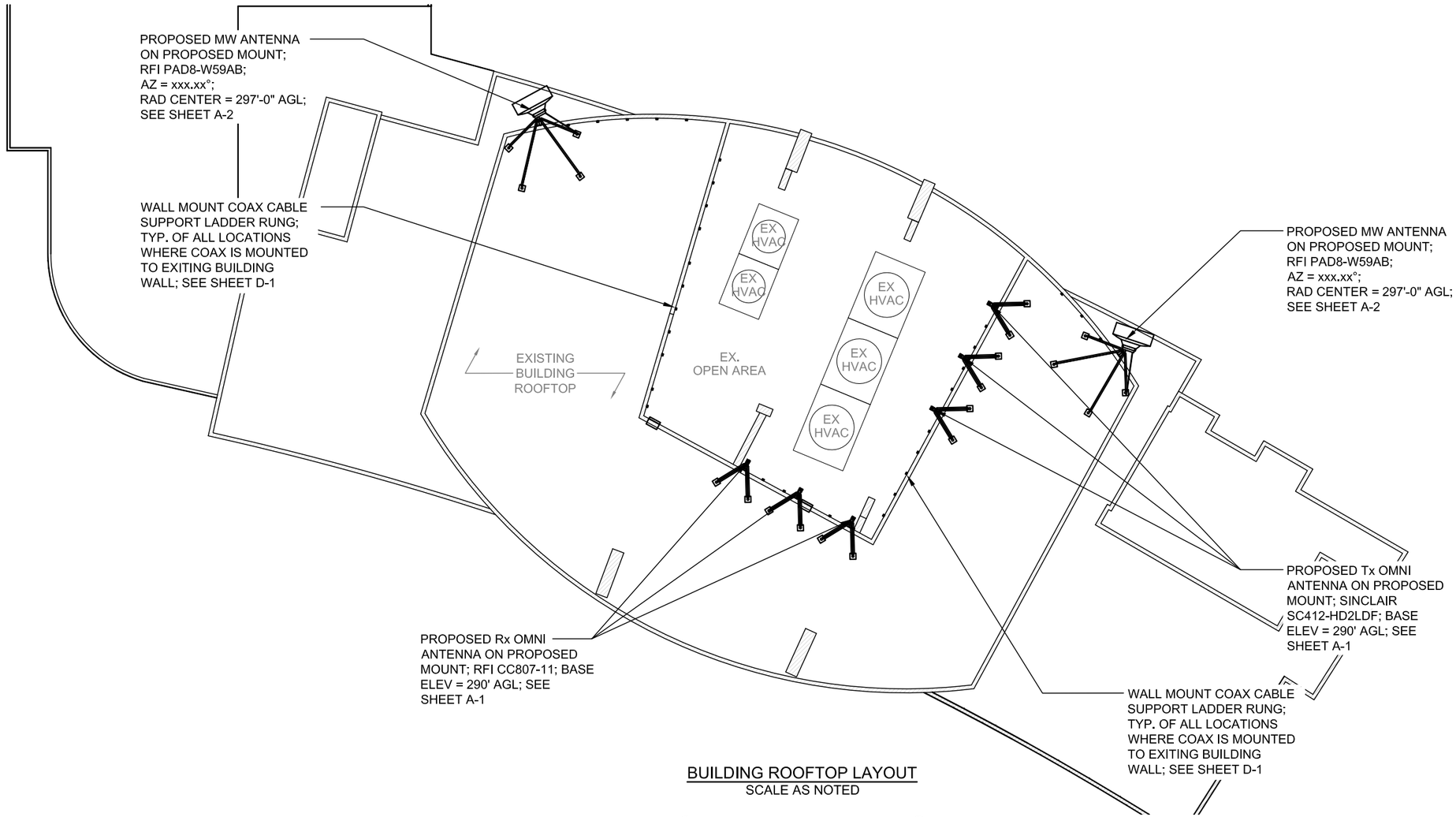
7. REFERENCES - PERFORM WORK IN ACCORDANCE WITH THE NATIONAL ROOFING AND WATERPROOFING MANUAL.

8. APPLICATION - APPLY MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

9. CONTRACTOR SHALL REMOVE ONLY THE AMOUNT OF ROOFING AND INSULATION REQUIRED TO PERFORM THE WORK. AFTER THE COMPLETION OF WORK, REPLACE THE DEMOLISHED INSULATION WITH A COMPATIBLE INSULATION, PROVIDING A TIGHT JOINT ALL AROUND. FLASH IN NEW BUILT-UP ROOFING TO THE EXISTING BUILT-UP ROOFING AS RECOMMENDED BY THE ROOFING MANUFACTURER TO PROVIDE A WATERTIGHT ROOF.

10. CONTRACTOR'S BASE BID SHALL ASSUME ASBESTOS-FREE MATERIALS. IF THE CONTRACTOR SUSPECTS THAT ASBESTOS MATERIALS DO EXIST, THE CONTRACTOR SHALL CONTACT THE OWNER FOR INSTRUCTIONS ON HOW TO PROCEED.

11. IF ROOF IS PRE-STRESSED OR POST-TENSIONED, CONTRACTOR TO X-RAY ROOF BEFORE ANY CONCRETE PENETRATIONS ARE MADE.



BUILDING ROOFTOP LAYOUT
SCALE AS NOTED

20' 0' 10' 20'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 10'
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1" = 20'

N

BUILDING ARCHITECTURAL INFORMATION PROVIDED BY MOTOROLA SOLUTIONS

LEASE EXHIBIT, NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE		BY:
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CHECKED BY: EK
APPROVED BY: JF

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(813) 740-2300

MOTOROLA SOLUTIONS

CIRC HOTEL

1780 POLK STREET
HOLLYWOOD, FLORIDA 33020

ENGINEER:
JAMES T. FENNELL, PE
FL LICENSE NO. 63808

SCALE: AS NOTED
DATE: 03/01/2019
KCI JOB NUMBER: **011900093B**

SHEET TITLE
BUILDING ROOFTOP LAYOUT

SHEET
C-1

ROOF NOTES

1. TEMPORARY ROOF PROTECTION - PROVIDE TEMPORARY PROTECTION USING 3/4" STYROFOAM PADDING AGAINST THE ROOFING MATERIAL WITH 3/4" PLYWOOD BETWEEN THE PADDING AND ANY EQUIPMENT, MATERIALS, AND TOOLS STORED ON THE ROOF. THE ROOF AROUND WORKING AREAS SHALL ALSO BE TEMPORARILY PROTECTED AS WELL AS THE PATHS BETWEEN THE WORK AREA AND ROOF ENTRY DOORS. THE METHOD OF PROTECTION SHALL ALSO COMPLY WITH ANY ROOF WARRANTY THAT MAY BE IN EFFECT. IF PENETRATING SUBSTANCES, SUCH AS ACIDS, CHEMICALS, OR TOOLS ARE TO BE USED DURING CONSTRUCTION, PROVIDE ADDITIONAL PROTECTION TO PREVENT ROOF DAMAGE.

2. EXISTING ROOF CONDITION - PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL RECORD THE CONDITION OF THE ROOF BY PHOTOGRAPHING ALL AREAS THAT WILL BE AFFECTED. AT HIS DISCRETION THE CONTRACTOR MAY PHOTOGRAPH ANY OTHER STRUCTURES WITHIN PROXIMITY TO WORK AREAS, IN ORDER TO RECORD T7HEIR CONDITION ALSO. THESE PHOTOGRAPHS SHALL BE ASSEMBLED IN A NOTEBOOK IDENTIFYING EACH PHOTOGRAPH WITH LOCATION AND OBJECT PICTURED. A SUMMARY OF THE INSPECTION OF THE ROOF STATING IT'S CONDITION SHALL ACCOMPANY THE PHOTOS AND SHALL BE PROVIDED TO THE CLIENT PRIOR TO COMMENCING THE WORK. IF THE CONDITION OF THE ROOF IS IN A POOR STATE, THE CONTRACTOR SHALL NOTIFY THE CLIENT IMMEDIATELY. A MEETING WILL BE ARRANGED TO ENSURE WORK WILL PROCEED WITHOUT DISPUTE OF ROOF RESTORATION RESPONSIBILITY.

3. WATER PROTECTION - THE CONTRACTOR SHALL PROVIDE PROTECTION FROM WATER PENETRATION DURING THE INSTALLATION OF ROOF PENETRATING SUPPORT SYSTEMS OR ANY OTHER ROOF PENETRATING PROCEDURE. METHODS OF PROTECTION SHALL COMPLY WITH ANY ROOF WARRANTY IN EFFECT.

4. FIRE PROTECTION - COMPLY WITH OSHA STANDARDS THROUGHOUT THE PROJECT. WHEN OPERATING TOOLS THAT PRODUCE SPARKS, FLAME OR HEAT, THE CONTRACTOR WILL DESIGNATE AN INDIVIDUAL TO STAND-BY THE INDIVIDUAL OPERATING THE TOOL WITH A 20 LB. ABC FIRE EXTINGUISHER WITH IT'S PIN REMOVED AND READY TO USE IN CASE OF A FIRE. THE CONTRACTOR SHALL PROVIDE AT ALL TIMES ONE PROPERLY CHARGED 20 LBS. ABC FIRE EXTINGUISHER WITHIN CLOSE PROXIMITY TO THE WORK AREA. THE FIRE EXTINGUISHER SHALL HAVE BEEN INSPECTED WITHIN THE PAST YEAR. IT SHALL BE KEPT IN A CONSPICUOUS LOCATION AND EASILY ACCESSIBLE. PATHS TO THE FIRE EXTINGUISHER AND OTHER FIRE FIGHTING EQUIPMENT SHALL BE KEPT CLEAR.

5. REINSTATEMENT - ANY ROOFING, PAVEMENT, FOOTPATH, CURB, GUTTERS, WALLS, FLOORS, SERVICES, AND EXISTING FEATURES OR OTHER PROPERTIES DISTURBED OR DESTROYED DURING CONSTRUCTION SHALL BE REINSTATED BY THE CONTRACTOR TO A CONDITION AT LEAST EQUAL TO THAT EXISTING BEFORE COMMENCEMENT OF OPERATIONS AT NO COST TO THE OWNER OR THE CLIENT.

6. REPAIRS - THE CONTRACTOR SHALL USE THE EXISTING ROOFING WARRANTY CONTRACTOR TO REPAIR HOLES, DAMAGES, AND ALTERATIONS TO THE ROOF. IF EXCESSIVE COSTS ARE ASSOCIATED WITH THIS ROOFING CONTRACTOR, THE CONTRACTOR SHALL NOTIFY THE CLIENT OF THE SITUATION AND AGREE UPON AN ALTERNATE ROOFING CONTRACTOR TO PERFORM THE WORK.

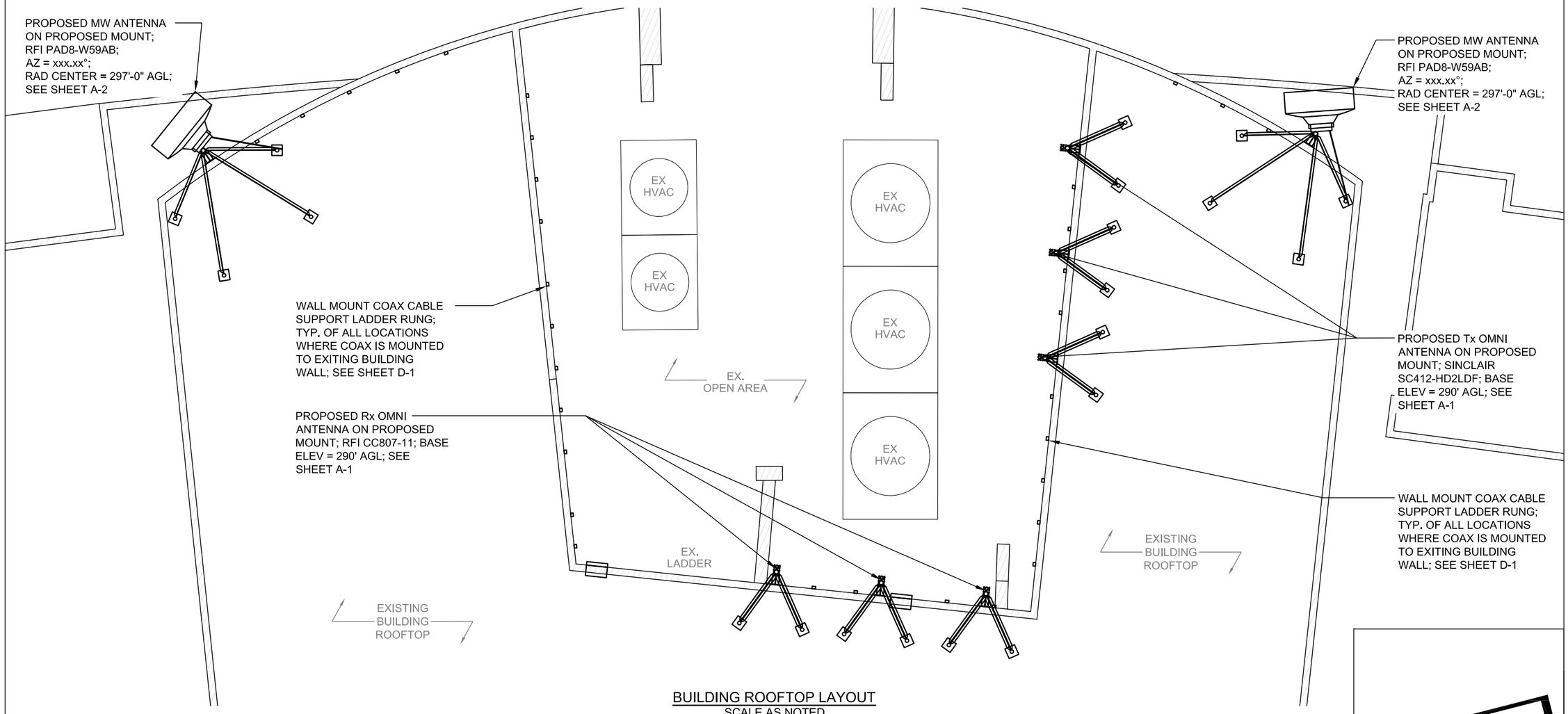
7. REFERENCES - PERFORM WORK IN ACCORDANCE WITH THE NATIONAL ROOFING AND WATERPROOFING MANUAL.

8. APPLICATION - APPLY MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

9. CONTRACTOR SHALL REMOVE ONLY THE AMOUNT OF ROOFING AND INSULATION REQUIRED TO PERFORM THE WORK. AFTER THE COMPLETION OF WORK, REPLACE THE DEMOLISHED INSULATION WITH A COMPATIBLE INSULATION, PROVIDING A TIGHT JOINT ALL AROUND. FLASH IN NEW BUILT-UP ROOFING TO THE EXISTING BUILT-UP ROOFING AS RECOMMENDED BY THE ROOFING MANUFACTURER TO PROVIDE A WATERTIGHT ROOF.

10. CONTRACTOR'S BASE BID SHALL ASSUME ASBESTOS-FREE MATERIALS. IF THE CONTRACTOR SUSPECTS THAT ASBESTOS MATERIALS DO EXIST, THE CONTRACTOR SHALL CONTACT THE OWNER FOR INSTRUCTIONS ON HOW TO PROCEED.

11. IF ROOF IS PRE-STRESSED OR POST-TENSIONED, CONTRACTOR TO X-RAY ROOF BEFORE ANY CONCRETE PENETRATIONS ARE MADE.



BUILDING ROOFTOP LAYOUT
SCALE AS NOTED

10' 0' 5' 10'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 5'
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1" = 10'

N

BUILDING ARCHITECTURAL INFORMATION PROVIDED BY MOTOROLA SOLUTIONS

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ENGINEER:
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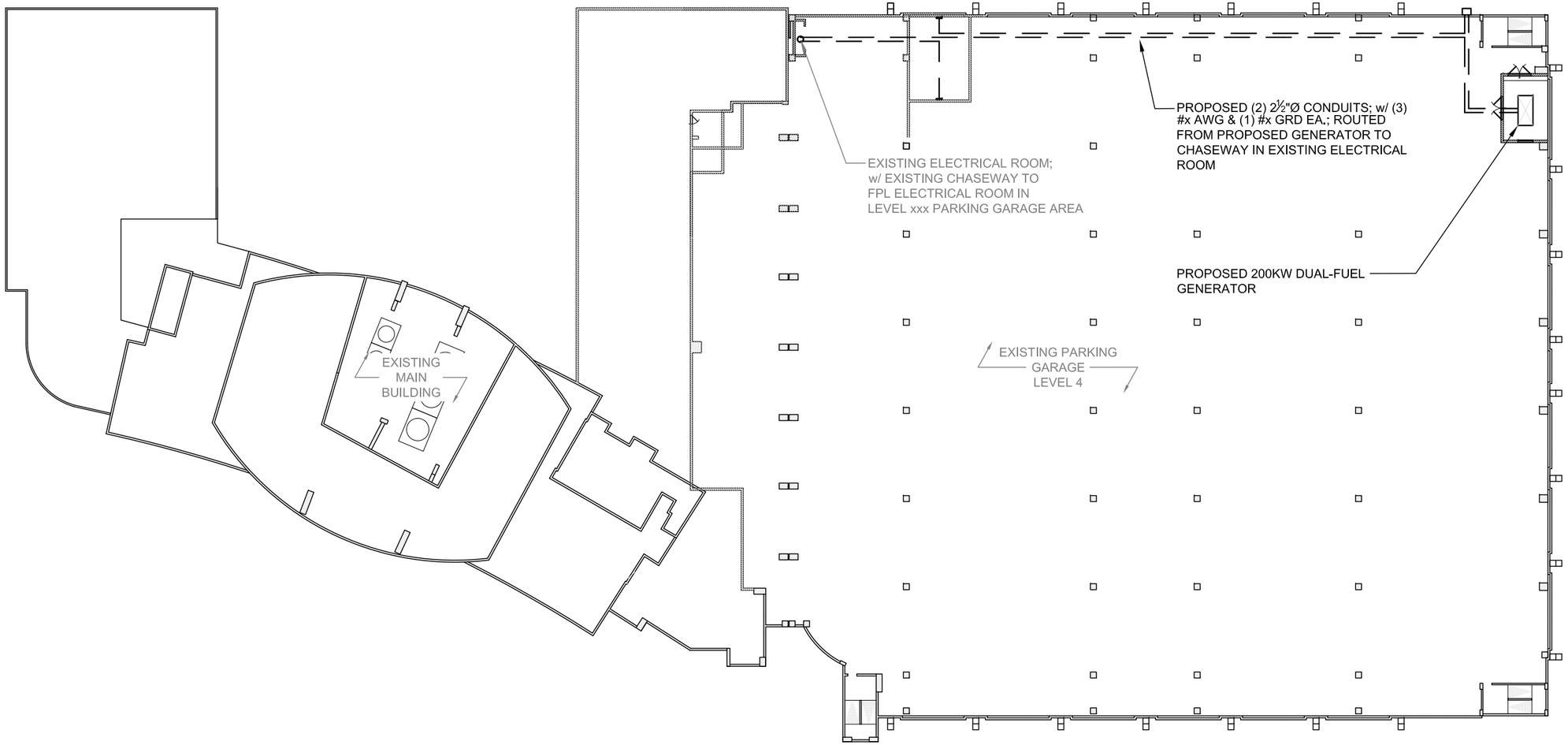
SHEET TITLE
BUILDING ROOFTOP DETAIL

SHEET
C-2



PARKING GARAGE LAYOUT
SCALE AS NOTED

40' 0' 20' 40'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 20'
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1" = 40'

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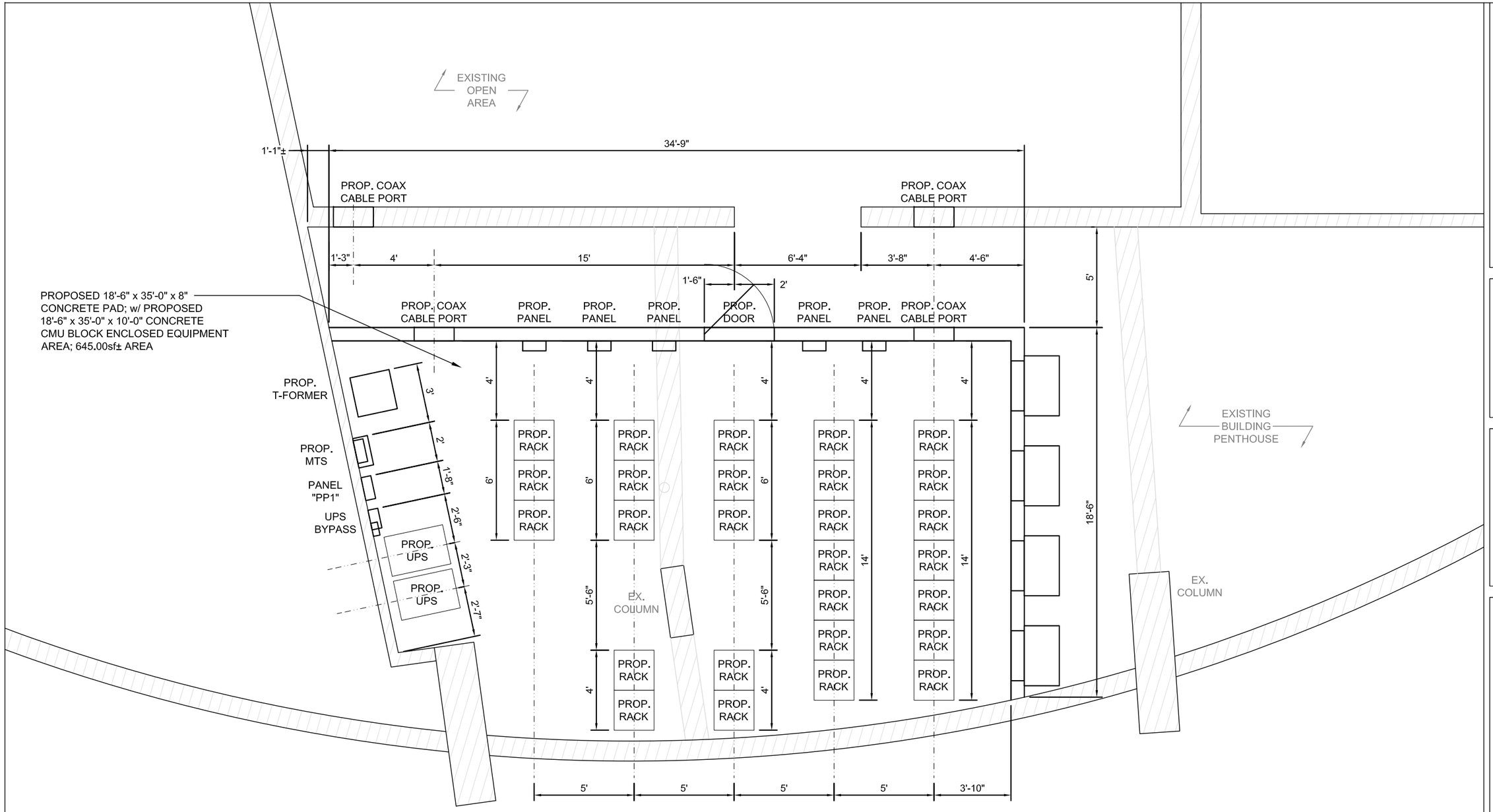
SHEET TITLE
PARKING GARAGE LAYOUT

SHEET
C-3



EQUIPMENT ROOM LAYOUT
SCALE AS NOTED

5' 0' 5' 10'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 5'
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1" = 10'

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SHEET TITLE
EQUIPMENT ROOM LAYOUT

SHEET
C-4

NOTES:

1. ELEVATION SHOWN FOR REFERENCE ONLY. DO NOT USE FOR DIMENSIONING.
2. EXISTING EQUIPMENT NOT SHOWN FOR CLARITY.
3. CONTRACTOR TO ENSURE THAT NO PROPOSED MOTOROLA EQUIPMENT SHALL BLOCK ANY EXISTING FIRE EXTINGUISHING EQUIPMENT.

BUILDING ELEVATION - FROM NORTH
NOT TO SCALE

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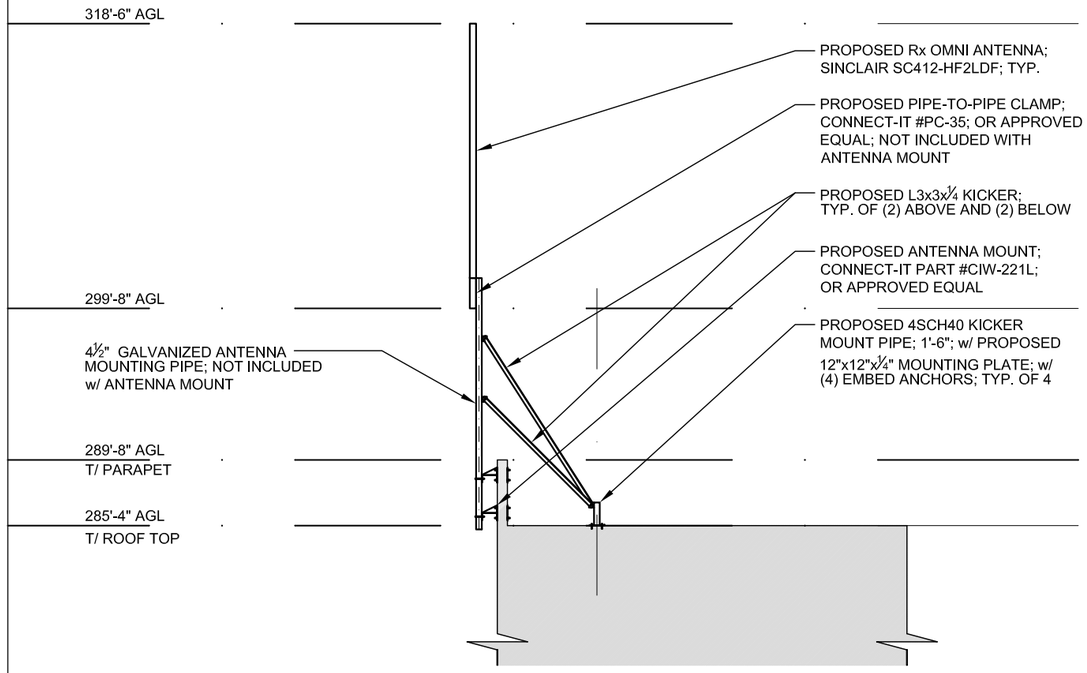
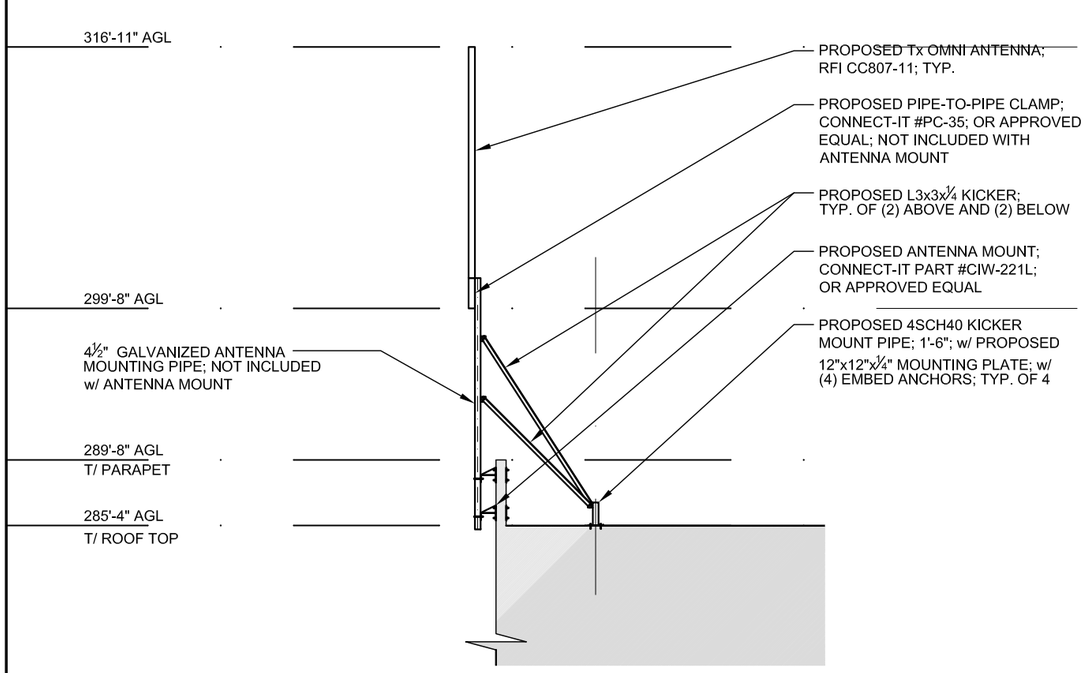
SHEET TITLE
BUILDING ELEVATION

SHEET
C-5



Rx OMNI ANTENNA ELEVATION
NOT TO SCALE



Tx OMNI ANTENNA ELEVATION
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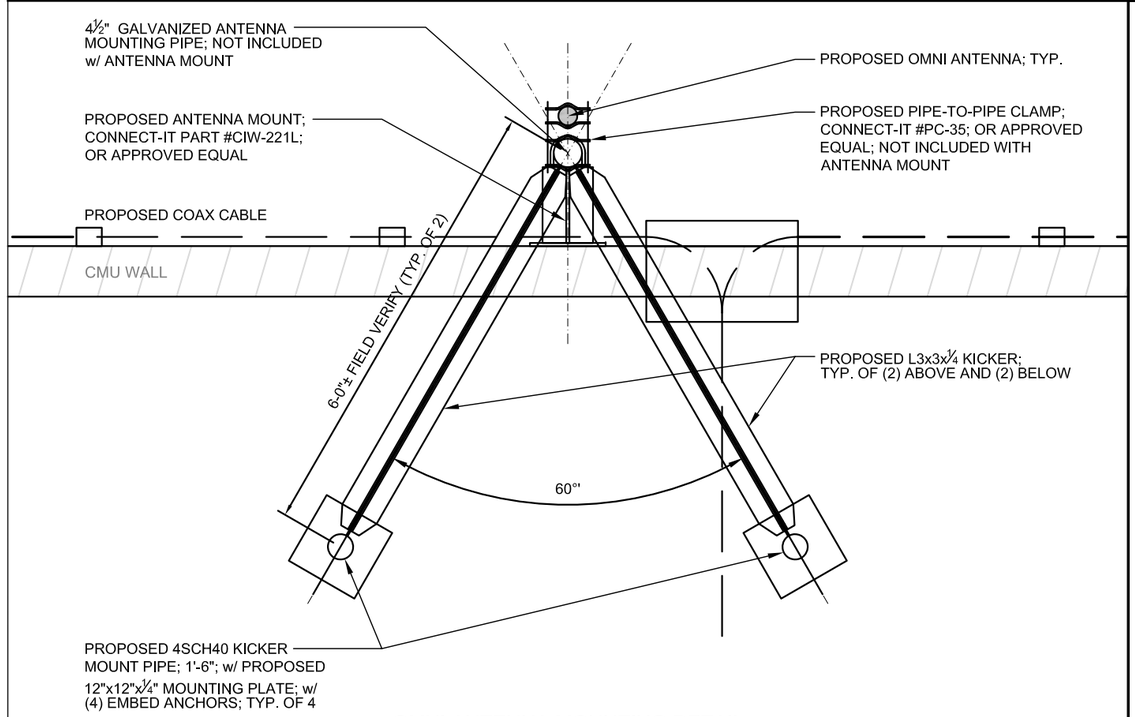

OMNI ANTENNA MOUNTING DETAIL
NOT TO SCALE

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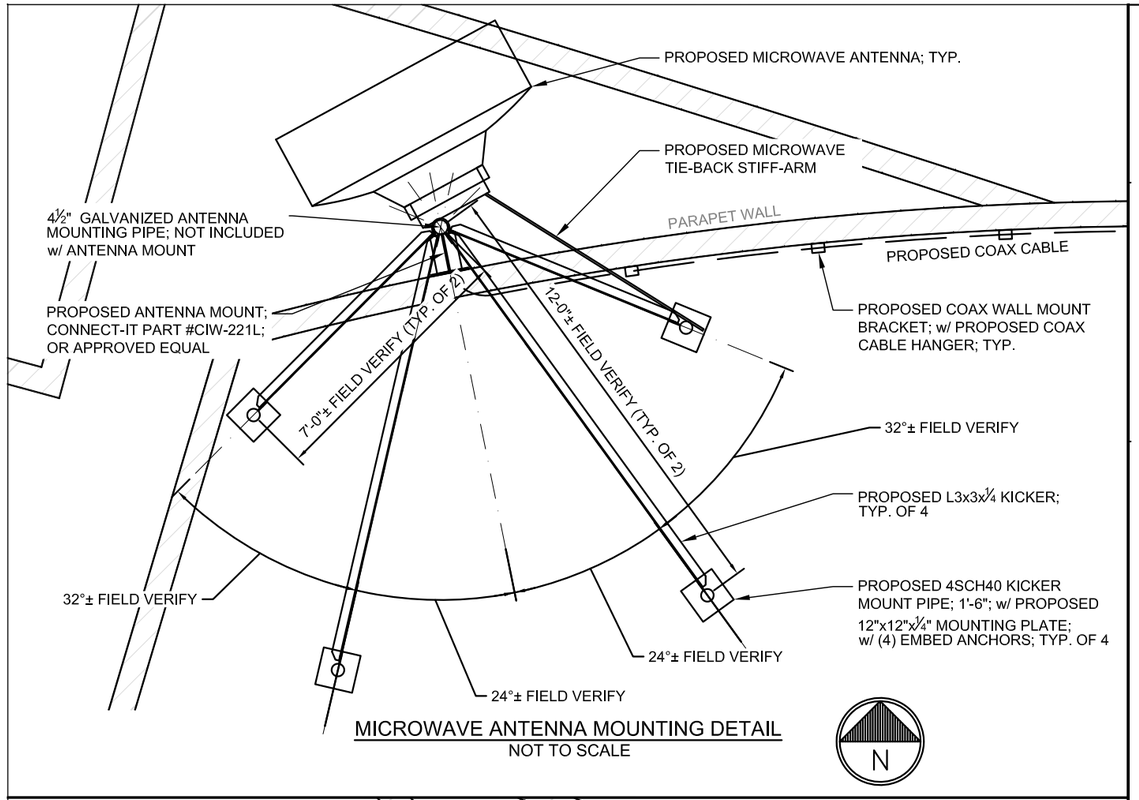
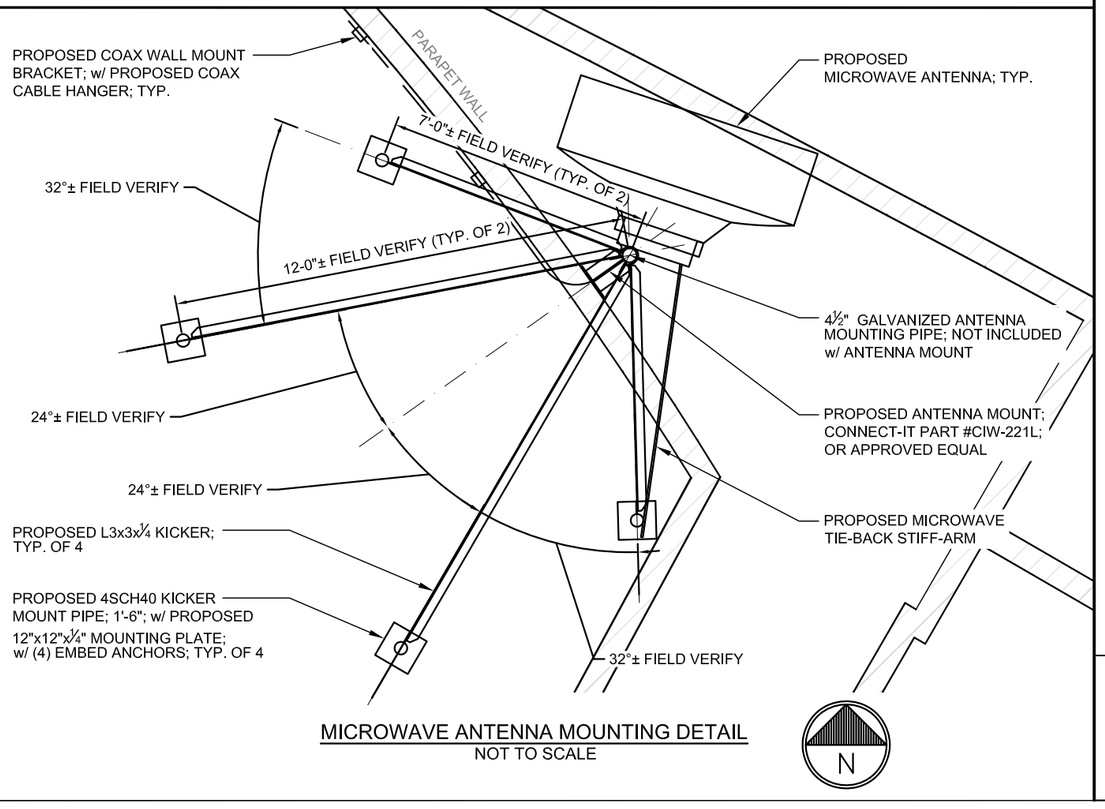
SHEET TITLE
ANTENNA MOUNT DETAILS

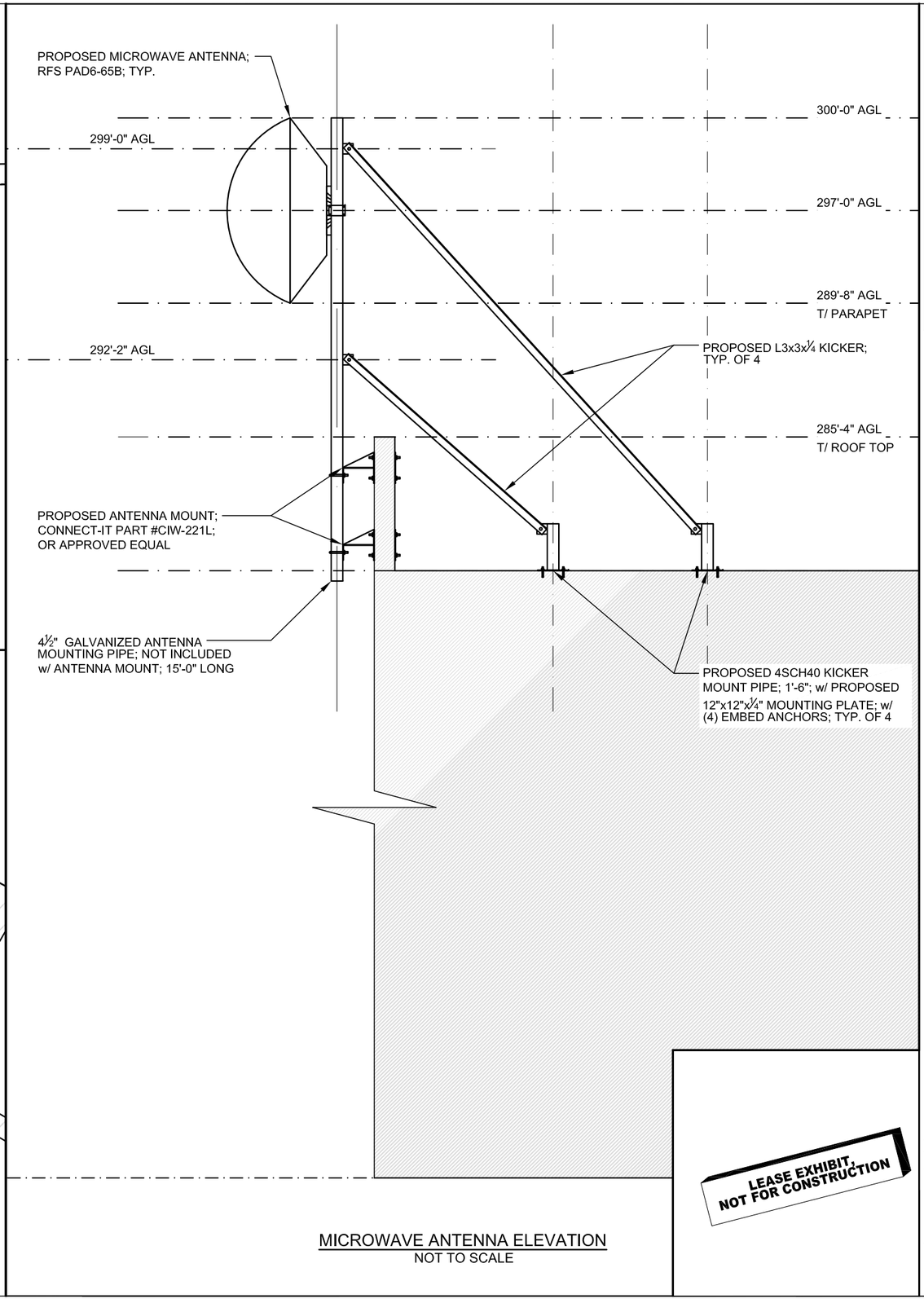
SHEET
A-1



MICROWAVE ANTENNA MOUNTING DETAIL
NOT TO SCALE



MICROWAVE ANTENNA MOUNTING DETAIL
NOT TO SCALE



MICROWAVE ANTENNA ELEVATION
NOT TO SCALE

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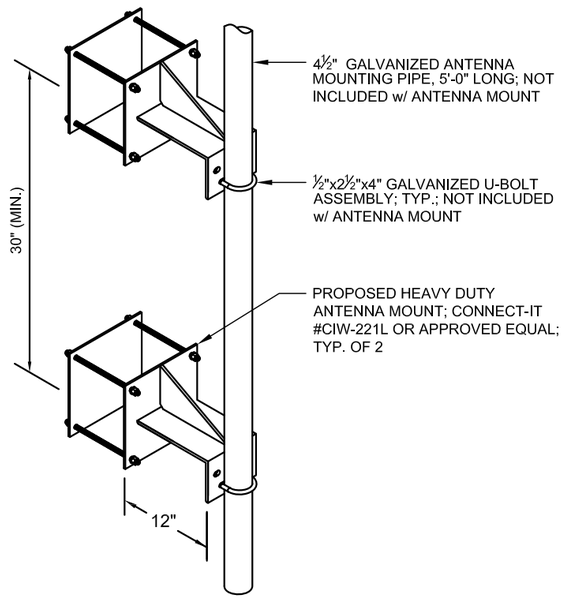
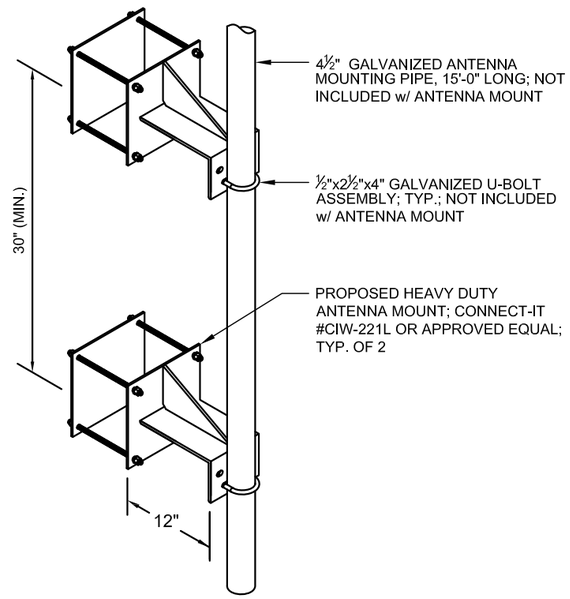
SHEET TITLE
ANTENNA MOUNT DETAILS

SHEET
A-2



OMNI ANTENNA MOUNTING DETAIL
NOT TO SCALE

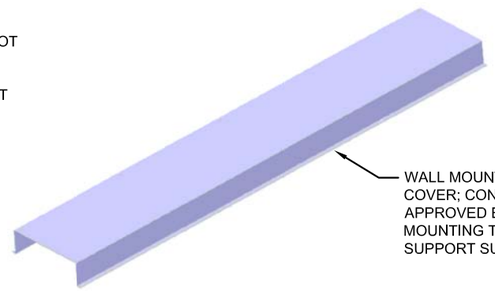


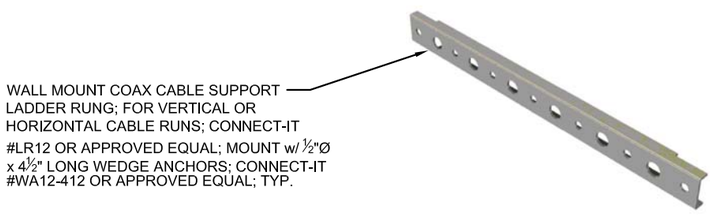
MICROWAVE ANTENNA MOUNTING DETAIL
NOT TO SCALE

NOTES:

WALL MOUNT COAX CABLE SUPPORT LADDER RUNGS ARE TO BE SPACED AS CONDITIONS ALLOW; SPACING SHALL NOT EXCEED 4'-0" O.C.

CONTRACTOR SHALL DETERMINE EXACT NUMBER OF SUPPORTS REQUIRED.

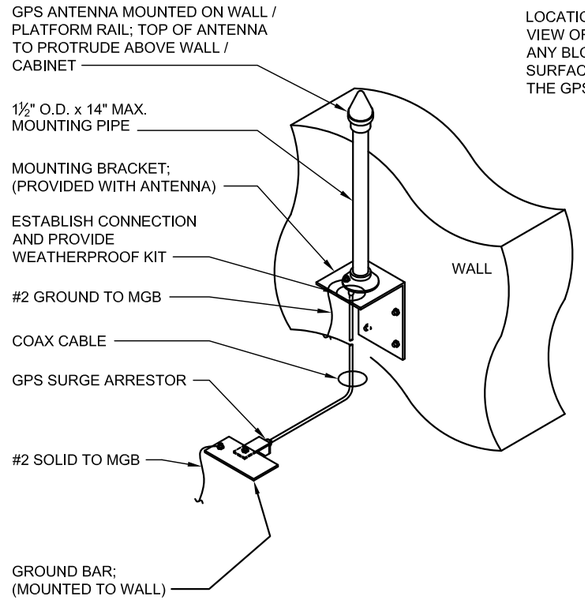




WALL MOUNT COAX CABLE SUPPORT LADDER RUNG AND COVER
NOT TO SCALE

NOTE:

LOCATION OF ANTENNA MUST HAVE CLEAR VIEW OF SOUTHERN SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.



GPS MOUNTING DETAIL
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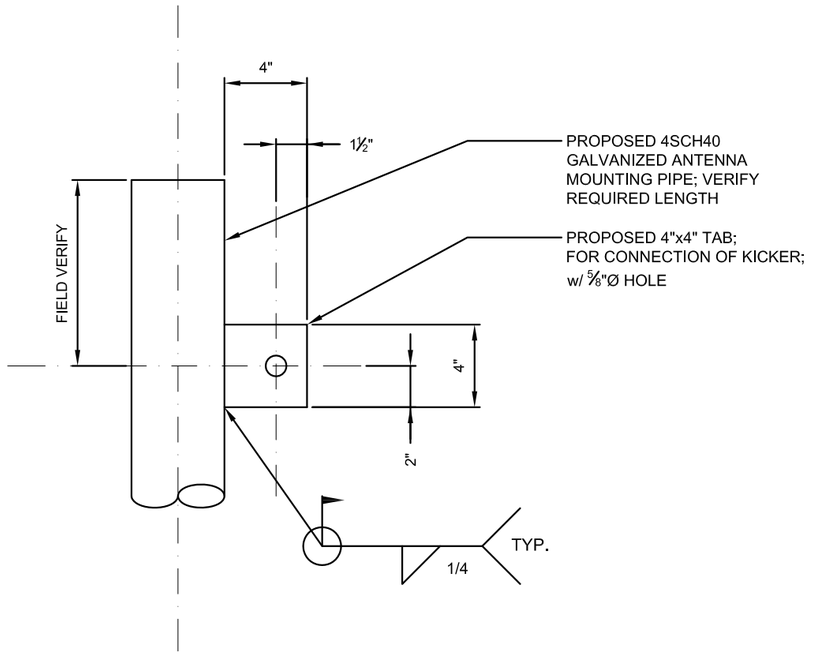
SHEET TITLE
ANTENNA MOUNT DETAILS

SHEET
A-3



ANTENNA MOUNT DETAIL
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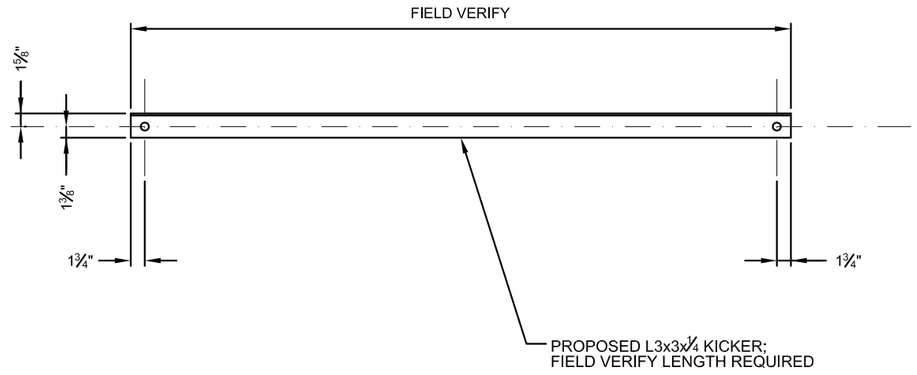

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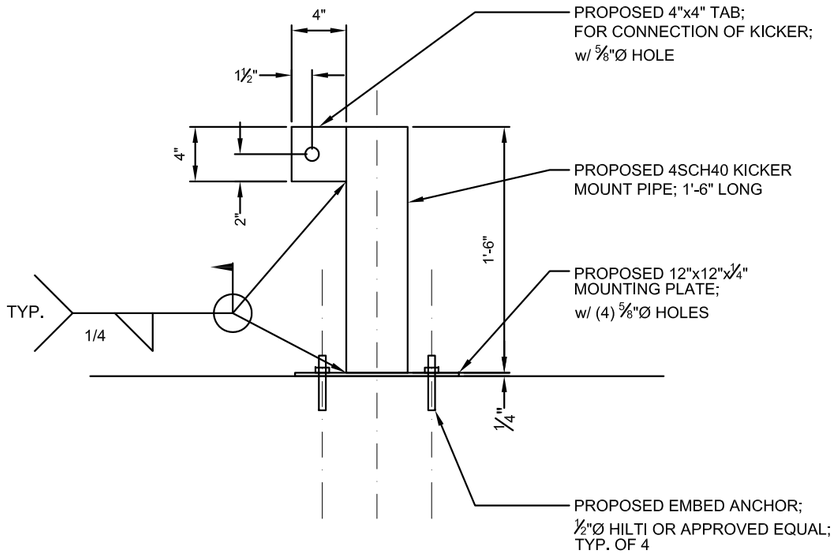

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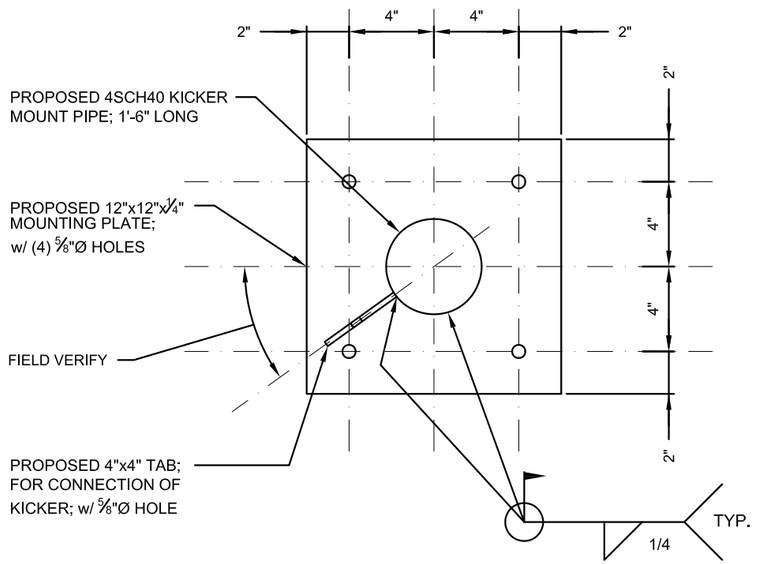

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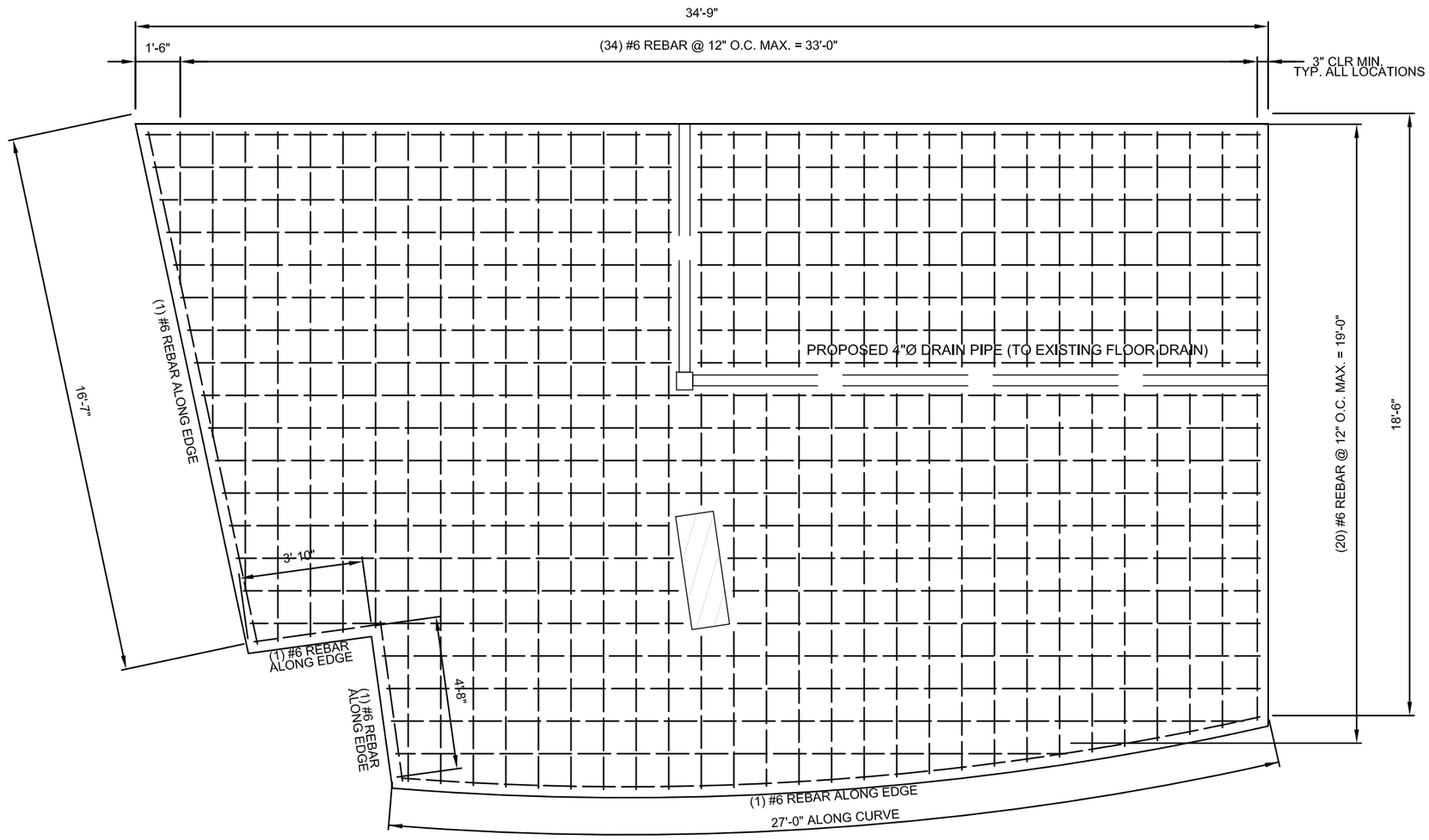
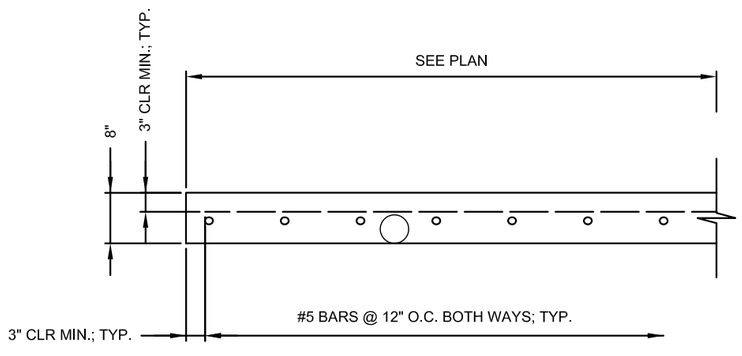
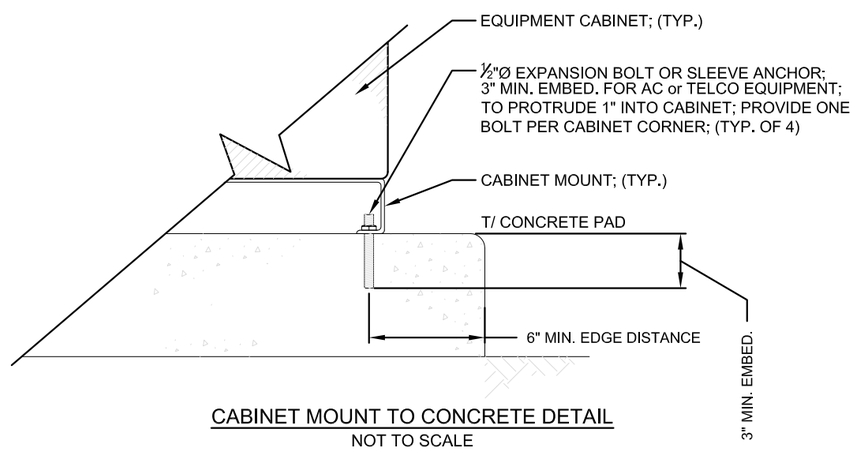


CONCRETE PAD DETAIL
NOT TO SCALE



CONCRETE PAD SECTION
NOT TO SCALE



CABINET MOUNT TO CONCRETE DETAIL
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SHEET TITLE
CONSTRUCTION DETAILS

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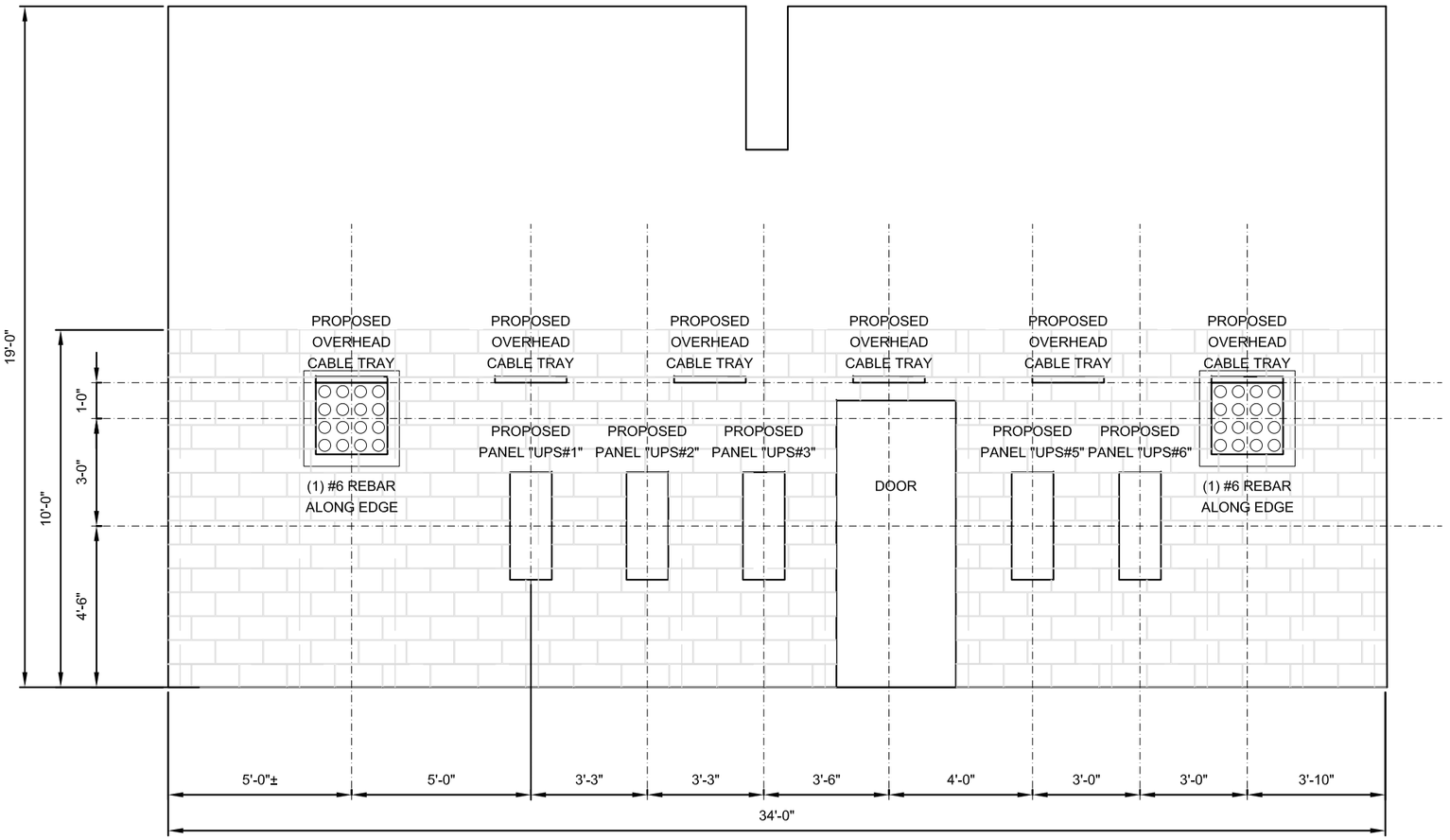
D-1



PROPOSED CONCRETE CMU WALL ELEV4.5ATION

NOT TO SCALE

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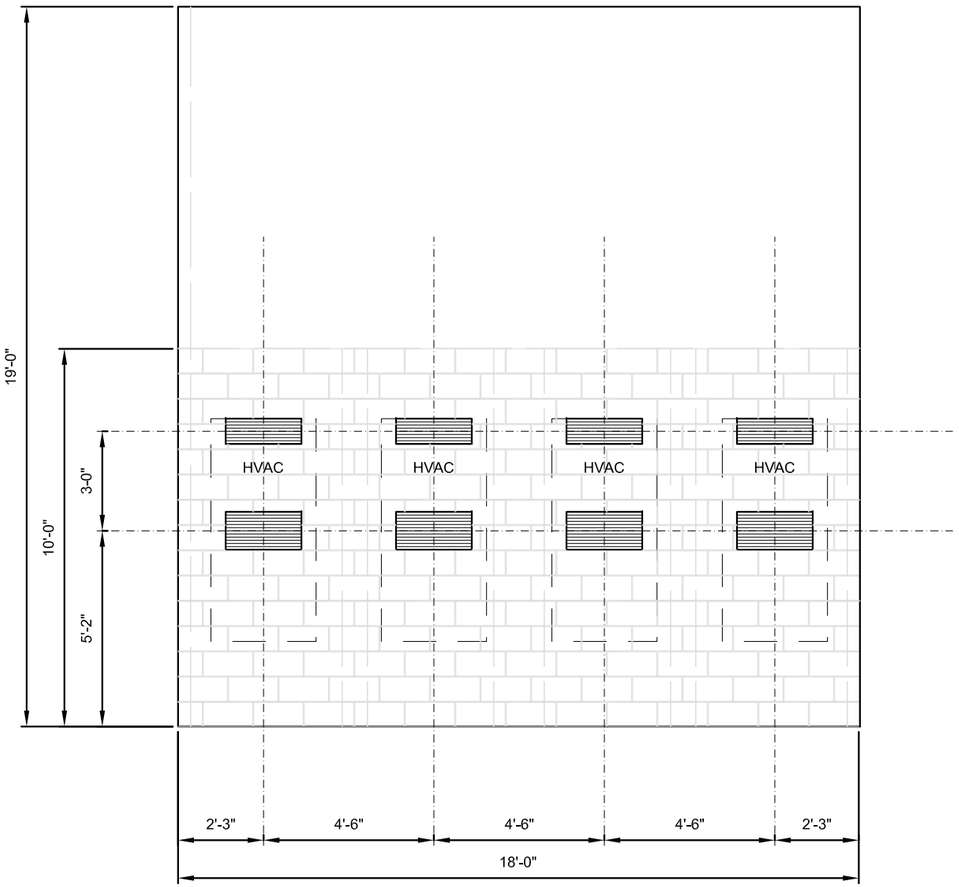
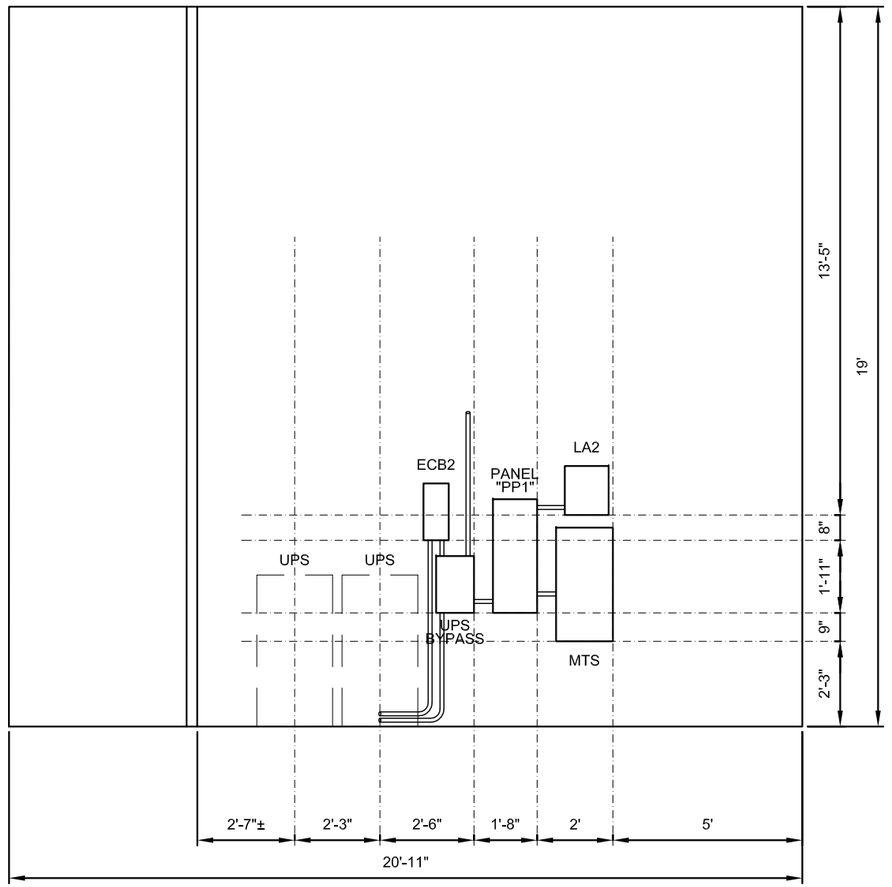
CONSTRUCTION DETAILS

SHEET
D-2



PROPOSED CONCRETE CMU WALL ELEVATION

NOT TO SCALE



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MOTOROLA SOLUTIONS

CIRC HOTEL

1780 POLK STREET
HOLLYWOOD, FLORIDA 33020

ENGINEER:
JAMES T. FENNELL, PE
FL LICENSE NO. 63808

SCALE: AS NOTED

DATE: 03/01/2019

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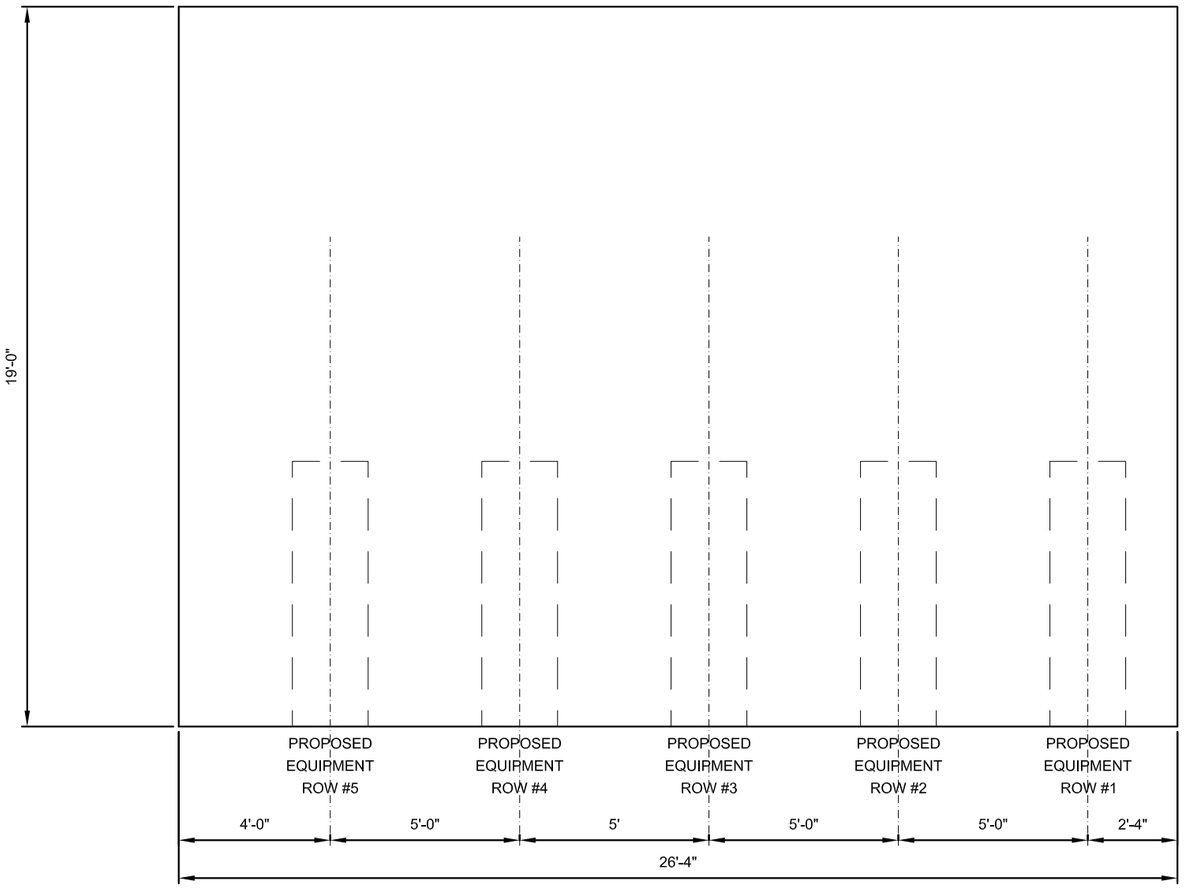
SHEET TITLE
CONSTRUCTION DETAILS

SHEET
D-3



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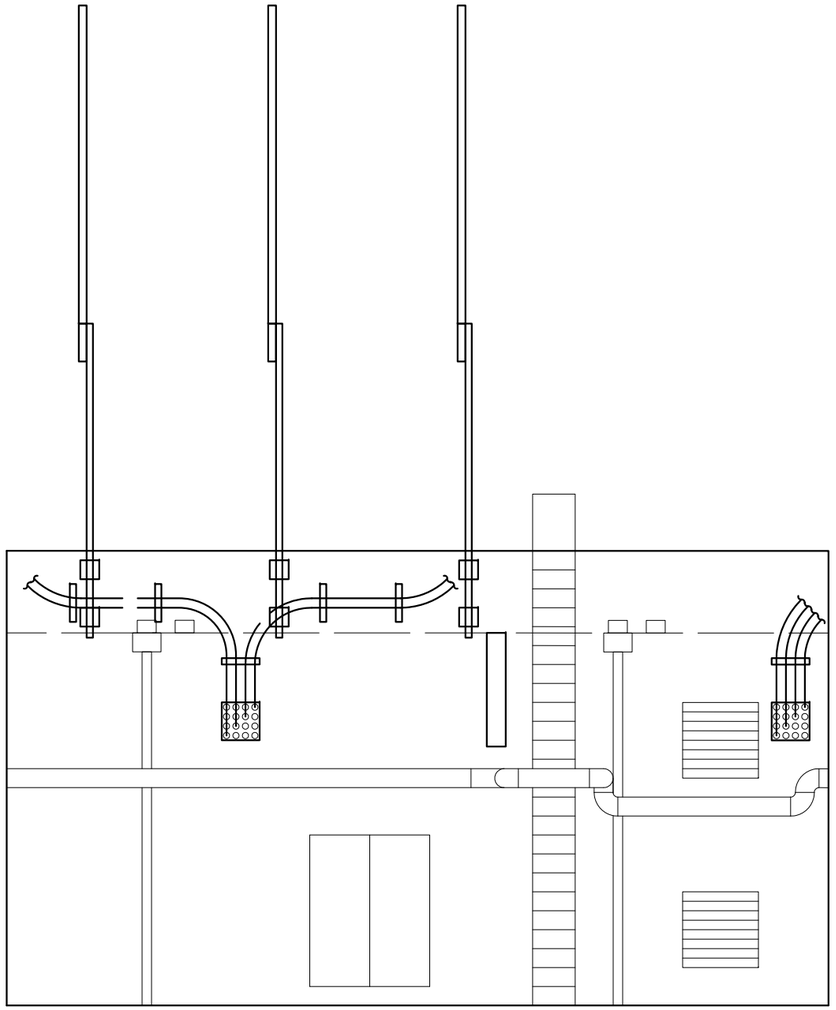
CONSTRUCTION DETAILS

SHEET
D-4



PROPOSED PARAPET WALL ELEVATION

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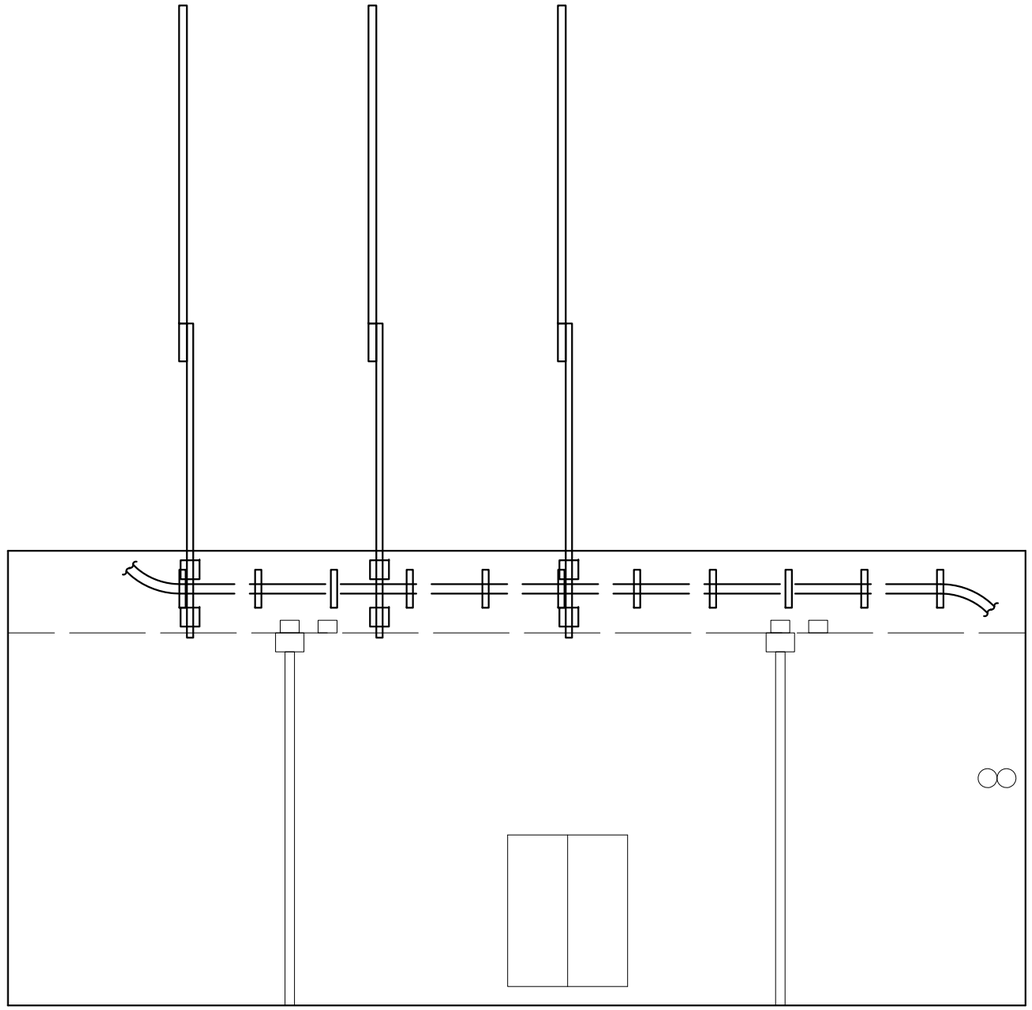

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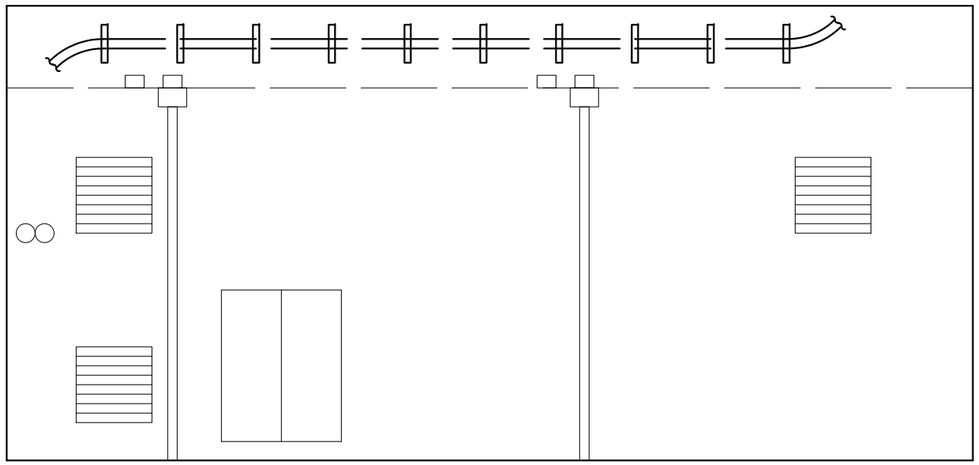

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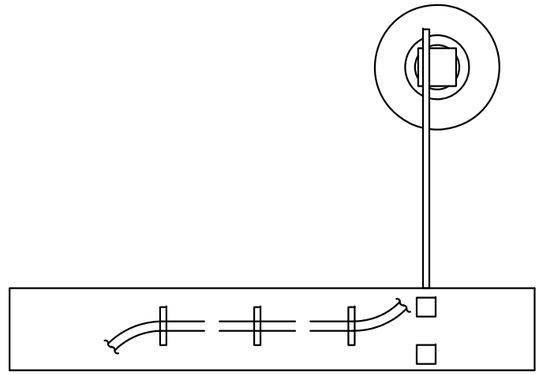

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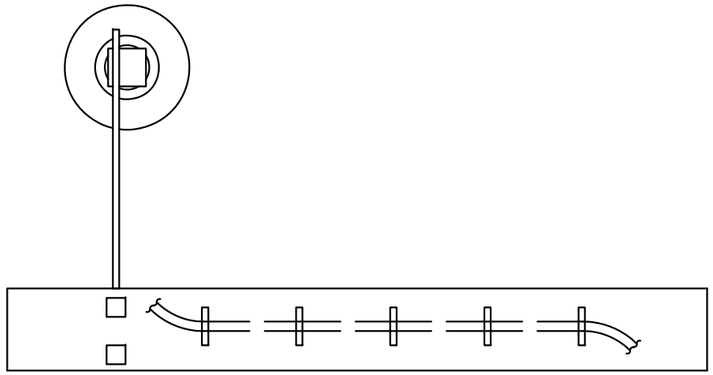

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SHEET
D-4

GENERAL

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR AND INCIDENTAL TO THE COMPLETE INSTALLATION AND OPERATION OF ALL ELECTRICAL WORK. ALL WORK SHALL BE DONE BY QUALIFIED PERSONNEL.

B. CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND THE NATIONAL ELECTRICAL SAFETY CODE ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION. THE INSTALLATION SHALL COMPLY WITH THESE AND ALL APPLICABLE RULES & REGULATIONS OF LOCAL AND STATE AUTHORITIES HAVING JURISDICTION.

C. COORDINATE THE WORK OF ALL TRADES.

D. ARRANGE CONDUIT, WIRING, EQUIPMENT, AND OTHER WORK GENERALLY AS SHOWN, PROVIDING PROPER CLEARANCES AND ACCESS. CAREFULLY EXAMINE ALL CONTRACT DRAWINGS AND FIT THE WORK IN EACH LOCATION WITHOUT SUBSTANTIAL ALTERATION. WHERE DEPARTURES ARE PROPOSED BECAUSE OF FIELD CONDITIONS OR OTHER CAUSES, PREPARE AND SUBMIT DETAILED DRAWINGS FOR ACCEPTANCE. THE RIGHT IS RESERVED TO MAKE REASONABLE CHANGES IN LOCATION OF EQUIPMENT, CONDUIT, AND WIRING UP TO THE TIME OF ROUGH-IN OR FABRICATION.

E. THE CONTRACT DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ALL OFFSETS, BENDS, FITTINGS AND ACCESSORIES ARE NOT NECESSARILY SHOWN. PROVIDE ALL SUCH ITEMS AS MAY BE REQUIRED TO FIT THE WORK TO THE CONDITIONS.

F. THERE SHALL BE NO INTERRUPTION OF POWER TO EXISTING ELECTRICAL SYSTEMS WITHOUT PRIOR CONSENT OF THE BUILDING OWNER, SUCH INTERRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE SCHEDULED WITH THE OWNER AT LEAST THREE BUSINESS DAYS IN ADVANCE OF THE OUTAGE. ANY COST FOR WORK THAT MUST BE DONE ON AN OVERTIME BASIS SHALL BE INCLUDED IN THE BID.

G. VISIT THE SITE AND INSPECT THE EXISTING CONDITIONS BEFORE BID IN ORDER TO ENSURE PROPER EVALUATION OF WORKING CONDITIONS AND LOCATION OF EXISTING CONDITIONS.

H. WHERE OUTLETS ARE REMOVED OR CIRCUITS INTERRUPTED OR BROKEN, PROVIDE THE REQUIRED RELOCATION, RECONNECTION OR REARRANGEMENT TO RESTORE SERVICE TO ALL ITEMS, OUTLETS, ETC. NOT MADE OBSOLETE BY THIS WORK.

I. MOUNTING AND SUPPORTING OF ALL EQUIPMENT PROVIDED UNDER THIS SECTION SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER IN THE FIELD.

PERMITS AND FEES

A. OBTAIN, PAY FOR, AND DELIVER ALL PERMITS, CERTIFICATES OF INSPECTION, ETC., REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. DELIVER CERTIFICATES TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE WORK.

MATERIAL AND EQUIPMENT

A. MATERIAL AND EQUIPMENT INSTALLED AS A PART OF THE PERMANENT INSTALLATION SHALL BE NEW, UNLESS OTHERWISE INDICATED OR SPECIFIED, AND SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LAB, FOR INSTALLATION IN EACH PARTICULAR CASE, WHERE STANDARDS HAVE BEEN ESTABLISHED.

CUTTING AND PATCHING

A. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THE ELECTRICAL WORK. ANY DAMAGE DONE TO THE WORK ALREADY IN PLACE BY REASON OF THIS WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE BY A QUALIFIED MECHANIC EXPERIENCED IN SUCH WORK. PATCHING SHALL BE UNIFORM IN APPEARANCE AND SHALL MATCH THE SURROUNDING SURFACE. DO NOT CUT STRUCTURAL MEMBERS WITHOUT APPROVAL BY THE CONSTRUCTION MANAGER. WHERE PENETRATIONS ARE NECESSARY THROUGH THE ROOF, PROVIDE ALL NECESSARY CURBS, SLEEVES, SHIELDS, FLASHING, FITTINGS, AND CAULKING TO MAKE THE PENETRATIONS ABSOLUTELY WATERTIGHT.

ELECTRICAL WORK UNDER OTHER DIVISIONS

A. IN GENERAL POWER WIRING FOR SYSTEMS ARE INCLUDED UNDER THIS SPECIFICATION. CAREFULLY REVIEW THE CONTRACT DOCUMENTS AND COORDINATE THE ELECTRICAL WORK TO BE PERFORMED UNDER THE OTHER DIVISIONS.

GUARANTEE

A. GUARANTEE THE ELECTRICAL SYSTEM INSTALLED BY THE CONTRACTOR FREE FROM ALL MECHANICAL AND ELECTRICAL DEFECTS FOR THE PERIOD OF ONE YEAR BEGINNING FROM THE DAY OF FINAL ACCEPTANCE OF THE WORK OR BENEFICIAL OCCUPANCY BY THE OWNER, WHICHEVER OCCURS FIRST.

B. UPON RECEIPT OF NOTICE FROM THE OWNER OF FAILURE OF ANY PART OF THE ELECTRICAL INSTALLATION DURING THE GUARANTEE PERIOD, NEW REPLACEMENT PARTS SHALL BE FURNISHED AND INSTALLED PROMPTLY AT NO COST TO THE OWNER.

CONDUIT AND FITTINGS

A. MINIMUM CONDUIT SIZE SHALL BE 3/4" (UNLESS OTHERWISE INDICATED)

B. SUPPORT ALL CONDUIT NOT EMBEDDED IN CONCRETE OR MASONRY SO THAT STRAIN IS NOT TRANSMITTED TO OUTLET BOXES AND PULL BOXES, ETC. SUPPORTS TO BE SUFFICIENTLY RIGID TO PREVENT DISTORTION OF CONDUITS DURING WIRE PULLING.

C. ALUMINUM CONDUIT IS PROHIBITED.

D. ALL CONDUITS SHALL BE GALVANIZED ELECTRICAL METALLIC TUBING (EMT), PVC, OR RIGID GALVANIZED STEEL (EXTERIOR EXPOSED)

E. EMT CONDUIT FITTINGS SHALL BE FERROUS COMPRESSION TYPE.

F. IN DAMP OR WET LOCATIONS USE FLEXIBLE, LIQUID-TIGHT METAL CONDUIT WITH APPROVED FITTINGS.

COORDINATION

A. COORDINATE THE WORK OF POWER, GROUNDING AND TELCO AT EQUIPMENT WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. FINAL TERMINATIONS TO BE AT THE DIRECTION OF THE EQUIPMENT SUPPLIER.

B. PRIOR TO BEGINNING WORK CONTRACTOR SHALL COORDINATE ALL POWER & TELCO WITH THE LOCAL UTILITY COMPANY AS IT MAY APPLY TO THIS SITE. ALL WORK TO COMPLY WITH THE RULES AND REGULATIONS OF THE UTILITIES INVOLVED.

WIRES AND CABLES (600 VOLTS)

A. BUILDING WIRE, UNLESS OTHERWISE INDICATED SHALL BE 600 VOLTS, TYPE THHW-THWN INSULATION -75°c. CONDUCTORS SHALL BE SIZED AND RUN AS INDICATED CONDUCTORS SHALL BE SOFT DRAWN COPPER OF NOT LESS THAN 98% CONDUCTIVITY.

CONDUCTOR INSULATION

A. ALL CONDUCTORS SHALL BE COLOR CODED AS REQUIRED BY NEC AND FURTHER IDENTIFIED AND CODED AS SPECIFIED HEREINAFTER. COLOR CODING SHALL BE BY MEANS OF COLORED INSULATING MATERIAL, COLORED BRAID OR JACKET OVER THE INSULATION OR BY MEANS OF SUITABLE COLORED, PERMANENT, NON-AGING, INSULATING TAPE APPLIED TO CONDUCTORS AT EACH CABINET OR JUNCTION POINT. THE COLOR CODING SHALL BE ACCOMPLISHED AS THE CONDUCTORS ARE INSTALLED. THE FOLLOWING SYSTEMS OF COLOR CODING SHALL BE STRICTLY ADHERED TO:

1. GROUND LEADS: GREEN
2. GROUNDED NEUTRAL LEADS: WHITE
3. 120/208 VOLT (120/240 VOLT) UNGROUNDED PHASE WIRES;
4. BLACK, RED, BLUE

B. THE COLOR CODE ASSIGNED TO EACH PHASE WIRE SHALL BE CONSISTENTLY FOLLOWED THROUGHOUT.

CONDUIT SUPPORTS

A. SUPPORT SURFACE RUNS OF CONDUIT USING ONE OR TWO HOLE PIPE STRAPS. STRAP SPACING 6 FOOT ON CENTERS, MAXIMUM, UNLESS NOTED OTHERWISE.

B. FASTEN STRAPS TO CONCRETE USING INSERTS OR EXPANSION BOLTS AND TO HOLLOW MASONRY USING TOGGLE BOLTS. WOODEN PLUGS ARE UNACCEPTABLE.

OUTLET, JUNCTION AND PULL BOXES

A. ALL BOXES, WHETHER OUTLET, JUNCTION, PULL, OR EQUIPMENT SHALL BE FURNISHED WITH APPROPRIATE COVERS.

B. NO SECTIONALIZED BOXES SHALL BE USED.

C. OUTLET, JUNCTION AND PULL BOXES SHALL BE SHEET STEEL, WHERE REQUIRED TO FACILITATE PULLING OF WIRES OR CABLES, SUCH BOXES SHALL BE RIGIDLY MOUNTED AND INSTALLED IN ACCESSIBLE LOCATIONS.

SAFETY DISCONNECT SWITCH

A. PROVIDE SAFETY DISCONNECT SWITCHES AS SHOWN ON THE DRAWINGS AND WHERE REQUIRED BY THE NATIONAL ELECTRICAL CODE. SWITCHES SHALL BE HORSEPOWER-RATED WHERE APPLICABLE, AND SHALL BE THE SIZES REQUIRED. SERVICE ENTRANCE SWITCH SHALL BE SO RATED.

B. SWITCHES SHALL BE HEAVY DUTY TYPE FUSED OR UNFUSED, AS INDICATED; SIDE HANDLE OPERATED, NEMA 1 FOR GENERAL INTERIOR WORK AND NEMA 3R STEEL FOR EXTERIOR, DAMP, OR WET LOCATIONS. SWITCHES SHALL BE EQUIPPED WITH A COVER INTERLOCK TO PREVENT OPERATION WITH COVER OPEN.

C. SWITCHES SHALL BE VISIBLE BLADE, EXTERNALLY OPERATED, WITH ALL CURRENT CARRYING PARTS SILVER OR TIN-PLATED. ALL SWITCHES SHALL HAVE PROVISIONS FOR NOT LESS THAN THAN TWO EXTERNAL PADLOCK.

GROUNDING

A. ALL GROUNDING SHALL CONFORM TO MOTOROLA R56 STANDARDS AND SPECIFICATIONS, 2017 EDITION.

B. PROVIDE GROUND FOR ALL RACEWAYS, DEVICES, AND UTILIZATION EQUIPMENT PERMANENTLY AND EFFECTIVELY IN ACCORDANCE WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND AS HEREINAFTER SPECIFIED. ALL GROUNDED NEUTRAL CONDUCTORS SHALL BE CONTINUOUSLY IDENTIFIED. ALL GROUNDING AND BONDING CONNECTIONS SHALL BE SOLDERLESS.

C. PROVIDE INSULATED GROUNDING CONDUCTORS FOR FEEDER AND BRANCH CIRCUIT WIRING AS CALLED FOR ON THE PLANS. PROVIDE GROUNDING BLOCKS, TERMINALS, ETC., FOR CONNECTION OF GROUND WIRE IN ALL DISTRIBUTION EQUIPMENT, OUTLETS, JUNCTION BOXES, AND UTILIZATION EQUIPMENT, TERMINATE WITH LUGS OR COMPRESSION TERMINALS. CONDUCTORS LOOPED UNDER BOLTS OR SCREWS WILL NOT BE ACCEPTABLE.

D. GROUND RODS WHEN NEEDED SHALL BE STEEL, COPPER CLAD 1/2" DIAMETER BY TEN FEET LONG. GROUND ROD SHIELDS TO BE PROVIDED FOR DRIVING RODS.

E. PRIOR TO INSTALLATION OF THE GROUNDING SYSTEM, THE EARTH RESISTIVITY SHALL BE MEASURED USING WENNER FOUR TERMINAL METHOD. REPORTS OF THE MEASURED RESISTIVITY MUST BE SUBMITTED TO THE CONSTRUCTION MANAGER.

F. THE MAXIMUM RESISTANCE OF THE COMPLETED GROUNDING SYSTEM SHALL NOT EXCEED 5 OHMS ON ANY PART OF THE SYSTEM. IF DUE TO SOIL CONDITIONS OR OTHER PARAMETERS THIS MAXIMUM VALUE IS EXCEEDED, CONTACT THE ENGINEER FOR ADDITIONAL INSTRUCTIONS. GROUND BAR PLATES ARE TO BE MANUFACTURED EXACTLY AS DETAILED AND DIMENSIONED. DIMENSIONS TO BE ACCURATE TO ".

G. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

H. ALL METALLIC CONNECTIONS SHALL HAVE THE PROPER ANTI-OXIDANT MATERIAL APPLIED BETWEEN MATING SURFACES. KOPR SHIELD SHALL ONLY BE USED FOR COPPER TO COPPER OR TIN-COPPER TO COPPER CONNECTIONS.

I. CONNECTION OF CONDUCTORS BELOW GRADE TO GROUND RODS, GROUND RINGS, GROUND WELL, ETC., SHALL BE EXOTHERMIC TYPE WELDING CONNECTIONS "CADWELL". BOLTED CLAMPS AND SPLIT-BOLTS ARE NOT ACCEPTABLE.

J. CONNECTION OF CONDUCTORS ABOVE GRADE TO METALLIC OBJECTS OR IN HANDHOLES SHALL BE WITH PRESSURE TYPE CRIMP CONNECTORS, BOLTED CLAMPS, OR SPLIT BOLT CONNECTIONS WITH SOLID BRONZE HARDWARE. CADMIUM PLATED STEEL HARDWARE IS NOT ACCEPTABLE. CONNECTIONS TO INTERIOR PERIMETER BONDING BUS (IPBB) SHALL BE WITH 'C' CLAMPS. SOLID TO SOLID AND STRANDED CONDUCTORS REQUIRES TWO (2) CLAMPS. ALL 'C' CLAMPS REQUIRE INSTALLATION WITH THE CORRECT HYDRAULIC CLAMP TOOL.

SUPPORTS, HANGERS AND FOUNDATIONS

D. PROVIDE ALL SUPPORTS, HANGERS, BRACES, ATTACHMENTS, AND FOUNDATIONS REQUIRED FOR THE WORK. SUPPORT AND SET THE WORK IN A THOROUGHLY SUBSTANTIAL AND WORKMANLIKE MANNER WITHOUT PLACING STRAINS ON THE MATERIALS, EQUIPMENT, OR THE BUILDING STRUCTURE.

E. SUPPORTS, HANGERS, BRACES AND ATTACHMENTS SHALL BE STANDARD MANUFACTURED ITEMS OR FABRICATED STRUCTURAL STEEL SHAPES.

AS-BUILT DATA

A. CONTRACTOR SHALL PREPARE AND SUBMIT TO THE CONSTRUCTION MANAGER "AS-BUILT" DRAWINGS FOR CHANGES OR DEVIATIONS FROM CONTRACT DRAWINGS TO THE FOLLOWING:

1. SOURCE, ORIGIN, AND/OR ROUTING OF MAIN FEEDERS.

2. LOCATION OF MAJOR PIECES OF DISTRIBUTION EQUIPMENT SUCH AS KILOWATTHOUR METER AND MAIN FEEDER OVERCURRENT DEVICES.

IDENTIFICATION OF EQUIPMENT

A. MARK AND PERMANENTLY IDENTIFY ALL ELECTRICAL EQUIPMENT. IDENTIFICATION SHALL BE LAMINATED PLASTIC PLATES, BLACK WITH WHITE ENGRAVED LETTERS. USE ," HIGH LETTERING. ATTACH PLATES WITH CHROME PLATED OR 316 STAINLESS STEEL SCREWS TO THE DEVICE. USE NOMENCLATURE ON DRAWINGS.

B. ALL EQUIPMENT SHALL BE MARKED WITH WARNING LABELS AND SIGNAGE AS REQUIRED BY THE NATIONAL ELECTRIC CODE, NFPA AND OTHER APPLICABLE STANDARDS.

ELECTRICAL LEGEND

(1)	SEE DRAWING NOTE OF SAME NUMBER
M	KILOWATTHOUR METER
	CONDUIT OR CABLE-UP, DOWN
	#2 AWG BARE, SOLID,TINNED COPPER CONDUCTOR - UNDERGROUND
	#2 AWG BARE, SOLID, TINNED COPPER CONDUCTOR ROUTING AS SHOWN ON DWG'S
	CONDUIT TERMINATED OR TRANSITION AS INDICATED IN PLAN
	STANDARD GROUND ROD -5/8"x10'-0"
P	UNDERGROUND CONDUIT, POWER
T	UNDERGROUND CONDUIT, TELCO
	EXOTHERMIC WELD OR MECHANICAL GROUND BOND
	INSPECTION SLEEVE
	GROUND ROD EXOTHERMICALLY WELDED TO BURIED GROUND RING
T	TRANSFORMER

ABBREVIATIONS & SYMBOLS

A	- AMPERE
AFF	- ABOVE FINISHED FLOOR
AFG	- ABOVE FINISHED GRADE
AFR	- ABOVE FINISHED ROOF
AGB	- ANTENNA GROUND BAR
AHU	- AIR HANDLING UNIT
AIC	- AMPERES INTERRUPTING CURRENT
AWG	- AMERICAN WIRE GAUGE
BKR, CB	- CIRCUIT BREAKER
CAT	- CATALOG
C, COND.	- CONDUIT
CKT	- CIRCUIT
DWG	- DRAWING
EMT	- ELECTRICAL METALLIC TUBING
FSS	- FUSED SAFETY SWITCH
GFI	- GROUND FAULT INTERRUPTING
GRD	- GROUND
KVA	- KILOVOLT-AMPERES
MCB	- MAIN CIRCUIT BREAKER
MGB	- MAIN GROUND BAR
M.H.	- MOUNTING HEIGHT
M.L.O.	- MAIN LUG ONLY
NEC	- NATIONAL ELECTRICAL CODE
NEMA	- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NETA	- NATIONAL ELECTRICAL TESTING ASSOCIATION
NFSS	- NON-FUSED SAFETY SWITCH
NIC	- NOT IN CONTRACT
NO.	- NUMBER
OCP	- OVER CURRENT PROTECTION
P.	- POLE
PVC	- POLYVINYL CHLORIDE
RGS	- RIGID GALVANIZED STEEL
SPST	- SINGLE POLE, SINGLE THROW
TYP.	- TYPICAL
V	- VOLTS
WP	- WEATHERPROOF
Ø	- PHASE

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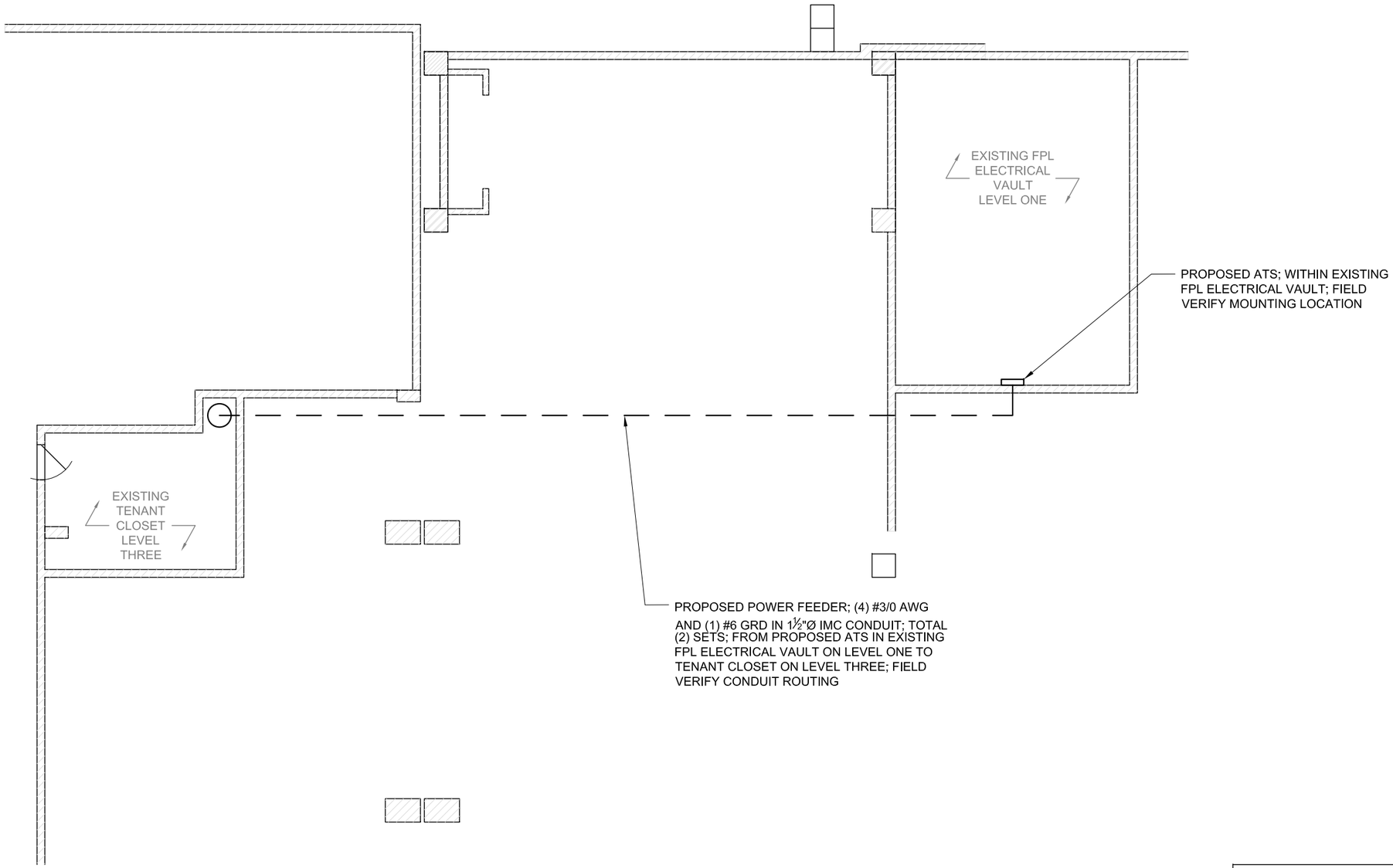
SHEET TITLE

ELECTRICAL SPECIFICATIONS

SHEET

E-1



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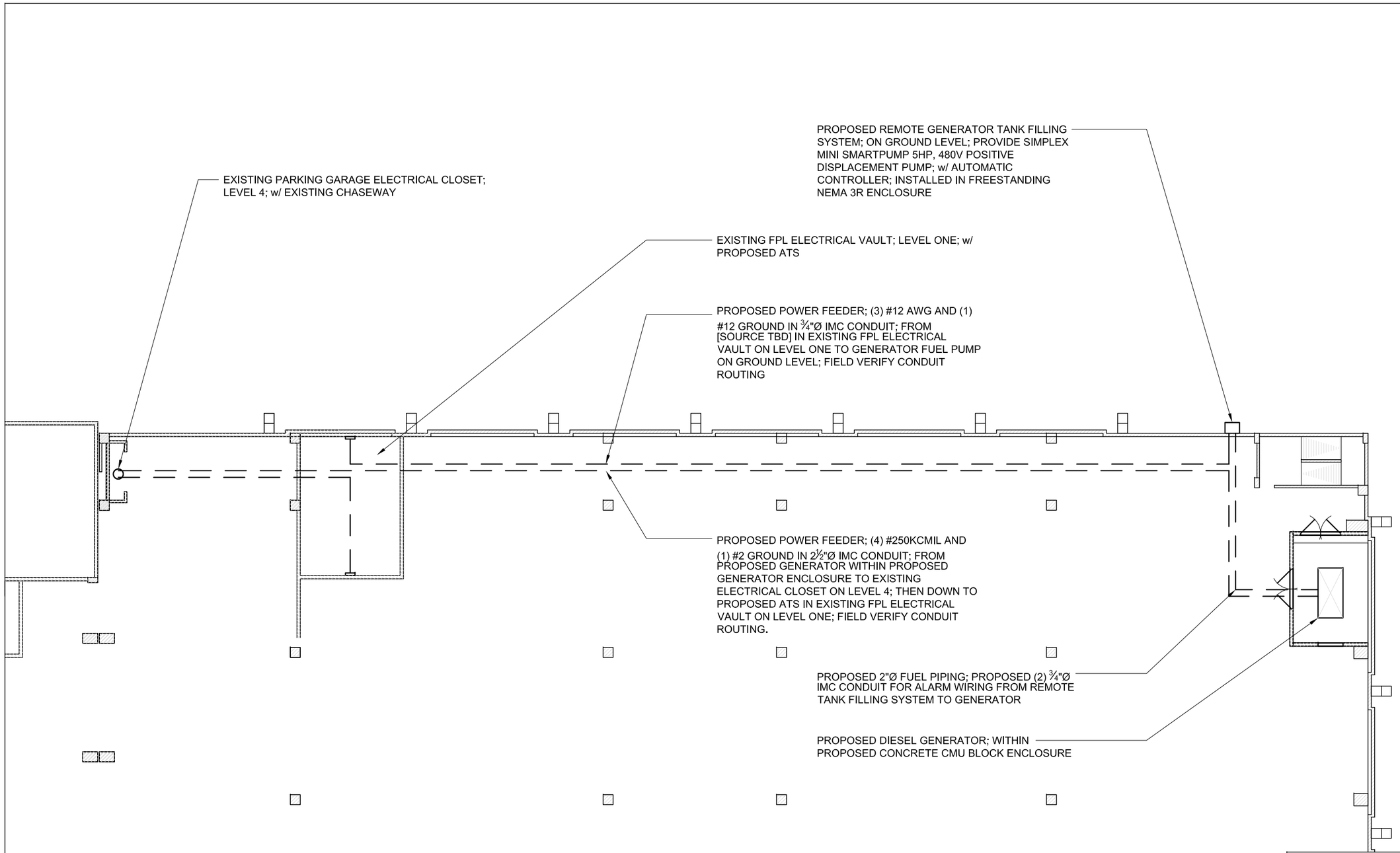

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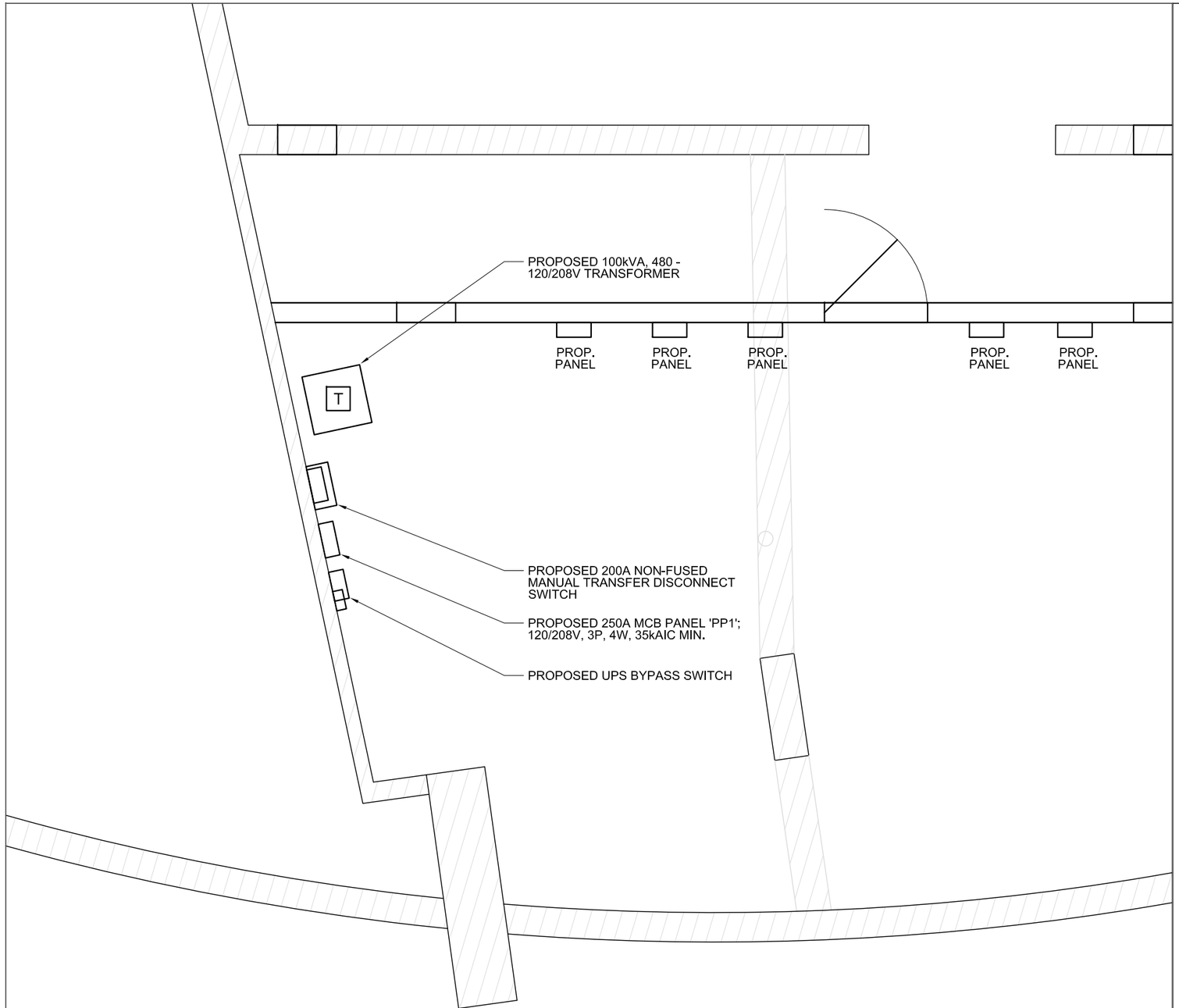
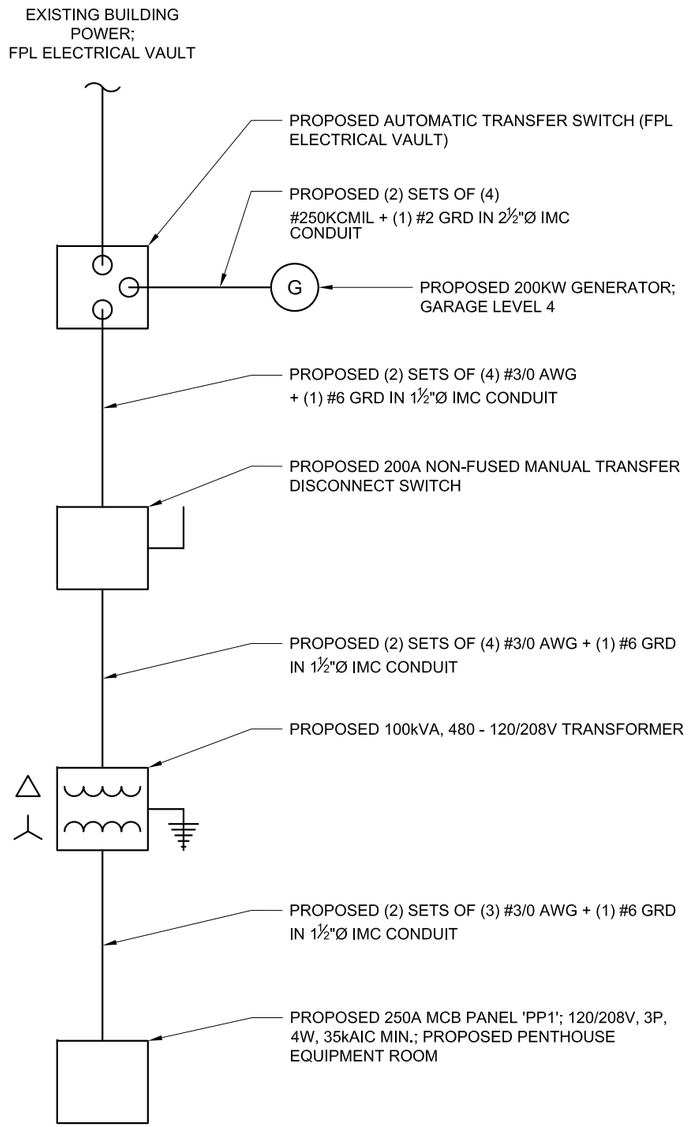


ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE



ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE

NOTES

1. ALL OVERCURRENT PROTECTION DEVICES SHALL HAVE AN AMPERE INTERRUPTING CAPACITY (AIC) RATING SUFFICIENT FOR THE CURRENT THAT IS AVAILABLE ON THE LINE TERMINALS OF THE EQUIPMENT.
2. ALL ELECTRICAL EQUIPMENT SHALL HAVE A SHORT CIRCUIT CURRENT RATING (SCCR) SUFFICIENT FOR THE CURRENT THAT IS AVAILABLE ON THE LINE TERMINALS OF THE EQUIPMENT.
3. PROPOSED CIRCUIT ADDED TO EXISTING LOAD HAS BEEN VERIFED PER NEC 220.87(1) EXCEPTION.

LEASE EXHIBIT, NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE		BY:
A	03/29/19	90% SUBMITTAL	TW
B			
C			
D			
E			
F			

DRAWN BY: TW
CHECKED BY: EK
APPROVED BY: JF

KCI TECHNOLOGIES
FLORIDA LICENSE NO.: EB0004898
KCI TECHNOLOGIES, INC.
4041 CRESCENT PARK DRIVE
RIVERVIEW, FLORIDA 33578
(813) 740-2300

MOTOROLA SOLUTIONS

CIRC HOTEL

1780 POLK STREET
HOLLYWOOD, FLORIDA 33020

ENGINEER:
JAMES T. FENNELL, PE
FL LICENSE NO. 63808

SCALE: AS NOTED
DATE: 03/01/2019
KCI JOB NUMBER: **011900093B**

SHEET TITLE
ELECTRICAL PLAN AND NOTES

SHEET
E-4

GROUNDING NOTES

1. PROPOSED INTERNAL PERIMETER BONDING BUS (IPBB); #2 AWG GREEN-JACKETED, STRANDED, TINNED, COPPER CONDUCTOR.
2. PROPOSED EQUIPMENT RACK GROUND; #2 AWG GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; MOUNT IN PROPOSED OVERHEAD CABLE TRAY ABOVE EQUIPMENT RACKS; ROUTE FROM EQUIPMENT RACKS TO IPBB; CONNECT TO IPBB WITH IRREVERSIBLE CRIMP.
3. PROPOSED EQUIPMENT RACK SUB GROUND BUS BAR EXTENSION; #6 AWG GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; (1) PER RACK; ROUTE FROM RACK SUB GROUND BUS BAR TO PROPOSED EQUIPMENT RACK GROUND MOUNTED ABOVE EQUIPMENT RACKS; CONNECT TO EQUIPMENT RACK GROUND CONDUCTOR WITH IRREVERSIBLE CRIMP.
4. PROPOSED EQUIPMENT GROUND CONDUCTOR; #6 AWG, GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; ROUTE FROM PROPOSED EQUIPMENT TO EQUIPMENT RACK SUB GROUND BUS BAR (1 ea.); CONNECT AS REQUIRED TO PROPOSED EQUIPMENT; CONNECT WITH SINGLE BARREL LUG (2-HOLE, OFFSET TONGUE) TO SUB GROUND BUS BAR.
5. PROPOSED EQUIPMENT GROUND CONDUCTOR; #6 AWG, GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; BOND METAL OBJECT WITHIN EQUIPMENT ROOM TO IPBB; CONNECT AS REQUIRED TO PROPOSED EQUIPMENT; CONNECT TO IPBB WITH IRREVERSIBLE CRIMP; TYPICAL OF ALL METAL OBJECTS WITHIN EQUIPMENT ROOM.
6. PROPOSED 4"x24"x¼" PRIMARY BONDING BAR (PBB); FIELD VERIFY MOUNTING LOCATION.
7. PROPOSED 4"x24"x¼" SECONDARY BONDING BAR (SBB); FIELD VERIFY MOUNTING LOCATION. ROUTE #2 AWG GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR FROM SBB TO PBB; CONNECT TO BOTH BUS BARS WITH IRREVERSIBLE CRIMP.
8. PROPOSED COAX CABLE PORT GROUND; #2 AWG GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; ROUTE TO GROUND BAR; CONNECT TO COAX CABLE PORT WITH SINGLE BARREL LUG (2-HOLE, OFFSET TONGUE); CONNECT TO BONDING BUS BAR WITH BARREL LUG (2-HOLE, OFFSET TONGUE).
9. PROPOSED EQUIP. ROOM GROUND CONDUCTOR #3/0 AWG, GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; ROUTE FROM BONDING BUS BAR TO BUILDING GROUNDING SYSTEM.
10. PROPOSED OVERHEAD CABLE TRAY GROUND; #2 AWG GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; ROUTE TO BONDING BUS BAR; (TYP.)
11. PROPOSED OVERHEAD CABLE TRAY GROUND; #6 AWG GREEN-JACKETED, STRANDED, TINNED COPPER CONDUCTOR; BOND ADJACENT SECTIONS OF CABLE TRAY; (TYP.)

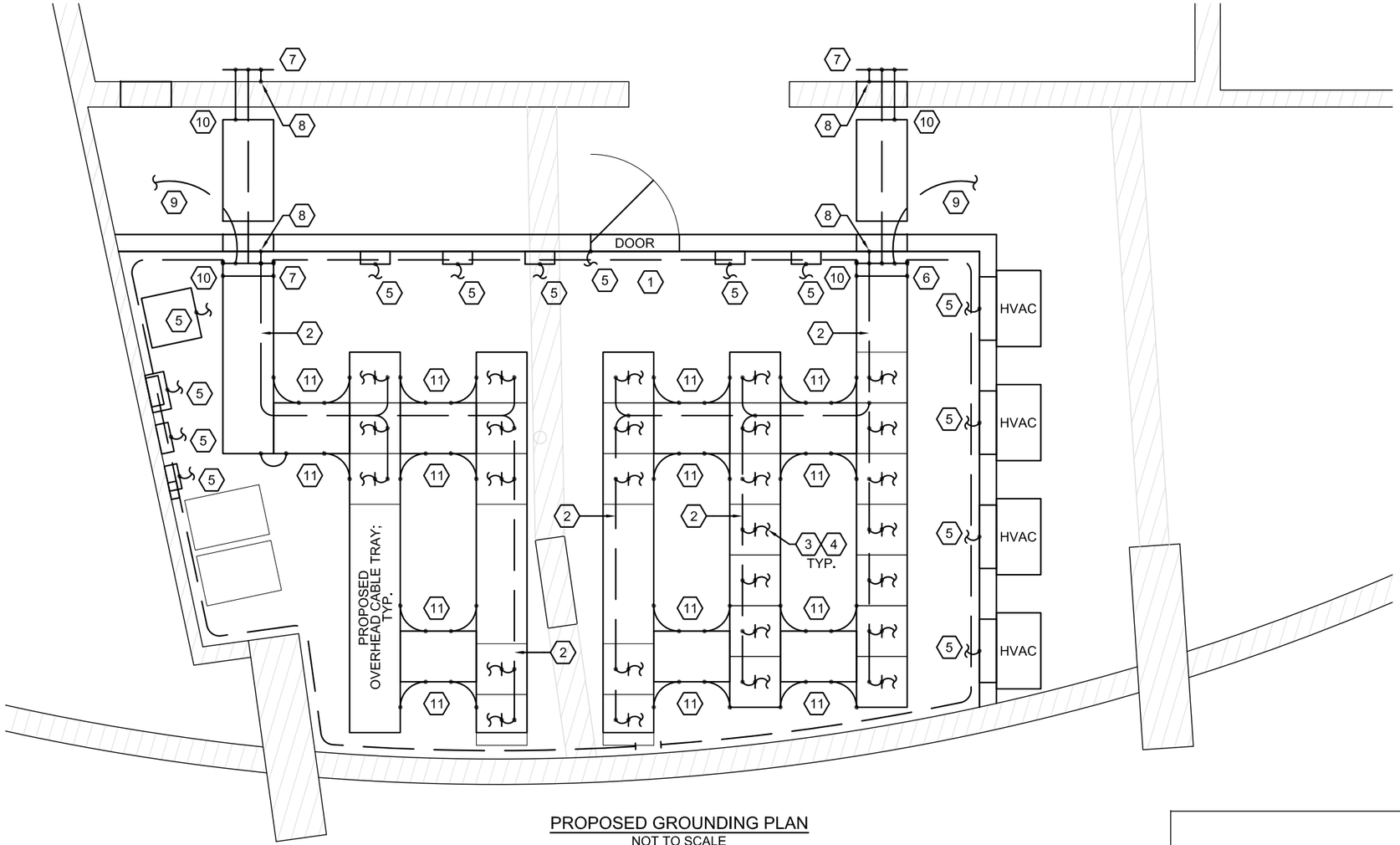
GENERAL GROUNDING NOTES

BOND ALL NEW AND EXISTING-TO-REMAIN ANCILLARY SUPPORT EQUIPMENT TO INTERIOR PERIMETER BONDING BUS CONDUCTOR USING #6 AWG GREEN-JACKETED, STRANDED, COPPER CONDUCTOR.

BOND ALL METAL CONDUIT AND PIPING SYSTEM WITHIN THE INFLUENCE OF THE INTERIOR PERIMETER BONDING BUS TO BONDING BUS CONDUCTOR WITH APPROVED CONNECTION.

ALL CONNECTIONS TO THE INTERIOR PERIMETER BONDING BUS CONDUCTOR SHALL POINT TOWARD THE INTERIOR PRIMARY BONDING BAR.

INTERIOR PERIMETER BONDING BUS CONDUCTORS SHALL HAVE A MINIMUM BEND RADIUS OF 8".



PROPOSED GROUNDING PLAN
NOT TO SCALE

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APPROVED BY: JF

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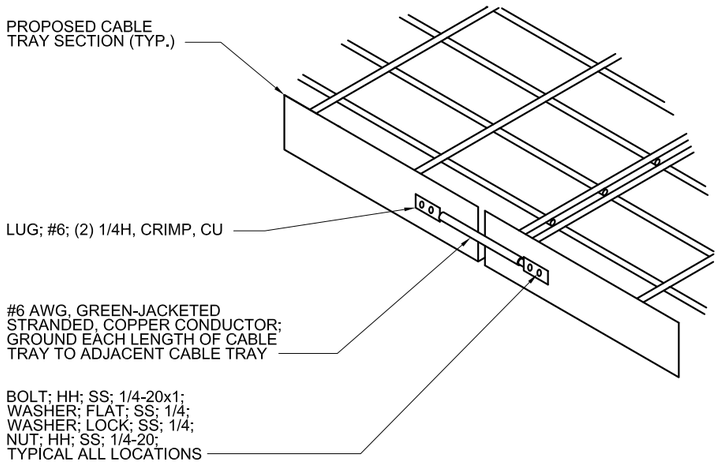
ENGINEER:
JAMES T. FENNELL, PE
FL LICENSE NO. 63808

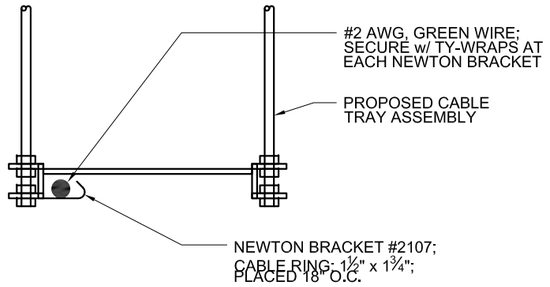
SCALE: AS NOTED
DATE: 03/01/2019
KCI JOB NUMBER: **011900093B**

SHEET TITLE
GROUNDING PLAN AND NOTES

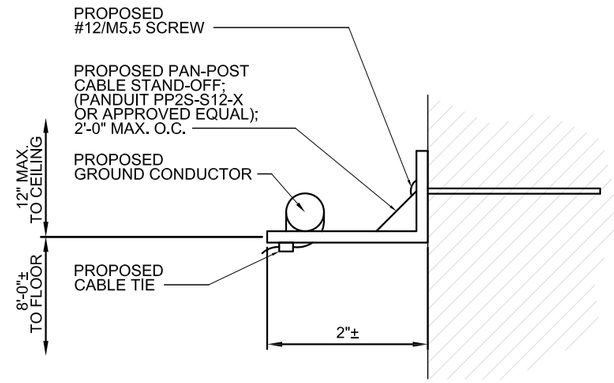
SHEET
E-5



CABLE TRAY BONDING
NOT TO SCALE



CABLE TRAY GROUND CONDUCTOR MOUNT
NOT TO SCALE



GROUND CONDUCTOR CABLE STAND-OFF DETAIL
NOT TO SCALE

NOTES:

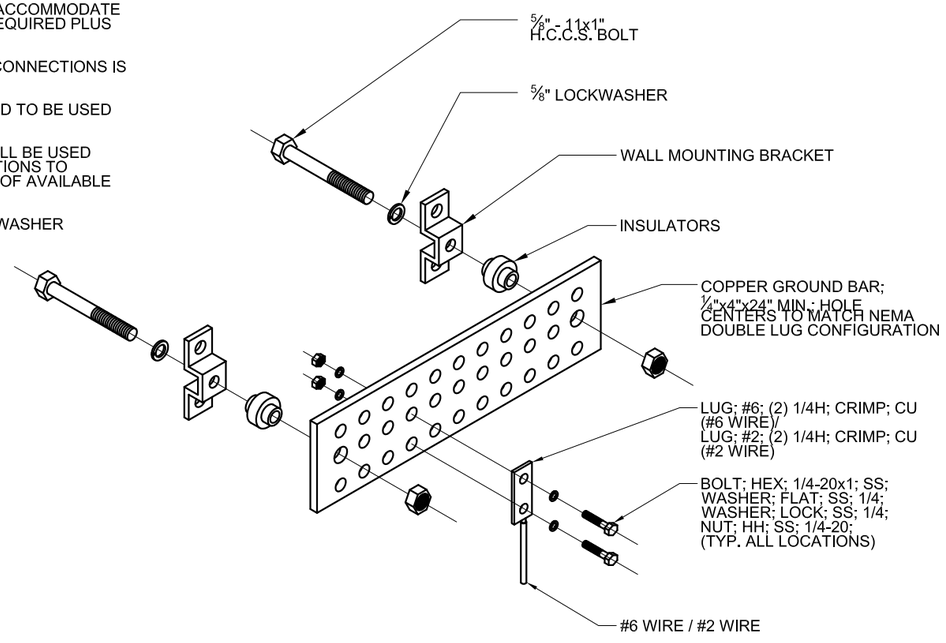
GROUND BAR SHALL BE SIZED TO ACCOMMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS 50% SPARE CAPACITY.

'DOUBLING UP' OR 'STACKING' OF CONNECTIONS IS NOT PERMITTED.

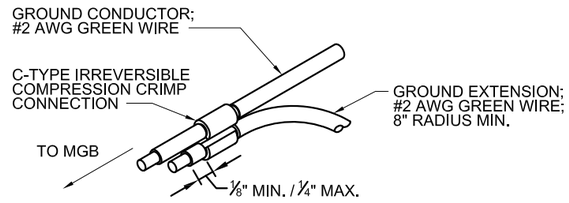
OXIDE INHIBITING JOINT COMPOUND TO BE USED ON ALL CONNECTIONS.

BACK TO BACK CONNECTIONS SHALL BE USED ONLY WHEN NUMBER OF CONNECTIONS TO FRONT OF BAR EXCEEDS NUMBER OF AVAILABLE SPACES.

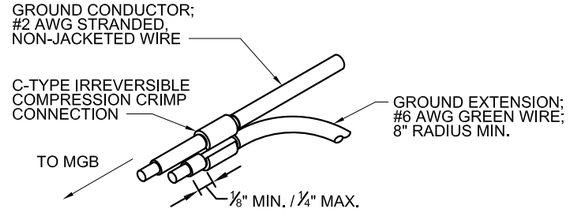
FOR LUG TO STEEL, INSERT LOCK WASHER BETWEEN LUG AND STEEL.



STANDARD GROUND BAR AND GROUND CONDUCTOR CONNECTION DETAIL
NOT TO SCALE



IPBB RING GROUND TAP
NOT TO SCALE



EQUIPMENT GROUND TAP
NOT TO SCALE

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REVISIONS

NO.	DATE		BY:
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B			
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ENGINEER:
JAMES T. FENNELL, PE
FL LICENSE NO. 63808

SCALE: AS NOTED
DATE: 03/01/2019
KCI JOB NUMBER: **011900093B**

SHEET TITLE
GROUNDING DETAILS

SHEET
E-6

APPENDIX B

X-RAY TESTING REPORT

Concrete Imaging

Date: 3-19-19 Address: The Cirx Hotel

Customer: **Motorola Solutions** Technician: Victor Rosales

(GPR) Ground Penetrating Radar was performed at customer request

Objective: Find and mark all conduits, post tension cables and rebar for all areas where customer will be core drilling.

.
Machines Used : GSSI SIR-3000 with 400MHz antenna

Findings: For all (8) areas where customer will be core drilling; Rebar, Conduits and Post tension cables were marked out. Rebar in black and Post tension cables and Conduits in red. As long as all markings are stayed at least 2" from and at least 3" from wall, customer will be clear to drill.

This report should be used for informational use only.
All readings subject to interpretation of inspector.
Thank you for the opportunity to serve you.
Please feel free to call should you have any questions.

Pro Scan Subsurface imaging
Phone) 1-800-984-0325
(Fax) 1-800-984-0302
Proscanlocating@gmail.com
Main office: 1950 N.E 6th St.
Pompano Beach, Fl

\

APPENDIX C

STRUCTURAL FOR APPURTENANCES

STRUCTURAL EVALUATION REPORT

CIRC HOTEL SITE

ROOFTOP

BROWARD COUNTY, FL

Prepared for:

MOTOROLA SOLUTIONS

Representing:

BROWARD COUNTY

March 29, 2019
KCI J.O.: 011900093B

4505 Falls of Neuse Road, Suite 400
Raleigh, North Carolina 27609
(919) 783-9214

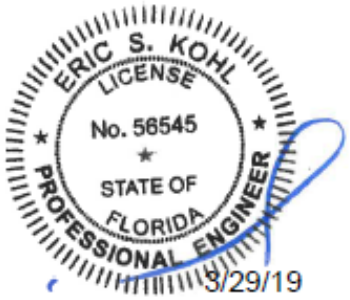
TABLE OF CONTENTS

EXECUTIVE SUMMARY

KCI Technologies, Inc. has completed a feasibility structural analysis of the Circ Hotel site. Motorola Solutions is proposing to add the appurtenances configuration on the rooftop.

KCI studied a single loading case. It consisted of the existing and proposed appurtenances with a 170-mph wind speed (ultimate 3-second gust) per the 2017 Florida Building Code for Hillsborough County, Florida with Exposure Category D, Topographic Category 1 and Risk category III.

The results of this analysis indicate that none of the mounting components will exceed the nominal loads established by the 2017 Florida Building Code or the ANSI/TIA-222-H standard for the proposed appurtenance configuration at the specified loadings.



The purpose of this report is to assess the feasibility of adding antennas and transmission lines to the existing structure, including whether or not structural modifications are required. Any modifications recommended herein are conceptual only. This is not a construction document. The report provides only structural capability of the rooftop. The elevations listed herein for the appurtenances are not verified as to whether or not there may be interference with other carrier appurtenances or appurtenances components. This report may not be suitable for bidding and definitely is not a substitute for complete and properly engineered plans/specifications required to accomplish any recommended modifications. KCI Technologies, Inc. assumes no liability for use of this report for any other purpose than that for which it was intended.

A. PURPOSE / BACKGROUND

Pursuant to the request of Mr. Jeff Erhardt with Motorola representing Broward County, KCI Technologies, Inc. was retained to conduct a structural analysis of the Circ Hotel Site. Motorola is proposing to add the appurtenance configuration on the rooftop. Motorola provided the following information:

- Proposed appurtenances.

Note: KCI visited the site to determine the general condition of the rooftop.

B. CONDITIONS INVESTIGATED

The site is located at 1780 Polk Street, Hollywood. FL 33020.

KCI analyzed the mount using RISA 3-D (version 13.0.0) software by RISA Technologies, Inc.

KCI examined a single loading option with two loading cases including the existing and proposed appurtenances. This option included the following cases:

Loading Case	Code	Wind Speed and Ice Loading
1	2017 Florida Building Code and ANSI/TIA-222-H for Broward County, Florida	180 mph (ultimate 3 second gust), No ice

Proposed Appurtenances:

Number	Elevation	Carrier	Mount	Antenna Information	Transmission Lines
1	297’	Motorola Solutions	Wall Mount	(3)- SC412-HF2LDF & (3)- CC807-11 Omni Antennas w/ (2)- 8-ft HP Microwave Antennas.	*(12)- 1 5/8” Cables

*- Denotes appurtenance assumed in this analysis

C. APPLICABLE CODES AND PROVISIONS OF ANALYSIS

KCI utilized the following codes and criteria to conduct the structural analysis:

Standard	Title	Date
ANSI/TIA-222-H-2005	Structural Standard for Antenna Supporting Structures and Antennas	January 2018
	2017 Florida Building Code	-

KCI's structural analysis, including all findings and conclusions, is based on the following assumptions:

1. The wall mount has been erected and maintained according to the manufacturer's plans and specifications.
2. The structural integrity of the wall mount and connections have not been compromised.
3. All connections and fasteners are in accordance with AISC LRFD specifications.
4. The existing transmission lines will be reused for the proposed antennas.
5. KCI assumes that Motorola will use the roof beam to mount their proposed transmission line.
6. All information provided by Motorola and Broward County is accurate and correct.

D. RESULTS & RECOMMENDATIONS

The results of this analysis indicate that none of the mounting components will exceed the nominal loads established by the 2017 Florida Building Code or the ANSI/TIA-222-H standard for the proposed appurtenance configuration at the specified loadings.

Wind on Appurtenances (TIA-222-Rev H)

Site: Circ Hotel

Basic Wind Specs

Structure: (**M**)onopole, (**S**)elf-support, (**G**)uyed, (**A**)ppurtenance :	A
h (ft), height of structure from base (only affects Gh for SS) :	-
Risk Category: **I**, **II**, **III or IV** (typically Category II) :	II
Exposure Category. **B**, **C** or **D** (typically C) :	D
z (ft), AGL elevation of discrete appurtenance :	**300**
Topographic Category. **1**,**2**,**3**,**4** or **5** (typically 1) :	1
H (ft), height of crest above surrounding terrain :	-
Z (ft), height AGL at the base of the structure :	-
Ks, Rooftop Wind Speed-up Factor (1 for all structures not on rooftops) :	1.00
Ke, Ground Elevation Factor (typically 1) :	1.00
V (mph), Basic Wind Speed, 3-second gust (ATC Hazards Tool) :	**180**
qz = 0.00256 Kz Kzt Ks Ke Kd V^2 (psf) :	**136.7**

Structure type:	*Appurtenance*
Gh :	***1.00***
Kd :	***0.95***
I, Ice :	***1.00***
I, Earthquake :	***1.00***
Zg :	*700*
α' :	*11.5*
Kz min :	*1.03*
Kc :	*1.10*
Kz :	***1.73***
Kt :	-
f :	-
Kh :	-
Kzt :	***1.00***

KCI TECHNOLOGIES

Antenna Loads - Front / Side

Description (optional)	# items	Element Height (in)	Element Width or Diam (in)	Element Depth or Diam (in)	Element Weight (lbs)	Flat or Round (F or R)	Ka	Aspect ratio (A.R.)	C *(rounds only)*	Ca for element *(actual wind)*	Ca (max) for A.R. *(wind N/A)*	EPA per element (sq.ft)	EPA (sq.ft) = CaAa Total (sq.ft)	Σ (cum.)	Σ (for elev)	Fa (lbs)	Total Weight (lbs)
SC412-HF2LDF FRONT	1.0	251.5	5.0	5.0	79.0	F	0.80	50.30		2.00	2.00	17.47	17.47	17.47			**79**
Exposed mounting pipe FRONT	1.0	0.0	2.4	2.4		R	0.80					0.00	0.00	17.47	17.47	**1,910**	
SC412-HF2LDF SIDE	1	251.5	5.0	5.0	79.0	F	0.80	50.30		2.00	2.00	17.47	17.47	17.47			
Exposed mounting pipe SIDE	1.0	96.0	2.4	2.4		R	0.80	40.34	47	1.00	1.20	1.90	1.90	19.37	19.37	**2,118**	**79**
CC807-11 FRONT	1.0	209.0	3.0	3.0	49.0	F	0.80	69.67		2.00	2.00	8.71	8.71	8.71			**49**
Exposed mounting pipe FRONT	1.0	0.0	2.4	2.4		R	0.80					0.00	0.00	8.71	8.71	**952**	
Ericsson AIR 21 B2A B4P SIDE	1	209.0	3.0	3.0	49.0	F	0.80	69.67		2.00	2.00	8.71	8.71	8.71			
Exposed mounting pipe SIDE	1.0	96.0	2.4	2.4		R	0.80	40.34	47	1.00	1.20	1.90	1.90	10.61	10.61	**1,160**	**49**

Antenna Loads at Varying θ

Description (optional)	Wind force Fa (lbs) θ = 0°	θ =	θ =	θ =	θ = 90°
** Enter Fa (Front & Side) from above **	FRONT	30	45	60	SIDE

Mount member UDL's

Member width (in)	(F)lat (R)ound	UDL (lbs/ft)
4.50	R	**55.4**
2.90	R	**35.7**
3.00	F	**61.5**
12.80	R	**157.5**
2.50	F	**51.3**

Microwave Dish Wind Loads

Diameter dish (in)	Dish Type: P / PR / CS / G	Max Ca	Fa (lbs)	
96.0	CS	1.262	**8668**	**180**

Wind on Appurtenances (TIA-222-Rev H)

Site: Circ Hotel

Basic Wind Specs

Structure: (**M**)onopole, (**S**)elf-support, (**G**)uyed, (**A**)ppurtenance :	A
h (ft), height of structure from base (only affects Gh for SS) :	-
Risk Category: **I**, **II**, **III or IV** (typically Category II) :	II
Exposure Category. **B**, **C** or **D** (typically C) :	D
z (ft), AGL elevation of discrete appurtenance :	**300**
Topographic Category. **1**,**2**,**3**,**4** or **5** (typically 1) :	1
H (ft), height of crest above surrounding terrain :	-
Z (ft), height AGL at the base of the structure :	-
Ks, Rooftop Wind Speed-up Factor (1 for all structures not on rooftops) :	1.00
Ke, Ground Elevation Factor (typically 1) :	1.00
V (mph), Basic Wind Speed, 3-second gust (ATC Hazards Tool) :	**30**
qz = 0.00256 Kz Kzt Ks Ke Kd V^2 (psf) :	**3.8**

Structure type:	*Appurtenance*
Gh :	***1.00***
Kd :	***0.95***
I, Ice :	***1.00***
I, Earthquake :	***1.00***
Zg :	*700*
α' :	*11.5*
Kz min :	*1.03*
Kc :	*1.10*
Kz :	***1.73***
Kt :	-
f :	-
Kh :	-
Kzt :	***1.00***

KCI TECHNOLOGIES

Antenna Loads - Front / Side

Description (optional)	# items	Element Height (in)	Element Width or Diam (in)	Element Depth or Diam (in)	Element Weight (lbs)	Flat or Round (F or R)	Ka	Aspect ratio (A.R.)	C *(rounds only)*	Ca for element *(actual wind)*	Ca (max) for A.R. *(wind N/A)*	EPA per element (sq.ft)	EPA (sq.ft) = CaAa Total (sq.ft)	Σ (cum.)	Σ (for elev)	Fa (lbs)	Total Weight (lbs)
SC412-HF2LDF FRONT	1.0	251.5	5.0	5.0	79.0	F	0.80	50.30		2.00	2.00	17.47	17.47	17.47			**79**
Exposed mounting pipe FRONT	1.0	0.0	2.4	2.4		R	0.80					0.00	0.00	17.47	17.47	**53**	
SC412-HF2LDF SIDE	1	251.5	5.0	5.0	79.0	F	0.80	50.30		2.00	2.00	17.47	17.47	17.47			
Exposed mounting pipe SIDE	1.0	96.0	2.4	2.4		R	0.80	40.34	8	1.20	1.20	1.90	1.90	19.37	19.37	**59**	**79**
CC807-11 FRONT	1.0	209.0	3.0	3.0	49.0	F	0.80	69.67		2.00	2.00	8.71	8.71	8.71			**49**
Exposed mounting pipe FRONT	1.0	0.0	2.4	2.4		R	0.80					0.00	0.00	8.71	8.71	**26**	
Ericsson AIR 21 B2A B4P SIDE	1	209.0	3.0	3.0	49.0	F	0.80	69.67		2.00	2.00	8.71	8.71	8.71			
Exposed mounting pipe SIDE	1.0	96.0	2.4	2.4		R	0.80	40.34	8	1.20	1.20	1.90	1.90	10.61	10.61	**32**	**49**

Antenna Loads at Varying θ

Description (optional)	θ = 0°	θ =	θ =	θ =	θ = 90°
** Enter Fa (Front & Side) from above **	FRONT	30	45	60	SIDE

Wind force Fa (lbs)

Mount member UDL's

Member width (in)	(F)lat (R)ound	UDL (lbs/ft)
4.50	R	**1.5**
2.90	R	**1.0**
3.00	F	**1.7**
12.80	R	**4.4**
2.50	F	**1.4**

Microwave Dish Wind Loads

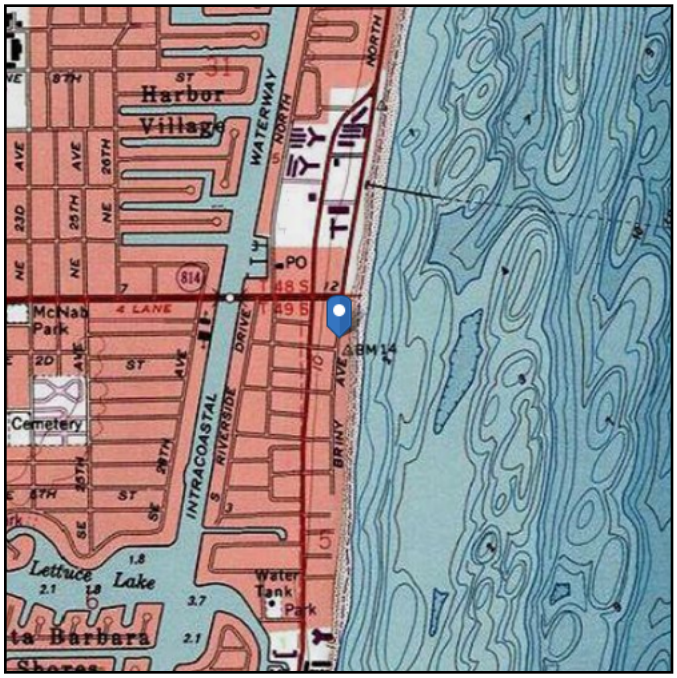
Diameter dish (in)	Dish Type: P / PR / CS / G	Max Ca	Fa (lbs)	
96.0	CS	1.262	**241**	**180**

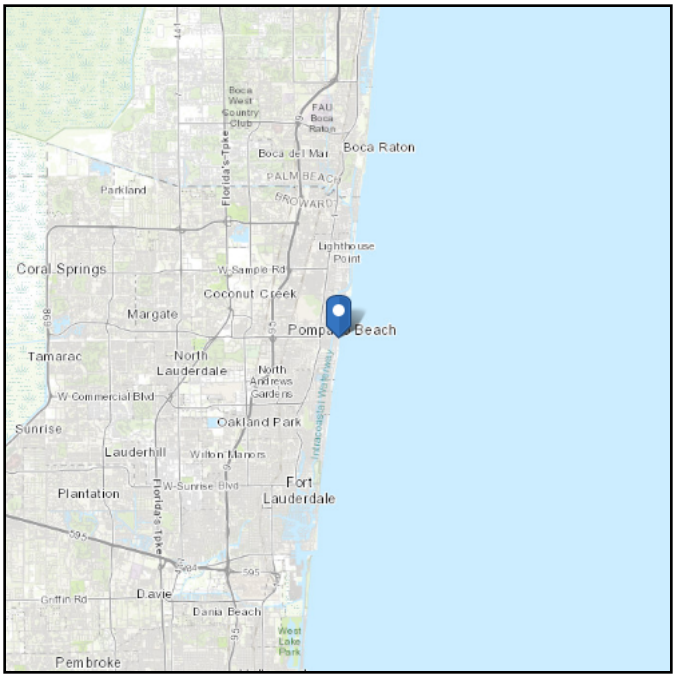
ASCE 7 Hazards Report

Address:
111 Briny Ave
Pompano Beach, Florida
33062

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 11.69 ft (NAVD 88)
Latitude: 26.230518
Longitude: -80.090014





Wind

Results:

Wind Speed:	170 Vmph
10-year MRI	90 Vmph
25-year MRI	112 Vmph
50-year MRI	127 Vmph
100-year MRI	138 Vmph

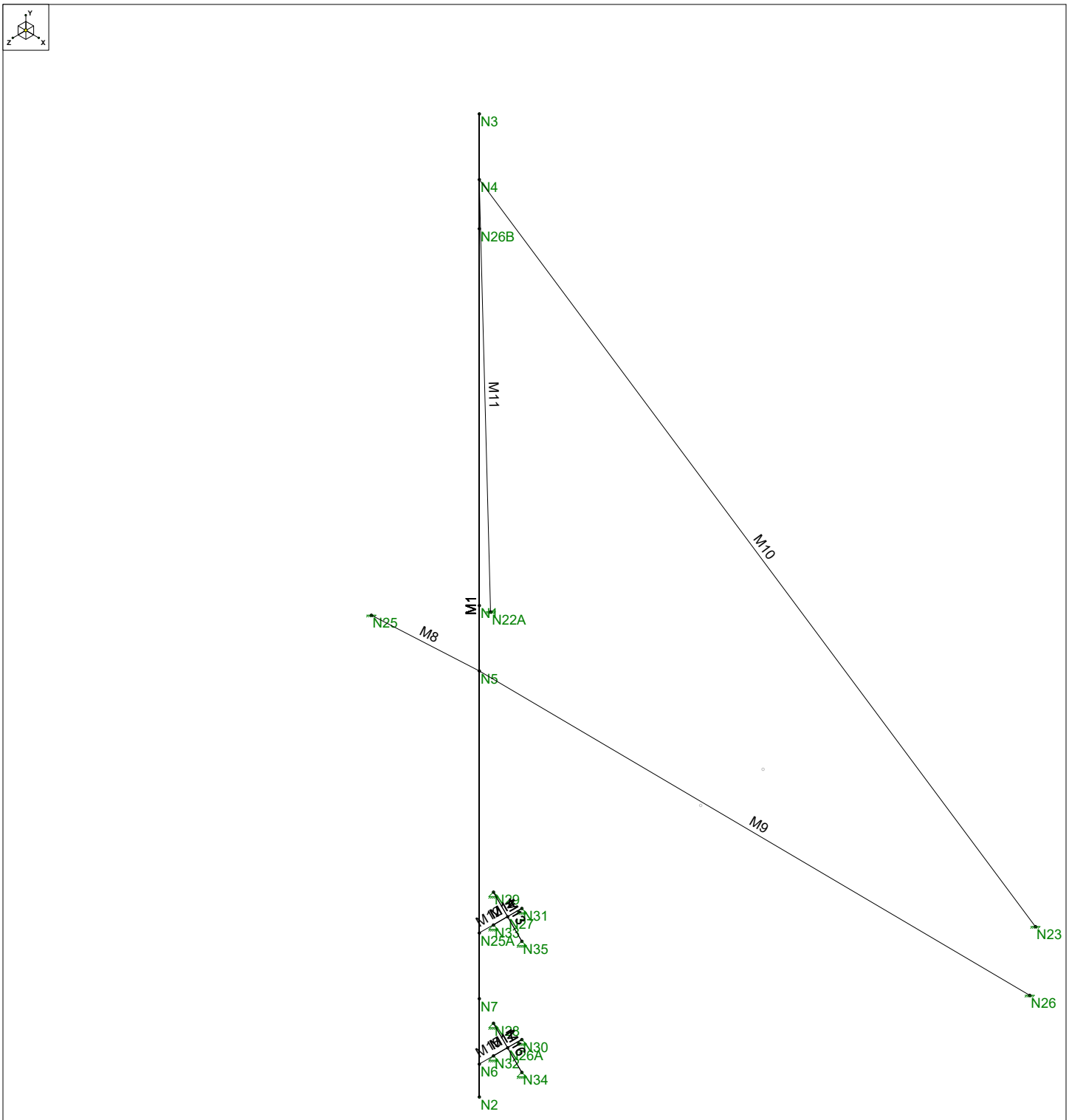
Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Mon Jan 14 2019

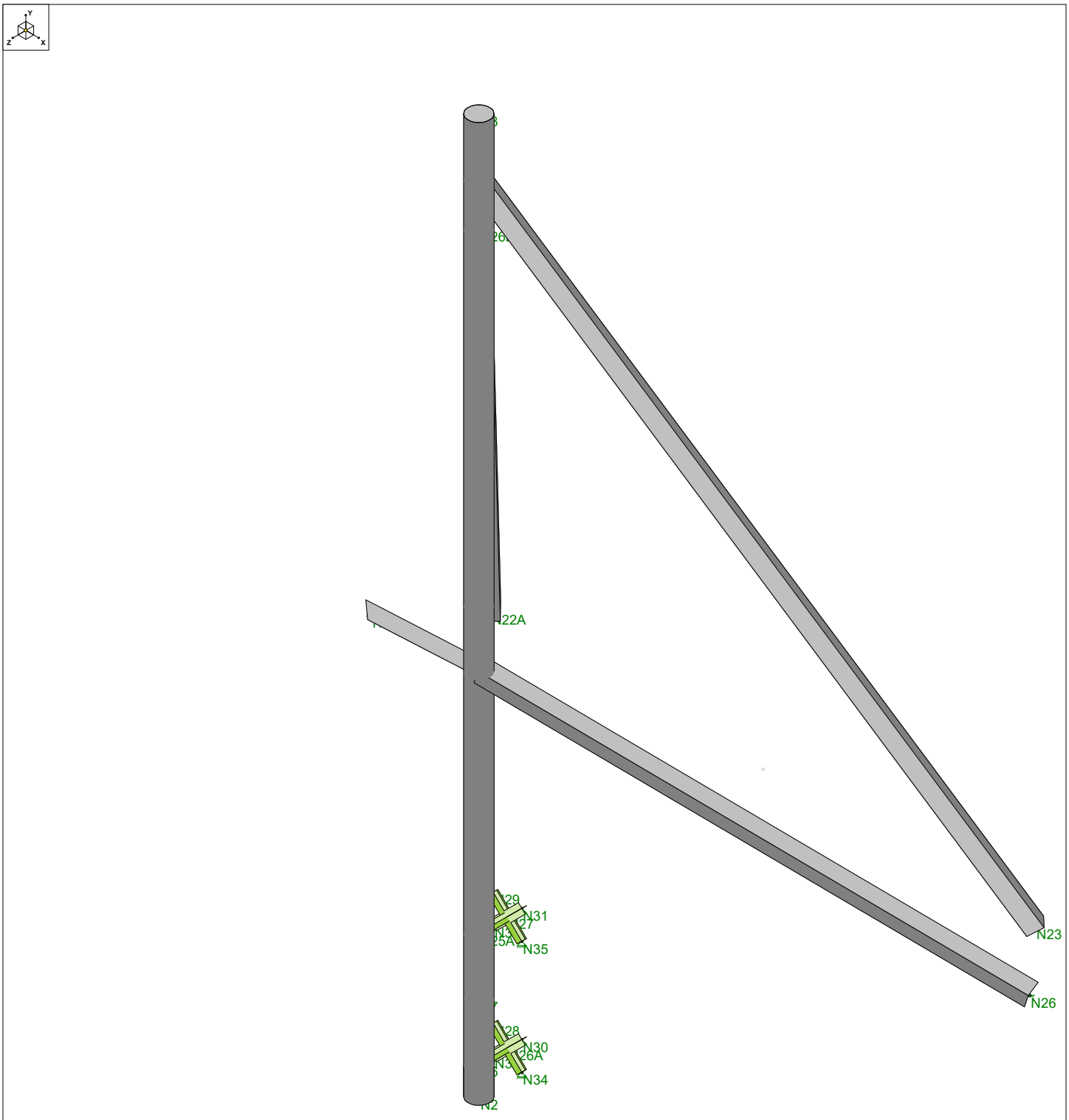
Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings shall be protected against wind-borne debris as specified in Section 26.10.3.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.



KCI Technologies Inc.	Circ Hotel Microwave Mount	SK - 5
Rahul		Mar 28, 2019 at 1:37 PM
		Circ Hotel.r3d



KCI Technologies Inc.	Circ Hotel Microwave Mount	SK - 6
Rahul		Mar 28, 2019 at 1:37 PM
		Circ Hotel.r3d

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	-7.5	0	0	
3	N3	0	7.5	0	0	
4	N4	0	6.5	0	0	
5	N5	0	-1	0	0	
6	N6	0	-7	0	0	
7	N7	0	-6	0	0	
8	N21A	0	-5	-5	0	
9	N22A	-4.8	-5	-5	0	
10	N23	4.8	-5	-5	0	
11	N24	0	-5	-3.9	0	
12	N25	-5.8	-5	-3.9	0	
13	N26	5.8	-5	-3.9	0	
14	N25A	0	-5	0	0	
15	N26A	0	-7	-.5	0	
16	N27	0	-5	-.5	0	
17	N28	-.25	-6.75	-.5	0	
18	N29	-.25	-4.75	-.5	0	
19	N30	.25	-6.75	-.5	0	
20	N31	.25	-4.75	-.5	0	
21	N32	-.25	-7.25	-.5	0	
22	N33	-.25	-5.25	-.5	0	
23	N34	.25	-7.25	-.5	0	
24	N35	.25	-5.25	-.5	0	
25	N26B	0	5.75	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	N22A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
2	N23	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
3	N25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
4	N26	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
5	N28	Reaction	Reaction	Reaction				
6	N29	Reaction	Reaction	Reaction				
7	N30	Reaction	Reaction	Reaction				
8	N31	Reaction	Reaction	Reaction				
9	N32	Reaction	Reaction	Reaction				
10	N33	Reaction	Reaction	Reaction				
11	N34	Reaction	Reaction	Reaction				
12	N35	Reaction	Reaction	Reaction				

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[psi]	Ry	Fu[psi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36000	1.5	58000	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
3	A992	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42000	1.4	58000	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46000	1.4	58000	1.3

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[psi]	Ry	Fu[psi]	Rt
6	A53 Grade B	29000	11154	.3	.65	.49	35000	1.5	60000	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipes	PIPE_4.0	Beam	Pipe	A53 Grade B	Typical	2.96	6.82	6.82	13.6
2	Support Arms	PIPE_6.0	Beam	Pipe	A53 Grade B	Typical	5.2	26.5	26.5	52.9
3	Braces	PIPE_3.0	Beam	Pipe	A36 Gr.36	Typical	2.07	2.85	2.85	5.69
4	HR4	PIPE_3.0	Beam	Pipe	A53 Grade B	Typical	2.07	2.85	2.85	5.69
5	Kicker Arms	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
6	Kicker Arms Tube	HSS3x3x4	Beam	Tube	A500 Gr.46	Typical	2.44	3.02	3.02	5.08

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]
1	gen_Conc3NW	3155	1372	.15	.6	.145
2	gen_Conc4NW	3644	1584	.15	.6	.145
3	gen_Conc3LW	2085	906	.15	.6	.11
4	gen_Conc4LW	2408	1047	.15	.6	.11
5	gen_Alum	10600	4077	.3	1.29	.173
6	gen_Steel	29000	11154	.3	.65	.49
7	RIGID	1e+6		.3	0	0
8	EHS Guy Wire	29000	11154	.3	.65	0

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N2			Mount Pipes	Beam	Pipe	A53 Grade...	Typical
2	M8	N5	N25			Kicker Arms	Beam	Single Angle	A36 Gr.36	Typical
3	M9	N5	N26			Kicker Arms	Beam	Single Angle	A36 Gr.36	Typical
4	M10	N4	N23			Kicker Arms T...	Beam	Tube	A500 Gr.46	Typical
5	M11	N22A	N4			Kicker Arms T...	Beam	Tube	A500 Gr.46	Typical
6	M12	N27	N25A			RIGID	None	None	RIGID	DR1_1
7	M13	N35	N29			RIGID	None	None	RIGID	DR1_1
8	M14	N31	N33			RIGID	None	None	RIGID	DR1_1
9	M15	N26A	N6			RIGID	None	None	RIGID	DR1_1
10	M16	N34	N28			RIGID	None	None	RIGID	DR1_1
11	M17	N30	N32			RIGID	None	None	RIGID	DR1_1

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Mount Pipes	15			Lbyy						Lateral
2	M8	Kicker Arms	8.053			Lbyy						Lateral
3	M9	Kicker Arms	8.053			Lbyy						Lateral
4	M10	Kicker Arms...	13.427			Lbyy						Lateral
5	M11	Kicker Arms...	13.427			Lbyy						Lateral

Plate Primary Data

Label	A Joint	B Joint	C Joint	D Joint	Material	Thickness[in]
No Data to Print ...						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	DistributedArea(Me...	Surface(...		
1	Dead Load	DL		-1		1					
2	Live Load (M)	LL									
3	Wind Front	WLZ				1		5			
4	Wind Side	WLX				1		5			
5	Wind Service Front	WLZ				1		5			
6	Wind Service Side	WLX				1		5			
7	Live Load (V)	LL									
8	Wind Ice Front	WLZ									
9	Wind Ice Side	WLX									
10	Dead Load Ice	None									
11	Earthquake Front	ELZ									
12	Earthquake Side	ELX									

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 Dead Load	Y...	Y				1	1.4																		
2	1.2 Dead Load + 1.5 Live Load(V)	Y...	Y		7	1.5	1	1.2																		
3	1.2 DEAD + 1.0 WIND (Az = 0)	Y...	Y		3	1	1	1.2																		
4	1.2 DEAD + 1.0 WIND (Az = 30)	Y...	Y		3	.75	1	1.2	4	.25																
5	1.2 DEAD + 1.0 WIND (Az = 60)	Y...	Y		3	.25	1	1.2	4	.75																
6	1.2 DEAD + 1.0 WIND (Az = 90)	Y...	Y				1	1.2	4	1																
7	1.2 DEAD + 1.0 WIND (Az = 120)	Y...	Y		3	-.25	1	1.2	4	.75																
8	1.2 DEAD + 1.0 WIND (Az = 150)	Y...	Y		3	-.75	1	1.2	4	.25																
9	1.2 DEAD + 1.0 WIND (Az = 180)	Y...	Y		3	-1	1	1.2																		
10	1.2 DEAD + 1.0 WIND (Az = 210)	Y...	Y		3	-.75	1	1.2	4	-.25																
11	1.2 DEAD + 1.0 WIND (Az = 240)	Y...	Y		3	-.25	1	1.2	4	-.75																
12	1.2 DEAD + 1.0 WIND (Az = 270)	Y...	Y				1	1.2	4	-1																
13	1.2 DEAD + 1.0 WIND (Az = 300)	Y...	Y		3	.25	1	1.2	4	-.75																
14	1.2 DEAD + 1.0 WIND (Az = 330)	Y...	Y		3	.75	1	1.2	4	-.25																
15	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	1	1	1.2			10	1														
16	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.75	1	1.2	9	.25	10	1														
17	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.25	1	1.2	9	.75	10	1														
18	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y				1	1.2	9	1	10	1														
19	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.25	1	1.2	9	.75	10	1														
20	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.75	1	1.2	9	.25	10	1														
21	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-1	1	1.2			10	1														
22	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.75	1	1.2	9	-.25	10	1														
23	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.25	1	1.2	9	-.75	10	1														
24	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y				1	1.2	9	-1	10	1														
25	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.25	1	1.2	9	-.75	10	1														
26	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.75	1	1.2	9	-.25	10	1														
27	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	1	1	1.2			2	1.5														
28	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.75	1	1.2	6	.25	2	1.5														
29	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.25	1	1.2	6	.75	2	1.5														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
30	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y				1	1.2	6	1	2	1.5														
31	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.25	1	1.2	6	.75	2	1.5														
32	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.75	1	1.2	6	.25	2	1.5														
33	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-1	1	1.2			2	1.5														
34	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.75	1	1.2	6	-.25	2	1.5														
35	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.25	1	1.2	6	-.75	2	1.5														
36	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y				1	1.2	6	-1	2	1.5														
37	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.25	1	1.2	6	-.75	2	1.5														
38	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.75	1	1.2	6	-.25	2	1.5														
39	1.2 DEAD + 1.0 EARTHQUAKE (Az = 0)	Y...	Y		11	1	1	1.2			S...	.2														
40	1.2 DEAD + 1.0 EARTHQUAKE (Az = 30)	Y...	Y		11	.75	1	1.2	12	.25	S...	.2														
41	1.2 DEAD + 1.0 EARTHQUAKE (Az = 60)	Y...	Y		11	.25	1	1.2	12	.75	S...	.2														
42	1.2 DEAD + 1.0 EARTHQUAKE (Az = 90)	Y...	Y				1	1.2	12	1	S...	.2														
43	1.2 DEAD + 1.0 EARTHQUAKE (Az = 120)	Y...	Y		11	-.25	1	1.2	12	.75	S...	.2														
44	1.2 DEAD + 1.0 EARTHQUAKE (Az = 150)	Y...	Y		11	-.75	1	1.2	12	.25	S...	.2														
45	1.2 DEAD + 1.0 EARTHQUAKE (Az = 180)	Y...	Y		11	-1	1	1.2			S...	.2														
46	1.2 DEAD + 1.0 EARTHQUAKE (Az = 210)	Y...	Y		11	-.75	1	1.2	12	-.25	S...	.2														
47	1.2 DEAD + 1.0 EARTHQUAKE (Az = 240)	Y...	Y		11	-.25	1	1.2	12	-.75	S...	.2														
48	1.2 DEAD + 1.0 EARTHQUAKE (Az = 270)	Y...	Y				1	1.2	12	-1	S...	.2														
49	1.2 DEAD + 1.0 EARTHQUAKE (Az = 300)	Y...	Y		11	.25	1	1.2	12	-.75	S...	.2														
50	1.2 DEAD + 1.0 EARTHQUAKE (Az = 330)	Y...	Y		11	.75	1	1.2	12	-.25	S...	.2														

Joint Loads and Enforced Displacements (BLC 1 : Dead Load)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N26B	L	Y	-180

Joint Loads and Enforced Displacements (BLC 3 : Wind Front)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N26B	L	Z	-7732

Joint Loads and Enforced Displacements (BLC 4 : Wind Side)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N26B	L	X	-7732

Joint Loads and Enforced Displacements (BLC 5 : Wind Service Front)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N26B	L	Z	-241

Joint Loads and Enforced Displacements (BLC 6 : Wind Service Side)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N26B	L	X	-241

Member Point Loads

Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
No Data to Print ...			

Member Distributed Loads (BLC 3 : Wind Front)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PZ	-49.4	-49.4	0	0
2	M8	PZ	-109.8	-109.8	0	0
3	M9	PZ	-109.8	-109.8	0	0
4	M10	PZ	-109.8	-109.8	0	0
5	M11	PZ	-109.8	-109.8	0	0

Member Distributed Loads (BLC 4 : Wind Side)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PX	-49.4	-49.4	0	0
2	M8	PX	-109.8	-109.8	0	0
3	M9	PX	-109.8	-109.8	0	0
4	M10	PX	-109.8	-109.8	0	0
5	M11	PX	-109.8	-109.8	0	0

Member Distributed Loads (BLC 5 : Wind Service Front)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PZ	-1.5	-1.5	0	0
2	M8	PZ	-3.4	-3.4	0	0
3	M9	PZ	-3.4	-3.4	0	0
4	M10	PZ	-3.4	-3.4	0	0
5	M11	PZ	-3.4	-3.4	0	0

Member Distributed Loads (BLC 6 : Wind Service Side)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PX	-1.5	-1.5	0	0
2	M8	PX	-1.7	-1.7	0	0
3	M9	PX	-1.7	-1.7	0	0
4	M10	PX	-1.7	-1.7	0	0
5	M11	PX	-1.7	-1.7	0	0

Plate Surface Loads

Plate Label	Direction	Magnitude[ksf,F]
No Data to Print ...		

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N22A	max	4798.172	6	9523.334	6	4775.832	3	1.888	3	.883	6	2.034	12
2		min	-4789.84	12	-9344.614	12	-4781.272	9	-2.035	9	-.874	12	-1.923	6
3	N23	max	4784.722	6	9511.431	12	4775.592	3	1.897	3	.875	6	1.923	12
4		min	-4793.083	12	-9332.706	6	-4781.057	9	-2.044	9	-.884	12	-2.034	6
5	N25	max	2090.566	3	1477.137	3	1788.036	3	.227	3	.371	9	.181	12
6		min	-2124.646	9	-1453.047	9	-1812.22	9	-.257	9	-.371	3	-.136	6
7	N26	max	2118.135	9	1481.476	3	1765.309	3	.203	3	.344	3	.122	12
8		min	-2084.636	3	-1457.543	9	-1788.14	9	-.231	9	-.342	9	-.168	6
9	N28	max	20.083	6	14.052	12	27.985	6	0	1	0	1	0	1
10		min	-27.259	12	-4.987	6	-46.115	12	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

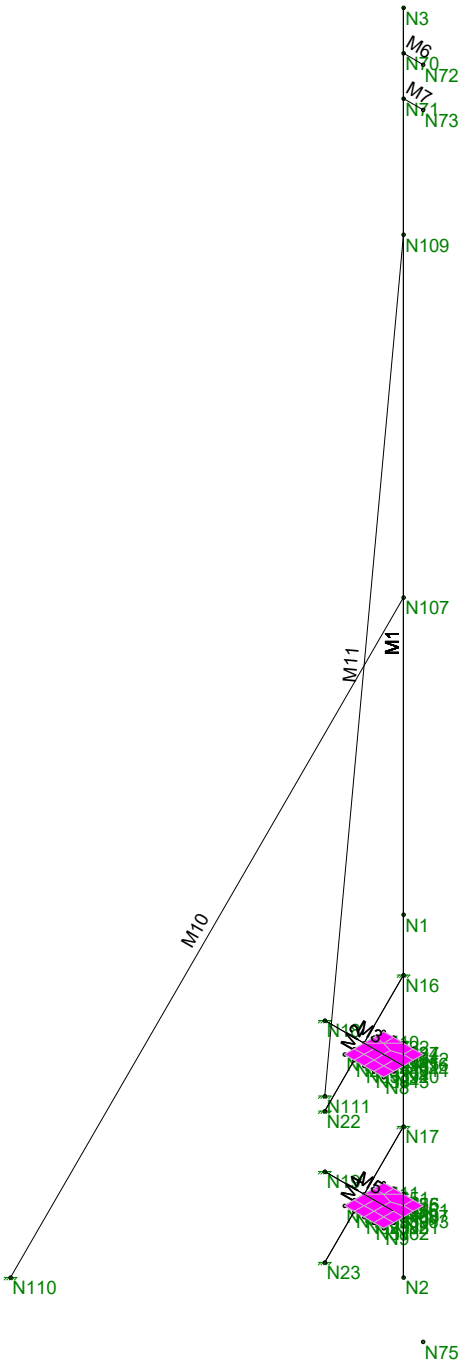
	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
11	N29	max	4046.046	3	5389.965	9	9652.248	3	0	1	0	1	0	1
12		min	-4254.816	9	-5125.174	3	-10126.4...	9	0	1	0	1	0	1
13	N30	max	27.259	6	14.052	6	27.985	12	0	1	0	1	0	1
14		min	-20.083	12	-4.987	12	-46.115	6	0	1	0	1	0	1
15	N31	max	4272.401	9	5381.257	9	9792.82	3	0	1	0	1	0	1
16		min	-4062.395	3	-5117.067	3	-10274.2...	9	0	1	0	1	0	1
17	N32	max	16.967	6	24.344	6	46.115	6	0	1	0	1	0	1
18		min	-9.791	12	-15.279	12	-27.985	12	0	1	0	1	0	1
19	N33	max	4259.771	9	5393.887	9	10514.274	9	0	1	0	1	0	1
20		min	-4050.646	3	-5128.816	3	-10003.8...	3	0	1	0	1	0	1
21	N34	max	9.791	6	24.344	12	46.115	12	0	1	0	1	0	1
22		min	-16.967	12	-15.279	6	-27.985	6	0	1	0	1	0	1
23	N35	max	4057.795	3	5377.335	9	10366.445	9	0	1	0	1	0	1
24		min	-4267.447	9	-5113.426	3	-9863.302	3	0	1	0	1	0	1
25	Totals:	max	12453.585	6	886.156	1	12756.761	3						
26		min	-12453.585	12	759.562	9	-12756.7...	9						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

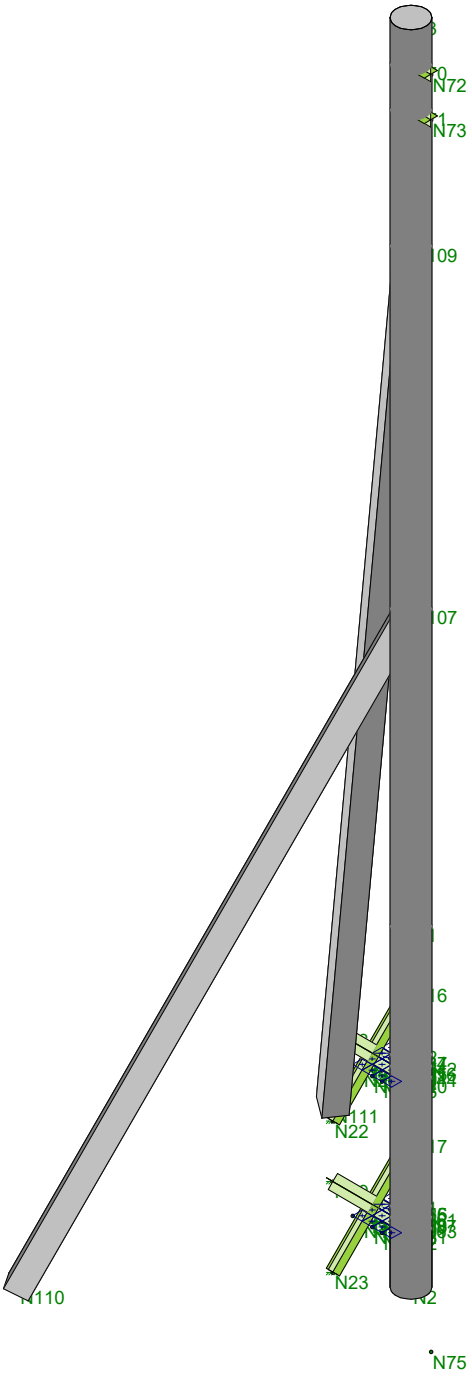
	Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc.....	L..	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
1	M1	PIPE_4.0	.842	1.875	9	.257	1.094	6	45396....	93240	10.631	10.631	2... H1-1a
2	M11	HSS3x3x4	.743	0	6	.034	0	y	9	26279....	101016	8.556	8.556	2... H1-1a
3	M10	HSS3x3x4	.742	13.427	12	.033	13....	y	9	26279....	101016	8.556	8.556	2... H1-1a
4	M8	L3x3x4	.546	0	3	.024	0	z	9	11921....	46656	1.688	3.561	2... H2-1
5	M9	L3x3x4	.501	0	3	.026	0	z	9	11921....	46656	1.688	3.714	3... H2-1

Envelope Plate/Shell Principal Stresses

Plate	Surf...	Sigma1 [psi]	LC	Sigma2 [psi]	LC	Tau Max [psi]	LC	Angle [rad]	LC	Von Mises [psi]	LC
No Data to Print ...											



KCI Technologies Inc.	Circ Hotel Omni Mount	SK - 4
Rahul		Mar 28, 2019 at 2:03 PM
		Circ Hotel.r3d



KCI Technologies Inc.	Circ Hotel Omni Mount	SK - 3
Rahul		Mar 28, 2019 at 2:03 PM
		Circ Hotel.r3d

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	-4	0	0	
3	N3	0	10	0	0	
4	N4	0	-1.666667	0	0	
5	N5	0	-3.333333	0	0	
6	N6	0	-1.666667	-.25	0	
7	N7	0	-3.333333	-.25	0	
8	N8	0	-1.666667	.25	0	
9	N9	0	-3.333333	.25	0	
10	N10	-.5	-1.666667	-.25	0	
11	N11	-.5	-3.333333	-.25	0	
12	N12	-.5	-1.666667	.25	0	
13	N13	-.5	-3.333333	.25	0	
14	N14	-.5	-1.666667	0	0	
15	N15	-.5	-3.333333	0	0	
16	N16	-.5	-1.166667	-.5	0	
17	N17	-.5	-2.833333	-.5	0	
18	N18	-.5	-1.166667	.5	0	
19	N19	-.5	-2.833333	.5	0	
20	N20	-.5	-2.166667	-.5	0	
21	N21	-.5	-3.833333	-.5	0	
22	N22	-.5	-2.166667	.5	0	
23	N23	-.5	-3.833333	.5	0	
24	N24	0	-1.416667	0	0	
25	N25	0	-3.083333	0	0	
26	N26	-.5	-1.666667	.125	0	
27	N27	-.5	-1.666667	-.125	0	
28	N28	-.375	-1.666667	.25	0	
29	N29	-.375	-1.666667	.125	0	
30	N30	-.375	-1.666667	0	0	
31	N31	-.375	-1.666667	-.125	0	
32	N32	-.375	-1.666667	-.25	0	
33	N33	-.25	-1.666667	.25	0	
34	N34	-.25	-1.666667	.125	0	
35	N35	-.25	-1.666667	0	0	
36	N36	-.25	-1.666667	-.125	0	
37	N37	-.25	-1.666667	-.25	0	
38	N38	-.125	-1.666667	.25	0	
39	N39	-.125	-1.666667	.125	0	
40	N40	-.125	-1.666667	0	0	
41	N41	-.125	-1.666667	-.125	0	
42	N42	-.125	-1.666667	-.25	0	
43	N43	0	-1.666667	.125	0	
44	N44	0	-1.666667	-.125	0	
45	N45	-.5	-3.333333	.125	0	
46	N46	-.5	-3.333333	-.125	0	
47	N47	-.375	-3.333333	.25	0	
48	N48	-.375	-3.333333	.125	0	
49	N49	-.375	-3.333333	0	0	
50	N50	-.375	-3.333333	-.125	0	
51	N51	-.375	-3.333333	-.25	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
52	N52	-.25	-3.333333	.25	0	
53	N53	-.25	-3.333333	.125	0	
54	N54	-.25	-3.333333	0	0	
55	N55	-.25	-3.333333	-.125	0	
56	N56	-.25	-3.333333	-.25	0	
57	N57	-.125	-3.333333	.25	0	
58	N58	-.125	-3.333333	.125	0	
59	N59	-.125	-3.333333	0	0	
60	N60	-.125	-3.333333	-.125	0	
61	N61	-.125	-3.333333	-.25	0	
62	N62	0	-3.333333	.125	0	
63	N63	0	-3.333333	-.125	0	
64	N64	-.25	-1.541667	0	0	
65	N65	0	-1.541667	0	0	
66	N66	-0.166667	-1.583333	0	0	
67	N67	-.25	-3.208333	0	0	
68	N68	0	-3.208333	0	0	
69	N69	-0.166667	-3.25	0	0	
70	N70	0	9.5	0	0	
71	N71	0	9	0	0	
72	N72	.25	9.5	0	0	
73	N73	.25	9	0	0	
74	N75	0	-4.833333	-.25	0	
75	N107	0	3.5	0	0	
76	N109	0	7.5	0	0	
77	N110	-3	-4.5	2	0	
78	N111	-3	-4.5	-2	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	N16	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
2	N17	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
3	N18	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
4	N19	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
5	N20	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
6	N21	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
7	N22	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
8	N23	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
9	N110	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
10	N111	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
11	N2							

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[psi]	Ry	Fu[psi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36000	1.5	58000	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
3	A992	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42000	1.4	58000	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46000	1.4	58000	1.3

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[psi]	Ry	Fu[psi]	Rt
6	A53 Grade B	29000	11154	.3	.65	.49	35000	1.5	60000	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipes	PIPE_4.0	Beam	Pipe	A53 Grade B	Typical	2.96	6.82	6.82	13.6
2	Support Arms	PIPE_6.0	Beam	Pipe	A53 Grade B	Typical	5.2	26.5	26.5	52.9
3	Braces	PIPE_3.0	Beam	Pipe	A36 Gr.36	Typical	2.07	2.85	2.85	5.69
4	HR4	PIPE_3.0	Beam	Pipe	A53 Grade B	Typical	2.07	2.85	2.85	5.69
5	Kicker Arms	HSS3x3x4	Beam	Double Angle (3/4 ...	A36 Gr.36	Typical	2.44	3.02	3.02	5.08
6	HR6	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]
1	gen_Conc3NW	3155	1372	.15	.6	.145
2	gen_Conc4NW	3644	1584	.15	.6	.145
3	gen_Conc3LW	2085	906	.15	.6	.11
4	gen_Conc4LW	2408	1047	.15	.6	.11
5	gen_Alum	10600	4077	.3	1.29	.173
6	gen_Steel	29000	11154	.3	.65	.49
7	RIGID	1e+6		.3	0	0
8	EHS Guy Wire	29000	11154	.3	.65	0

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N2			Mount Pipes	Beam	Pipe	A53 Grade...	Typical
2	M2	N22	N16			RIGID	None	None	RIGID	DR1_1
3	M3	N20	N18			RIGID	None	None	RIGID	DR1_1
4	M4	N23	N17			RIGID	None	None	RIGID	DR1_1
5	M5	N21	N19			RIGID	None	None	RIGID	DR1_1
6	M6	N72	N70			RIGID	None	None	RIGID	DR1_1
7	M7	N73	N71			RIGID	None	None	RIGID	DR1_1
8	M10	N107	N110			Kicker Arms	Beam	Double Angle (...	A36 Gr.36	Typical
9	M11	N109	N111			Kicker Arms	Beam	Double Angle (...	A36 Gr.36	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Mount Pipes	14			Lbyy						Lateral
2	M10	Kicker Arms	8.775			Lbyy						Lateral
3	M11	Kicker Arms	12.53			Lbyy						Lateral

Plate Primary Data

	Label	A Joint	B Joint	C Joint	D Joint	Material	Thickness[in]
1	P5	N12	N26	N29	N28	gen_Steel	.25
2	P6	N26	N14	N30	N29	gen_Steel	.25

Plate Primary Data (Continued)

	Label	A Joint	B Joint	C Joint	D Joint	Material	Thickness[in]
3	P7	N14	N27	N31	N30	gen_Steel	.25
4	P8	N27	N10	N32	N31	gen_Steel	.25
5	P9	N28	N29	N34	N33	gen_Steel	.25
6	P10	N29	N30	N35	N34	gen_Steel	.25
7	P11	N30	N31	N36	N35	gen_Steel	.25
8	P12	N31	N32	N37	N36	gen_Steel	.25
9	P13	N33	N34	N39	N38	gen_Steel	.25
10	P14	N34	N35	N40	N39	gen_Steel	.25
11	P15	N35	N36	N41	N40	gen_Steel	.25
12	P16	N36	N37	N42	N41	gen_Steel	.25
13	P17	N38	N39	N43	N8	gen_Steel	.25
14	P18	N39	N40	N4	N43	gen_Steel	.25
15	P19	N40	N41	N44	N4	gen_Steel	.25
16	P20	N41	N42	N6	N44	gen_Steel	.25
17	P20A	N13	N45	N48	N47	gen_Steel	.25
18	P21	N45	N15	N49	N48	gen_Steel	.25
19	P22	N15	N46	N50	N49	gen_Steel	.25
20	P23	N46	N11	N51	N50	gen_Steel	.25
21	P24	N47	N48	N53	N52	gen_Steel	.25
22	P25	N48	N49	N54	N53	gen_Steel	.25
23	P26	N49	N50	N55	N54	gen_Steel	.25
24	P27	N50	N51	N56	N55	gen_Steel	.25
25	P28	N52	N53	N58	N57	gen_Steel	.25
26	P29	N53	N54	N59	N58	gen_Steel	.25
27	P30	N54	N55	N60	N59	gen_Steel	.25
28	P31	N55	N56	N61	N60	gen_Steel	.25
29	P32	N57	N58	N62	N9	gen_Steel	.25
30	P33	N58	N59	N5	N62	gen_Steel	.25
31	P34	N59	N60	N63	N5	gen_Steel	.25
32	P35	N60	N61	N7	N63	gen_Steel	.25
33	P35A	N14	N64	N66	N35	gen_Steel	.25
34	P36	N64	N24	N65	N66	gen_Steel	.25
35	P37	N35	N66	N65	N4	gen_Steel	.25
36	P37A	N15	N67	N69	N54	gen_Steel	.25
37	P38	N67	N25	N68	N69	gen_Steel	.25
38	P39	N54	N69	N68	N5	gen_Steel	.25

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Dead Load	DL		-1		2				
2	Live Load (M)	LL								
3	Wind Front	WLZ				2		3		
4	Wind Side	WLX				2		3		
5	Wind Service Front	WLZ				2		3		
6	Wind Service Side	WLX				2		3		
7	Live Load (V)	LL								
8	Wind Ice Front	WLZ								
9	Wind Ice Side	WLX								
10	Dead Load Ice	None								
11	Earthquake Front	ELZ								

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Me...	Surface(...
12	Earthquake Side	ELX								

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 Dead Load	Y...	Y				1	1.4																		
2	1.2 Dead Load + 1.5 Live Load(V)	Y...	Y		7	1.5	1	1.2																		
3	1.2 DEAD + 1.0 WIND (Az = 0)	Y...	Y		3	1	1	1.2																		
4	1.2 DEAD + 1.0 WIND (Az = 30)	Y...	Y		3	.75	1	1.2	4	.25																
5	1.2 DEAD + 1.0 WIND (Az = 60)	Y...	Y		3	.25	1	1.2	4	.75																
6	1.2 DEAD + 1.0 WIND (Az = 90)	Y...	Y				1	1.2	4	1																
7	1.2 DEAD + 1.0 WIND (Az = 120)	Y...	Y		3	-.25	1	1.2	4	.75																
8	1.2 DEAD + 1.0 WIND (Az = 150)	Y...	Y		3	-.75	1	1.2	4	.25																
9	1.2 DEAD + 1.0 WIND (Az = 180)	Y...	Y		3	-1	1	1.2																		
10	1.2 DEAD + 1.0 WIND (Az = 210)	Y...	Y		3	-.75	1	1.2	4	-.25																
11	1.2 DEAD + 1.0 WIND (Az = 240)	Y...	Y		3	-.25	1	1.2	4	-.75																
12	1.2 DEAD + 1.0 WIND (Az = 270)	Y...	Y				1	1.2	4	-1																
13	1.2 DEAD + 1.0 WIND (Az = 300)	Y...	Y		3	.25	1	1.2	4	-.75																
14	1.2 DEAD + 1.0 WIND (Az = 330)	Y...	Y		3	.75	1	1.2	4	-.25																
15	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	1	1	1.2			10	1														
16	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.75	1	1.2	9	.25	10	1														
17	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.25	1	1.2	9	.75	10	1														
18	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y				1	1.2	9	1	10	1														
19	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.25	1	1.2	9	.75	10	1														
20	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.75	1	1.2	9	.25	10	1														
21	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-1	1	1.2			10	1														
22	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.75	1	1.2	9	-.25	10	1														
23	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	-.25	1	1.2	9	-.75	10	1														
24	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y				1	1.2	9	-1	10	1														
25	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.25	1	1.2	9	-.75	10	1														
26	1.2 DEAD + 1.0 ICE + 1.0 WIND ICE (Az...	Y...	Y		8	.75	1	1.2	9	-.25	10	1														
27	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	1	1	1.2			2	1.5														
28	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.75	1	1.2	6	.25	2	1.5														
29	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.25	1	1.2	6	.75	2	1.5														
30	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y				1	1.2	6	1	2	1.5														
31	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.25	1	1.2	6	.75	2	1.5														
32	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.75	1	1.2	6	.25	2	1.5														
33	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-1	1	1.2			2	1.5														
34	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.75	1	1.2	6	-.25	2	1.5														
35	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	-.25	1	1.2	6	-.75	2	1.5														
36	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y				1	1.2	6	-1	2	1.5														
37	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.25	1	1.2	6	-.75	2	1.5														
38	1.2 DEAD + 1.5 LIVE(M) + 1.0 WIND SE...	Y...	Y		5	.75	1	1.2	6	-.25	2	1.5														
39	1.2 DEAD + 1.0 EARTHQUAKE (Az = 0)	Y...	Y		11	1	1	1.2			S...	.2														
40	1.2 DEAD + 1.0 EARTHQUAKE (Az = 30)	Y...	Y		11	.75	1	1.2	12	.25	S...	.2														
41	1.2 DEAD + 1.0 EARTHQUAKE (Az = 60)	Y...	Y		11	.25	1	1.2	12	.75	S...	.2														
42	1.2 DEAD + 1.0 EARTHQUAKE (Az = 90)	Y...	Y				1	1.2	12	1	S...	.2														
43	1.2 DEAD + 1.0 EARTHQUAKE (Az = 120)	Y...	Y		11	-.25	1	1.2	12	.75	S...	.2														
44	1.2 DEAD + 1.0 EARTHQUAKE (Az = 150)	Y...	Y		11	-.75	1	1.2	12	.25	S...	.2														
45	1.2 DEAD + 1.0 EARTHQUAKE (Az = 180)	Y...	Y		11	-1	1	1.2			S...	.2														
46	1.2 DEAD + 1.0 EARTHQUAKE (Az = 210)	Y...	Y		11	-.75	1	1.2	12	-.25	S...	.2														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
47	1.2 DEAD + 1.0 EARTHQUAKE (Az = 240)	Y...	Y		11	-.25	1	1.2	12	-.75	S...	.2														
48	1.2 DEAD + 1.0 EARTHQUAKE (Az = 270)	Y...	Y				1	1.2	12	-1	S...	.2														
49	1.2 DEAD + 1.0 EARTHQUAKE (Az = 300)	Y...	Y		11	.25	1	1.2	12	-.75	S...	.2														
50	1.2 DEAD + 1.0 EARTHQUAKE (Az = 330)	Y...	Y		11	.75	1	1.2	12	-.25	S...	.2														

Joint Loads and Enforced Displacements (BLC 1 : Dead Load)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N72	L	Y	-39.5
2	N73	L	Y	-39.5

Joint Loads and Enforced Displacements (BLC 3 : Wind Front)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N72	L	Z	-944.57
2	N73	L	Z	-944.57

Joint Loads and Enforced Displacements (BLC 4 : Wind Side)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N72	L	X	-944.57
2	N73	L	X	-944.57

Joint Loads and Enforced Displacements (BLC 5 : Wind Service Front)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N72	L	Z	-29.4
2	N73	L	Z	-29.4

Joint Loads and Enforced Displacements (BLC 6 : Wind Service Side)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N72	L	X	-29.4
2	N73	L	X	-29.4

Member Point Loads

Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
No Data to Print ...			

Member Distributed Loads (BLC 3 : Wind Front)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PZ	-49.4	-49.4	0	%75
2	M10	PZ	-45.7	-45.7	0	0
3	M11	PZ	-45.7	-45.7	0	0

Member Distributed Loads (BLC 4 : Wind Side)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PX	-49.4	-49.4	0	%75
2	M10	PX	-45.7	-45.7	0	0
3	M11	PX	-45.7	-45.7	0	0

Member Distributed Loads (BLC 5 : Wind Service Front)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PZ	-1.5	-1.5	0	%75
2	M10	PZ	-2.8	-2.8	0	0
3	M11	PZ	-2.8	-2.8	0	0

Member Distributed Loads (BLC 6 : Wind Service Side)

	Member Label	Direction	Start Magnitude[lb/ft,F]	End Magnitude[l...	Start Location[ft,...	End Location[ft,%]
1	M1	PX	-1.5	-1.5	0	%75
2	M10	PX	-2.8	-2.8	0	0
3	M11	PX	-2.8	-2.8	0	0

Plate Surface Loads

Plate Label	Direction	Magnitude[ksf,F]
No Data to Print ...		

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N16	max	623.949	6	1804.1	12	1351.704	6	.083	6	.141	6	.145	6
2		min	-660.641	12	-1680.617	6	-1455.527	12	-.088	12	-.148	12	-.152	12
3	N17	max	654.365	12	1693.858	12	1277.13	6	.077	6	.181	12	.176	12
4		min	-624.155	6	-1584.694	6	-1368.513	12	-.082	12	-.171	6	-.167	6
5	N18	max	612.243	3	1710.069	12	1326.524	12	.095	12	.162	9	.147	3
6		min	-718.138	9	-1606.01	6	-1250.21	6	-.089	6	-.138	3	-.172	9
7	N19	max	830.475	12	1601.552	12	1240.353	12	.09	12	.184	6	.207	12
8		min	-775.152	6	-1507.836	6	-1171.123	6	-.084	6	-.196	12	-.194	6
9	N20	max	552.553	6	1705.55	12	1331.043	12	.088	6	.128	6	.146	12
10		min	-584.415	12	-1602.805	6	-1253.415	6	-.094	12	-.146	9	-.138	6
11	N21	max	725.93	12	1596.443	12	1245.462	12	.083	6	.193	12	.173	6
12		min	-691.223	6	-1503.893	6	-1175.066	6	-.088	12	-.183	6	-.182	12
13	N22	max	627.287	3	1808.619	12	1348.499	6	.089	12	.164	9	.173	9
14		min	-729.917	9	-1683.822	6	-1451.008	12	-.083	6	-.141	3	-.149	3
15	N23	max	902.039	12	1698.967	12	1273.187	6	.083	12	.196	6	.199	6
16		min	-842.22	6	-1588.637	6	-1363.404	12	-.078	6	-.208	12	-.213	12
17	N110	max	3638.895	9	10622.691	9	2573.624	3	.265	9	.234	12	.992	9
18		min	-3605.227	3	-10390.4	3	-2547.142	9	-.254	12	-.206	6	-.864	3
19	N111	max	2123.523	3	7940.367	3	1398.95	3	.555	3	.225	3	.438	12
20		min	-2048.33	9	-7754.417	9	-1492.169	9	-.602	9	-.262	9	-.365	6
21	Totals:	max	3340.564	6	564.594	1	3363.611	3						
22		min	-3340.559	12	483.937	12	-3363.613	9						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc.....		L..	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....		Eqn
1	M1	PIPE_4.0	.970	6.417	9	.584	11....		12	49809...	93240	10.631	10.631	2...	H1-1b
2	M10	HSS3x3x4	.644	0	9	.065	0	y	9	49330...	79056	6.696	6.696	2...	H1-1a
3	M11	HSS3x3x4	.637	0	3	.084	0	z	9	30177...	79056	6.696	6.696	2...	H1-1a

Envelope Plate/Shell Principal Stresses

	Plate		Surf...	Sigma1 [psi]	LC	Sigma2 [psi]	LC	Tau Max [psi]	LC	Angle [rad]	LC	Von Mises [psi]	LC
1	P5	max	T	1153.684	6	97.986	9	1153.963	12	2.338	4	1999.93	12
2		min		-116.395	3	-1223.452	12	4.728	29	-.072	3	8.67	29
3		max	B	944.963	12	10.939	10	899.488	12	2.148	39	1558.623	12
4		min		7.574	29	-878.081	6	4.728	29	-.354	10	8.67	29
5	P6	max	T	18230.297	12	4412.932	12	6908.683	12	2.229	3	16473.271	12
6		min		-4090.086	6	-17150.997	6	38.989	30	-.485	4	68.533	30
7		max	B	11616.986	6	2833.232	6	4662.052	12	1.505	5	11262.547	12
8		min		-3189.112	12	-12513.216	12	18.48	29	-.723	4	34.226	29
9	P7	max	T	20482.453	12	5460.559	12	7510.947	12	2.197	14	18371.254	12
10		min		-5088.264	6	-19235.206	6	32.751	29	-.446	3	83.226	29
11		max	B	11152.506	6	2017.659	6	4926.963	12	1.856	10	11035.404	12
12		min		-2069.838	12	-11923.765	12	9.829	29	-.697	32	34.74	29
13	P8	max	T	2072.627	12	3.468	4	1773.591	12	2.265	4	3086.47	12
14		min		-23.911	10	-1901.8	6	4.684	29	-.713	3	8.662	29
15		max	B	1113.104	12	31.601	13	690.169	9	2.252	4	1300.637	9
16		min		-31.158	7	-1202.671	9	4.684	29	-.233	5	8.662	29
17	P9	max	T	1800.166	9	-5.242	29	1575.51	12	2.26	27	2730.287	12
18		min		24.288	29	-1596.923	6	14.765	29	-.652	14	27.289	29
19		max	B	2152.097	12	-5.242	29	1221.577	12	1.818	14	2311.41	12
20		min		20.217	30	-2093.162	6	14.765	29	-.572	3	27.289	29
21	P10	max	T	4246.991	6	2017.938	6	2417.94	9	1.534	5	4409.096	9
22		min		-2040.843	12	-4592.348	12	14.704	35	-.138	4	42.604	29
23		max	B	7928.386	12	-48.134	29	5544.898	12	2.316	8	9895.388	12
24		min		-.234	30	-7521.407	6	26.221	30	-.528	7	52.559	30
25	P11	max	T	5653.039	6	2943.459	6	1507.668	9	2.308	37	5248.798	12
26		min		-3120.45	12	-6059.888	12	2.725	29	-.765	12	25.781	29
27		max	B	9126.405	12	-21.7	29	7173.027	12	2.291	3	12576.669	12
28		min		-4.419	4	-8559.197	6	23.325	29	-.033	4	40.433	29
29	P12	max	T	2535.872	12	1.508	10	1794.865	12	1.43	3	3195.889	12
30		min		-23.866	4	-2321.536	6	3.444	29	-.501	4	6	29
31		max	B	4522.927	12	-4.091	29	2722.948	12	2.345	33	5048.095	12
32		min		2.797	29	-4175.851	6	3.444	29	-.368	32	6	29
33	P13	max	T	4718.827	6	-6.943	29	3428.247	12	2.284	32	6171.628	12
34		min		13.663	29	-5110.616	12	10.303	29	-.681	33	18.159	29
35		max	B	5808.865	12	133.141	3	3158.742	12	1.932	9	6079.154	12
36		min		-64.745	8	-5506.76	6	2.527	30	-.632	30	12.5	30
37	P14	max	T	5710.631	12	-14.885	29	5310.597	12	2.262	9	9206.918	12
38		min		34.602	29	-5336.302	6	24.743	29	-.596	30	43.976	29
39		max	B	20987.663	12	2547.818	12	9219.923	12	2.064	31	19836.851	12
40		min		-2349.38	6	-19694.744	6	47.28	31	-.492	9	83.433	29
41	P15	max	T	6444.111	6	24.855	31	5999.148	12	2.017	29	10426.512	12
42		min		34.328	29	-6861.032	12	9.988	29	-.329	31	29.862	29
43		max	B	21477.916	12	1174.037	12	10151.94	12	1.69	29	20915.625	12
44		min		-1216.119	6	-20155.458	6	13.704	31	-.474	31	32.719	31
45	P16	max	T	3592.286	6	-11.558	31	2731.72	12	2.161	30	4849.153	12
46		min		3.073	29	-3793.514	12	8.926	29	-.657	31	16.532	29
47		max	B	8207.905	12	2.877	29	4656.085	12	1.885	10	8812.083	12
48		min		6.099	30	-7645.788	6	1.617	29	-.251	31	5.295	29
49	P17	max	T	5709.566	6	-1.009	29	3700.662	12	2.316	31	6858.058	12
50		min		5.134	29	-6139.568	12	3.071	29	-.664	29	5.705	29
51		max	B	2385.676	12	68.106	14	1188.639	12	2.327	10	2381.488	12

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [psi]	LC	Sigma2 [psi]	LC	Tau Max [psi]	LC	Angle [rad]	LC	Von Mises [psi]	LC
52		min		-82.455	8	-2266.694	6	.782	30	-.664	29	5.469	30
53	P18	max	T	9774.6	12	90.963	10	5007.024	12	2.219	10	9896.497	12
54		min		-24.376	4	-9260.171	6	33.296	29	-.769	29	74.573	30
55		max	B	23736.475	12	173.822	10	12488.072	12	2.088	10	24379.959	12
56		min		-194.187	4	-22324.954	6	36.32	31	-.701	31	64.018	31
57	P19	max	T	11953.023	12	496.233	12	5728.395	12	2.248	9	11712.793	12
58		min		-407.941	6	-11118.928	6	18.145	29	-.655	30	35.664	31
59		max	B	25187.744	12	-20.54	29	12892.139	12	2.01	31	25491.247	12
60		min		-15.174	30	-23622.038	6	19.182	31	-.47	30	40.109	31
61	P20	max	T	4923.559	6	-3.036	30	3118.235	12	1.104	9	5789.981	12
62		min		2.69	29	-5204.791	12	6.508	29	-.768	31	11.901	29
63		max	B	3694.866	12	-.649	33	1969.911	12	1.42	32	3823.234	12
64		min		2.314	30	-3437.062	6	6.508	29	-.768	31	11.664	32
65	P20A	max	T	1137.528	12	42.077	8	1150.737	12	2.345	4	1993.178	12
66		min		1.934	3	-1163.946	12	7.676	29	-.638	3	13.945	29
67		max	B	905.421	12	2.823	32	816.012	12	2.24	14	1416.199	12
68		min		11.883	29	-841.743	6	7.676	29	-.785	3	13.945	29
69	P21	max	T	11231.787	12	3887.153	12	3672.317	12	2.259	4	9879.439	12
70		min		-3592.428	6	-10518.505	6	5.782	29	-.231	5	49.425	29
71		max	B	16551.483	6	3129.129	6	7132.025	12	1.462	4	16279.736	12
72		min		-3471.391	12	-17735.442	12	29.06	29	-.733	3	66.366	31
73	P22	max	T	12984.56	12	4914.298	12	4035.131	12	2.203	3	11355.137	12
74		min		-4586.107	6	-12147.852	6	2.849	29	-.471	4	36.189	29
75		max	B	15691.725	6	2344.693	6	7113.176	12	1.983	4	15581.613	12
76		min		-2425.945	12	-16652.297	12	33.676	29	-.389	3	80.532	30
77	P23	max	T	2106.603	12	9.025	4	1758.445	12	1.083	4	3065.551	12
78		min		.17	29	-1937.675	6	1.723	29	-.779	3	3.365	29
79		max	B	1159.063	12	50.627	13	568.327	12	2.273	3	1148.023	12
80		min		-49.812	7	-1074.583	6	1.723	29	-.527	4	3.365	29
81	P24	max	T	1864.243	6	-5.1	29	1650.636	12	2.345	38	2880.684	12
82		min		16.564	29	-2003.54	12	10.832	29	-.776	13	19.618	29
83		max	B	1141.677	9	-5.1	29	718.677	9	1.501	13	1314.693	9
84		min		6.346	28	-875.868	3	6.983	28	-.287	14	12.112	28
85	P25	max	T	7741.047	6	823.976	5	3743.113	12	1.882	4	7894.717	12
86		min		-849.058	11	-8247.985	12	21.671	29	-.535	3	41.592	29
87		max	B	4653.361	12	374.723	3	3754.332	12	2.338	3	6564.548	12
88		min		-284.232	8	-4437.157	6	13.109	30	-.778	8	39.321	30
89	P26	max	T	7836.359	6	2832.39	6	2644.842	12	1.954	3	7286.549	12
90		min		-3021.57	12	-8311.254	12	31.129	30	-.73	14	61.016	29
91		max	B	5696.273	12	-10.836	29	5305.372	12	2.348	34	9197.484	12
92		min		-10.736	29	-5317.077	6	.05	29	-.658	33	10.786	29
93	P27	max	T	1805.347	12	-12.735	29	1524.379	12	2.07	4	2655.21	12
94		min		4.275	29	-1637.109	6	8.505	29	-.467	5	15.327	29
95		max	B	3066.109	12	-8.607	33	1912.501	12	2.028	4	3507.676	12
96		min		3.25	32	-2803.884	6	6.707	33	.214	30	11.771	33
97	P28	max	T	5109.767	6	-8.565	30	3533.706	12	2.137	31	6432.168	12
98		min		4.218	29	-5511.47	12	9.633	29	-.508	29	17.542	29
99		max	B	4075.102	12	53.129	14	2203.226	12	1.927	30	4250.475	12
100		min		-95.864	8	-3881.829	6	9.812	30	-.162	8	16.998	30
101	P29	max	T	4156.677	6	43.235	4	3611.246	12	2.251	9	6305.779	12
102		min		7.061	31	-4410.968	12	11.055	29	-.661	8	19.286	29
103		max	B	15898.77	12	3470.073	12	6214.349	12	2.328	9	14479.033	12

Envelope Plate/Shell Principal Stresses (Continued)

	Plate		Surf...	Sigma1 [psi]	LC	Sigma2 [psi]	LC	Tau Max [psi]	LC	Angle [rad]	LC	Von Mises [psi]	LC
104		min		-3233.184	6	-14928.938	6	28.848	30	-.625	30	67.977	31
105	P30	max	T	5123.846	6	-4.341	29	3466.699	12	2.328	32	6319.594	12
106		min		34.824	29	-5437.3	12	19.583	29	-.781	10	37.185	29
107		max	B	16214.656	12	2156.612	12	7029.022	12	2.282	31	15251.142	12
108		min		-2147.656	6	-15222.604	6	33.132	29	-.307	9	62.872	31
109	P31	max	T	3866.03	6	-18.822	30	2742.675	12	2.203	8	4929.916	12
110		min		4.872	29	-4060.733	12	16.671	30	-.58	30	28.955	30
111		max	B	6335.312	12	76.667	10	3631.264	12	1.963	29	6846.175	12
112		min		-75.068	4	-5889.515	6	1.382	29	-.266	31	6.298	29
113	P32	max	T	5079.229	6	-.845	30	3264.756	12	2.337	9	6065.285	12
114		min		2.429	29	-5458.335	12	6.941	29	-.675	30	12.841	29
115		max	B	2189.394	12	84.246	14	1080.732	12	2.258	9	2175.563	12
116		min		-90.87	8	-2087.124	6	5.189	29	.13	8	11.588	29
117	P33	max	T	4173.514	12	64.713	10	2359.952	12	2.27	33	4471.815	12
118		min		-8.262	4	-3956.001	6	24.359	29	-.776	32	53.987	29
119		max	B	15582.002	12	-20.986	31	8478.449	12	2.126	31	16312.963	12
120		min		-7.885	30	-14649.867	6	31.222	31	-.045	9	55.038	31
121	P34	max	T	6244.167	12	471.946	12	2886.111	12	2.268	9	6022.08	12
122		min		-388.009	6	-5704.377	6	10.102	29	-.742	8	19.979	29
123		max	B	16811.607	12	61.768	3	8798.294	12	1.719	31	17217.524	12
124		min		-65.128	9	-15764.468	6	34.849	31	-.676	9	62.107	31
125	P35	max	T	4261.85	6	-6.481	30	2670.39	12	2.251	9	4970.173	12
126		min		.737	29	-4489.641	12	6.879	30	-.733	31	11.922	30
127		max	B	3416.764	12	52.33	10	1819.738	12	2.135	29	3533.388	12
128		min		-43.98	4	-3180.337	6	8.666	29	-.733	31	15.032	29
129	P35A	max	T	25857.27	9	7474.438	9	14627.496	12	2.33	10	29178.045	12
130		min		-6336.263	3	-29100.485	12	85.192	29	-.669	31	215.249	29
131		max	B	19108.854	12	2435.359	4	15655.143	12	1.997	4	27334.568	12
132		min		-3527.783	10	-16462.954	6	46.939	29	.048	5	149.931	29
133	P36	max	T	27157.975	6	3786.737	4	24790.337	12	2.22	14	42959.074	12
134		min		-4494.57	10	-27381.862	9	178.584	29	-.733	3	397.359	29
135		max	B	58011.25	6	5880.486	9	34833.786	12	1.953	34	67698.186	12
136		min		-4587.472	3	-65539.916	12	128.614	29	-.699	33	309.679	29
137	P37	max	T	30979.984	13	6463.176	4	20698.014	12	1.594	4	37293.278	12
138		min		-8135.732	10	-34137.099	9	101.503	29	-.388	5	317.619	29
139		max	B	38830.987	9	16995.196	9	13177.947	12	2.316	7	33715.605	9
140		min		-16143.423	14	-37556.269	12	153.96	29	-.701	6	382.332	29
141	P37A	max	T	30541.39	6	6392.851	9	16099.539	12	2.268	9	33023.786	12
142		min		-6151.503	3	-33790.919	12	83.343	29	-.677	30	160.798	29
143		max	B	16148.976	3	5253.742	3	15343.094	12	2.195	3	26575.622	12
144		min		-6268.16	9	-18079.953	9	102.577	29	-.519	4	242.385	29
145	P38	max	T	27714.458	3	6301.62	3	23236.053	12	2.044	13	40249.282	12
146		min		-6824.431	9	-31576.846	9	222.672	29	-.672	14	464.406	29
147		max	B	56567.931	6	6488.86	9	33330.987	12	2.309	29	64834.056	12
148		min		-5956.492	3	-62836.762	12	117.803	29	-.745	10	234.911	29
149	P39	max	T	31161.592	3	10020.544	3	17067.561	12	1.776	4	30872.708	12
150		min		-11618.082	9	-33682.191	9	97.28	29	-.455	5	310.039	29
151		max	B	32901.404	6	13498.109	8	12011.995	12	2.283	6	32650.45	12
152		min		-14222.082	13	-37175.218	12	130.576	29	-.733	5	286.822	29

APPENDIX D

STRUCTURAL FOR EQUIPMENT ROOM SLAB

RATHGEBER/GOSS ASSOCIATES
Consulting Structural Engineers

20 March 2019

Mr. Eric Kohl
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609

RE: 1740 Polk Street, Hollywood. Florida 33020
Level 26 Load Study

Dear Eric:

Rathgeber/Goss Associates (RGA) has reviewed the existing structural drawings dated July 15, 2014 by CHM Structural Engineers, LLC. The existing structure consists of a two-way cast-in-place post tensioned concrete slab system spanning to concrete columns and shear walls. The change in occupancy occurs between grid lines 6R and 9R at approximately E line, where a new communications equipment room is proposed. The new room consists of a series of battery racks, concrete masonry unit partition walls and an 8" topping slab. For the approximate location and a loading diagram please see the attachments to this letter.

RGA performed an analysis of Level 26 using loading provided from CHM Structural Engineers Main Roof Level Concept calculation output and the new loading requirements for the communications equipment room. Upon review of our analysis, RGA has determined that the existing structure is not code compliant when considering the new occupancy loads for the communications equipment room and cannot support the required loading.

Please see the following pages for the referenced information. The referenced base building design calculations have been attached separately.

Please advise us promptly if you have questions on this matter.

Sincerely,

RATHGEBER/GOSS ASSOCIATES, P.C.
FLORIDA CORPORATION No. P34989

Paul M. White, P.E.
Project Manager

W. ERIC RATHGEBER
LICENSE
No. 43122
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

3.20.2019

15871 Crabbs Branch Way, Rockville, Maryland 20855 **T** 301/590-0071 **F** 301/590-0073 **E** MJG@rath-goss.com

GENERAL NOTES

GENERAL CONSTRUCTION NOTES:

GENERAL CONSTRUCTION NOTES ARE IN CONFORMANCE WITH THE SPECIFICATIONS FOR THIS PROJECT AND IN CLARIFICATION THEREOF.

CODES: (1)

FLORIDA BUILDING CODE 2010 .
ACI 318-08
ACI 421.1-R92
A. I. S. C. - NINTH EDITION
ASCE 7-10
ACI 530-08
ACI 530.1-08
PCI DESIGN HANDBOOK-5TH EDITION

DESIGN CRITERIA:

LIVE LOADS:

LIVE LOADS: ROOF ---	75 PSF
APARTMENTS---	40 PSF
BALCONIES--	60 PSF
LOBBY FLOOR--	100 PSF
CORRIDORS, STAIRS, & PUBLIC AREAS--------------	100 PSF
TENANT STORAGE--	75 PSF
MECHANICAL EQUIPMENT ROOMS-------------------	150 PSF
PARKING DECKS--	50 PSF
RECREATION DECK --------------------------------------	100 PSF

NO LIVE LOAD REDUCTION PERMITTED FOR FLOOR SLAB DESIGN

WIND LOADS:

IN ACCORDANCE WITH ASCE 7-10, F.B.C. 2010 AND WIND TUNNEL TEST BY RWD1 DATED MARCH 10, 2014

ULTIMATE WIND SPEED -------------------------------------	170 MPH
IMPORTANCE FACTOR ----------------------------------	1
EXPOSURE CATEGORY ---------------------------------	C
INTERNAL PRESSURE COEF. -------------------------	± 0.18
BUILDING CAT. ---	II

SHOP DRAWINGS:

ALL REINFORCING, PRECAST UNITS AND STRUCTURAL STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR APPROVAL.

FOUNDATIONS:

THE STRUCTURE SHALL BE SUPPORTED ON PILE FOUNDATIONS AS PER GEOTECHNICAL REPORT BY LANGAN ENGINEERING, DATED SEPTEMBER 09, 2011

SHORING SYSTEMS:

THE FORM AND SHORING SYSTEM SHALL BE DESIGNED BY A FLORIDA REGISTERED ENGINEER IN ACCORDANCE WITH ACI 347 RECOMMENDED PRACTICE FOR CONCRETE FORMING.

SHORING AND RE-SHORING PLANS MUST BE SIGNED AND SEALED BY A FLORIDA REGISTERED ENGINEER AND SUBMITTED WITH CALCULATIONS. CALCULATIONS FOR THE RE-SHORING PROCESS MUST INCLUDE THE POURING AND THE STRIPPING CYCLE BASED ON THE CONSTRUCTION SCHEDULE. THE ASSUMED CONCRETE STRENGTH AT THE TIME OF STRIPPING ANY NEW SLAB AND MUST BE SUBSTANTIATED BY PROVIDING CONCRETE MIX DESIGN AND EXPECTED STRENGTH GAIN WITH AGE. THE CALCULATIONS MUST SHOW THAT THE SLABS SUPPORTING A NEW SLAB ARE NOT OVER-STRESSED BASED ON THE ASSUMED STRENGTH AND THE AGE AT THE TIME OF POURING.ALL RE-SHORING CALCULATIONS SHALL INCLUDE CALCULATIONS FOR MUD SILLS AND ANY CONSTRUCTION LOADING SUCH AS CONCRETE PLACING BOOM SUPPORT ETC.

FINAL SIGNED AND SEALED SHORING AND RESHORING DRAWINGS SHALL BE ISSUED TO THE ENGINEER OF RECORD FOR THE PROJECT AND THE THRESHOLD BUILDING INSPECTOR FOR HIS USE TO INSURE COMPLIANCE WITH THESE DRAWINGS. NO CONVENTIONALLY REINFORCED FLAT SLAB SHALL BE STRIPPED AND RESHORED UNTIL CONCRETE HAS ACHIEVED A MINIMUM OF 70% OF DESIGN STRENGTH AND 72 HOURS OF AGE. BASED ON THE LOWEST CONCRETE TEST. SPACE SPECIAL SHORING/RESHORING PROGRAMS & CALCULATION SHALL BE INCLUDED FOR TRANSFER SLABS.

MASONRY:

F'm FOR MASONRY WALLS SHALL BE 1500 PSI (U.O.N.)

BASED ON A UNIT MASONRY COMPRESSIVE STRENGTH OF (1900 PSI).

EXTERIOR CMU WALL MORTAR SHALL COMPLY WITH TYP "M".

INTERIOR, NON-LOAD BEARING CMU WALL MORTAR MAY BE TYPE"S".

SEE FLOOR PLANS FOR SCHEDULED WALL MARKS AND TYPICAL DETAILS FOR CONNECTION INFORMATION. SEE FLOOR PLANS FOR EXTERIOR CMU WALL VERTICAL REINFORCING.

CMU VERTICAL REINFORCING IS TO BE PLACED IN FINE MASONRY GROUT-FILLED CELLS. FINE MASONRY GROUT MUST COMPLY WITH ASTM C 476 (LATEST VERSION). WATER/ CEMENTITIOUS MATERIAL RATIO SHALL FALL BETWEEN 0.57- 0.65, SO THAT WHEN EXCESS MOISTURE IS ABSORBED BY THE CMU UNITS, THE RESULTANT STRENGTH IS NOT LESS THAN 3000 PSI. SUBMIT A PRISM TEST WITH THE DESIGN MIX, INDICATING FINAL STRENGTH CHARACTERISTICS.

CLEAN OUTS AT BOTTOM OF EACH LIFT OF REINFORCED CELLS SHALL BE PROVIDED.. PROVIDE 20 GAGE HOT-DIPPED GALVANIZED DOVETAIL SLOTS VERTICALLY IN STRUCTURAL COLUMNS (AND TIE COLUMNS NOT PLACED INTEGRALLY WITH CMU WALLS) THAT ARE ABUTTED BY NON-LOAD BEARING MASONRY WALLS AND TIE MASONRY INTO COLUMNS WITH 1 IN. x 8 IN. x 16 GAGE CORRUGATED HOT-DIPPED GALVANIZED DOVETAIL ANCHORS.

LAP DOVETAIL ANCHORS WITH STANDARD HOT-DIPPED GALVANIZED 9 GAGE LADUR-TYPE DUR-O-WAL WITH CROSS RODS SPACED AT 16" C/C FOR REINFORCED MASONRY WALL. PLACE DOVETAIL ANCHOR AND DUR-O-WAL EVERY OTHER BLOCK COURSE.

FREE-STANDING MASONRY WALLS, PARAPETS, ETC., SHALL HAVE AN 8" x 8" CONCRETE CAP, REINFORCED WITH 2 #4 CONTINUOUS (U.O.N.).

REFER TO "TYPICAL REINFORCING PLACEMENT AT WINDOW OPENINGS" ON S-0.3 FOR ADDITIONAL CMU REINFORCING INFORMATION.

ARCHITECTURAL MASONRY PIERS NOT DETAILED SHALL HAVE 1 #6 IN GROUT-FILLED CELLS AT EACH CORNER AND AN 8" THICK CONCRETE CAP WITH #4 @ 8" C/C -EACH WAY -CENTER OF SLAB.

PROVIDE SHOP DRAWINGS FOR APPROVAL, INDICATING LOCATIONS OF REINFORCED GROUT-FILLED CMU CELLS AND MORTAR-FILLED CELLS ADJACENT TO CAST-IN-PLACE COLUMNS AND WALLS, WITH DETAILS FOR DOVETAIL SLOTS AND ANCHORS.

LOCATION OF MASONRY WALLS, WINDOW AND DOOR OPENINGS AND ANY OTHER MASONRY FEATURES ARE TO BE COORDINATED WITH ARCHITECTURAL DRAWINGS.

PROVIDE CONTROL JOINTS IN CMU WALLS AS SHOWN ON PLANS OR NOT TO EXCEED 40'-0" O/C SPACING OF JOINTS SHOULD BE COORDINATED W/ ARCHITECT. G.C. TO SUBMIT LOCATION PLAN FOR REVIEW AND APPROVAL. SEE DETAIL SHEET S-0.2

INTERIOR MASONRY WALL OVER 12 FEET IN HEIGHT SHALL BE REINFORCED WITH #5 @ 48" C/C IN CONCRETE FILLED CELLS. SEE PLANS AND NOTES FOR ANY TIE BEAM OR TIE COLUMN REQUIREMENTS.

ANCHOR RODS:

ALL ANCHOR RODS SHALL CONFORM TO ASTM A36-GALVANIZED WITH DOUBLE NUTS-ASTM A325- GALVANIZED (UNLESS OTHERWISE NOTED)

POST-TENSIONED CONCRETE:

SEE THE SPECIFICATIONS GOVERNING ALLOWABLE MATERIALS AND ACCESSORIES AND ALSO ALLOWABLE PRACTICES COVERING THE PLACING AND STRESSING OF OF POST-TENSIONING MATERIALS.

ALL SLAB AND BEAM TENDONS WILL CONSIST OF THE UNBONDED TYPES AND SHALL BE 270 KSI LOW RELAXATION STRAND. FIXED AND STRESSING ENDS SHALL HAVE CORROSION PROTECTION ASSEMBLIES WITH PROTECTION CAPS.

(ENCAPSULATED SYSTEM)

PROFILE DIMENSIONS TO BE DETERMINED BY P/T SUPPLIER ARE MEASURED FROM THE SOFFIT OF THE CONCRETE SECTION TO THE CENTER OF THE STRAND OR WIRE GROUP.

THE REQUIRED NUMBER OF TENDONS SHOWN ON PLANS ARE BASED ON THE EFFECTIVE PRE-STRESSED FORCES; POST-TENSIONING SUPPLIER IS RESPONSIBLE FOR CALCULATIONS OF FRICTION AND PRESTRESS LOSSES. NUMBER AND SIZE OF THE TENDONS SHALL BE DETERMINED ON THIS BASIS AND WILL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER.

THE STRESSING OF THE SLAB TENDONS MAY COMMENCE WHEN CONCRETE TEST CYLINDERS INDICATE THAT A MINIMUM COMPRESSIVE STRENGTH OF 2800 PSI. BASED ON THE LOWEST BREAK HAS BEEN ACHIEVED. OR AS OTHERWISE DEFINED ON DRAWINGS. NO STRESSING WILL BE AUTHORIZED IF ANY OF THE CYLINDERS INDICATE A STRENGTH BELOW 2800 PSI. THE TENDONS IN THE POST-TENSIONED SLABS MAY BE MOVED LATERALLY TO CLEAR OPENINGS AND/OR SLEEVES AT FIXED LOCATIONS. PROVIDE 2" CLEAR DISTANCE BETWEEN SUCH OPENINGS AND/OR SLEEVES AND THE RELOCATED TENDONS. ALL OPENINGS AND/OR SLEEVES SHOULD BE POSITIONED IN THE PROPER LOCATIONS PRIOR TO POURING OF THE CONCRETE. CORING OF THE SLAB WILL NOT BE PERMITTED WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER. ANY ADDITIONAL OPENINGS, WITH EITHER DIMENSION LARGER THAN 2 FEET NOT CURRENTLY SHOWN ON THE STRUCTURAL DRAWINGS WILL REQUIRE APPROVAL FROM THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT. GENERAL CONTRACTOR SHALL PROPOSE LOCATION OF CONSTRUCTION JOINTS AND POUR STRIPS (IF ANY) AND SHALL SUBMIT THESE LOCATIONS TO ENGINEER OF RECORD FOR APPROVAL. ANY ADDITIONAL REINFORCING SHALL BE PROVIDED AS PER TYPICAL DETAILS SHOWN ON THESE DRAWINGS.

NOTES FOR P/T SLAB REINFORCING:

UNLESS OTHERWISE NOTED, SPACING OF TOP AND BOTTOM BARS SHALL NOT EXCEED 8" EACH WAY. BARS SHALL BE PLACED SYMMETRICAL ABOUT CENTER LINE OF COLUMNS.

TOP BARS SHALL BE LOCATED WITHIN A STRIP THAT EXTENDS 1.5 x SLAB THICKNESS IN EACH DIRECTION (PERPENDICULAR TO SPAN) FROM OPPOSITE FACES OF THE COLUMN. (3-3/4") INDICATES LOCATION OF C.G. OF P/T TENDONS FROM MAIN SLAB SOFFIT. WHERE SUCH DIMENSIONS ARE NOT SHOWN, LOCATE C.G. ACCORDING TO THE FOLLOWING:

A. AT MID SPANS:
   1" FROM SLAB SOFFIT FOR BANDED AND UNIFORM TENDONS AND OTHER REINFORCING.
B. AT COLUMNS AND OTHER SUPPORTS:
   3/4" FROM TOP OF SLAB FOR BANDED AND UNIFORM TENDONS DROP UNIFORM CABLES THAT INTERFERE WITH BANDED CABLES AN ADDITIONAL i" FROM TOP OF SLAB. MINIMUM COVER ON EXPOSED SURFACES, SUCH AS BALCONIES AND PARKING SEALS SHALL BE 1".
C. AT DEAD ENDS, LIVE ENDS AND OTHER DISCONTINUOUS ENDS:
   AT MID DEPTH OF SLAB.

TYPICAL LENGTH FOR TOP REINFORCING OVER COLUMNS AND OTHER SUPPORTS SHALL BE AS FOLLOWS:

A. OVER INTERIOR COLUMNS AND OTHER SUPPORTS: 1/6 OF LARGER ADJACENT SPAN UNLESS OTHERWISE NOTED, ON EACH SIDE OF COLUMN OR SUPPORTS.
B. OVER COLUMNS WITH CANTILEVERS: TWICE THE LENGTH OF CANTILEVER SPAN + LENGTH OF THE COLUMN SUPPORT, OR 1/6 OF INTERIOR SPAN + CANTILEVER (WHICHEVER IS LARGER)

TYPICAL LENGTH FOR BOTTOM REINFORCING IN POSITIVE MOMENT AREAS SHALL BE TWO-THIRDS THE CLEAR SPAN LENGTH AND CENTERED ABOUT MID SPAN UNLESS OTHERWISE NOTED ON DRAWING. ADDITIONALLY FOR INTERIOR SPANS EXTEND 1 OUT OF EVERY 4 BARS 6" INTO THE SUPPORT.

FOR END SPANS EXTEND 1 OUT OF 3

ALL REINFORCING SHOWN ON PLANS ARE TOP REINFORCING UNLESS OTHERWISE NOTED.

———————————— DENOTES TOP STEEL
— — — — — — — — DENOTES BOTTOM STEEL

MITIGATION OF RESTRAINT CRACKS IN POST-TENSIONED SLABS

CRACK MITIGATION TECHNIQUES HAVE BEEN IMPLEMENTED IN THE DESIGN OF THE SLABS FOR THIS PROJECT; HOWEVER, RESTRAINT AND SHORTENING CRACKS ARE LIKELY TO OCCUR.

THESE CRACKS DO NOT NORMALLY IMPAIR THE STRUCTURAL INTEGRITY OF THE SLABS, YET THEY MAY NEED TO BE SEALED TO PROTECT THE REINFORCING FROM EXPOSURE TO HUMIDITY AND POSSIBLY CORROSIVE AIR.

APPROXIMATELY TWO YEARS AFTER CASTING OF THE LAST SLAB, THE GENERAL CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER TO INSPECT THE SLABS IN ORDER TO DETERMINE IF CRACKS ARE PRESENT, WHETHER THEY NEED TO BE SEALED AND/OR EPOXY INJECTED AND PROVIDE SPECIFICATIONS AND/OR REPAIR PROCEDURES & PERFORM THE REPAIRS

AN APPROXIMATE COST FOR THESE REPAIRS IS ESTIMATED AT $0.03/SQUARE FOOT OF SLAB TO BE PAID BY OWNER/CONTRACTOR.

POUR STRIP:

SHRINKAGE COMPENSATING POUR STRIP HAS BEEN DESIGNED TO REDUCE LOCKED-IN SHRINKAGE STRESSES THAT MAY OCCUR. REINFORCEMENT FROM EACH SIDE OF THIS AREA SHOULD BE LAPPED AS PER TYPICAL POUR STRIP DETAIL NO REINFORCEMENT SHALL BE CONTINUOUS THROUGH THIS POUR STRIP. FOR POUR STRIP DETAIL SEE SHEET S-0.1

JOINTS BETWEEN OLD AND NEW CONCRETE:

APPLY SIKA ARMATEC 110 BONDING AGENT AT CONSTRUCTION JOINTS AND POUR STRIPS. (EXCEPT SLABS ON GRADE)

OPENINGS IN SLABS:

ALL OPENINGS IN CONCRETE SLABS SHALL BE LOCATED, SIZED AND REINFORCED (WITH THE EXCEPTION OF SMALL OPENINGS AND/OR SLEEVES OF A SIZE THAT WILL NOT DISPLACE OR INTERRUPT THE CONTINUITY OF THE REINFORCING) AS SHOWN ON RESPECTIVE FLOOR PLANS AND DETAILS. ANY ALTERATIONS REQUIRE APPROVAL OF THE STRUCTURAL ENGINEER. (SEE TYPICAL SLAB OPENING DETAIL ON DRAWING S-0.1). G.C. TO PROVIDE ALLOWANCE FOR THE REINFORCING REQUIRED FOR ALL OPENINGS.

ALL OPENINGS REQUIRED BY OTHER TRADES ARE TO BE COORDINATED W/ARCH. & MECH. DWGS., AND ARE SUBJECT TO STRUCTURAL ENGINEERING APPROVAL.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL COMPLY WITH ASTM A50 (U.O.N.) PROVIDE ONE SHOP COAT OF RUST INHIBITING PAINT (MINIMUM 3 MIL DRY FILM THICKNESS) ON STRUCTURAL STEEL UNLESS OTHERWISE NOTED ON PLANS, WHICH SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE PROVISIONS OF THE AISC STEEL CONSTRUCTION MANUAL.

ALL STRUCTURAL STEEL COLUMNS DESIGNATED AS HSS SECTIONS SHALL COMPLY WITH ASTM A500 (ERW COLD-FORMED) GRADE B FOR RECTANGULAR OR SQUARE SECTIONS AND ASTM A500 GRADE C FOR ROUND SECTIONS.

FIRE PROOFING SHALL BE PROVIDED FOR ALL STRUCTURAL STEEL MEMBERS AS REQUIRED BY F.B.C. 2001 AND THE ARCHITECTURAL PLANS.

HIGH-STRENGTH BOLTED CONNECTIONS:

HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR HIGH STRENGTH STEEL BOLTS FOR STRUCTURAL JOINTS", ASTM A325, UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER. ALL BOLTED FIELD CONNECTIONS SHALL BE FRICTION TYPE UNLESS NOTED OTHERWISE ON THE DRAWINGS. FURNISH 3/4" DIAMETER BOLTS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

CONCRETE:

FOUNDATIONS ---	5000 PSI (*3)
SLAB ON GRADE --	4000 PSI
TYPICAL FLOOR SLABS----------------------------------	5000 PSI (*1)
RECREATION FLOOR SLAB------------------------------	6000 PSI (*1)
ROOF SLAB ---	5000 PSI
MACHINE ROOF LEVELS --------------------------------	5000 PSI
TOWER, COLUMNS AND SHEAR WALLS------------	(SEE COL. SCHED.) (*2)
ALL CONCRETE NOT INDICATED ABOVE ---------	4000 PSI
TOPPING SLABS ---	4000 PSI (*4) (*1)

(*1)SEE REQUIREMENTS FOR BALCONY MOISTURE PROTECTION.
(*2) CONCRETE IN SHEARWALL SHALL CONTAIN RHEOBUILD 1000 SUPERPLASTICIZER.
(*3) PROVIDE 0.4 WATER CEMENT RATIO AS PER ACI 4.2.2
(*4) PROVIDE 1.5 LB/CY MICRO FIBERMESH REINFORCING.(U.O.N.)

NON STRUCTURAL CONCRETE SLABS FORMED ON FILL:

(WHERE INDICATED ON PLAN)

SHALL BE PLACED ON CLEAN, NON-ORGANIC SOIL, COMPACTED ACCORDING TO GEOTECHNICAL REPORT.

FILL SHALL BE THOROUGHLY MOISTENED IMMEDIATELY BEFORE CONCRETE IS PLACED.

REINFORCING IN SLABS ON FILL SHALL BE AS INDICATED ON FLOOR PLANS. & SUPPORTED ON A MATT. OF #3@24" EACH WAY PROVIDING 2" TOP COVER. CONCRETE SLABS ON FILL SHALL BE PLACED OVER A 6 MIL POLYETHYLENE VAPOR BARRIER WHERE REQUIRED BY THE ARCHITECT.

PROVIDE CONTRACTION JOINTS ON OR NEAR COLUMN LINES WITH INTERMEDIATE JOINTS LOCATED BETWEEN COLUMN LINES TO PROVIDE A MAXIMUM DISTANCE BETWEEN JOINTS OF 15 FEET, WITH THE RESULTING PANELS BEING APPROXIMATELY SQUARE. CONCRETE POURING SHOULD BE CARRIED OUT BY PLACING CONCRETE IN CONTINUOUS STRIPS OF NOT MORE THAN 15 FEET IN WIDTH.

CONSTRUCTION JOINTS ARE TO BE LOCATED IN THE SLAB WHERE THE CONCRETING OPERATIONS ARE CONCLUDED FOR THE DAY. JOINT LOCATION TO BE IN GENERAL CONFORMANCE WITH THE CONTRACTION JOINT LAYOUT.

WELDED WIRE FABRIC:

SHALL CONFORM TO ASTM A185 AND BE PLACED AND SUPPORTED IN ACCORDANCE WITH ACI 301 RECOMMENDATIONS.

PRECAST/POURED-IN-PLACE CONCRETE LINTELS:

SEE TYPICAL DETAILS.

PROVIDE AN 8" X 8" POURED-IN-PLACE OR REINFORCED PRECAST "U" LINTEL AS MANUFACTURED BY F.E.C.P. CORP-CAST-CRETE DIVISION P.O.BOX 24567, TAMPA, FL 33623 N.O.A. N0. 03-0605.05 OR MOST CURRENT (NOA) FOR ALL MASONRY OPENINGS NOT FRAMED BY A CONCRETE BEAM WITH THE FOLLOWING ADDED REINFORCING:

POURED - IN -PLACE

2#5 T & B ; #3 @ 4" TIES FOR SPANS UP TO 6'-4" WIDE.
2#5 T, 2#6 B; #3 @ 4" TIES FOR SPANS UP TO 8'-4" WIDE.
2#5 T, 2#7 B; #3 @ 4" TIES FOR SPANS UP TO 1O'-4" WIDE.

PRECAST "U" LINTEL (ADDED REINFORCING)

ADD 1 #5 T&B FOR SPANS OF 7'-6" TO 10'-4"

FILL ALL "U" LINTELS WITH 3000 PSI PEAROCK MIX.

PROVIDE A MINIMUM 8" BEARING ON MASONRY AT EACH END. "U" LINTELS ARE MANUFACTURED WITH 5 1/2" LONG NOTCHES TO ACCOMMODATE VERTICAL REINFORCING AND CONCRETE FILLED CELLS. (SEE STANDARD DETAIL FOR POURED-IN-PLACE OR REINFORCED PRECAST "U" LINTEL CONNECTION' INFILLED EXTERIOR MASONRY WALLS SHALL BE PLACED WITH A 1/2" GAP BETWEEN THE TOP OF BLOCK AND SOFFIT OF SLAB UNTIL FLOOR ABOVE IS LOADED. AFTER SLAB ABOVE IS LOADED, PACK 1/2" GAP AS PER SPECIFICATIONS SECTION 04220.

INTERIOR MASONRY WALLS OVER 16 FEET IN HEIGHT SHALL BE REINFORCED WITH #5 @48" C/C IN CONCRETE FILLED CELLS. SEE PLANS AND NOTES FOR ANY TIE BEAM OR TIE COLUMN REQUIREMENTS.

REINFORCING STEEL:

SHALL BE DEFORMED BARS. FREE FROM LOOSE RUST AND SCALE AND CONFORM-ING TO ASTM A 615, GRADE 60. COLUMN AND BEAM TIES SHALL CONFORM TO ASTM A 615, GRADE 60.

ALL ACCESSORIES SHALL HAVE UPTURNED LEGS, AND BE PLASTIC DIPPED AFTER FABRICATION. ACCESSORIES FOR REINFORCING SHALL BE IN ACCORD- DANCE WITH ACI, CURRENT EDITION.

SUPPORT BARS SHALL BE #5 OR GREATER, AND NOT SPACED MORE THAN 4'-0" C/C. SUPPORT BARS AND ENDS OF MAIN REINFORCING SHALL NOT EXTEND MORE THAN 1'-6" PAST OUTERMOST CHAIR OR SUPPORT BAR.

A MINIMUM OF 3 SUPPORT BARS AND 3 INDIVIDUAL HIGH CHAIRS FOR EACH SUPPORT BAR SHALL BE PROVIDED FOR TOP REINFORCING.

SLAB BOLSTERS SHALL BE PROVIDED FOR VERTICAL COLUMN REINFORCING STEEL, SUCH THAT 2 INCH MINIMUM CLEARANCE IS MAINTAINED. A SAMPLE SHALL BE SENT TO THE ENGINEER FOR APPROVAL.

REINFORCING STEEL ALLOWANCE

CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF 5%%% OF THE TOTAL STEEL BUDGETED FOR THE PROJECT FOR THE ENGINEER OF RECORD TO USE AT HIS DISCRETION DURING CONSTRUCTION. CONTRACTOR SHALL GIVE CREDIT TO OWNER FOR ANY UNUSED PORTION OF THIS ALLOWANCE AT THE END OF THE CONSTRUCTION OF THE PROJECT. THIS REINFORCING IS IN ADDITION TO ANY REINFORCEMENT USED IN THE PLANS

CONCRETE CURING AIDS AND DUSTPROOFING COMPOUNDS:

APPLY A WATER-SOLUBLE SODIUM SILICATE BASED CONCRETE CURING AID, HARDENING AND DUSTPROOFING COMPOUND WITH FUGITIVE RED DYE, EQUAL TO SONOSIL BY DEGUSSA OR ENGINEER APPROVED EQUAL, TO ALL FRESHLY PLACED EXPOSED CONCRETE SLAB SURFACES. APPLICATION TO TAKE PLACE ON THE SAME DAY CONCRETE FINISHING HAS TERMINATED AND VISIBLE WATER HAS DISSIPATED. APPLY PRODUCT STRICTLY IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS.

(6) BALCONY MOISTURE PROTECTION:

ALL BALCONY REINFORCING SHALL BE PROTECTED AGAINST MOISTURE INTRUSION AS FOLLOWS:

1. CLEARANCE TO ALL BALCONY NEGATIVE (TOP) REINFORCING SHALL BE NO LESS THAN 1"
2. THE CONCRETE PLACED SHALL BE A DESIGN MIX USING A MAXIMUM WATER CEMENT RATIO OF 0.40 BY WEIGHT AND f'c NOT LESS THAN 6000 PSI FOR NORMAL WEIGHT CONCRETE.
3. REINFORCING STEEL BARS, STUD RAILS, SHEAR HEADS, SUPPORT BARS, BACKER BARS, TIE WIRE AND ACCESSORIES IN BALCONY SLABS, CURBS AND BEAMS MUST BE HOT DIPPED GALVANIZED.
   REINFORCING BARS GALVANIZED PRIOR TO FABRICATION AS PERFORMED BY SOUTH ATLANTIC GALVANIZING (1-800-782-3972), MAY BE USED AT CONTRACTOR'S OPTION. PLASTIC CHAIRS ONLY ARE TO BE USED TO SUPPORT BALCONY REINFORCING.
4. SLAB SHALL BE SLOPED 1/8" PER FT. OR GREATER TO SAFE GUARD AGAINST PONDING OF WATER.
5. PLACEMENT OF SLAB REINFORCEMENT SHALL BE UNDER THE SUPERVISION OF A FLORIDA REGISTERED ARCHITECT OR PROFESSIONAL ENGINEER.

GARAGE ELEVATED SLAB PROTECTION:

FOR GARAGE ELEVATED SLABS AND RAMPS FOLLOW ARCHITECTURAL RECOMMENDATIONS.

CRITICAL REINFORCING STEEL PROTECTION:

ALL REINFORCING STEEL LOCATED IN CONCRETE BEAMS, WALLS AND SLABS SUPPORTING SUSPENDED SWIMMING OR REFLECTING POOLS SHALL BE HOT DIPPED GALVANIZED.

ALL REINFORCING LOCATED IN BEAMS, SLABS, WALLS AND COLUMNS ADJACENT TO EXPANSION JOINTS WHICH DO NOT HAVE AT LEAST 3" CONCRETE COVER SHALL BE HOT DIPPED GALVANIZED.

REINFORCING BARS GALVANIZED PRIOR TO FABRICATION AS PERFORMED BY SOUTH ATLANTIC GALVANIZING (1-800-782-3972), MAY BE USED AT CONTRACTOR'S OPTION.

REPAIRS TO GALVANIZED REINFORCING:

GALVANIZED REINFORCING BARS WHICH HAVE BEEN CUT OR DAMAGED DUE TO FABRICATION, TRANSPORTATION OR PLACEMENT, ETC., OR LIMITED AREAS OF UNGALVANIZED BARS REQUIRING PROTECTION, SHALL BE TREATED AS FOLLOWS:

1. EXPOSED SURFACES TO BE TREATED SHALL BE MADE FREE OF ANY SUBSTANCES SUCH AS OIL, GREASE, ETC., BY CLEANING WITH AN APPROPRIATE CLEANING AGENT OR SOLVENT.
2. THOROUGHLY BRUSH THE AREA TO BE COATED, WITH A STAINLESS WIRE BRUSH OR RUB WITH 80 GRIT EMERY CLOTH TO REMOVE ALL RUST AND DEBRIS.
3. ALL SURFACES TO RECEIVE THE COATING AS WELL AS THE SURROUNDING AREAS SHOULD BE DRY AND FREE OF ANY RESIDUE RESULTING FROM THE CLEANING /PREPARATION PROCESS.
4. APPLY A UNIFORM FILM OF NON-AEROSOL INORGANIC ZINC-RICH PAINT (ZRP) CONTAINING AT LEAST 92% ZINC IN THE DRY FILM, TO A THICKNESS EQUAL TO OR GREATER THAN THAT RECOMMENDED BY THE MANUFACTURER AND LAP AT LEAST 1-INCH WITH THE EXISTING GALVANIZED COATING.
5. PROTECT TOUCHED UP GALVANIZED REINFORCING FROM THE ELEMENTS AND TRAFFIC UNTIL CURED PER THE MANUFACTURER'S INSTRUCTIONS.

WELDING:

ALL WELDING IS TO BE PERFORMED BY CERTIFIED WELDERS. (CERTIFICATION MUST BE CURRENT AT TIME OF WELDING.

PREFABRICATED LIGHT GAUGE METAL TRUSSES & SPECIALTY CLADDING:

SPECIALTY CLADDING. & TRUSSES SHALL BE DESIGNED BY A FLORIDA REGISTERED ENGINEER. SHOP DRAWINGS SIGNED AND SEALED WITH CALCULATIONS SHALL BE SUBMITTED TO THE ARCHITECT / ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.

THE UPLIFT AND WIND PRESSURES FOR ALL COMPONENTS SHALL BE BASED ON THE PROJECT WIND LOAD CRITERIA.

THRESHOLD BUILDING INSPECTION PLAN

A. THE PROJECT WILL CONSIST OF ONE 25-STORY TOWER AND 8 STORY COMMERCIAL AND PARKING BUILDING SUPPORTED ON PILE FOUNDATION.

B. DRAWINGS:

   SEE STRUCTURAL DRAWING INDEX, DRAWING S-0.0

C. QUALIFICATIONS OF THRESHOLD INSPECTOR AND HIS AUTHORIZED REPRESENTATIVE:

   THE QUALIFICATIONS OF THRESHOLD INSPECTOR SELECTED FOR THIS PROJECT SHALL COMPLY WITH ALL APPLICABLE FLORIDA STATE STATUTES. IN ADDITION, HE MUST PROVIDE DOCUMENTATION VERIFYING PRIOR EXPERIENCE IN THE ANALYSIS, DESIGN AND INSPECTION OF PRIOR PROJECTS THAT ARE AT LEAST EQUAL TO THIS PROJECT IN TERMS OF SIZE, NUMBER OF STORIES AND STRUCTURAL SYSTEM USED. THIS DOCUMENT MUST CLEARLY INDICATE A DESCRIPTION AND LOCATION OF THE PROJECTS INCLUDING REFERENCES FOR VERIFICATION.

   THE THRESHOLD INSPECTOR'S AUTHORIZED REPRESENTATIVE MUST BE A GRADUATE ENGINEER, REGISTERED AS BUILDING INSPECTOR OR GENERAL CONTRACTOR AS A MINIMUM REQUIREMENT. IN ADDITION, THE THRESHOLD INSPECTOR MUST PROVIDE DOCUMENTATION INCLUDING A RESUME VERIFYING THE REPRESENTATIVE'S QUALIFICATIONS.

   ALL THE ABOVE DOCUMENTATION MUST BE SUBMITTED TO THE OWNER/ENGINEER OF RECORD FOR APPROVAL PRIOR TO SELECTION.

D. THE THRESHOLD INSPECTOR, OR HIS AUTHORIZED REPRESENTATIVE, SHALL INSPECT ALL STRUCTURAL COMPONENTS OF THIS PROJECT (EXCEPT FOR SOILS COMPACTION AND VERIFICATION OF ALLOWABLE SOILS PRESSURES, ETC., WHICH WILL BE CERTIFIED BY THE GEOTECHNICAL ENGINEER) TO DETERMINE THE FAITHFUL EXECUTION BY THE CONTRACTOR OF THE STRUCTURAL ENGINEERING PLANS AND SPECIFICATIONS.

E. THE THRESHOLD INSPECTOR SHALL OBSERVE THE FOLLOWING ITEMS:

1. HE WILL OBSERVE THAT PLACEMENT OF ALL STEEL REINFORCING AND POST-TENSIONING CABLE PRIOR TO CONCRETE PLACEMENTS CONFORM TO THE PERMITTED PLANS AND SPECIFICATIONS, APPROVED SHOP DRAWINGS AND ANY SUPPLEMENTAL INSTRUCTIONS, INCLUDING RFI'S, PROVIDED BY THE ENGINEER OF RECORD, WHICH HAVE NOT BEEN INCORPORATED INTO A PLAN REVISION AT THE TIME OF INSPECTION. HE WILL ALSO VERIFY THAT GALVANIZED REINFORCING IS PROVIDED AND PLACED IN ACCORDANCE WITH THE PERMIT DRAWINGS.
2. THE SPECIAL INSPECTOR SHALL DETERMINE THAT A PROFESSIONAL ENGINEER WHO SPECIALIZES IN SHORING DESIGN HAS INSPECTED THE SHORING AND RESHORING FOR CONFORMANCE WITH THE SHORING AND RESHORING PLANS SUBMITTED TO THE ENFORCING AGENCY PRIOR TO MANDATORY INSPECTIONS BY THE THRESHOLD BUILDING INSPECTOR. DURING CONSTRUCTION HE WILL OBSERVE SHORING AND RESHORING FOR CONFORMANCE WITH SHORING AND RESHORING PLANS SUBMITTED BY THE CONTRACTOR.
3. HE WILL MONITOR CONCRETE PLACEMENT AND CONCRETE TESTS AND LOGS PROVIDED BY THE TESTING LABORATORY TO INSURE COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
4. HE WILL VERIFY THAT PROPER CURING METHODS AND MATERIALS ARE BEING USED IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS.
5. HE WILL ALSO MAKE INSPECTIONS OF ALL MASONRY WALLS FOR JOINT AND VERTICAL REINFORCEMENT, FILLED CELLS AND TIE COLUMNS BASED ON APPROVED SHOP DRAWINGS.
6. HE WILL MAINTAIN A LOG OF ALL POST-TENSIONING STRANDS SHOWING CALCULATED AND ACTUAL ELONGATIONS AND CHECK THAT SHIMS ARE SEATED PROPERLY. THE THRESHOLD ENGINEER WILL AUTHORIZE EXCESS TENDONS TO BE CUT OFF.
   THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND PROVIDING THE NECESSARY MEANS FOR INSPECTION OF THE GREASE CAPS AND GROUTING OF THE JACK ACCESS PORTS. THESE INSPECTIONS SHALL BE PERFORMED BY AN INSPECTOR COMMISSIONED BY THE GENERAL CONTRACTOR AND REPORTS MUST BE SUBMITTED TO THE THRESHOLD INSPECTOR.
7. HE WILL VERIFY THAT THE APPROVED PENETRATING SEALER HAS BEEN PROPERLY APPLIED TO ALL BALCONIES AND AS OTHERWISE INDICATED IN THE GENERAL NOTES AND SPECIFICATIONS.
8. THE THRESHOLD INSPECTOR WILL PROVIDE A FINAL PUNCH LIST OF CORRECTIVE WORK. HE WILL VERIFY THAT IT HAS BEEN COMPLETED PRIOR TO ANY ISSUANCE OF A FINAL COMPLETION LETTER.

F. HE WILL MAKE DAILY INSPECTION REPORTS THAT WILL BE AVAILABLE AT THE JOB SITE AT ALL TIMES, AND WILL SEND COPIES OF THESE REPORTS TO THE BUILDING OFFICIAL AND THE OWNER'S REPRESENTATIVE'S OFFICE ON A WEEKLY BASIS. SHOULD HE HAVE REASON TO SUSPECT THE SAFETY OF THE SUBMITTED SHORING AND RESHORING PLANS, HE WILL INFORM THE ENFORCING AGENCY OF OUR IMMEDIATE CONCERN.

G. UPON COMPLETION OF THE BUILDING AND PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY, THE THRESHOLD ENGINEER WILL PROVIDE A SIGNED AND SEALED LETTER STATING THAT TO THE BEST OF HIS KNOWLEDGE AND BELIEF, THE CONSTRUCTION OF ALL STRUCTURAL LOAD-BEARING COMPONENTS DESCRIBED IN THE THRESHOLD INSPECTION PLAN COMPLIES WITH THE PERMITTED DOCUMENTS, AND THE SPECIALTY SHORING DESIGN PROFESSIONAL ENGINEER HAS ASCERTAINED THAT THE SHORING AND RESHORING CONFORMS WITH THE SHORING AND RESHORING PLANS SUBMITTED TO THE ENFORCEMENT AGENCY.

H. NO EXTRAORDINARY INSPECTIONS OF BUILDING SYSTEMS (OFFSITE) WILL BE CONDUCTED DURING THIS PROJECT.

I. THE THRESHOLD INSPECTOR IS NOT RESPONSIBLE FOR INSPECTIONS OF CLADDING (ATTACHMENT OF ALL EXTERIOR DOORS & WINDOWS PER DADE COUNTY PRODUCT APPROVAL AND WATER INFILTRATION TESTING) AND INSTALLATION OF THE BALCONY RAILINGS. SUCH INSPECTIONS ARE TO BE PERFORMED BY A SPECIALTY ENGINEER EMPLOYED BY THE OWNER.

J. FOR INFORMATION CONTACT:

SAMUEL DE LEON, P.E.

CHM STRUCTURAL ENGINEERS, LLC
8990 SW 117 AVE, SUITE 132
MIAMI, FL 33183

TELEPHONE: (305) 667-1621
FAX: (305) 662-9673

WE, THE STRUCTURAL ENGINEERS, DO NOT HEREBY GUARANTEE THE CONTRACTOR'S WORK, DO NOT ASSUME ANY RESPONSIBILITY FOR JOB SAFETY, OR SAFETY ENGINEERING IN, ON, OR ABOUT THE JOB SITE, BUT AS A MATTER OF PROFESSIONAL COURTESY, WE WILL NOTIFY THE CONTRACTOR IF WE OBSERVE AN UNSAFE CONDITION AND NOTE IT IN OUR FIELD LOG (CORRECTION OR REMEDY IS THE CONTRACTOR'S RESPONSIBILITY). ADDITIONALLY, WE DO NOT ASSUME ANY RESPONSIBILITY OR DUTY TO SUPERVISE OR, IN ANY WAY, CONTROL THE EMPLOYEES OF THE GENERAL CONTRACTOR, SUBCONTRACTORS, OR MATERIALMEN ON THE PROJECT. SHOULD ANY OTHER PROFESSIONALLY LICENSED ENTITY ASSUME THE DUTIES OF THRESHOLD INSPECTOR, THEY SHALL PERFORM IN THE SAME MANNER AS OUTLINED HEREIN.

SAMUEL DE LEON, P.E. #49030
THRESHOLD LICENSE # 1082

P. PRECAST CONCRETE

1. DETAIL, MANUFACTURE AND ERECT PRECAST CONCRETE MEMBERS PER SPECIFICATION SECTION 03420 "PRECAST PRESTRESSED CONCRETE" AND "SOUTH FLORIDA BUILDING CODE", "ACI 318", P.C.I. 116, AND STANDARD PRACTICES. SUBMIT SHOP DRAWING SHOWING FRAMING PLANS, IDENTIFICATION MARKS OF UNITS, SIZES, CONNECTION DETAILS, CAMBERS, LOCATION OF SHORING, AND DESIGN LOADS (INCLUDING ANY CONCENTRATED OR LOCALIZED LOADS USED IN DESIGN) TO ARCHITECT FOR REVIEW. SUBMIT ONE COPY OF COMPUTATIONS TO STRUCTURAL ENGINEER FOR HIS RECORDS. COMPUTATIONS SHALL INCLUDE OUTLINE OF DESIGN CRITERIA AND PROGRAM DESCRIPTIONS FOR EACH COMPUTER PROGRAM USED. CALCULATIONS AND SHOP DRAWINGS SHALL BE PREPARED, SIGNED AND SEALED BY A FLORIDA REGISTERED ENGINEER WHO, BY TRAINING AND EXPERIENCE, SPECIALIZES IN SUCH WORK. SEE NOTES "SHOP DRAWINGS REQUIRING ENGINEERING INPUT BY DELEGATED ENGINEER" FOR FURTHER DETAILS.

2. DESIGN PRECAST PRESTRESSED COMPOSITE FLOOR SYSTEM FOR FOLLOWING SUPERIMPOSED LOADS LISTED IN "GENERAL NOTES". LIVE LOAD REDUCTIONS ARE NO PERMITTED. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF MASONRY PARTITIONS, TOPPING, OR OTHER LOCALIZED DEAD LOADS NOT INCLUDED IN SUPERIMPOSED LOADS LISTED ABOVE.

3. USE MIN. 3500 PSI AND MAX. 5000 PSI CONCRETE STRENGTH AT RELEASE, 6000 PSI @ 28 DAYS, U.O.N. USE ASTM A-416 PRESTRESSING STRAND, AND ASTM A-615 GR. 60 REINFORCING STEEL.

4. DESIGN PRECAST ELEMENTS FOR FIRE RESISTANCE RATING OF 2 HOURS.

5. USE THE SLAB REINFORCING SHOWN ON PLANS FOR COMPOSITE PRESTRESSED JOIST FLOOR SYSTEM.

6. CONSTRUCTION JOINTS IN PRECAST COMPOSITE CONSTRUCTION:

A. LOCATE JOINTS IN BEAMS IN THE MIDDLE 1/3 OF THE BEAM SPAN.

B. LOCATE JOINTS PARALLEL TO JOISTS OVER THE CENTER OF A JOIST.

C. LOCATE JOINTS PERPENDICULAR TO JOISTS IN THE MIDDLE 1/3 OF THE JOIST SPAN AND PROVIDE #3 @ 18" X 36" DOWELS ACROSS JOINTS PARALLEL TO JOISTS. ADDITIONAL TO REINFORCING IN PLAN.

D. PRECAST SUPPLIER MAY SUBMIT ALTERNATE JOINT LOCATIONS FOR REVIEW.

E. PROVIDE A 2" X 6" KEYWAY IN BEAM JOINTS IN THE MIDDLE 1/3 OF BEAM DEPTH.

F. PROVIDE BONDING AGENT ON ALL JOINT SURFACES PRIOR TO POURING FRESH CONCRETE.

G. ALL REINFORCING MUST BE CONTINUOUS THROUGH JOINTS.

SYMBOL LEGEND

SYMBOL	DENOTES
	COLUMN STARTS AT THIS LEVEL
	COLUMN OCCURS ABOVE AND BELOW THIS LEVEL
	COLUMN TERMINATES AT THIS LEVEL
	CONCRETE STRUCTURAL COLUMN TERMINATES AT THIS LEVEL AND TIE COLUMNS (TC) STARTS AT THIS LEVEL
S	COLUMN WITH STUDRAIL OR SHEAR REINF.
	CONCRETE WALL TERMINATES AT THIS LEVEL
	NON-BEARING BLOCK WALL
	CONCRETE BEARING BLOCK WALL WITH CONCRETE FILLED CELLS AS NOTED
	SECONDARY POUR OR PRECAST
	EXPANDED POLYSTYRENE U.O.N.
-3' - 0"	TOP OF FOOTING OR PILE CAP
EL.+7'-0"	ELEVATION OF SLAB/BEAM/FOOTING ETC.
1 / S-XX	SECTION NUMBER DRAWING NUMBER WHERE SECTION IS SHOWN
OR	STANDARD PILES
OR	TENSION PILES
SIM.	SIMILAR CONDITION
TYP.	TYPICAL CONDITION
CLR.	CLEAR DISTANCE BETWEEN ELEMENTS
C/C	CENTER TO CENTER DIMENSION
E.J.	EXPANSION JOINT
K.J.	COLD JOINT
C.J.	CONSTRUCTION JOINT
W.P.	WORKING POINT
P/C.	PRECAST
FTG.	FOOTING
G.B.	GRADE BEAM
CONT.	CONTINUOUS CONDITION
U.O.N.	UNLESS OTHERWISE NOTED
CL	CENTERLINE OF ELEMENTS
SLOPE	DIRECTION OF FLOOR OR ROOF SLOPE
T.	TOP
B.	BOTTOM
(LO)	BELOW
(AB)	ABOVE

STRUCTURAL DRAWING INDEX & LOG.

		Found. Permit 05-19-2014	Progress Set 05-30-2014	Permit Set 07-15-2014	Bldg. Dept. Comments 08-12-2014	General Revision 08-25-2014	Building Dept. Comments 11-03-2014	Building Dept. Comments 06-03-2015	General Coordination 12-18-2015	Structural Coordination 04-18-2016	Pool Deck Coordination 09-01-2016	Pool Deck Coordination 10-01-2016	Publix Struct. Coordination 01-12-2017	Revision 28 08-04-2017
S0.00	GENERAL NOTES & DRAWING INDEX	●	●	●	●	●	●	●	●	●	●	●	●	●
S0.01	STANDARD DETAILS	●	●	●						●				
S0.02	STANDARD DETAILS	●	●	●		●							●	
S0.03	STANDARD DETAILS	●	●	●		●								
S0.04	STANDARD DETAILS	●	●	●		●			●		●			
S0.05	STANDARD DETAILS			●										
S1.00	PARTIAL GROUND FLOOR / FOUNDATION PLAN	●	●	●		●		●		●				
S1.01	PARTIAL GROUND FLOOR / FOUNDATION PLAN	●	●	●		●	●	●		●				
S1.02	PARTIAL GROUND FLOOR / FOUNDATION PLAN	●	●	●		●	●	●		●			●	
S1.03	PARTIAL GROUND FLOOR / FOUNDATION PLAN	●	●	●		●		●					●	
S1.10	MEZZANINE LEVEL FRAMING PLAN		●	●		●			●	●				
S1.10A	MEZZANINE LEVEL (CONT.) FRAMING PLAN									●				
(12) S1.11	MEZZANINE REINFORCING PLAN			●		●			●					
S1.20	PARTIAL LEVEL 2 FRAMING PLAN		●	●		●			●	●				
S1.21	PARTIAL LEVEL 2 FRAMING PLAN		●	●		●				●				
S1.22	PARTIAL LEVEL 2 FRAMING & REINFORCING PLAN		●	●		●			●	●				
S1.23	PARTIAL LEVEL 2 FRAMING & REINFORCING PLAN		●	●		●			●	●				
S1.24	PARTIAL LEVEL 2 REINFORCING PLAN			●		●				●				
S1.25	PARTIAL LEVEL 2 REINFORCING PLAN			●						●				
S1.30	PARTIAL LEVEL 3 FRAMING PLAN		●	●		●			●	●				
S1.31	PARTIAL LEVEL 3 FRAMING PLAN		●	●		●				●				
S1.32	PARTIAL LEVEL 3 FRAMING & REINFORCING PLAN		●	●		●			●	●				
S1.33	PARTIAL LEVEL 3 FRAMING & REINFORCING PLAN		●	●		●			●	●				
S1.34	PARTIAL LEVEL 3 REINFORCING PLAN			●						●				
S1.35	PARTIAL LEVEL 3 REINFORCING PLAN			●										
S1.40	PARTIAL LEVEL 4 FRAMING PLAN		●	●		●				●				
S1.41	PARTIAL LEVEL 4 FRAMING PLAN		●	●		●				●				
S1.42	PARTIAL LEVEL 4 FRAMING AND REINFORCING PLAN		●	●		●			●	●				
S1.43	PARTIAL LEVEL 4 FRAMING AND REINFORCING PLAN		●	●		●			●	●				
S1.44	PARTIAL LEVEL 4 REINFORCING PLAN			●						●				
S1.45	PARTIAL LEVEL 4 REINFORCING PLAN			●										
S1.50	PARTIAL LEVEL 5 FRAMING PLAN		●	●		●				●				
S1.51	PARTIAL LEVEL 5 FRAMING PLAN		●	●		●			●	●				●
S1.52	PARTIAL LEVEL 5 FRAMING AND REINFORCING PLAN		●	●		●			●	●				
S1.53	PARTIAL LEVEL 5 FRAMING PLAN		●	●		●			●	●				
S1.54	PARTIAL LEVEL 5 REINFORCING PLAN			●						●				
S1.55	PARTIAL LEVEL 5 REINFORCING PLAN			●										
S1.60	PARTIAL LEVEL 6 FRAMING PLAN		●	●		●				●				
S1.61	PARTIAL LEVEL 6 FRAMING PLAN		●	●		●			●	●				●
S1.62	PARTIAL LEVEL 6 FRAMING AND REINFORCING PLAN		●	●		●			●	●				
S1.63	PARTIAL LEVEL 6 FRAMING AND REINFORCING PLAN		●	●		●			●	●				
S1.64	PARTIAL LEVEL 6 REINFORCING PLAN			●						●				
S1.65	PARTIAL LEVEL 6 REINFORCING PLAN			●										
S1.70	PARTIAL LEVEL 7 FRAMING PLAN		●	●		●				●				
S1.71	PARTIAL LEVEL 7 FRAMING PLAN		●	●		●			●	●				
S1.72	PARTIAL LEVEL 7 FRAMING AND REINFORCING PLAN		●	●		●			●	●				
S1.73	PARTIAL LEVEL 7 FRAMING AND REINFORCING PLAN		●	●		●			●	●				
S1.74	PARTIAL LEVEL 7 REINFORCING PLAN			●						●				
S1.75	PARTIAL LEVEL 7 REINFORCING PLAN			●										
S1.80	PARTIAL LEVEL 8 FRAMING PLAN		●	●		●				●				
S1.81	PARTIAL LEVEL 8 FRAMING AND REINFORCING PLAN		●	●		●					●	●		
S1.82	PARTIAL LEVEL 8 FRAMING AND REINFORCING PLAN		●	●		●					●	●		
S1.83	PARTIAL LEVEL 8 REINFORCING PLAN			●		●				●	●			
S1.84	PARTIAL RECREATION DECK FRAMING AND REINFORCING PLAN (LEVEL 8)		●	●		●					●	●		
S1.85	PARTIAL RECREATION DECK FRAMING AND REINFORCING PLAN (LEVEL 8)			●		●					●	●		
S1.90	LEVEL 9 & 10 FRAMING PLAN		●	●		●				●				
S1.91	LEVEL 9 & 10 REINFORCING PLAN			●						●				
S1.100	LEVEL 11 FRAMING PLAN		●	●		●			●	●	●			
S1.101	LEVEL 11 REINFORCING PLAN			●					●		●			
S1.110	HOTEL POOL DECK (LEVEL 11) FRAMING PLAN		●	●							●			
S1.120	LEVEL 12 FRAMING PLAN		●	●		●				●	●			
S1.121	LEVEL 12 REINFORCING PLAN			●		●				●	●			
S1.130	LEVEL 13 FRAMING PLAN		●	●		●				●				
S1.131	LEVEL 13 REINFORCING PLAN			●						●				
S1.140	LEVEL 14 FRAMING PLAN		●	●		●				●				
S1.141	LEVEL 14 REINFORCING PLAN			●										
S1.150	LEVELS 15 THRU 17 FRAMING PLAN		●	●		●				●				
S1.151	LEVELS 15 THRU 17 REINFORCING PLAN			●										
S1.160	LEVEL 18 FRAMING PLAN		●	●		●				●				
S1.161	LEVEL 18 REINFORCING PLAN			●										
S1.170	LEVELS 19 & 20 FRAMING PLAN		●	●		●				●				
S1.171	LEVELS 19 & 20 REINFORCING PLAN			●										
S1.180	LEVEL 21 FRAMING PLAN		●	●		●				●				
S1.181	LEVEL 21 REINFORCING PLAN			●										
S1.190	LEVEL 22 FRAMING PLAN		●	●		●				●				
S1.191	LEVEL 22 REINFORCING PLAN			●		●								
S1.200	LEVELS 23 THRU 25 FRAMING PLAN		●	●		●				●				
S1.201	LEVELS 23 THRU 25 REINFORCING PLAN			●										
S1.210	MAIN ROOF (LEVEL 26) FRAMING PLAN		●	●		●				●				
S1.211	MAIN ROOF (LEVEL 26) REINFORCING PLAN			●										
S1.220	HIGH ROOF FRAMING & REINFORCING PLAN (LEVEL 27)			●		●				●				
S2.00	STANDARD PILE CAP DETAILS		●	●		●	●							
S2.01	SHEAR WALL PILE CAP DETAILS		●	●	●	●								
S2.02	SHEAR WALL PILE CAP DETAILS		●	●	●	●								
S2.03	SHEAR WALL PILE CAP DETAILS		●	●		●	●							
S3.00	TOWER SHEAR WALL DETAILS		●	●		●								
S3.01	TOWER SHEAR WALL DETAILS		●	●		●			●	●				
S4.00	COLUMN SCHEDULE		●	●		●			●	●	●			
S4.01	COLUMN SCHEDULE		●	●		●			●	●	●		●	
S4.02	BEAM SCHEDULES			●		●			●	●	●			
S4.03	DETAILS, BEAM AND WALL SCHEDULES			●		●					●			
(2) S4.04	DETAILS, BEAM AND WALL SCHEDULES			●		●			●		●			
S5.00	SECTIONS			●									●	
S5.01	SECTIONS			●					●	●			●	
S5.02	SECTIONS			●										
S5.03	SECTIONS			●		●					●			
S5.04	SECTIONS			●		●					●	●		●
S5.05	SECTIONS			●		●			●	●	●			
S5.06	SECTIONS					●			●		●	●		
(2) S5.07	SECTIONS					●				●	●	●		
S6.00	STAIR SECTIONS			●		●								
S6.01	STAIR SECTIONS			●		●								
S6.02	STAIR SECTIONS			●		●				●				
S7.00	WIND PRESSURES			●										
S7.01	WIND PRESSURES			●										
S7.02	WIND PRESSURES			●										

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(28) Revision 28 08.04.17
(17) Pool Deck Coordination 10.01.16
(15) Pool Deck Coordination 09.01.16
(12) Structural Coordination (04.18.16)
(20) Publix Struct. Coordination 01.12.17

New Mixed Use Development for:
HOLLYWOOD CIRCLE
1740 Polk Street, Hollywood, Florida 33020

GENERAL NOTES & DRAWING INDEX

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THESE PLANS ARE NOT IN ITS FINAL FORM AND ARE BEING SUBMITTED FOR THE PURPOSE OR RECEIVING AGENCY REVIEW, COMMENTS OR INTERPRETATION.

revisions:

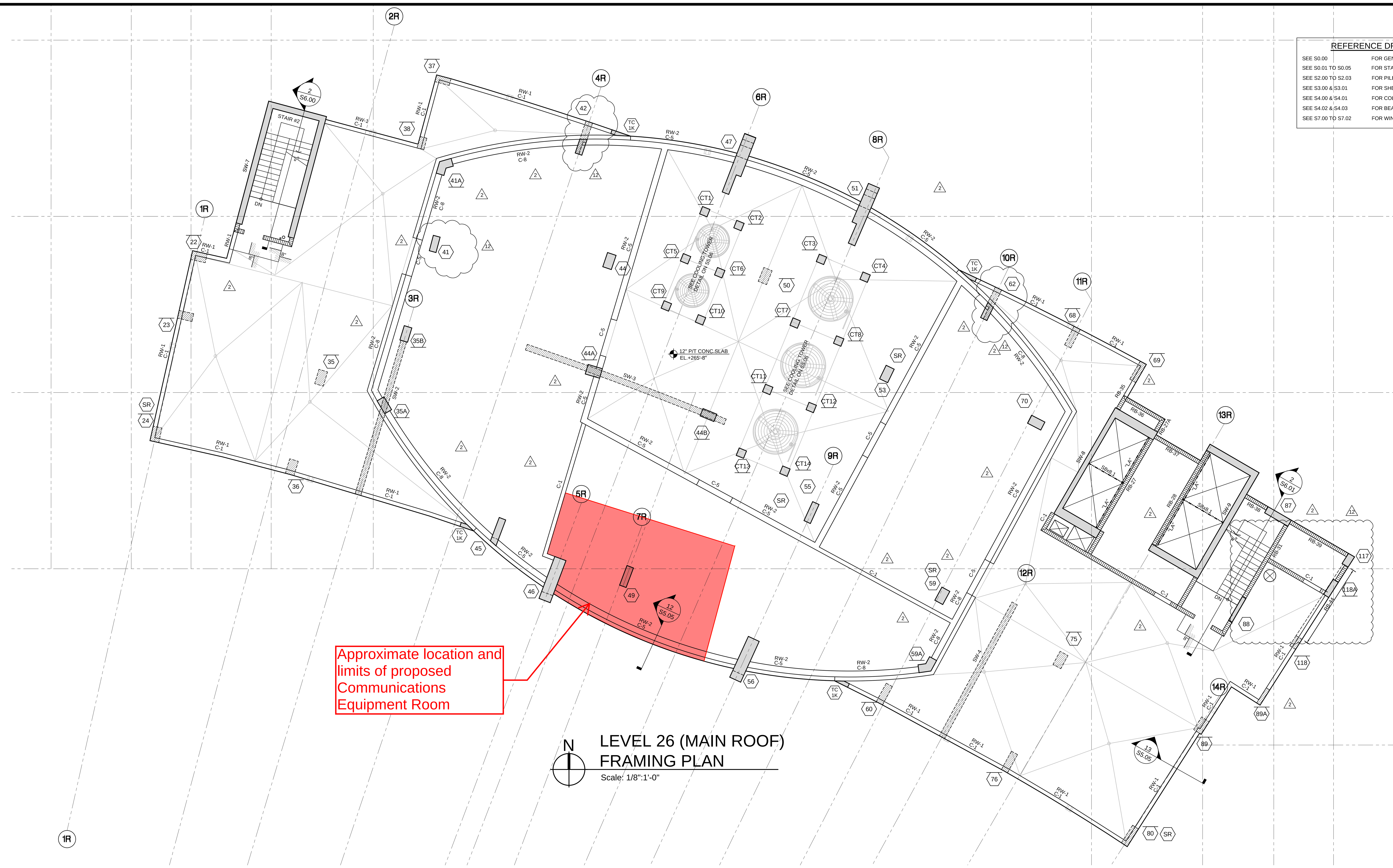
	Foundation Permit	05.19.14
	Progress Set	05.30.14
	Permit Set	07.15.14
1	Bldg. Dept. Comments	08.12.14
2	General Revision	08.25.14
3	Building Dept. Comments	11.03.14
6	Building Dept. Comments	06.03.15
9	General Coordination	12.18.15

drawn by:

date: 05.30.2014

sheet no: S0.00

project: 2601

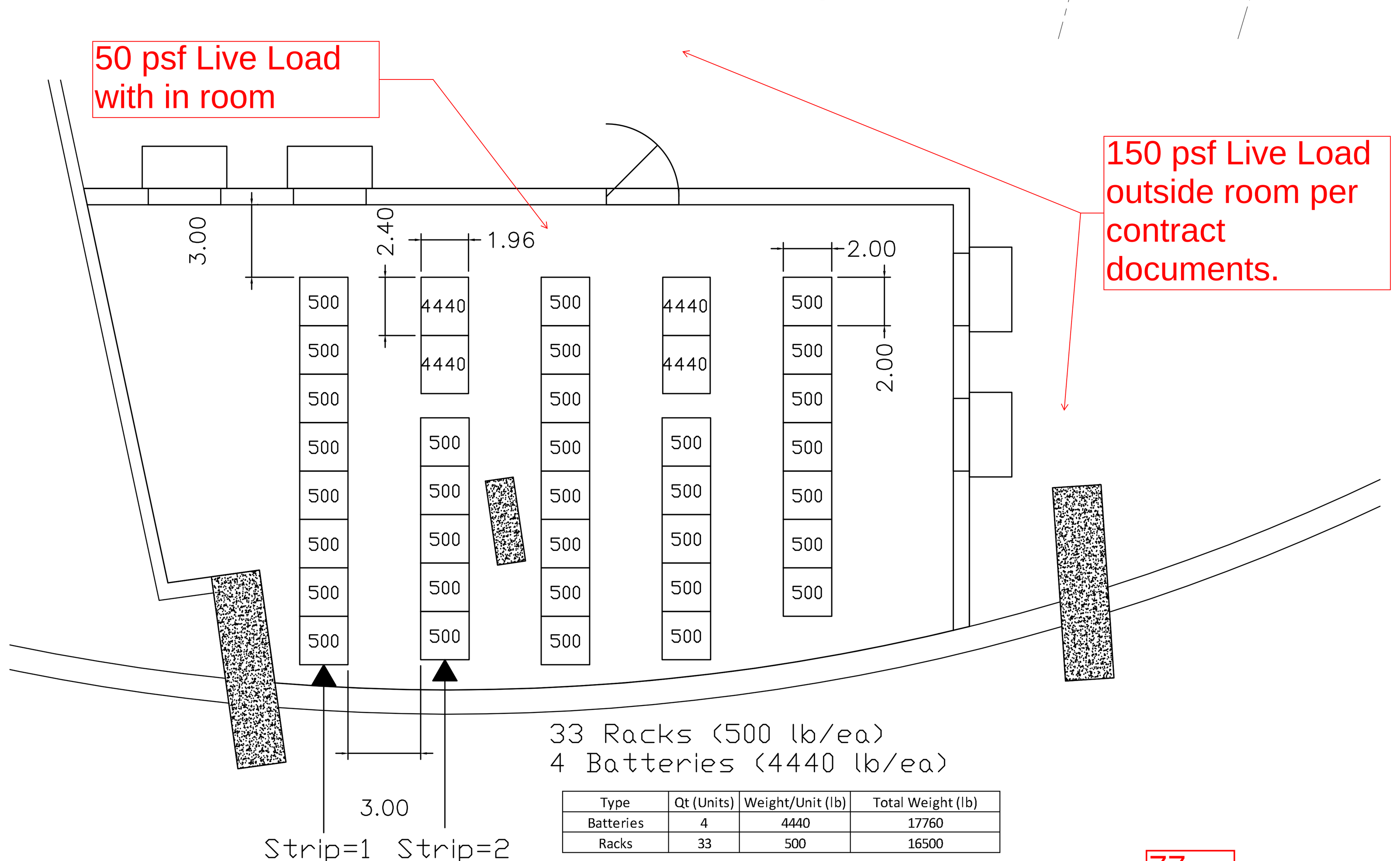


LEVEL 26 (MAIN ROOF) FRAMING PLAN

Scale: 1/8":1'-0"

REFERENCE DRAWINGS

SEE S0.00	FOR GENERAL NOTES & INDEX
SEE S0.01 TO S0.05	FOR STANDARD DETAILS
SEE S2.00 TO S2.03	FOR PILE CAP DETAILS
SEE S3.00 & S3.01	FOR SHEAR WALL DETAILS
SEE S4.00 & S4.01	FOR COLUMN SCHEDULES
SEE S4.02 & S4.03	FOR BEAM & WALL SCHEDULES
SEE S7.00 TO S7.02	FOR WIND PRESSURES



33 Racks (500 lb/ea)
4 Batteries (4440 lb/ea)

Type	Qt (Units)	Weight/Unit (lb)	Total Weight (lb)
Batteries	4	4440	17760
Racks	33	500	16500

Slab	t (in)	Density (pcf)	Weight/Area (psf)
	6	115	57.5

77 psf

8" slab per KCI

Wall	L (ft)	H (ft)	Area (sf)	Weigt/Area (psf)	Total Weight (lb)	Linear Load (plf)
	55	10	550	26	14300	260

Total Area (sf)	Average Wight per sf
670	127.48

New Loading Requirements in Communications Equipment Room

FLOOR NOTES:

1. SEE TYPICAL EXTERIOR REINFORCED MASONRY DETAILS ON DWG. S0.03 FOR CMU REINFORCING. SEE GENERAL NOTES ON S0.00 FOR ADDITIONAL INFORMATION.
2. G.C. IS RESPONSIBLE FOR COORDINATION OF STRUCTURAL PLANS WITH ARCHITECTURAL, M.E.P. OR ANY OTHER PROJECT PLANS / DRAWINGS THAT WOULD IMPACT THE STRUCTURAL LAYOUT AND OR DESIGN. STRUCTURAL ENGINEER IS TO BE NOTIFIED OF DISCREPANCIES (IF ANY) PRIOR TO COMMENCEMENT OF WORK DELINEATED HEREIN.
3. ALL OPENINGS REQUIRED BY OTHER TRADES ARE TO BE COORDINATED W/ ARCH. & MECH. DRAWINGS, AND ARE SUBJECT TO STRUCTURAL ENGINEERING APPROVAL.
4. G.C. TO PROVIDE ADDITIONAL REINFORCING AS PER TYPICAL DETAILS ON SHEETS S0.01 TO S0.05 AS REQUIRED.
5. SEE ARCH'L. FOR DIMENSIONS NOT SHOWN.
6. SEE ARCH'L. FOR ALL WATERPROOFING REQUIREMENTS.
7. SEE TYPICAL SLAB OPENING DETAIL ON DWG. S0.01.
8. ALL SLAB ANCHORS AND PENETRATIONS MUST BE INSTALLED IN SLAB PRIOR TO PLACING CONCRETE.
9. COLUMNS DENOTED W/ (SR) INDICATES SHEAR REINFORCING.
10. SEE TYPICAL EXHAUST VENT DETAILS ON DWG. S0.02.

COHEN · FREEDMAN · ENCINOSA & ASSOC.
Architects, PA AA C000779
8085 N.W. 155th Street Miami Lakes, Florida 33016 305·826·3999

New Mixed Use Development for:
HOLLYWOOD CIRCLE
1740 Polk Street, Hollywood, Florida 33020

LEVEL 26 (MAIN ROOF) FRAMING PLAN

STRUCTURAL ENGINEERS
Samuel De León P.E. #49030
STRUCTURAL DISCIPLINE C.A. #26249

THESE PLANS ARE NOT IN ITS FINAL FORM AND ARE BEING SUBMITTED FOR THE PURPOSE OR RECEIVING AGENCY REVIEW, COMMENTS OR INTERPRETATION.

revisions:

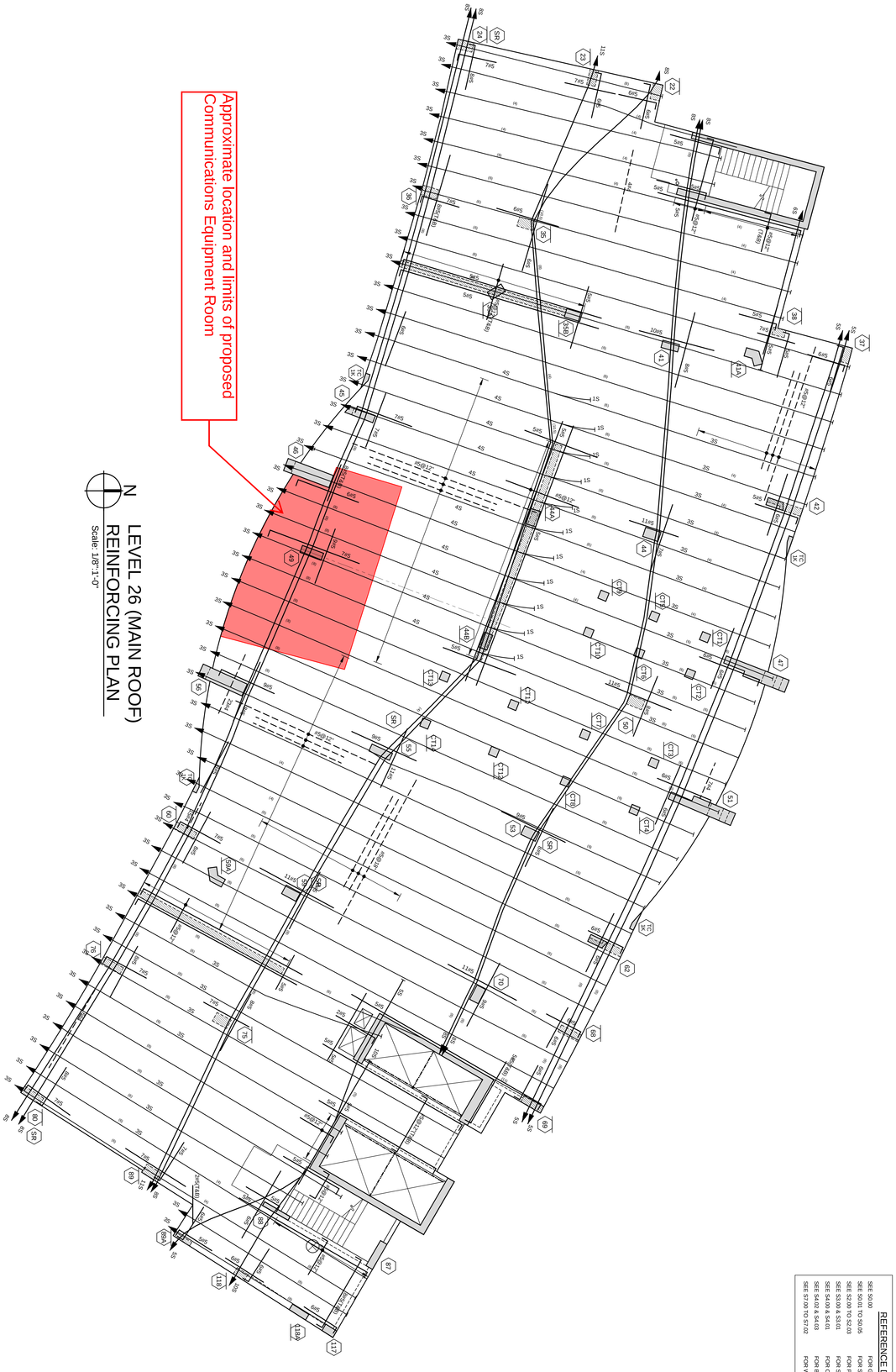
	Foundation Permit	05.19.14
	Progress Set	05.30.14
	Permit Set	07.15.14
2	General Revision	08.25.14
12	Structural Coordination	04.18.16

drawn by:

date: 05.30.2014

sheet no: S1.210

project: 2601



N

LEVEL 26 (MAIN ROOF) REINFORCING PLAN

Scale: 1/8"-1'-0"

REFERENCE DRAWINGS

SEE S0.00	FOR GENERAL NOTES & INDEX
SEE S0.01 TO S0.05	FOR STANDARD DETAILS
SEE S2.00 TO S2.03	FOR PILE CAP DETAILS
SEE S3.00 & S3.01	FOR SHEAR WALL DETAILS
SEE S4.00 & S4.01	FOR COLUMN SCHEDULES
SEE S4.02 & S4.03	FOR BEAM & WALL SCHEDULES
SEE S7.00 TO S7.02	FOR WIND PRESSURES

CHM STRUCTURAL ENGINEERS, LLC.
Samuel De León
P.E. #49320
STRUCTURAL DISCIPLINE
C.A. #26249
7950 SW 117 Ave
Suite 132
Miami, FL 33183
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revisions:

Foundation Permit	05.19.14
Progress Set	06.11.14
Permit Set	07.23.14

drawn by:

date: 05.30.2014

sheet no: S1.211

project: 2601

New Mixed Use Development for:

HOLLYWOOD CIRCLE

1740 Polk Street, Hollywood, Florida 33020

LEVEL 26 (MAIN ROOF) REINFORCING PLAN

COHEN · FREEDMAN · ENCINOSA & ASSOC.

Architects, PA AA C000779

8085 N.W. 155th Street Miami Lakes, Florida 33016 305·826·3999

RATHGEBER/GOSS ASSOCIATES

Consulting Structural Engineers

RATHGEBER/GOSS ASSOCIATES, PC provides structural engineering design and analysis services to the building industry. We provide the benefit of over 150 years of successive collective experience in the structural design of new buildings and the renovations, remodeling and additions to existing buildings.

Established in Maryland in 1991, a certified small business, we commit to the direct involvement of the firm's Principals in all phases of the project from conceptual planning and structural system studies through the construction of the project. We believe this level of involvement ensures timely decision making during a project which is essential to maintaining schedules and budgets.

The individual experience of our Structural Engineering staff is supplemented by the firm's computer capabilities. We operate several analysis and design programs, which provide accurate, rapid results for the evaluation or design of all the major structural materials for buildings: reinforced concrete, structural steel, wood, and masonry. This capability permits the comparison of several viable framing options during the conceptual or schematic phases of the project, helping to ensure an economical choice of framing system(s) for design development and final design. Cost comparisons are made on an installed material quantity basis with extension by unit cost data. This construction cost data is obtained through published data and from our numerous contacts in the local construction industry. These data can be used as a basis for establishing construction budgets for structural work as well as for structural system selection.

Our approach to evaluating an existing building for new loading conditions attempts to utilize the strength of the total in place work. We have found that there are often discrepancies between the "record drawing" on a building and the actual construction, often to the benefit of the structure. This is most often true with reinforced concrete buildings, which often possess higher concrete strengths than the minimum specified. By minimizing the amount of structural reinforcement work required on a rehabilitation project, a greater portion of the construction budget can be allocated to the architectural, electrical, HVAC and plumbing systems. Part of the required work on a rehabilitation project may entail temporary shoring or bracing which must be detailed on the plans for an accurate bid. Our project experience includes the design of such temporary structural systems for Owner and contractors. Our understanding of construction sequencing and methods is essential for such design.

15871 Crabbs Branch Way, Rockville, Maryland 20855 *T* 301/590 0071 www.rath-goss.com

APPENDIX E

2C LETTER

ISO 9001:2015 CERTIFIED
ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS
6500 N. Andrews Avenue • Fort Lauderdale, FL 33309 • Phone 954-776-1616

FAA 2C CERTIFICATION OF LOCATION & ELEVATION

DATE: March 4, 2019

Motorola Solutions Inc.
809 Pinnacle Dr. Suite G
Linthicum Heights, Maryland 21090

Site Ref.: **CIRC Hotel**
1780 Polk St.
Hollywood, FL 33020

KCI Job: 011900093B

This letter is written to certify the provided survey accuracy to a "2C" Accuracy Code per the Obstacle Accuracy Standards, Codes, and Sources as applied in accordance with FAA Order 8260.19H, Appendix C, Effective Date of 7/20/17.

Structure:	**Rooftop**
Location:	**Hollywood, FL**
Latitude:	**26° 00' 46.47" North (NAD '83)**
Longitude:	**80° 08' 32.92" West (NAD '83)**
Ground Elevation:	**6.5' (North American Vertical Datum of 1988)**
Top of Main Roof:	**286.0' (Above Ground Level) / 292.5' (Elevation NAVD '88)**
Top of Parapet Wall:	**289.6' (Above Ground Level) / 296.1' (Elevation NAVD '88)**
Top of Highest Appurtenance: (Existing Antennae above Roof)	**304.4' (Above Ground Level) / 310.9' (Elevation NAVD '88)**

Horizontal Datum Source:	**GPS Survey Florida East Zone NAD '83 Grid North**
Vertical Datum Source:	**Ground Elevation based on the North American Vertical Datum of 1988**

I hereby certify that the above site is at Latitude 26° 00' 46.47" (N) and Longitude 80° 08' 32.92 " (W) and the site elevation is 6.5 feet (NAVD '88). These coordinates are accurate to a tolerance of + 50 feet horizontally; and the elevations are accurate to a tolerance of + 20 feet vertically. The Horizontal Datum (Coordinates) are in terms of the North American Datum of 1983 (NAD '83) and are expressed as degrees, minutes and seconds to the nearest hundredth of a second. The Vertical Datum (Heights) are in terms of the North American Vertical Datum of 1988 (NAVD '88) and are determined to the nearest tenth of a foot.

Robert K. Krisak, P.L.S.
Florida Registration No. 4641

LICENSE NO. 4641 STATE OF FLORIDA

APPENDIX F

FAA NOTICE CRITERIA

Federal Aviation Administration

The system will be going offline at 9pm ET on Thursday, March 28, 2019 for upgrades. We apologize for any inconvenience.

« OE/AAA

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

Latitude:	26 Deg 00 M 46.47 S N
Longitude:	80 Deg 08 M 32.92 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	7 (nearest foot)
Structure Height :	330 (nearest foot)
Traverseway:	No Traverseway (Additional height is added to certain structures under 77.9(c)) User can increase the default height adjustment for Traverseway, Private Roadway and Waterway
Is structure on airport:	(•) No ( ) Yes

Results

You exceed the following Notice Criteria:

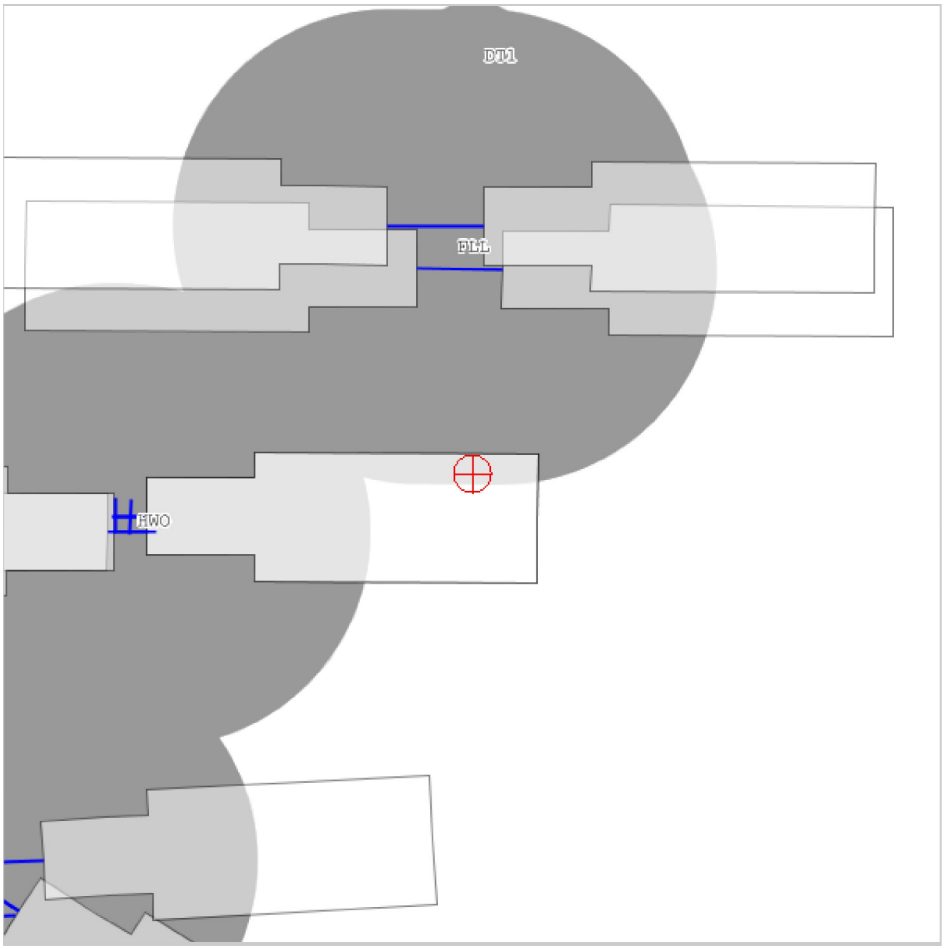
Your proposed structure exceeds an instrument approach area by 230 feet and aeronautical study is needed to determine if it will exceed a standard of subpart C of 14CFR Part 77. The FAA, in accordance with 77.9, requests that you file.

Your proposed structure is in proximity to a navigation facility and may impact the assurance of navigation signal reception. The FAA, in accordance with 77.9, requests that you file.

77.9(a) by 130 ft.

77.9(b) by 99 ft. The nearest airport is FLL, and the nearest runway is 10R/28L.

The FAA requests that you file


DTL
FLL
HWO

APPENDIX G

MISSION CRITICAL PARTNERS WHITE PAPER

BROWARD COUNTY FLORIDA

MissionCriticalPartners
Because the Mission Matters

CIRC Hotel Feasibility

Final Report

PREPARED MARCH 2019
FOR BROWARD COUNTY, FLORIDA

MissionCriticalPartners.com
State College Office | 690 Gray's Woods Blvd. | Port Matilda, PA 16870 | 888.8.MCP.911 or 888.862.7911

Table of Contents

Introduction

Broward County staff have been tasked by the Broward County Board of County Commissions (BCBOCC) with evaluating the CIRC Hotel (CIRC) as a viable alternative to the radio tower proposed for construction in West Lake Park. The intended purpose of the transmitter location is to support Broward County's new public safety radio communications system, which will serve public safety agencies within Broward County.

County staff tasked Motorola Solutions, Inc. (MSI) and its subcontractor, KCI, with evaluating the feasibility of the CIRC Hotel for serving as a viable alternative for a radio tower.

Mission Critical Partners, LLC (MCP) is Broward County's technical consultant for the new radio communications system. This paper has been prepared, at the request of the County, to consider additional factors that may impact the long-term use of the CIRC as a transmitter location, above and beyond its feasibility. Specifically, MCP addresses the following:

1. Coverage challenges at the CIRC due to building shadowing and the potential for nearby obstructions from future construction
2. Equipment serviceability limitations at the CIRC for equipment maintenance and restoration
3. Cost of ownership comparison between the CIRC and the site in West Lake Park
4. Implementation schedule comparison at the CIRC

Coverage Impacts

Antenna Shadowing

The purpose of radio antennas is to adequately cover areas where first responders may operate surrounding the transmitter locations. The proposed system that would be installed at the CIRC includes six primary radio system antennas, all of which must have adequate visibility in all directions while still maintaining separation from each other for interference purposes. When mounting these antennas on building rooftops, the antennas must have sufficient separation above the top of the building in order to provide visibility to the surrounding areas. Typical building installations include mounting antennas on top of rooftop equipment rooms, which provide the added height for visibility to the surrounding areas.

The CIRC rooftop does not include a mounting location that will provide sufficient height above the building. Specifically, the most central mounting location is the inner parapet wall. The distance from the inner parapet wall to the outer edges of the rooftop is approximately 60 feet at the farthest points. Given these dimensions, an antenna mounted on the inner parapet wall with a radiation center 10 feet above the mounting location would be shadowed by the building for 1,680 feet, or approximately one-third mile. This would significantly reduce in-building coverage within critical buildings in downtown Hollywood.

To mitigate the impact of shadowing and to prevent people walking on the rooftop from standing directly in front of the antennas, the feasibility study reflects a proposed design to raise the base of the antennas 10 feet above the parapet wall, which will place the radiation center at 20 feet. While this will mitigate the effects of shadowing somewhat, there will still be an area of 840 feet surrounding the building where the effects of shadowing will reduce coverage.

The following image displays the 840-foot boundary around the CIRC. The area encompasses several larger buildings that may not be adequately served because of shadowing.

Figure 1: 840-foot Boundary Image

Federal Aviation Administration (FAA) approval is required in order to raise the antennas to the desired height. Early indications are that the area surrounding the CIRC is congested for air travel, and the FAA may not authorize the desired antenna heights. If that is the case, antennas will not be allowed to exceed more than 20 feet above the top of the rooftop, which will require antennas to be mounted on the inner parapet wall and result in a shadowed area of 1,680 feet.

The following image displays the 1,680-foot boundary around the CIRC. The area encompasses additional buildings that may not be adequately served because of shadowing.

Figure 2: 1,680-foot Boundary Image

Conversely, radio towers do not present the same limitations with antenna shadowing. While radio towers may provide some distortion for side-mounted antennas, the proposed placement of antennas for the public safety radio system in the vicinity of West Lake Park would be at the top of the tower, where there are no obstructions.

Nearby Buildings

Over the course of evaluating feasibility of the CIRC, MCP determined that there are other buildings currently planned for construction in the immediate vicinity of the CIRC that may be greater in height than the CIRC.[1] This presents concerns regarding radio coverage, if coverage from the CIRC will be blocked by new construction.

While specific details regarding the placement of these buildings is not known, MCP has generated the graphic below as an example of how obstructions in close proximity to radio transmitters will block signals

[1] *"3 apartment towers to be built at site of landmark Hollywood building,"* South Florida Sun Sentinel. September 10, 2018. https://www.sun-sentinel.com/business/fl-bz-hollywood-residential-parc-place-20180907-story.html.

to areas much further away. The example below assumes an obstructed area approximately 300 feet wide located on the southeast corner of Young Circle Park. The area between the red lines reflects the areas where radio signals would be obstructed, and coverage would be significantly reduced.

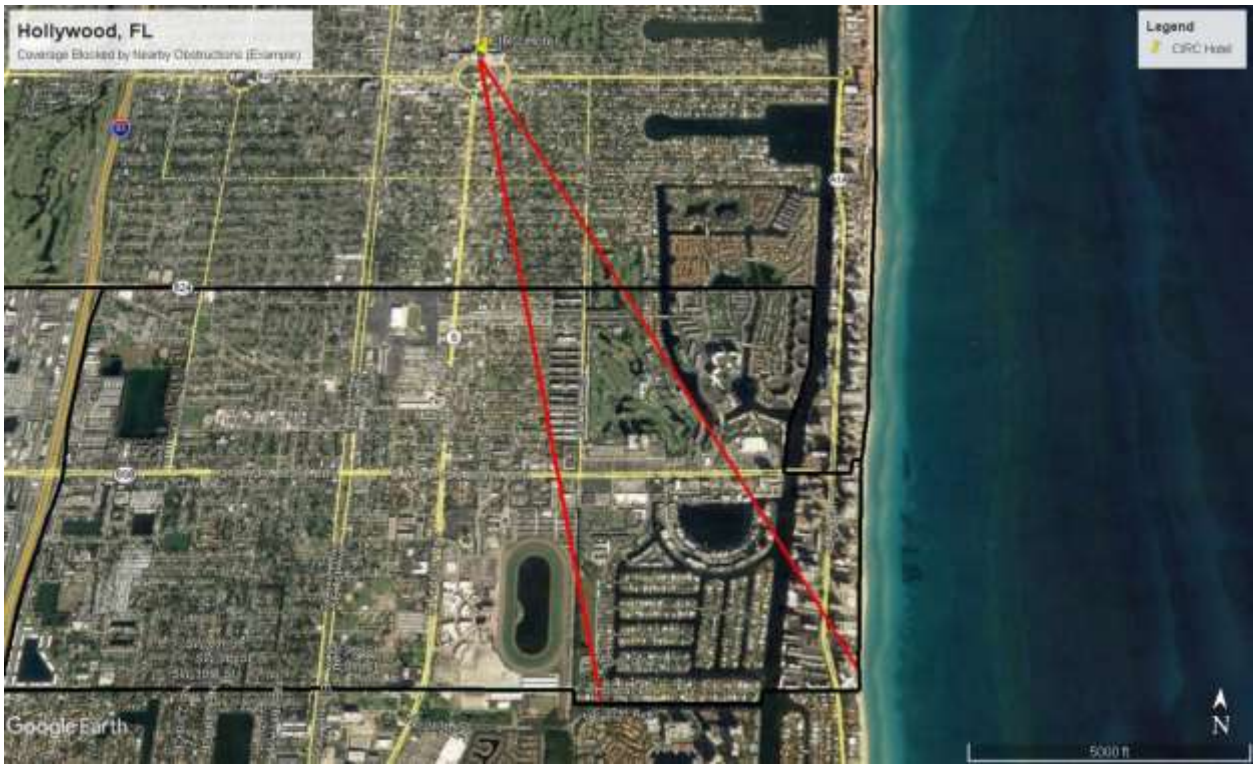


Figure 3: Example of Signal Blockage

The radio site planned for use in East Hollywood is intended in part to provide coverage improvements for high-rises along Hollywood Beach and Hallandale Beach. As demonstrated in the example graphic, the placement of structures nearby may significantly impair radio signals to some of these areas. For the given example, coverage would be obstructed to a large portion of Hallandale Beach.

Conversely, a radio tower in the vicinity of West Lake Park will not be faced with these limitations because there are no tall structures planned in the immediate area.

Serviceability

The CIRC provides some considerable concerns regarding the ongoing maintenance of radio equipment. Most notably, a crane will be required for the installation of any replacement antennas, or to deliver large equipment to the rooftop that cannot be carried by hand. The building is located along busy roadways, which will make placement of the crane difficult and may delay restoration periods because permission will

be required to close those roadways. Based on the size and dimensions of the building, only specialty cranes will be capable of delivering equipment to the roof, which will make it more difficult for securing the required resources, especially following hurricanes. During radio system lifecycles, antennas do fail from time to time, with the most common cause of failures being lightning strikes.

In the event a suitable crane cannot be secured or roadways cannot be blocked, a helicopter may be needed for antenna replacements or to deliver equipment to the rooftop. Repairs requiring the use of a helicopter may require six weeks for approval and would require vacating the top three floors of the building and the surrounding areas. Depending on the type of failure, the entire radio site may be inoperable until the repair is completed. There are considerable concerns regarding potential outages that may last this long. Broward County has been required to utilize helicopters to restore service to its existing rooftop radio sites in the past following hurricanes.

In addition to the constraints regarding antenna installation, there are significant delays associated with accessing equipment and installing replacements for failed components when compared to traditional radio sites. A technician responding to the location will need to find a suitable parking location, obtain keys for the equipment from the front desk, take the elevator to the top floor, go up a flight of stairs, and traverse several equipment rooms on the rooftop before reaching the proposed location where the radio equipment will be housed. In the event the technician needs to install spare equipment, the technician will need to traverse this path carrying extremely heavy and bulky equipment. If the technician is unable to carry certain pieces of equipment by hand, then a crane or helicopter may be required. Comparatively, radio towers provide technicians the ability to park within feet of the equipment rooms. The response and restoration times for failures at the CIRC will be significantly longer when compared to that on a free-standing tower.

Cost of Ownership

The complexities associated with construction at the CIRC have resulted in high construction costs compared to a freestanding structure, with estimated construction costs falling between $2.1 million and $2.8 million, compared to $750,000 for a free-standing tower. Costs at the CIRC are further compounded by monthly lease payments. The expected lifecycle of a free-standing radio tower is approximately 50 years, so even reasonable monthly lease payments may add up significantly over time.

The terms of a lease payment have not yet been agreed upon with the CIRC. Based on the current lease payments at other Broward County locations, lease costs are estimated to be between $5,200 and $6,200 per month. The monthly fee will also likely include a 3 percent yearly escalation. In addition to the monthly lease fees, the CIRC has indicated a desire to recover costs spent on engineering and consulting fees incurred during the design and lease negotiation process. These fees have not yet been determined. Yearly fees of $5,000 with a 3 percent escalation have been considered for the maintenance costs associated with maintaining a free-standing tower.

To illustrate the comparable costs between a free-standing tower and the CIRC, Table 1 summarizes the up-front costs for both options, as well as the cumulative cost of ownership at 5-year intervals.

Table 1: Cost of Ownership Comparison

Cumulative Cost of Ownership	CIRC ($5,200 / month)	CIRC ($6,200 / month)	Free-standing Tower
Capital Costs (initial installation)	$2,450,000 (average)	$2,450,000 (average)	$750,000
Year 5	$2,781,290	$2,846,210	$776,546
Year 10	$3,165,346	$3,305,526	$807,319
Year 15	$3,610,572	$3,838,000	$842,995
Year 20	$4,126,711	$4,455,282	$884,352
Year 25	$4,725,058	$5,170,882	$932,296
Year 30	$5,418,706	$6,000,458	$987,877
Year 35	$6,222,834	$6,962,164	$1,052,310
Year 40	$7,155,039	$8,077,045	$1,127,006
Year 45	$8,235,719	$9,369,498	$1,213,599
Year 50	$9,488,525	$10,867,805	$1,313,984

Project Schedule Impact

The completion of the new Project 25 (P25) public safety radio system has long since been planned for the end of 2019. Completion of the project requires construction at all radio sites so that the associated radio system equipment can be installed and tested prior to cutover by first responders. The site located in East Hollywood is the only remaining undecided site.

Based on construction timelines provided by Motorola and KCI, Table 2 summarizes the estimated implementation period if construction proceeds at the CIRC.

Table 2: Projected CIRC Implementation Timeline

Milestone	Completion Date
Feasibility Study with Proposed Design Delivered	3/29/19
Lease Executed	6/1/19
Construction Permits Received	8/1/19
Construction Begins	8/1/19
Construction Complete	3/1/20
Radio Equipment Installation Complete	5/1/20
System Testing Complete	9/1/20
System Ready for Cutover	9/1/20

Conclusion

The report by KCI indicates that construction at the CIRC is feasible, albeit with significant construction challenges that will need to be overcome.

Based on the details outlined in this report, there are several considerations for the BCBOCC.

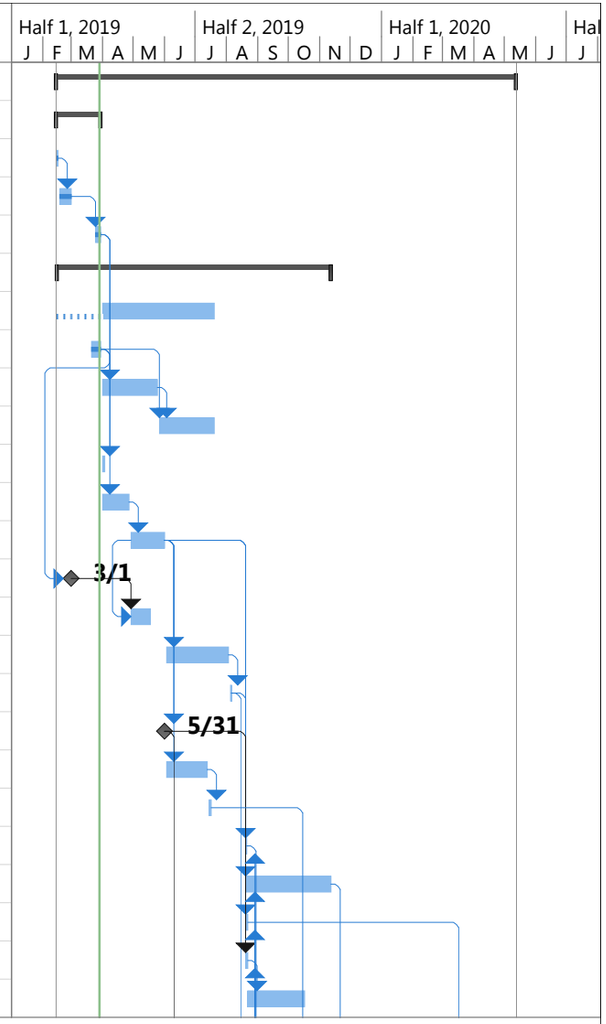
Considerations

- The CIRC will provide reduced coverage due to building shadowing or may experience obstructions due to nearby buildings if buildings taller than the CIRC in the immediate vicinity are constructed in the future.
- Equipment maintenance at the CIRC will be challenging, resulting in lengthier restoration periods when compared to a free-standing tower.
- The CIRC will be more expensive when compared to a free-standing tower, with an estimated cumulative cost of $8,174,541 and $9,553,821 more than a free-standing tower over the life of the tower depending on the lease payments.
- The CIRC will take longer to implement, pushing system acceptance into 2020.

APPENDIX H

CONSTRUCTION TIMELINE

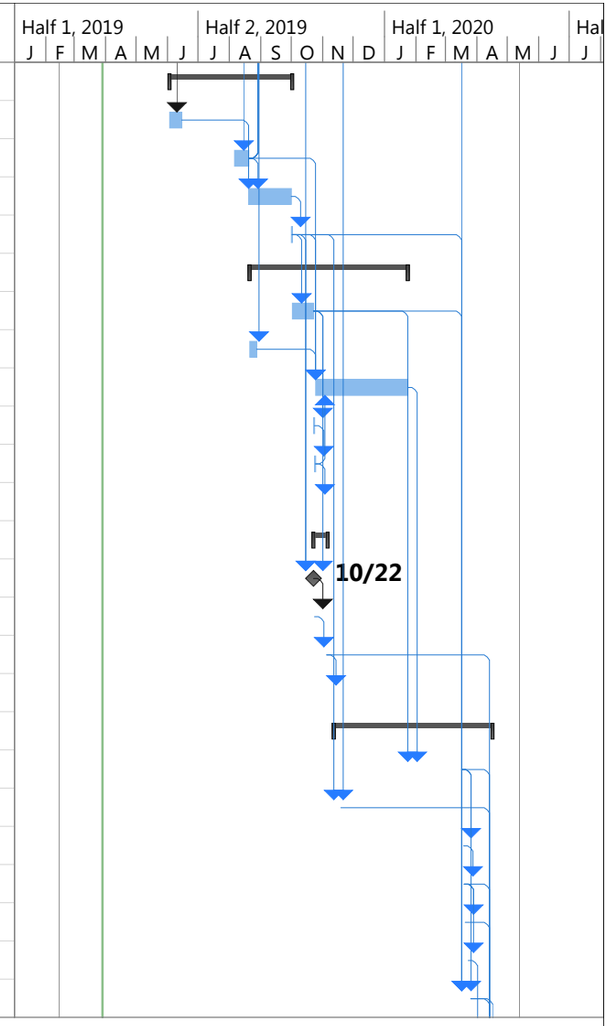
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**CIRC HOTEL**	**323.5 days**	**Thu 2/14/19**	**Tue 5/12/20**	
2		**SITE ENGINEERING**	**32 days**	**Thu 2/14/19**	**Fri 3/29/19**	
3		Site visit with Engineering	2 days	Thu 2/14/19	Fri 2/15/19	
4		Prepare site sketch/site layout	9 days	Mon 2/18/19	Thu 2/28/19	3
5		Broward County Review and approval of site sketch	5 days	Mon 3/25/19	Fri 3/29/19	4
6		**PERMITTING DOCUMENTATION AND FINAL DRAWINGS**	**192 days**	**Fri 2/15/19**	**Mon 11/11/1**	
7		NEPA/SHPO studies and approvals	80 days	Fri 2/15/19	Fri 7/19/19	
8		Site Survey and mapping	7 days	Thu 3/21/19	Fri 3/29/19	
9		FAA application (7460-1) and approval	40 days	Mon 4/1/19	Fri 5/24/19	8
10		FCC Tower Registration Application	40 days	Mon 5/27/19	Fri 7/19/19	8,9
11		Review Drawings based on Port Entry Orientation	2 days	Mon 4/1/19	Tue 4/2/19	5
12		Prepared Construction Drawings of new site	20 days	Mon 4/1/19	Fri 4/26/19	5
13		Construction Drawings Review and Approval	25 days	Mon 4/29/19	Fri 5/31/19	12
14		Microwave Path Study & report	0 days	Fri 3/1/19	Fri 3/1/19	8
15		Roof top Design and drawings	15 days	Mon 4/29/19	Fri 5/17/19	13SS,14
16		Zoning Approval for use	45 days	Mon 6/3/19	Fri 8/2/19	13
17		Site Agreement Approved by Site Owner	1 day	Mon 8/5/19	Mon 8/5/19	16
18		Broward County Site release/ Construction NTP to Motorola	0 days	Fri 5/31/19	Fri 5/31/19	13
19		Manufacture Antenna and Dish mounts	30 days	Mon 6/3/19	Fri 7/12/19	13
20		Ship Steel to new site	2 days	Mon 7/15/19	Tue 7/16/19	19
21		Place Order for New Build out materials	1 day	Tue 8/20/19	Tue 8/20/19	13,28
22		Place Order for New Generator	60 days	Tue 8/20/19	Mon 11/11/1	13,28
23		Order Fire Suppression System	2 days	Tue 8/20/19	Wed 8/21/19	17,28
24		Order DC Power Systems	2 days	Tue 8/20/19	Wed 8/21/19	18,28
25		Receive Rectifier Rack at Project Warehouse	40 days	Thu 8/22/19	Wed 10/16/1	24



Project: CIRC HOTEL 03292019
Date: Fri 3/29/19

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

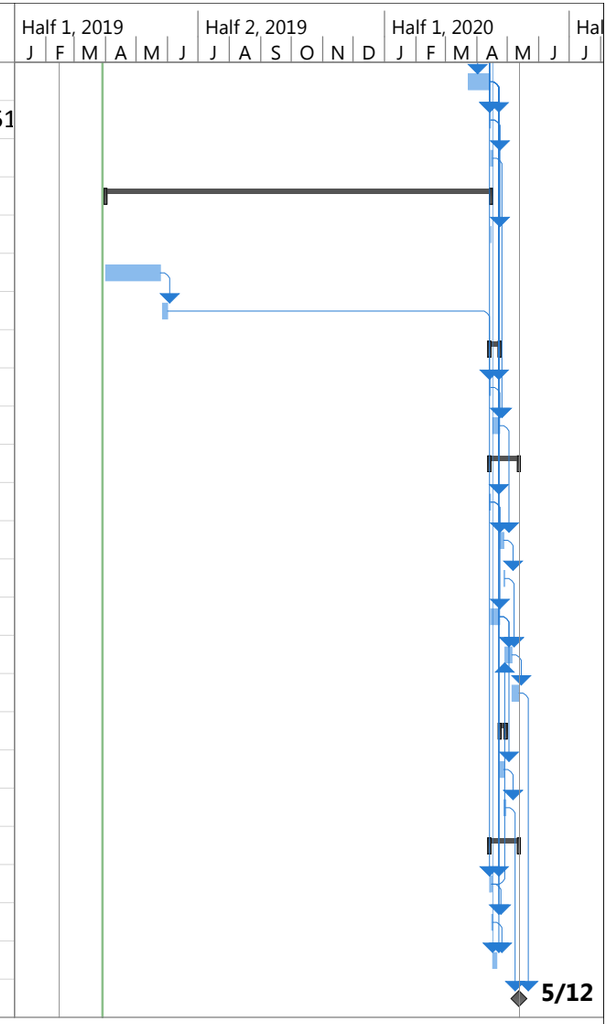
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
26		**Construction Permits**	**87 days**	**Mon 6/3/19**	**Tue 10/1/19**	
27		Prepare and Submit Permit Package	10 days	Mon 6/3/19	Fri 6/14/19	18
28		Owner Signature Received	10 days	Tue 8/6/19	Mon 8/19/19	17
29		Permit Review and Approval Process	30 days	Tue 8/20/19	Mon 9/30/19	28,27
30		Construction Permits Approved and Received	1 day	Tue 10/1/19	Tue 10/1/19	29
31		**CONSTRUCTION PHASE**	**112 days**	**Wed 8/21/19**	**Thu 1/23/20**	
32		Mobilization	15 days	Wed 10/2/19	Tue 10/22/19	30
33		Ship materials for build out	5 days	Wed 8/21/19	Tue 8/27/19	21
34		Build out Room	65 days	Fri 10/25/19	Thu 1/23/20	28,30,33,36
35		Layout Roof top	1 day	Wed 10/23/1	Wed 10/23/1	32
36		Layout Equipment room	1 day	Thu 10/24/19	Thu 10/24/19	35
37		Layout Generator site	1 day	Fri 10/25/19	Fri 10/25/19	36
38		**Roof Top Preparation for Antenna Installation**	**10 days**	**Tue 10/22/19**	**Tue 11/5/19**	
39		Receive Mounting hardware for Antennas and Dishs	0 days	Tue 10/22/19	Tue 10/22/19	20,30,32
40		Notify FAA of impending tower construction (7460-2)	1 day	Wed 10/23/1	Wed 10/23/1	39
41		Mounts assembly and installations	8 days	Thu 10/24/19	Mon 11/4/19	40
42		Notify FAA of tower completion (7460-2)	1 day	Tue 11/5/19	Tue 11/5/19	41
43		**SITE COMPONENTS INSTALLATION**	**112.5 days**	**Tue 11/12/19**	**Thu 4/16/20**	
44		Install power conduits	37 days	Fri 1/24/20	Mon 3/16/20	32,34
45		Install New Generator	5 days	Tue 11/12/19	Mon 11/18/1	22,30
46		Install grounding	2 days	Tue 3/17/20	Wed 3/18/20	44
47		Grounding Inspection	0.5 days	Thu 3/19/20	Thu 3/19/20	46
48		Conduit inspection	1 day	Thu 3/19/20	Fri 3/20/20	47
49		Pick up meter panel and Install meter board	2 days	Thu 3/19/20	Mon 3/23/20	47
50		Install Fire Suppression System	7 days	Tue 3/17/20	Wed 3/25/20	23,30,32,44



Project: CIRC HOTEL 03292019
Date: Fri 3/29/19

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
51		Utility hookup to the site by Electric Co.	15 days	Mon 3/23/20	Mon 4/13/20	49
52		Building/Electrical inspection	1 day	Mon 4/13/20	Tue 4/14/20	44,45,47,48,50,51
53		Install cable ladder from room to upper roof	2 days	Tue 4/14/20	Thu 4/16/20	52
54		**EXISTING FACILITY IMPROVEMENTS**	**272 days**	**Mon 4/1/19**	**Tue 4/14/20**	
55		Deliver Rectifier Rack to West Lake Park Site	0.5 days	Tue 4/14/20	Tue 4/14/20	52
56		Order & Battery Strings received at West Lake Park Site	40 days	Mon 4/1/19	Fri 5/24/19	
57		Install DC Power System	5 days	Mon 5/27/19	Fri 5/31/19	56
58		**Antenna and Line Installation**	**8 days**	**Mon 4/13/2(**	**Thu 4/23/20**	
59		Ship antennas, line and accessories to the site	1 day	Mon 4/13/20	Tue 4/14/20	41,51
60		Install antennas, microwave dishes and lines	5 days	Thu 4/16/20	Thu 4/23/20	59,53
61		**SITE EQUIPMENT INSTALLATION**	**21 days**	**Mon 4/13/2(**	**Tue 5/12/20**	
62		Ship equipment to site	1 day	Mon 4/13/20	Tue 4/14/20	51
63		Microwave equipment	2 days	Thu 4/23/20	Mon 4/27/20	62,60
64		Microwave equipment alignment and test	1 day	Mon 4/27/20	Tue 4/28/20	63
65		FNE Equipment installation	7 days	Tue 4/14/20	Thu 4/23/20	62
66		FNE Equipment program & configure	5 days	Tue 4/28/20	Tue 5/5/20	64,65,72
67		Site Equipment test and baseline	5 days	Tue 5/5/20	Tue 5/12/20	66
68		**SITE RESTORATION**	**4 days**	**Thu 4/23/20**	**Wed 4/29/2(**	
69		Complete grounding connections	2 days	Thu 4/23/20	Mon 4/27/20	65
70		Site touchup and restoration	2 days	Mon 4/27/20	Wed 4/29/20	69
71		**FINAL TESTING**	**21 days**	**Mon 4/13/2(**	**Tue 5/12/20**	
72		DC Power System Startup and Test	2 days	Mon 4/13/20	Wed 4/15/20	51,57
73		Generator Startup and Test	1 day	Wed 4/15/20	Thu 4/16/20	51,72
74		Test Fire Suppression System	2 days	Thu 4/16/20	Mon 4/20/20	50,51,73
75		Site Civil Work Substantial Completion	0 days	Tue 5/12/20	Tue 5/12/20	67,70



Project: CIRC HOTEL 03292019
Date: Fri 3/29/19

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

APPENDIX I

PHOTO SIMULATIONS

MOTOROLA SOLUTIONS
CIRC HOTEL - ROOF MOUNTED ANTENNAS
VIEW 1 - VIEW FROM THE NORTH
(BROWARD COUNTY)

For visual reference only. Actual visibility is dependent upon weather conditions, season, sunlight and viewer location.

KCI
Technologies, Inc.

MOTOROLA SOLUTIONS
CIRC HOTEL - ROOF MOUNTED ANTENNAS
VIEW 2 - VIEW FROM THE SOUTHWEST
(BROWARD COUNTY)

For visual reference only. Actual visibility is dependent upon weather conditions, season, sunlight and viewer location.

KCI Technologies, Inc.

APPENDIX J

ORIGINAL FEASIBILITY LETTER

KCI

ENGINEERS • SCIENTISTS • SURVEYORS • CONSTRUCTION MANAGERS

Suite 400 4505 Falls of Neuse Road Raleigh, NC 27609 (919) 783-9214 (919) 783-9266 Fax

January 21, 2019

Mr. Jeff Erhardt
Motorola Solutions

RE: **Telecommunications Facility at CIRC Hotel**
KCI Project Number 011900093B

Dear Mr. Erhardt:

EXECUTIVE SUMMARY AND PURPOSE

Pursuant to your request, KCI Technologies, Inc. has completed a review of the proposed colocation of the Broward County Public Safety Communication System at this location. The purpose is to provide a recommendation of the use of the CIRC Hotel located at Polk Street in Hollywood, Florida for the colocation of the communication antennas and support equipment. This letter is intended to provide supporting documentation to the overall feasibility study proposal prepared by Motorola Solutions and Broward County Emergency Management Division.

My overall recommendation is that this site **NOT** be utilized for this project, particularly when compared to a new tower location specifically designed for the new system. The site can be made to work, but it will require extensive construction efforts and will have several potential long term challenges, in particular maintenance related. Ultimately, this remediation could result in compromised serviceability under the most extreme conditions, which is the precise circumstances this site has to be 100% operable. The support of the underlying first responders and supported civilians who will rely on this system cannot afford compromise, specifically those that result in a degraded service.

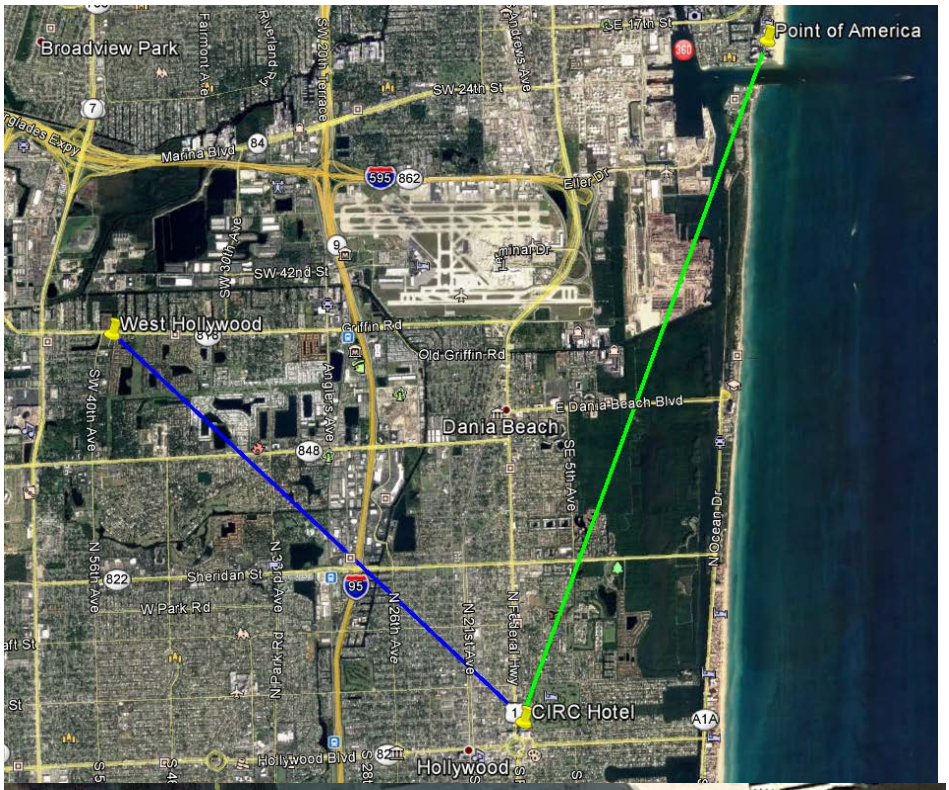
PROFESSIONAL BACKGROUND

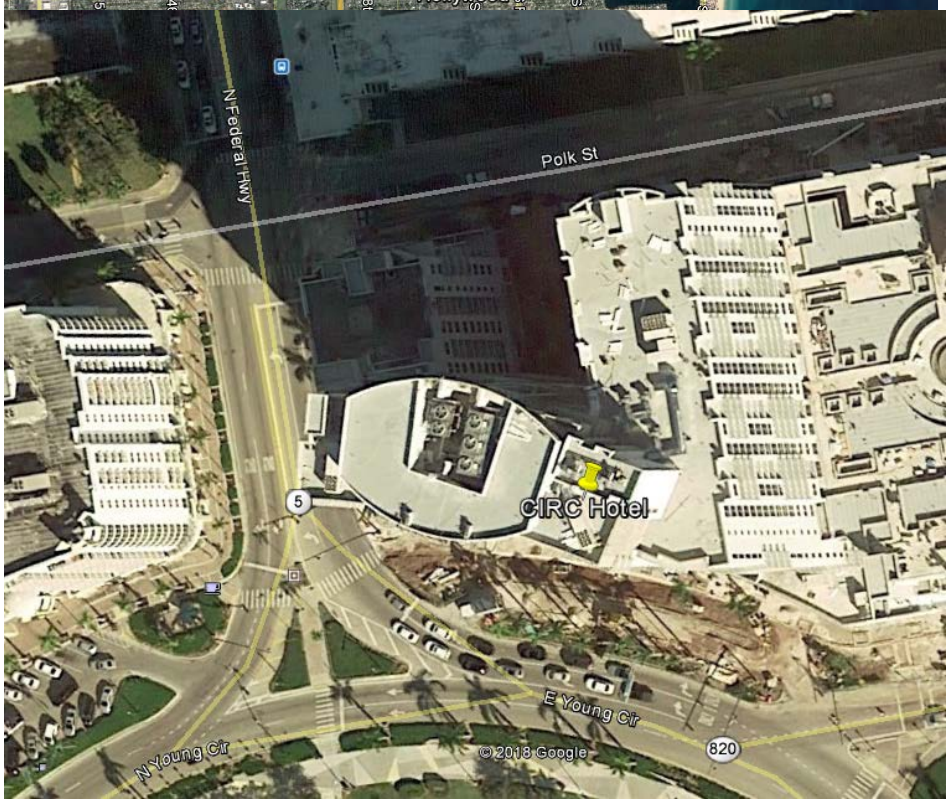
I am a licensed, Florida Professional Engineer who has practiced telecommunications engineering since 1997 with an emphasis on civil and structural design. I have completed hundreds of rooftop designs including both the civil aspects of the colocation, electrical design and structural analysis for wireless providers and other public safety providers. The most recent include microwave mount design for Manatee County, Florida with both tower and rooftop sites; microwave mount design for Charlotte County, Florida with both tower and rooftop sites; City of Portsmouth, Virginia P25 upgrade with both tower and rooftop sites; several rooftop sites in District of Columbia and Baltimore area for T-Mobile and Crown Castle. My professional resume is enclosed with a sampling of projects.

LOCATION BACKGROUND

The CIRC Hotel has been presented as a possible substitute site for the West Lake Park Site, which is a proposed self supported tower with ground equipment. The West Lake Park site will serve as a template as all of the antennas, tower support equipment, ground equipment, and generator will be replicated within the candidate site. Please refer to the overall feasibility study proposal for a listing of the requirements for the site. The site will include both transmit and receive antennas for the system as well as two microwave antennas for backhaul capability that will link to the Point of America site and the West Hollywood site.

January 21, 2019
Motorola Solutions & Broward County
CIRC Hotel Study



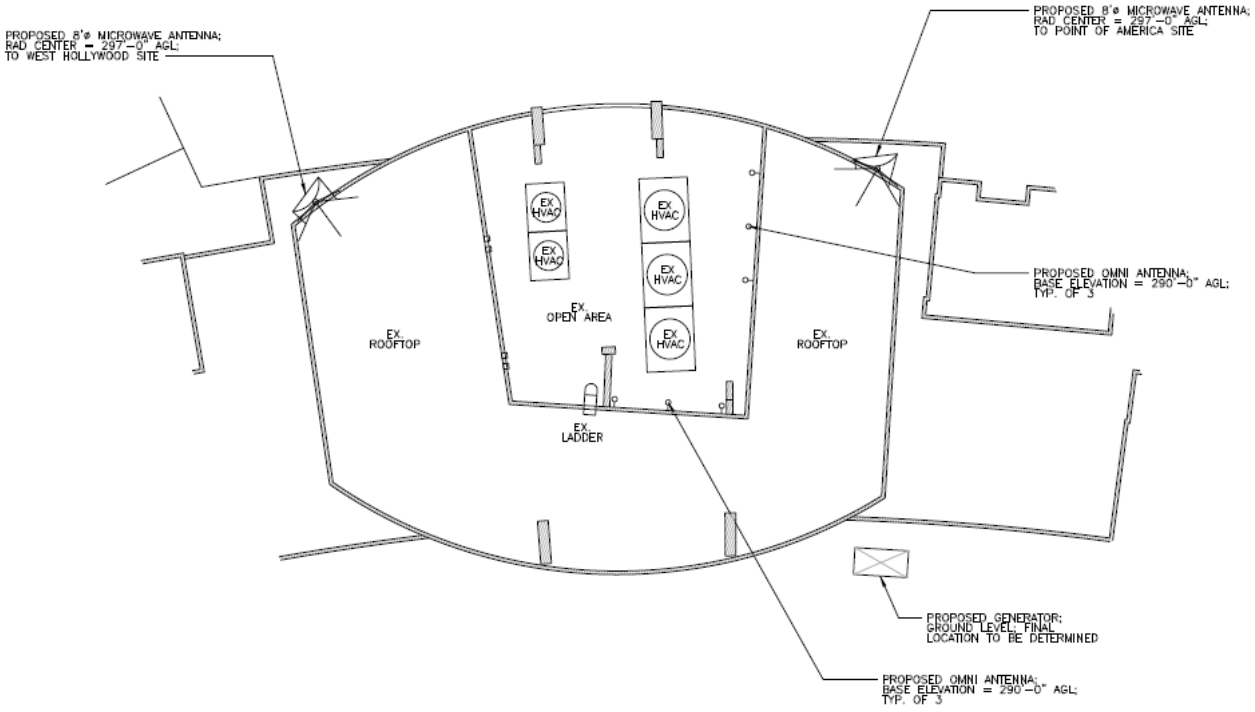


ANTENNA PLACEMENT / DESIGN CONSIDERATIONS

The antennas will be placed on the upper roof of the building and attached to the inner parapet walls near the air conditioners as shown in the photo above. The microwaves considered are 8-ft RFS antennas to ensure future capacity within the design. The Receive antennas are Sinclair SC412 and the Transmit antennas are RFI CC807 antennas. The SC412 antennas are 5-inch diameter x 21-ft tall and the CC807 antennas are 3-inch diameter x 17.5-ft tall. KCI utilized these dimensions along with a 180 mph (3 second gust, ultimate) wind speed for the analysis.

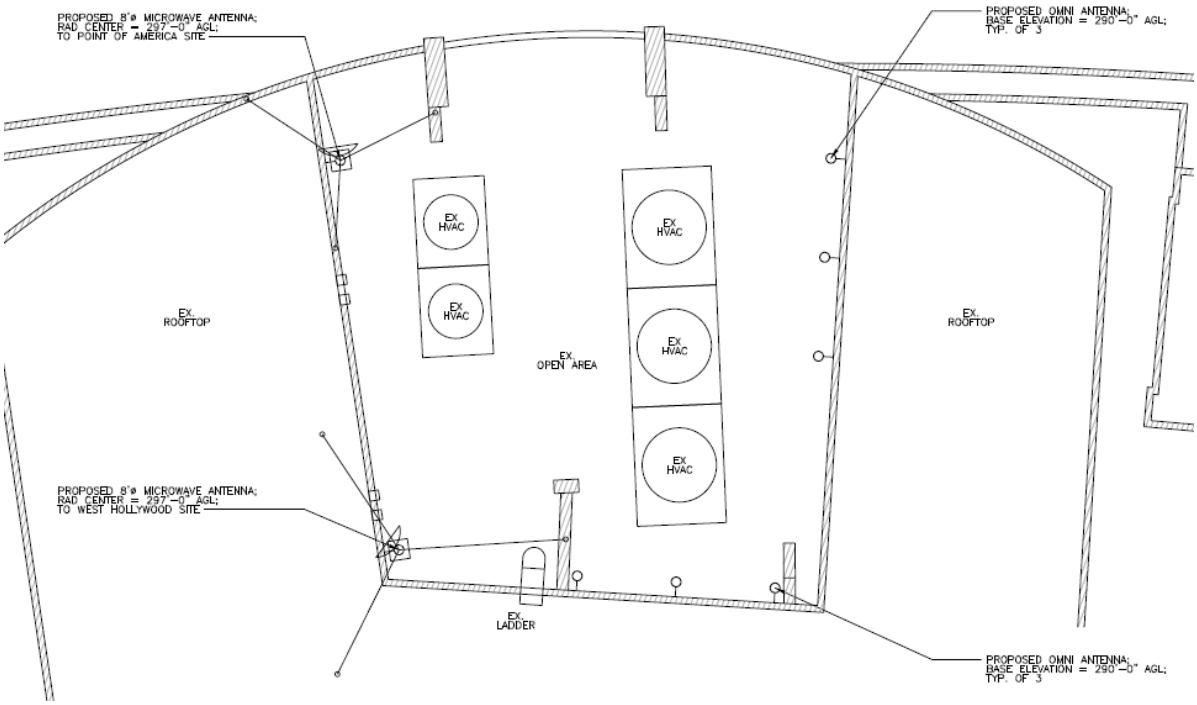
The best location of the microwave antennas is on the outer parapet wall. This provides the clearest path without any shadowing or RF emission hazards. Microwaves have a very tight bandwidth (1.3 degrees), but have a very concentrated RF emission, which requires the area in front of the microwave to be left clear to be in compliance with the FCC guidelines on human exposure. Due to the size of the microwave dish, 8-ft and the desired azimuths to the receive antennas, the microwave will need to be elevated above the parapet wall to be able to rotate it. This is going to be very difficult to achieve with the high wind speed and limited area to attach to on the parapet wall, so we had to use multiple standoffs

attached back to the parapet wall as well as the roof surface to achieve. This will also be very visible. Please refer to the photo above for an indication of the location of the microwaves viewed from street level as well as plan view shown below.



Outer Parapet Microwave Design Layout

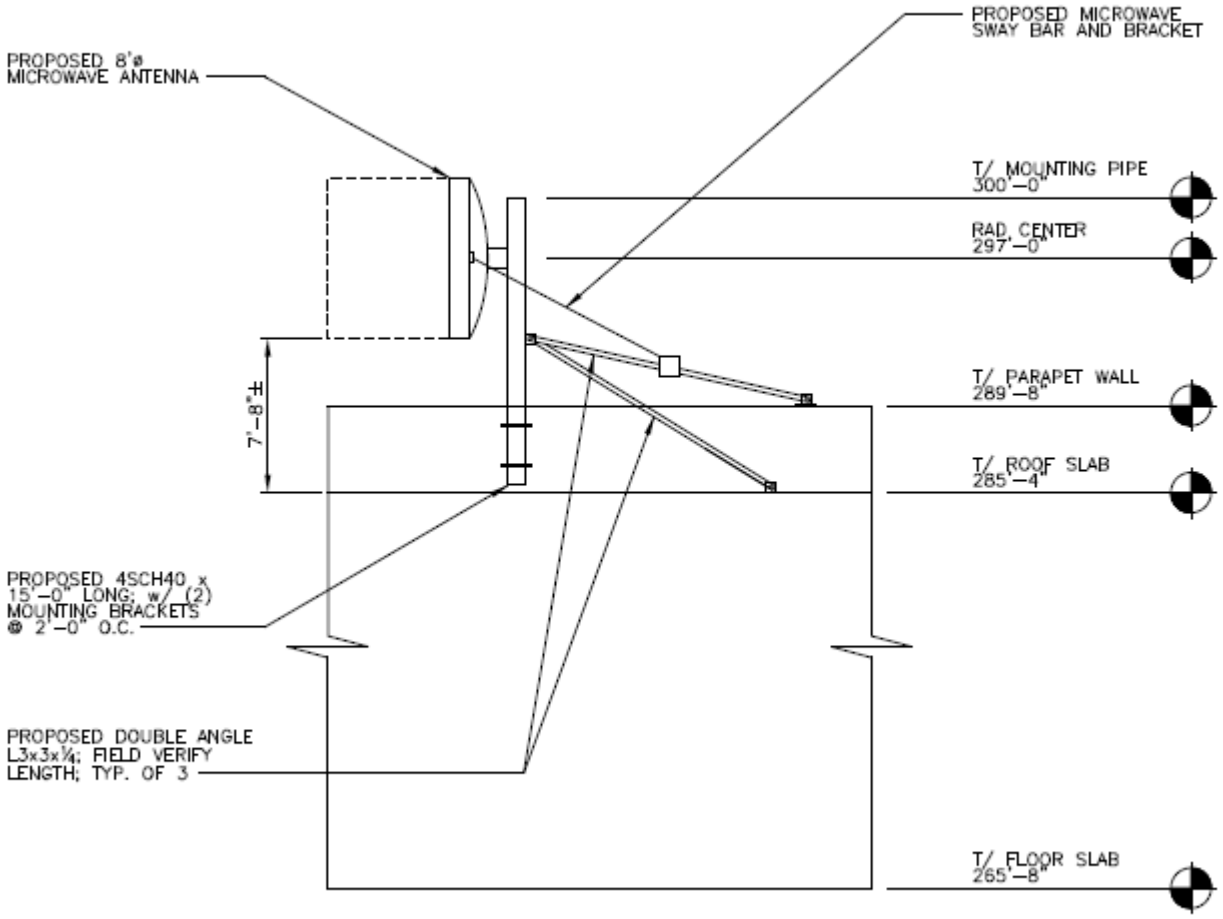
KCI also examined a location of the microwave antennas on the inner parapet wall. To achieve the RF safety of this location, either the roof in front of the microwave will need to be kept clear or the microwave will need to be elevated to ensure the path is clear. KCI elevated the base of the microwave 8-ft above the roof elevation. Refer to diagram below showing the microwave placement. The beam width is very tight, so there will not be much scatter or spread of the RF below the base of the microwave.



Inner Parapet Layout Diagram

Most microwave designs are not necessarily a structural concern, i.e. a capacity challenge, but a serviceability challenge. As stated before the beam width is very concentrated so any movement can result in a degraded signal or loss of data on either side of the link. For those not familiar with digital communication versus analog, signal loss will leave holes (missing words, etc.) in communication versus the old analog where the single may sound garbled, but still understandable. The loss of data can have significant impacts depending on the severity as a computer can recreate some, but not necessarily all the gaps, leaving holes in pictures, video or more importantly files that can't even be opened as they are corrupted. It is important that under the most intense wind conditions that microwave deflections be limited to as near to zero as possible. This requires significant stabilization efforts for the three items contributing to the possible movement, the microwave itself, the mount and the underlying structure. Self-Supported towers are designed with large bases and microwaves are generally placed in areas with wide face widths to resist movement under extreme conditions. Buildings are generally good at resisting movement as well, but the mounting systems placed on buildings often don't have the same stability mechanisms as those used on communication towers. It is expensive to construct and often involve numerous penetrations into the "skin" of the building, either the side or roof, which can lead to long term water intrusion challenges because any penetration has a high potential of leaking. This particular building and mounting system is no exception.

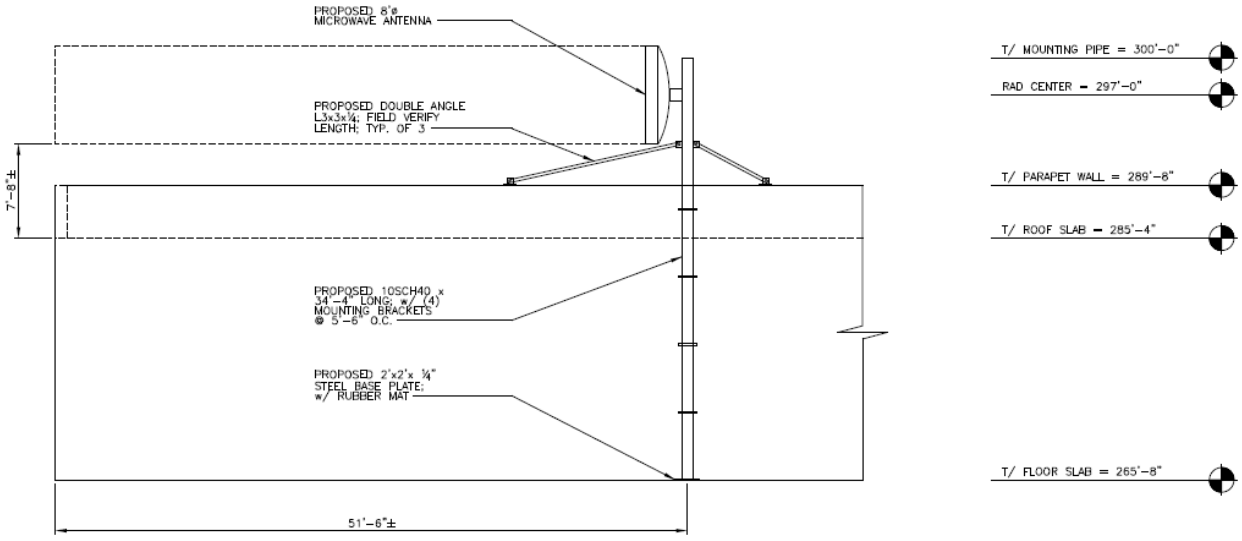
For the outer parapet wall design, KCI utilized a 4-inch pipe mast with four kicker arms to provide sufficient lateral restraint of the smaller pipe diameter. Two will be to the adjacent parapet wall and two will be down to the roof floor level. We also will attach stabilizer arms to the outside of the microwave antenna in, which will then be connected to one of the kicker attachments, either on the wall or the roof slab.



Microwave Mounting Detail Outer Parapet Wall

On the inner parapet wall option, which is not the best location, KCI utilized a 10-inch diameter mounting pipe to support the microwaves. These will be attached to the inside of the inner parapet wall and will rest on the floor of the lower roof (adjacent to the air conditioner units). This is to allow the weight of the pipe/microwave to transfer the load directly to the roof slab as opposed to numerous tie backs to the wall relying on friction for resistance. The tie backs will be utilized to resist the overturning moment which is significant. In order to resist the deflection the pipe mount will either require guy wires (similar to those used on the square tubes on the roof) or an alternate kicker support system. The microwave itself has two stabilizer arms, which will require a tie back point to attach to on the building or rooftop. The

mounting pipe(s) will be over 25-ft tall and will require significant effort to get them to the roof as they will be heavy, around 800 lbs. Refer to the drawings attached to this document for further details and schematics on the microwave mounting system.



Inner Parapet Design (note that the microwave stabilizer arms are not shown for clarity)

The omni antennas are easier from a design/construction aspect, but still should not experience significant movement, particularly at the base. The omni antennas are fiberglass and have been known to crack or break with excessive movement. This movement can also cause cracking and other serviceability concerns in the structure they are attached to. Therefore, KCI chose a 4 inch pipe, which can be attached back to the wall in several locations to resist all of the loads as well as the overturning moment. These will be situated 2-ft above the top of the wall, which provides a clear view of all sides of the roof from an RF perspective taken from the antenna centerline and the underlying 2.5 degree beam width. This ensures shadowing of the antenna with respect to the rooftop will be minimized. The RF safety of these antennas is not a concern based on the wattage of the RF output. They will not require additional height for RF exposure.

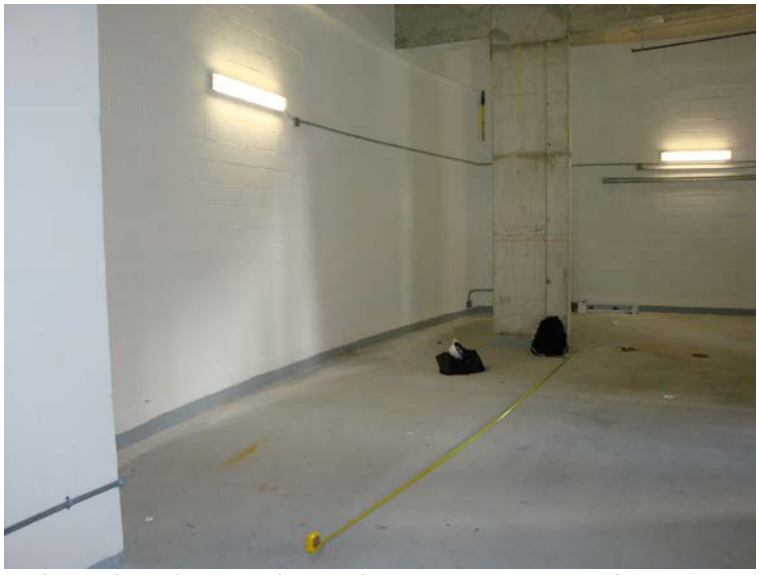
EQUIPMENT ROOM AND GENERATOR DESIGN CONSIDERATIONS

KCI also examined the equipment room to be built within the boiler room to house the County radio equipment. This may also become a structural concern as we recommend that the floor be elevated a minimum of 8 inches similar to the adjacent boilers in the room. The 8 inches will allow drainage pipes to be placed underneath the floor to a drain that is located in the area chosen for the 20-ft x 30-ft enclosed space. We also recommend that masonry walls be utilized along with a roof system for physical security as well as keeping the conditioned space enclosed. Four HVAC wall mounted units will be attached to the 20-ft wall on the boiler side with drain pipes routed to the floor drain to catch the condensation from the units. Within the enclosed area is a large battery box, that will be a structural challenge. Typically, we try to locate this over an underlying beam or column, but the space provided does not provide this in the location of the batteries. Further study will need to account for the location of the batteries and equipment inside of the room from a floor capacity standpoint. This may limit the potential movement of equipment

inside the room and future expansion capability. Technology improvements continually generate the requirement to replace or add equipment to the system to maintain the latest innovations. The floor slab capacity may limit the ability to change or add new equipment/racks to the room. This will not be an issue in the equipment shelter as the entire floor is designed for the worst case load of the battery box anywhere within the shelter.

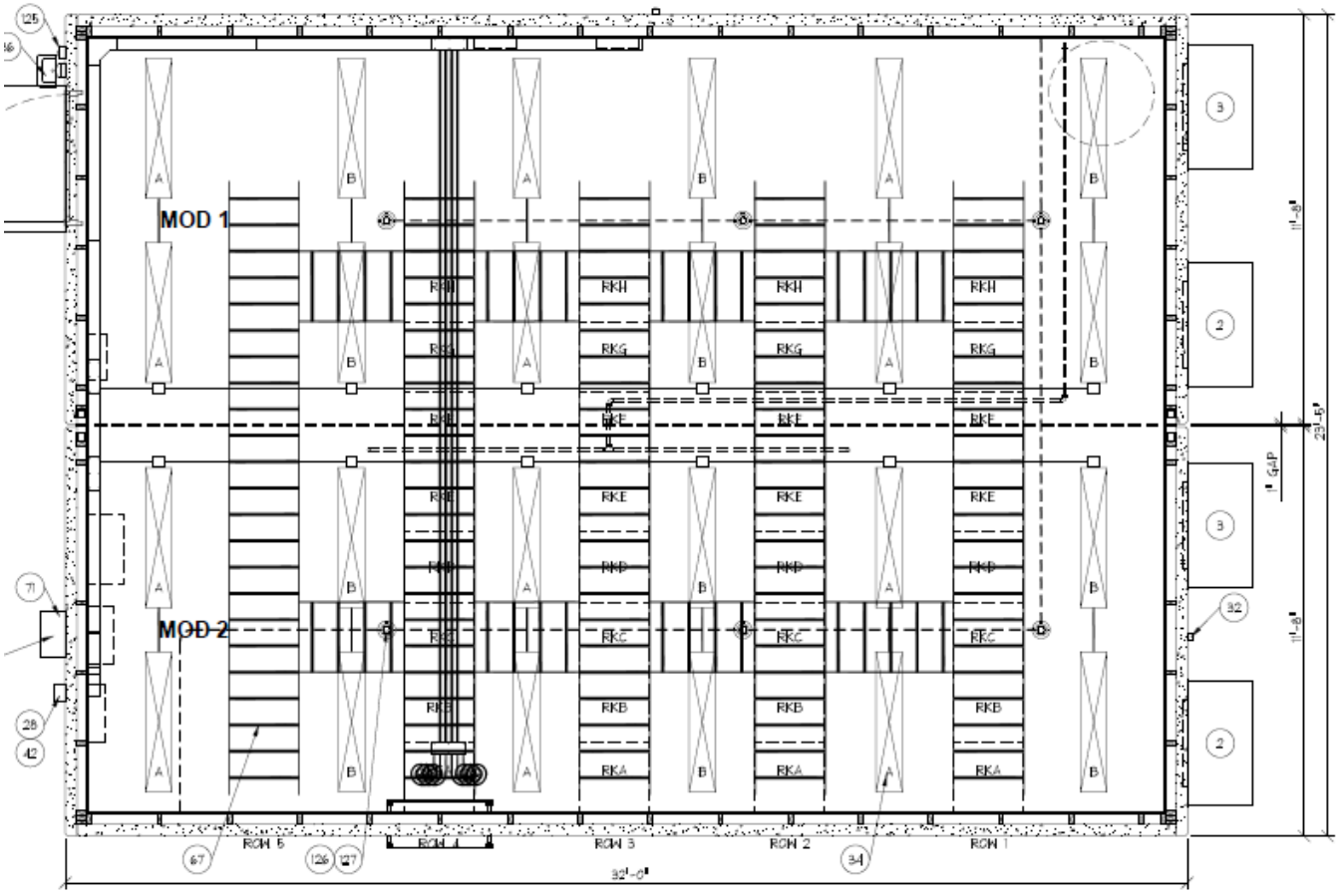
Fire Suppression System to be Relocated

Raised floor slab and evidence of standing water



Column interference in Equipment Room Location

Vents near wall penetration location



Inside of the boiler room, in the proposed location of the equipment room, there is a column impeding the floor plan for the equipment racks. Above diagram is a typical shelter layout diagram. This is a preliminary layout for the equipment to be used for this site. The column will interfere with the normal walkway of this layout design and force a constrained option for the rack layout. Currently there is one empty row, with the column some of the proposed racks will need to be relocated to the empty row and then remove future upgrade capacity. This is even more critical during transition periods as the new equipment is often temporarily located in these open areas and then when the cutover is complete, they are relocated to the permanent locations when the old equipment is removed. Without the ability to utilize these spaces, technology upgrades and equipment swaps could result in system downtime, which is unacceptable for emergency communications.

The electrical service requirements of 400 amps is the requirement for the equipment room's power source. KCI was not able to obtain a riser diagram or any existing power information, so can only speculate based on typical buildings. Grounding is another challenge as the County has required and Motorola has to provide adherence to their R56 standard for grounding. This can be difficult to achieve in new construction and even more challenging in existing construction. Further study is required of the building grounding system to ensure compliance.

KCI then examined the generator, which originally was going to have it placed on the roof. Both considerations were examined, although without a definite location on the ground, only general requirements can be provided. As the initial discussion during the site visit was to place the generator on

the roof, this is shown first. We located a suitable spot on the upper roof for the generator, in the vicinity of the County equipment room as well as the natural gas source into the boiler room. Additional study will be required to ensure that there is sufficient ability to extend the service to the roof and the generator. On the roof, it will require a heavy platform with vibration dampers to ensure no negative impacts to the concrete roof as well as noise issues when the generator is operating. The generator will go through testing on a routine basis as well as for power outages. The routine testing is of greater concern as this will be unexpected to the tenants. During a power outage or extreme weather event leading to the power outage, it will be expected.

The latest correspondence indicates that the generator will be located on a ground floor and the electrical feed will be routed up through the building to the equipment room. Alarm wiring will also need to have conduits routed to the boiler room if the generator is not located near the equipment room. On the ground floor sound suppression may also be required to ensure the noise doesn't impact the residential nature of the site. Sound suppression and quiet generators are considerably more expensive than the ones typically utilized on tower site. The same affects can be achieved by a sound wall or some other means of damping the noise for additional cost. The largest drawback is the space required for the generator along with the setback from the fuel source, which is up to 25-ft for an above ground propane tank based on the size. Physical security of the generator should also be considered in the location and space provided.

For either rooftop or ground location, Broward County desires a multi-fuel source generator for any site in which the fuel source is provided by a single service provider. This site has natural gas, which can have the distribution discontinued without the ability of the County to manage, i.e. leakage, damage, etc. Therefore, a second fuel source is desired and propane would be the best source in this case. Each of the tower sites also include multiple means of backup power. The shelter designated for the tower site includes a Camlock box, which allows a backup portable generator to be connected to it and provide power should the primary generator not start. This is not possible for the rooftop location, based on the equipment room and the inability to get a large generator to connect. It will also be very difficult on the ground level and will take additional space for the standalone equipment. Therefore, the desire is for propane, which will need to have a location on the property identified for a tank as well as a route for the conduit and source to the generator.

ADDITIONAL CONSIDERATIONS

A couple other aspects, partially identified in the overall feasibility study proposal will be further elaborated here. The first is the means to get the equipment and materials to the roof. Normally a crane would be utilized for this, but as seen in the aerial view there are not very many areas that are conducive to park the crane to be able to swing the materials to the roof. This would mean that a helicopter may be the required means, which is considerably more expensive. Any future maintenance/replacement of equipment will require a similar approach as the means to get materials and equipment to the roof is very limited on the tenant elevators. The elevators and number of floors to the roof, also add another complexity, which is the requirement for any servicing required of the equipment during power outages to have the technician and all materials go up 27 flights of stairs to the roof. This requirement for maintenance and a helicopter could happen at any time, such as 3AM on Christmas and due to the operational requirements, the work will need to be done immediately with potential disruption Finally, the tie down systems for the microwaves and antennas on the roof will require additional maintenance, such as re-tensioning of guy wires, bolts, etc. that is not necessary with the tower mounts.

FINAL RECOMMENDATIONS

January 21, 2019
Motorola Solutions & Broward County
CIRC Hotel Study

Overall for this complete site install, KCI would recommend the tower site in favor of the hotel. The cost is going to be considerably higher and require significantly more time, please refer to the overall feasibility study proposal for more information on this aspect, but will also lead to sacrificing requirements to make this site an option. These possible sacrifices include: significantly higher maintenance costs, involving helicopters or large cranes with significant traffic impact on adjacent roads; the possible lack of dual fuel source for the generator and other backup means; microwave movement (even after significant restraining efforts) during extreme weather potentially leading to outages; lack of flexibility relocating and adding equipment inside of room based on floor structural capacity; and possible reduced power (i.e. less than 400 amps) and R56 compliance for grounding.

This is a preliminary engineering study and further analysis will need to be required to ensure full compliance and adherence to building codes and contract documents. Some examples of further study include (refer to overall study for many other areas of consideration):

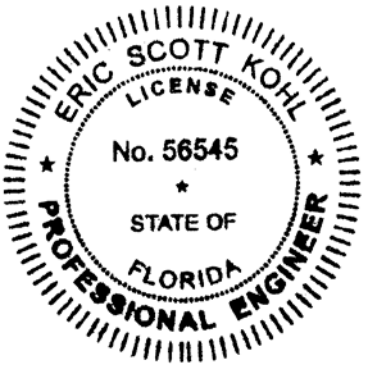
1. Detailed study of microwave deflections with final mounting system design.
2. Need to know the location of the generator for several reasons; fuel source, space requirements, setbacks, noise abatement, accessibility for service.
3. NIER study of the impacts of the antennas on the roof.
4. Detailed analysis of the floor slab for the generator as well as the equipment room and elevated floor slab.
5. Detailed evaluation of the building electrical and grounding system for compliance with the Motorola R56 standard.

If you have any questions or need additional information, please do not hesitate to call me at (919) 783-9214.

Sincerely,

Eric S. Kohl, P.E.
Senior Associate

Enclosed:
Partial Design Drawings
Professional Resume



APPENDIX K

30 DAY UPDATE LETTER

ISO 9001:2008 CERTIFIED
ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS
4505 Falls of Neuse Rd., Suite 400 • Raleigh, NC 27609 • Phone 919-783-9214 • Fax 919-783-9266

February 22, 2019

CIRC HOTEL FEASIBILITY STUDY

30 DAY UPDATE

EXECUTIVE SUMMARY

Motorola Solutions, Broward County, Mission Critical Partners and KCI have had several productive site visits to the CIRC Hotel. These fact finding and exploratory visits have answered many of the open questions, but have led to a couple of new concerns that will need to be resolved. Following these visits and additional information provided by the owner, my initial recommendation has not changed from my prior letter.

*My overall recommendation is that this site **NOT** be utilized for this project, particularly when compared to a new tower location specifically designed for the new system. The site can be made to work, but it will require extensive construction efforts and will have several potential long term challenges, in particular maintenance related. Ultimately, this remediation could result in compromised serviceability under the most extreme conditions, which is the precise circumstances this site has to be 100% operable. The support of the underlying first responders and supported civilians who will rely on this system cannot afford compromise, specifically those that result in a degraded service.*

The hotel still appears to be a viable option, but a few more items need to be closed and the estimated cost needs to be evaluated. Overall all interested parties, the CIRC owners, City of Hollywood, Broward County team have been extremely professional and very prompt to support all needs to keep the study moving forward expeditiously.

FINDINGS TO DATE

- The team visited the building on three different occasions
  - February 4 – Examined several different generator locations and the power routing from the generator through to the equipment room. There were a few unanswered questions that required the electrical contractors for both high and low voltage installations to show the proper routing through several of the floors.
  - February 14 – A second visit occurred with the electrical contractors which showed a more definitive routing solution. A new location was proposed by the CIRC ownership for the generator, which appears to be the best option, which is a couple of parking spaces on the 4th floor of the garage.

    - February 21 – A surveyor from KCI conducted a 2C survey of the rooftop to be utilized in the FAA filing.
- The February 14 visit indicated some new potential challenges with the conduit routing up the various floors for the power and telco to the roof.
    - Many of the electrical closets don't have existing cutouts for future conduits in a straight line or there are obstructions such as communication hubs or cabinets installed that would not allow a straight path.
    - Several of the floors have storage facilities with cages set up that will need to be relocated by the owner to allow for the passage.
    - The electrical contractor advised the team that there are a number of small conduits running through the slab, which will need to be located to allow any core drilling or floor penetrations for new conduits.
    - There are three 2-inch conduits running from the 27th floor to the electrical room on the main roof that Broward County will need to have provided to them for the equipment room.
    - The floors will need to be X-Rayed from the 5th Floor to the 27th floor to identify a clear routing for the conduits through the electrical and storage rooms to clear the small resident conduits and concrete slab reinforcement. This was not included in the original scope of the study prepared by Motorola Solutions.
- The initial search of the historical database revealed the historic district and several buildings within 250-ft of the hotel, which then triggers the requirement for a NEPA/SHPO investigation. This will most likely be approved, but the process needs to be conducted.
- The omni antennas will be elevated 10-ft above the parapet, so combined with the 20-ft height of the antennas, we will be significantly higher than the current top of the roof and given the proximity to the airport determined that a new FAA filing will be necessary. The FAA website showed that our location needed additional accuracy for review/approval, so a 2C survey was completed.
- Based on the location of the generator in the garage, FPL has a vault that is located in and services the garage. Motorola Solutions has begun contacting FPL to determine the ability to utilize this vault for our primary service to the equipment room.
- We still need to determine the availability of fiber and the ability to extend to the top of the building. AT&T is the preferred vendor so we are working to determine if AT&T has service in that area.
- Microwave vendor, Aviat has completed path study and resulted in very minor differences in the heights of the antennas. Structural design of mounting systems is moving forward to final plans.

FUTURE ACTIONS

- KCI has addressed some loading concerns with the roof floor slab and reached out to an expert in post-tensioned concrete to complete a comprehensive analysis of the floor slab.
- Validate the location and complete preliminary design of the “fuel pumping station” for the generator.
- X-Ray or GPR of floor slab to determine conduit routing path
- Incorporate findings of routing into more detailed electrical drawings to be utilized by contractor for cost estimate purposes.
- Complete grounding design of equipment room and antennas for contractor cost estimate purposes.
- Complete civil/structural design drawings sufficient for contractor to provide cost estimates.
- Provide a photo simulation of building with antennas to show impact of proposed installation.
- Provide drawing package sufficient to demonstrate intent to owner for lease execution.
-

If you have any questions or need additional information, please do not hesitate to call me at (919) 278-2478.

Sincerely,

Eric Kohl, P.E.
Practice Leader

APPENDIX L

AVIAT MICROWAVE PATH WARRANTY INFORMATION

TERMS AND CONDITIONS

PATH ENGINEERING/ TRANSMISSION ENGINEERING

Path Engineering Services

Aviat Networks will perform radio path surveys and path calculations to determine the normal path loss and antenna heights as defined in TIA/EIA Standard RS-252-A

When Aviat Networks performs reliability calculations or path studies (path profiles from mapping or digitized data only) based solely on information supplied by or on behalf of the Customer, these calculations and studies are provided solely for budgetary purposes and shall not be construed as or be used for an installable design.

When conducting a path survey, Aviat Networks will verify site coordinates and ground elevations, and record trees and man-made fixed obstructions on the path. This information will be recorded on the profile for that particular path. Aviat Networks will assign an appropriate growth factor to tree heights.

When Aviat Networks performs frequency planning based, in part, on data provided by the Customer at the time of the study, Aviat Networks will not be responsible for any interference case that arises due to errors or omissions in such data. As the usage of microwave bands increase and there is more sharing with satellite services, it may be necessary to perform frequency interference studies and additional path surveys (to determine blockage) to alleviate the possibility of interference from satellite earth stations.

Warranty of Path Engineering Services

Aviat Networks warrants that the installed radio communication path will conform to Customer's multipath performance reliability objectives when Aviat Networks has performed the path survey, recommended the path design, and Aviat Networks has implemented such recommendations. **This warranty is for a period of 15 months from the date of the survey or one year from the date of installation of the microwave path, whichever expires first.** All Aviat Networks field activities and path propagation analysis will utilize current hardware, software, and engineering practice and judgment with the goal of meeting normal Path Loss, as defined in TIA/EIA Standard RS-252-A.

Aviat Networks 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:

- Any change in path design;
- Any building or other structure built on-path after date of survey;
- Any disturbance of the terrain which may cause blockage or reflection;
- Any additional frequency interference source;
- Any change of available antenna mounting space on tower.
- Any movement in site locations;

Any one or more of the changes listed on page one will nullify this warranty, and the Customer shall in such case bear the total cost of determining that such change was the cause.

Aviat Networks 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 wavefront defocusing (beam spreading), signal entrapment (blackout fading), ducting, and other such occurrence.
- 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, Aviat Networks will not be responsible for degraded path performance when:

- Non-Aviat Networks radio equipment is installed on a surveyed path;
- Aviat Networks radio equipment is not installed by Aviat Networks;
- Existing antenna and waveguide system is used without test and inspection performed by Aviat Networks.

Aviat Networks 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 Aviat Networks’ exclusive liability in connection with path engineering, shall be that Aviat Networks 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, Aviat Networks 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 Aviat Networks 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.

Limitations

The foregoing warranties are in lieu of all other warranties whether oral, written, expressed, implied, or statutory. In particular, THE IMPLIED WARRANTIES OF A FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY ARE HEREBY DISCLAIMED and shall not be applicable, either from Aviat Networks or any other equipment or software manufacturer. Aviat Networks’ warranty obligations and Customer’s remedies thereunder are solely and exclusively as stated herein. IN NO CASE SHALL AVIAT NETWORKS BE LIABLE FOR INDIRECT KINDS OF DAMAGES, INCLUDING BUT NOT LIMITED TO SPECIAL, INCIDENTAL, AND CONSEQUENTIAL DAMAGES, OR LOSS OF CAPITAL, REVENUE, OR PROFITS. In no event shall Aviat Networks’ liability to customer, or any party claiming through Customer, be in excess of the actual sales price paid by Customer for any service supplied to Customer by Aviat Networks.