

GENERAL STRUCTURAL NOTES

COMM-LP POLE

CODE COMPLIANCE

2018 EDITION OF THE INTERNATIONAL BUILDING CODE
 2015 AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (WITH 2017-2019 AMENDMENTS).

WIND
 WIND SPEED (ULTIMATE 3-SEC GUST), $V_{ult} = 120$ MPH
 WIND EXPOSURE CATEGORY = C
 RISK CATEGORY = II
 FATIGUE CATEGORY = II

SEISMIC
 $S_{DS} = 0.225g$ (MAX)
 $S_{D1} = 0.125g$ (MAX)
 SITE SOIL CLASS = D
 SEISMIC DESIGN CATEGORY = B
 SEISMIC FORCE RESISTING SYSTEM = STEEL POLE (R = 1.5)

THESE DRAWINGS ARE ISSUED FOR MULTI-USE WITHIN PHOENIX, ARIZONA. THE LOAD CRITERIA LISTED ABOVE IS EXPECTED TO BE SUFFICIENT FOR TYPICAL CONDITIONS ON FLAT TERRAIN BUT DOES NOT TAKE INTO ACCOUNT LOCATIONS ON HILLS, CLIFFS, SUDDEN CHANGES IN TOPOGRAPHY AND/OR OTHER SPECIAL CONDITIONS. CONTACT EOR WITH QUESTIONS OR SPECIAL CONDITIONS.

FOUNDATIONS

DRILLED PIER FOUNDATIONS ARE BASED ON THE PRESUMPTIVE SOIL BEARING VALUES PROVIDED IN TABLE 1806.2, SOIL CLASS 5 AND HAVE BEEN INCREASED BY A FACTOR OF TWO PER 1806.3.4. ALLOWABLE LATERAL BEARING PRESSURE = $100 \text{ PSF/FT} \times 2 = 200 \text{ PSF/FT}$.

CONCRETE

ALL CONCRETE WORK SHALL COMPLY WITH THE LATEST EDITION OF THE ACI. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. PLACEMENT OF PLUMBING, CONDUITS, OR OTHER MATERIALS WITHIN CONCRETE FOUNDATIONS OR STRUCTURAL ELEMENTS IS PROHIBITED EXCEPT WHERE SHOWN.

SPECIFIED MINIMUM 28 DAY STRENGTH AS FOLLOWS:

DRILLED PIER CONCRETE: $f_c = 3,000$ PSI MIN (CLASS "A" MAG 725)

REINFORCING STEEL (REBAR)

ALL REINFORCING SHALL COMPLY WITH ACI AND CRSI SPECIFICATIONS. FOR #5 BARS AND LARGER USE ASTM A615 GRADE 60 DEFORMED BARS ($F_y = 60$ KSI). FOR #4 BARS AND SMALLER USE ASTM A615 GRADE 40 DEFORMED BARS ($F_y = 40$ KSI). AT CONTRACTOR'S DISCRETION, GRADE 60 BARS MAY BE USED FOR #4 BARS AND SMALLER. ASTM A615 BARS ARE NOT TO BE WELDED. NO WELDING OF REINFORCING BARS IS PERMITTED FOR THIS PROJECT.

CLEAR DISTANCE FROM THE EDGE OF REINFORCING BAR TO THE EDGE OF CONCRETE SHALL BE PER ACI 318 AND IS AS FOLLOWS:

CONCRETE AGAINST SOIL = 3" CLR
 CONCRETE AGAINST WEATHER = 2" CLR

ALL REINFORCING IS TO BE CHAIRED IN ORDER TO MEET THE CLEAR DISTANCES AND SPACING SPECIFIED IN THE PLANS OR DETAILS. REINFORCING SHALL BE STORED AND PLACED IN CLEAN AND DRY CONDITIONS. REINFORCING STEEL SHALL BE PLACED AS SHOWN AND BE WITHIN 3/8" OF THE DIMENSIONS SPECIFIED. THIS INCLUDES MINIMUMS AND CLEAR DISTANCES.

ANCHOR RODS (ANCHOR BOLTS)

ANCHOR RODS SHALL BE TENSIONED BASED ON THE TORQUE SPECIFICATIONS BELOW. GROUT SHALL BE APPLIED ONLY AFTER TIGHTENING HAS BEEN COMPLETED. ANCHOR RODS SHALL BE THREADED AND NUTTED AT BOTTOM OF ROD. CONTRACTOR SHALL ENSURE NUTS DO NOT SPIN OFF DURING VIBRATION OF CONCRETE BY PROVIDING A LOCKING MECHANISM FOR THE NUT. BOTTOM NUT MAY BE TACK WELDED TO ANCHOR ROD TO PREVENT SPIN OFF.

ANCHOR BOLT GRADE: F1554 Gr 55

TIGHTENING

ANCHOR RODS SHALL BE LUBRICATED BEFORE TIGHTENING. TIGHTENING SHALL BE PERFORMED IN A STAR PATTERN. TOP NUTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION THEN LEVELING NUTS SHALL BE MADE SNUG TIGHT. CONFIRM TORQUE AT TOP NUT IS WITHIN THE INITIAL TORQUE SHOWN IN TABLE BELOW. MARK BOLTS AFTER INITIAL TORQUE IS ACHIEVED.

TOP NUTS SHALL THEN BE TENSIONED USING THE TURN OF THE NUT METHOD BY ROTATING THE NUT A TOTAL OF 1/3 TURN PAST INITIAL TORQUE. IT IS RECOMMENDED THAT THE TOTAL 1/3 TURN BE COMPLETED USING A MINIMUM OF (2) INCREMENTAL STEPS WITH STAR PATTERN TIGHTENING. USING A CALIBRATED TORQUE WRENCH, VERIFY THAT THE VERIFICATION TORQUE HAS BEEN REACHED.

AFTER AT LEAST 48 HOURS, THE CONTRACTOR SHALL RE-VISIT THE SITE AND CONFIRM THAT A TORQUE OF AT LEAST 110% OF THE VERIFICATION TORQUE CAN BE REACHED TO ENSURE BOLTS WILL REMAIN TENSIONED AND HAVE NOT RELAXED. GAP BETWEEN BASE PLATE AND FOUNDATION MAY THEN BE GROUTED WITH WEEP HOLE PER CITY REQUIREMENTS. DO NOT OVER TIGHTEN. CONTACT EOR WITH ANY EXCESSIVE TIGHTENING, STRIPPED THREADS, OR OTHER CONCERNS. ENSURE TIGHTENING IS BETWEEN THE TOP NUT AND LEVELING NUT.

TORQUE VALUES (FT-LBS)			
FOR: 1-1/8" DIA. F1554 Gr 55	INITIAL TORQUE	VERIFICATION TORQUE ($T_v = 0.12d_p T_m$)	110% x T_v (48 HOURS LATER)
	80 - 115	385	425

STRUCTURAL STEEL

ALL STRUCTURAL STEEL MATERIAL MUST COMPLY WITH ASTM & AISC SPECIFICATIONS AND BE MILL CERTIFIED. ALL STRUCTURAL MEMBERS ARE TO BE HOT DIPPED GALVANIZED ACCORDING TO THE APPROPRIATE ASTM STANDARD. THE FOLLOWING STEEL GRADES SHALL APPLY UNLESS NOTED OTHERWISE.

POLE STEEL: ASTM A500 GrC ($F_y = 46$ KSI)
 LUMINAIRE: ASTM A53 GrB ($F_y = 35$ KSI)
 BASE PLATE: ASTM A36 ($F_y = 36$ KSI)
 MISC STEEL: ASTM A36 ($F_y = 36$ KSI)

WELDING:

ALL WELDING SHALL COMPLY WITH THE LATEST EDITION OF THE AWS STANDARD. ALL WELDING SHALL UTILIZE TYPE E70 LOW HYDROGEN RODS. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS. THESE PLANS DO NOT INDICATE WHETHER WELDING MUST BE DONE IN SHOP OR FIELD. CONTRACTOR CAN PROVIDE SHOP OR FIELD WELDING AS BEST SUITS THE PROJECT'S MEANS AND METHODS.

BOLTS:

ALL THRU-BOLT TYPE CONDITIONS SHALL UTILIZE A WASHER AT EACH SIDE OF THE CONNECTION AND TIGHTENED TO A SNUG TIGHT CONDITION UNLESS NOTED OTHERWISE. SEE DETAILS FOR BOLT SIZE AND GRADE. NUTS SHALL CONFORM TO ASTM A563 DH3 HEAVY HEX. WASHERS SHALL CONFORM TO F436 TYPE I.

GENERAL NOTES

ALL WORK PRESENTED WITHIN THESE DRAWINGS AND DETAILS SHALL ONLY BE PERFORMED BY A CONTRACTOR THAT IS EXPERIENCED AND KNOWLEDGEABLE IN THE TYPE OF WORK BEING PERFORMED AND HAS A HISTORY OF COMPLETING SIMILAR PROJECTS. ONLY A CONTRACTOR THAT IS LICENSED AND REGISTERED IN THE STATE WHERE THE WORK IS TO BE PERFORMED SHALL BE PERMITTED TO PERFORM THE WORK.

CONTRACTOR MUST CONFORM TO THE CITY STANDARDS, SPECIFICATIONS, & AMENDMENTS TO THE MAG/ADOT STANDARDS. SEE CITY SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION & NOTIFY THE BUILDING OFFICIAL AND EOR OF ANY DISCREPANCIES.

THE STRUCTURAL PLANS AND DETAILS DEPICT THE REQUIREMENTS FOR THE FINISHED STRUCTURAL ELEMENTS. THESE PLANS DO NOT PROVIDE DIRECTION FOR ELECTRICAL, MECHANICAL, OR OTHER SCOPES. THE PLANS AND DETAILS DO NOT PROVIDE THE CONTRACTOR WITH 'MEANS AND METHODS' OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL REQUIRED MEASUREMENTS AND INFORMATION IN ORDER TO MEET THE STRUCTURAL REQUIREMENTS OF THESE PLANS. ANY ADDITIONAL INFORMATION NEEDED FROM THE ENGINEER OF RECORD (EOR) CAN BE OBTAINED WITH A FORMAL REQUEST FOR INFORMATION (RFI).

THE PLANS AND DETAILS DO NOT PROVIDE ENGINEERING FOR ANY SHORING, TEMPORARY BRACING, SCAFFOLDING, OR OTHERWISE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A SAFE WORK ENVIRONMENT AND TO OBTAIN ANY ADDITIONAL ENGINEERING SERVICES THAT ARE NEEDED IN ORDER TO SUPPORT TEMPORARY LOADS OR LOADS DUE TO CONSTRUCTION ACTIVITIES. THE ENGINEER OF RECORD SHALL NOT BE RESPONSIBLE FOR THE SEQUENCING, PROCEDURES, OR TECHNIQUES USED BY THE CONTRACTOR.

SPECIAL STRUCTURAL INSPECTIONS

DRILLED PIER CONSTRUCTION

- CONTINUOUS INSPECTION OF DRILLING OPERATIONS.
- VERIFICATION OF SOIL STRATA CONFORMANCE TO PRESUMPTIVE SOIL CLASS.
- VERIFICATION OF DRILLED SHAFT SIZE AND CONFORMANCE TO FOUNDATION DETAIL.

CONCRETE CONSTRUCTION

- VERIFY MIX DESIGN CONFORMS TO DRAWINGS AND CITY SPECS.
- OBSERVE PLACEMENT OF CONCRETE AND CONFORMANCE TO IBC TABLE 1705.3.
- TAKING OF TEST CYLINDERS TO BE USED FOR VERIFICATION OF CONCRETE STRENGTH.

STEEL REINFORCING

- IN-PLACE REINFORCING IN FOUNDATIONS PRIOR TO CONCRETE PLACEMENT.
- VERIFICATION OF CONFORMANCE TO SPECIFICATIONS AND DETAILS.

ANCHOR BOLTS

- VERIFICATION OF PROPER MATERIAL SPECIFICATIONS AND CONFORMANCE TO DETAILS.
- VERIFICATION OF PROPER LUBRICATING AND TIGHTENING OF BOLTS.

WELDING

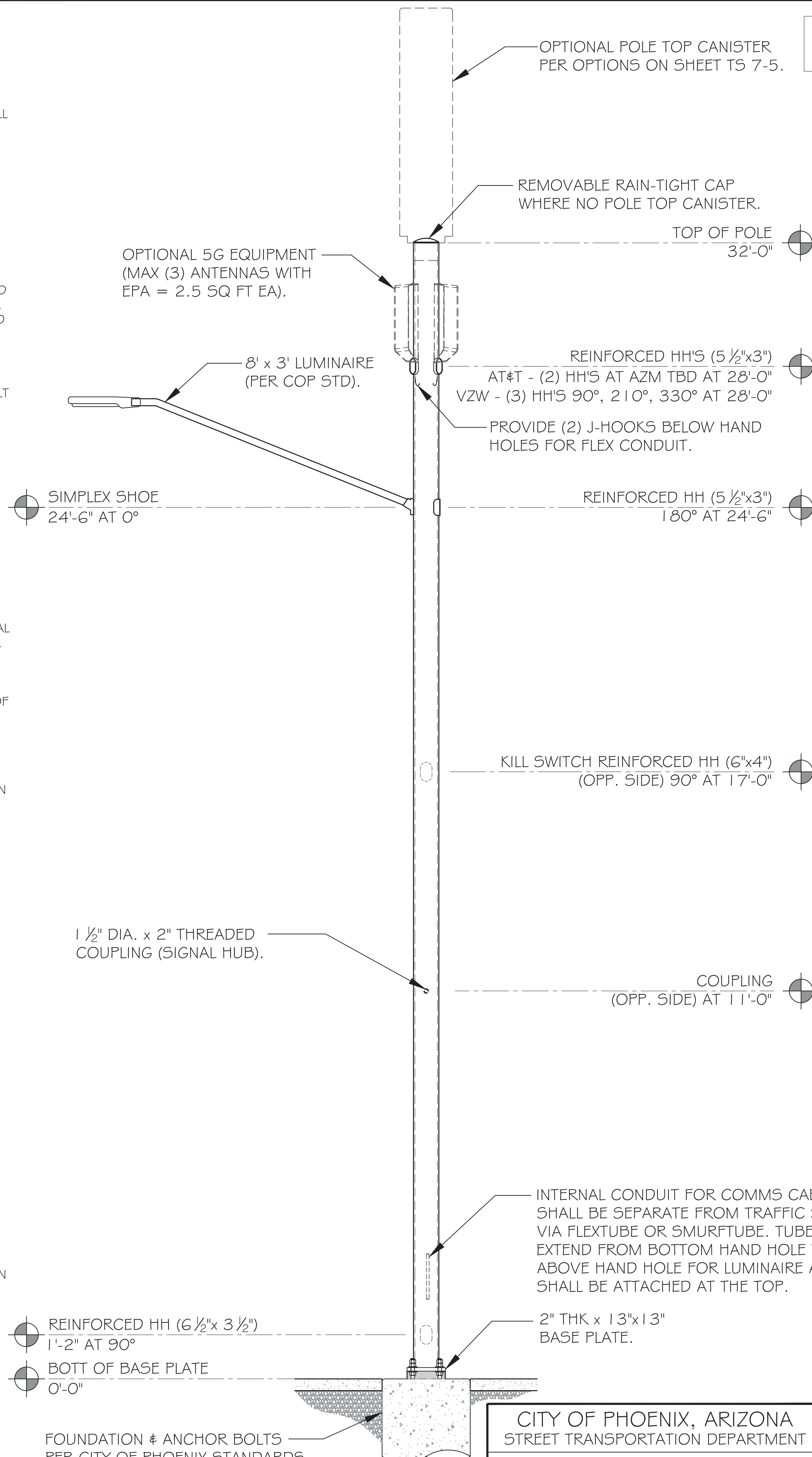
- PERIODIC INSPECTION OF ALL FIELD WELDS.
- CONTINUOUS INSPECTION AS REQUIRED BELOW:
 - PJP, CJP, OR MULTI-PASS FILLET WELDS.
- EXCEPTION - CEM-TEC CORPORATION (FABRICATOR) IS ON THE CITY OF PHOENIX APPROVED FABRICATOR LIST. SPECIAL INSPECTIONS FOR SHOP WELDS ARE NOT REQUIRED UNLESS OTHERWISE STATED BY THE CITY.

RESPONSIBILITIES OF THE CONTRACTOR

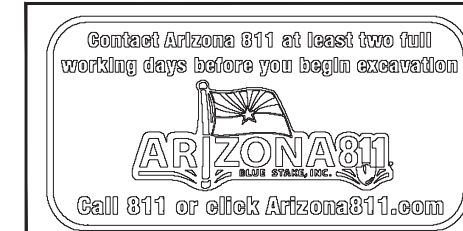
- ANY DEVIATIONS MUST BE APPROVED IN WRITING FROM THE EOR AND MUST BE ORIGINATED IN WRITING BY THE CONTRACTOR WITH A REQUEST FOR INFORMATION.
- WHERE THE WORK IS REQUIRED TO BE COMPLETED IN THE PRESENCE OF THE SPECIAL INSPECTOR, THE CONTRACTOR SHALL BE SURE TO PERFORM THE WORK UNDER THE OBSERVANCE OF THE SPECIAL INSPECTOR.
- AREAS TO BE INSPECTED BY THE SPECIAL INSPECTOR ARE TO BE MADE SAFELY ACCESSIBLE FOR INSPECTION.
- FOR ANY QUESTIONS REGARDING SPECIAL INSPECTIONS, CONTACT THE EOR.

RESPONSIBILITIES OF THE SPECIAL INSPECTOR

- THE SPECIAL INSPECTOR SHALL VISIT THE SITE AND ENSURE THE WORK PERFORMED CONFORMS TO THE DETAILS AND SPECIFICATIONS SHOWN ON THE PLANS.
- THE SPECIAL INSPECTOR IS NOT AUTHORIZED TO APPROVE OR SUGGEST ANY DEVIATIONS FROM WHAT IS SHOWN ON THE PLANS.
- THE SPECIAL INSPECTOR MUST BE KNOWLEDGEABLE IN THE WORK BEING PERFORMED, KNOW THE MANUFACTURER REQUIREMENTS AND UNDERSTAND ITEMS REQUIRING INSPECTION AND OBSERVATION.
- THE SPECIAL INSPECTOR MUST PROVIDE WRITTEN INSPECTION REPORTS TO BOTH THE ENGINEER OF RECORD AND THE BUILDING OFFICIAL.
- ANY DISCREPANCIES REQUIRING CORRECTION MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF LEFT UNCORRECTED, THE DISCREPANCIES MUST BE MADE KNOWN TO THE EOR AND BUILDING OFFICIAL.



NOTE:
 SEE 2020 CITY OF PHOENIX TRAFFIC STANDARD DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.



PER PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE FURNISHED FOR INSPECTION OR COPYING, EXCEPT AS SPECIFICALLY STATED IN THE CITY CODE, OR AS REQUIRED BY LAW

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT
 TRAFFIC SIGNAL STANDARD DETAILS

TRAFFIC SIGNAL DETAILS
 CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

COMM-LP
 SMALL CELL TYPE LP POLE
 GSN & POLE ELEVATION

CEIS
 CaliberEngineering Solutions
 INTEGRITY. QUALITY. EXPERTISE.
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Professional Engineer
 CERTIFICATE NO. 64308
 MATTHEW E. NIEVES
 03/10/2018
 03/29/2022

TPP File Number: T0164
 TS 7-1
 TRAFFIC SERVICES ENGINEER
 03/29/2022

PROJECT #:	DES:	CK:	SHEET NO:	TOTAL SHEETS:
DR:	DATE:	DATE:		
SCALE:	OS #:			

GENERAL STRUCTURAL NOTES

'COMM-P45' & 'COMM-P70' POLES

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SPECIFIED MINIMUM 28 DAY STRENGTH AS FOLLOWS:

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REINFORCING STEEL (REBAR)

ALL REINFORCING SHALL COMPLY WITH ACI AND CRSI SPECIFICATIONS. FOR #5 BARS AND LARGER USE ASTM A615 GRADE 60 DEFORMED BARS ($F_y = 60$ KSI). FOR #4 BARS AND SMALLER USE ASTM A615 GRADE 40 DEFORMED BARS ($F_y = 40$ KSI). AT CONTRACTOR'S DISCRETION, GRADE 60 BARS MAY BE USED FOR #4 BARS AND SMALLER. ASTM A615 BARS ARE NOT TO BE WELDED. NO WELDING OF REINFORCING BARS IS PERMITTED FOR THIS PROJECT.

CLEAR DISTANCE FROM THE EDGE OF REINFORCING BAR TO THE EDGE OF CONCRETE SHALL BE PER ACI 318 AND IS AS FOLLOWS:

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ALL REINFORCING IS TO BE CHAIRED IN ORDER TO MEET THE CLEAR DISTANCES AND SPACING SPECIFIED IN THE PLANS OR DETAILS. REINFORCING SHALL BE STORED AND PLACED IN CLEAN AND DRY CONDITIONS. REINFORCING STEEL SHALL BE PLACED AS SHOWN IN THE PLANS AND MUST NOT BE MORE OR LESS THAN 3/8" OF THE DIMENSIONS SPECIFIED. THIS INCLUDES MINIMUMS AND CLEAR DISTANCES.

STRUCTURAL STEEL

ALL STRUCTURAL STEEL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL. ALL STRUCTURAL MEMBERS ARE TO BE HOT DIPPED GALVANIZED ACCORDING TO THE APPROPRIATE ASTM STANDARD UNLESS NOTED OTHERWISE. THE FOLLOWING STEEL GRADES SHALL APPLY.

POLE SHAFT:	ASTM A500 GrC	($F_y = 46$ KSI)
SIGNAL MAST ARM:	ASTM A500 GrC	($F_y = 46$ KSI)
LUMINAIRE ARM:	ASTM A53 GrB	($F_y = 35$ KSI)
MAST BASE PLATE:		
AT M55P70 MAST	ASTM A572-50	($F_y = 50$ KSI)
AT SMALLER MASTS	ASTM A36	($F_y = 36$ KSI)
POLE BASE PLATE:	ASTM A36	($F_y = 36$ KSI)
MISC STEEL:	ASTM A36	($F_y = 36$ KSI)
ANCHOR BOLTS:	SEE ANCHOR BOLT SECTION OF GSN.	

WELDING:
 ALL WELDING SHALL COMPLY WITH THE LATEST EDITION OF THE AWS STANDARD. ALL WELDING SHALL UTILIZE TYPE E70 RODS. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS. THESE PLANS DO NOT INDICATE WHETHER WELDING MUST BE DONE IN SHOP OR FIELD. CONTRACTOR CAN PROVIDE SHOP OR FIELD WELDING AT CONTRACTOR'S DISCRETION AS BEST SUITS THE PROJECT'S MEANS AND METHODS.

BOLTS:
 ALL THRU-BOLT TYPE CONDITIONS SHALL UTILIZE A WASHER AT EACH SIDE OF THE CONNECTION AND TIGHTENED TO A SNUG TIGHT CONDITION UNLESS NOTED OTHERWISE. SEE DETAILS FOR BOLT SIZE AND GRADE. NUTS SHALL CONFORM TO ASTM A563 DH3 HEAVY HEX. WASHERS SHALL CONFORM TO F436 TYPE I.

PRETENSIONED BOLTS:
 WHERE SPECIFIED ON PLANS, BOLTS SHALL BE PRETENSIONED. PRETENSIONING SHALL BE ACHIEVED VIA THE TURN OF THE NUT METHOD AND TORQUE MEASUREMENTS. FOLLOW THE DIRECTION PROVIDED IN THE "TIGHTENING" NOTES AND TORQUE VALUES PROVIDED WITHIN THE ANCHOR BOLT SECTION BELOW.

ANCHOR RODS (ANCHOR BOLTS)

ANCHORAGE TO THE CONCRETE FOUNDATION IS ACHIEVED VIA A DOUBLE-NUT MOMENT JOINT. ANCHOR RODS SHALL BE TENSIONED BASED ON THE TORQUE SPECIFICATIONS BELOW. GROUT GAP BETWEEN FOUNDATION AND BASE PLATE IN ACCORDANCE WITH CITY REQUIREMENTS ONLY AFTER THE TIGHTENING PROCEDURE BELOW HAS BEEN COMPLETED AND AFTER 48 HOUR RELAXATION PERIOD. DO NOT GROUT BEFORE TIGHTENING IS COMPLETED. ANCHOR RODS SHALL BE THREADED AND NUTTED AT BOTTOM OF ROD. CONTRACTOR SHALL ENSURE NUTS DO NOT SPIN OFF DURING VIBRATION OF CONCRETE BY PROVIDING AN APPROVED LOCKING MECHANISM FOR THE NUT. BOTTOM NUT MAY BE TACK WELDED TO ANCHOR ROD TO PREVENT SPIN OFF. NUTS AND ANCHOR RODS SHALL BE GALVANIZED IN SAME PROCESS TO ENSURE WORKABLE THREADS.

ANCHOR BOLT GRADE: F1554 Gr 105

TIGHTENING
 ANCHOR RODS SHALL BE LUBRICATED BEFORE TIGHTENING. TIGHTENING SHALL BE PERFORMED IN A STAR PATTERN. TOP NUTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION THEN LEVELING NUTS SHALL BE MADE SNUG TIGHT. CONFIRM TORQUE AT TOP NUT IS WITHIN THE INITIAL TORQUE SHOWN IN TABLE BELOW. MARK BOLTS AFTER INITIAL TORQUE IS ACHIEVED.

TOP NUTS SHALL THEN BE TENSIONED USING THE TURN OF THE NUT METHOD BY ROTATING THE NUT PAST INITIAL TORQUE A TOTAL OF

FOR 2" DIA. BOLTS:	1/6 TURN
FOR 1-1/2" DIA. BOLTS:	1/3 TURN
FOR 1-1/4" DIA. BOLTS:	1/3 TURN

IT IS RECOMMENDED THAT THE TOTAL TURN BE COMPLETED USING A MINIMUM OF (2) INCREMENTAL STEPS WITH STAR PATTERN TIGHTENING. USING A CALIBRATED TORQUE WRENCH, VERIFY THAT THE VERIFICATION TORQUE HAS BEEN REACHED.

AFTER AT LEAST 48 HOURS, THE CONTRACTOR SHALL RE-VISIT THE SITE AND CONFIRM THAT A TORQUE OF AT LEAST 110% OF THE VERIFICATION TORQUE CAN BE REACHED TO ENSURE BOLTS WILL REMAIN TENSIONED AND HAVE NOT RELAXED. GAP BETWEEN BASE PLATE AND FOUNDATION MAY THEN BE GROUTED WITH WEEP HOLE PER CITY REQUIREMENTS.

DO NOT OVER TIGHTEN. CONTACT EOR WITH ANY EXCESSIVE TIGHTENING, STRIPPED THREADS, OR OTHER CONCERNS. ENSURE TIGHTENING IS BETWEEN THE TOP NUT AND LEVELING NUT.

P45 POLE - TORQUE VALUES (FT-LBS)				
BOLT USE	BOLT SIZE & GRADE	INITIAL TORQUE (0.2T _v TO 0.3 T _v)	VERIFICATION TORQUE (T _v = 0.12d _s T _n)	110% x T _v (48 HOURS LATER)
POLE BASE ANCHOR BOLTS	1-1/2" DIA. F1554 Gr 105	315 - 475	1575	1730
SIGNAL MAST BOLTS	1-1/2" DIA. A325	275 - 400	1350	1485
RISER BASE BOLTS	1-1/4" DIA. A325	155 - 235	775	855

P70 POLE - TORQUE VALUES (FT-LBS)				
BOLT USE	BOLT SIZE & GRADE	INITIAL TORQUE (0.2T _v TO 0.3 T _v)	VERIFICATION TORQUE (T _v = 0.12d _s T _n)	110% x T _v (48 HOURS LATER)
POLE BASE ANCHOR BOLTS	2" DIA. F1554 Gr 105	750 - 1125	3750	4125
SIGNAL MAST BOLTS	2" DIA. A449	545 - 815	2715	2990
RISER BASE BOLTS	1-1/4" DIA. A325	155 - 235	775	855

GENERAL NOTES

ALL WORK PRESENTED WITHIN THESE DRAWINGS AND DETAILS SHALL ONLY BE PERFORMED BY A CONTRACTOR THAT IS EXPERIENCED AND KNOWLEDGEABLE IN THE TYPE OF WORK BEING PERFORMED AND HAS A HISTORY OF COMPLETING SIMILAR PROJECTS. ONLY A CONTRACTOR THAT IS LICENSED AND REGISTERED IN THE STATE WHERE THE WORK IS TO BE PERFORMED SHALL BE PERMITTED TO PERFORM THE WORK.

CONTRACTOR MUST CONFORM TO THE CITY STANDARDS, SPECIFICATIONS, & AMENDMENTS TO THE MAG/ADOT STANDARDS. SEE CITY SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION & NOTIFY THE BUILDING OFFICIAL AND EOR OF ANY DISCREPANCIES. ADDITIONALLY, CONTRACTOR MUST BE FAMILIAR WITH THE ADOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

THE STRUCTURAL PLANS AND DETAILS DEPICT THE REQUIREMENTS FOR THE FINISHED STRUCTURAL ELEMENTS. THESE PLANS DO NOT PROVIDE DIRECTION FOR ELECTRICAL, MECHANICAL, OR OTHER SCOPES. THE PLANS AND DETAILS DO NOT PROVIDE THE CONTRACTOR WITH "MEANS AND METHODS" OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL REQUIRED MEASUREMENTS AND INFORMATION IN ORDER TO MEET THE STRUCTURAL REQUIREMENTS OF THESE PLANS. ANY ADDITIONAL INFORMATION NEEDED FROM THE ENGINEER OF RECORD (EOR) CAN BE OBTAINED WITH A FORMAL REQUEST FOR INFORMATION (RFI).

THE PLANS AND DETAILS DO NOT PROVIDE ENGINEERING FOR ANY SHORING, TEMPORARY BRACING, SCAFFOLDING, OR OTHERWISE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A SAFE WORK ENVIRONMENT AND TO OBTAIN ANY ADDITIONAL ENGINEERING SERVICES THAT ARE NEEDED IN ORDER TO SUPPORT TEMPORARY LOADS OR LOADS DUE TO CONSTRUCTION ACTIVITIES. THE ENGINEER OF RECORD SHALL NOT BE RESPONSIBLE FOR THE SEQUENCING, PROCEDURES, OR TECHNIQUES USED BY THE CONTRACTOR.

SPECIAL STRUCTURAL INSPECTIONS

SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.

DRILLED PIER CONSTRUCTION

- CONTINUOUS INSPECTION OF DRILLING OPERATIONS.
- VERIFICATION OF SOIL STRATA CONFORMANCE TO PRESUMPTIVE SOIL CLASS.
- VERIFICATION OF DRILLED SHAFT SIZE AND CONFORMANCE TO FOUNDATION DETAIL.

CONCRETE CONSTRUCTION

- VERIFY MIX DESIGN CONFORMS TO DRAWINGS AND CITY SPECS.
- OBSERVE PLACEMENT OF CONCRETE AND CONFORMANCE TO IBC TABLE 1705.3.
- TAKING OF TEST CYLINDERS TO BE USED FOR VERIFICATION OF CONCRETE STRENGTH.

STEEL REINFORCING

- IN-PLACE REINFORCING IN FOUNDATIONS PRIOR TO CONCRETE PLACEMENT.
- VERIFICATION OF CONFORMANCE TO SPECIFICATIONS AND DETAILS.

ANCHOR BOLTS

- VERIFICATION OF PROPER MATERIAL SPECIFICATIONS AND CONFORMANCE TO DETAILS.
- VERIFICATION OF PROPER LUBRICATING AND TIGHTENING OF BOLTS.

WELDING

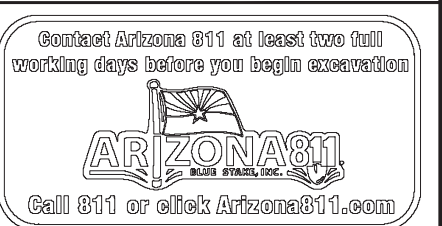
- PERIODIC INSPECTION OF ALL FIELD WELDS.
- CONTINUOUS INSPECTION AS REQUIRED BELOW:
 - CONTINUOUS INSPECTION FOR PJP, CJP, OR MULTI-PASS FILLET WELDS.
- EXCEPTION - CEM-TEC CORPORATION (FABRICATOR) IS ON THE CITY OF PHOENIX APPROVED FABRICATOR LIST. SPECIAL INSPECTIONS FOR SHOP WELDS ARE NOT REQUIRED UNLESS OTHERWISE STATED BY THE CITY.

RESPONSIBILITIES OF THE CONTRACTOR

- ANY DEVIATIONS MUST BE APPROVED IN WRITING FROM THE EOR AND MUST BE ORIGINATED IN WRITING BY THE CONTRACTOR WITH A REQUEST FOR INFORMATION.
- WHERE THE WORK IS REQUIRED TO BE COMPLETED IN THE PRESENCE OF THE SPECIAL INSPECTOR, THE CONTRACTOR SHALL BE SURE TO PERFORM THE WORK UNDER THE OBSERVANCE OF THE SPECIAL INSPECTOR.
- AREAS TO BE INSPECTED BY THE SPECIAL INSPECTOR ARE TO BE MADE SAFELY ACCESSIBLE FOR INSPECTION.
- FOR ANY QUESTIONS REGARDING SPECIAL INSPECTIONS, CONTACT THE EOR.

RESPONSIBILITIES OF THE SPECIAL INSPECTOR

- THE SPECIAL INSPECTOR SHALL VISIT THE SITE AND ENSURE THE WORK PERFORMED CONFORMS TO THE DETAILS AND SPECIFICATIONS SHOWN ON THE PLANS.
- THE SPECIAL INSPECTOR IS NOT AUTHORIZED TO APPROVE OR SUGGEST ANY DEVIATIONS FROM WHAT IS SHOWN ON THE PLANS.
- THE SPECIAL INSPECTOR MUST BE KNOWLEDGEABLE IN THE WORK BEING PERFORMED, KNOW THE MANUFACTURER REQUIREMENTS AND UNDERSTAND ITEMS REQUIRING INSPECTION AND OBSERVATION.
- THE SPECIAL INSPECTOR MUST PROVIDE WRITTEN INSPECTION REPORTS TO BOTH THE ENGINEER OF RECORD AND THE BUILDING OFFICIAL.
- ANY DISCREPANCIES REQUIRING CORRECTION MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF LEFT UNCORRECTED, THE DISCREPANCIES MUST BE MADE KNOWN TO THE EOR AND BUILDING OFFICIAL.



PER PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE FURNISHED FOR INSPECTION OR COPYING, EXCEPT AS SPECIFICALLY STATED IN THE CITY CODE, OR AS REQUIRED BY LAW

TRAFFIC SIGNAL DETAILS
 CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT
 TRAFFIC SIGNAL STANDARD DETAILS

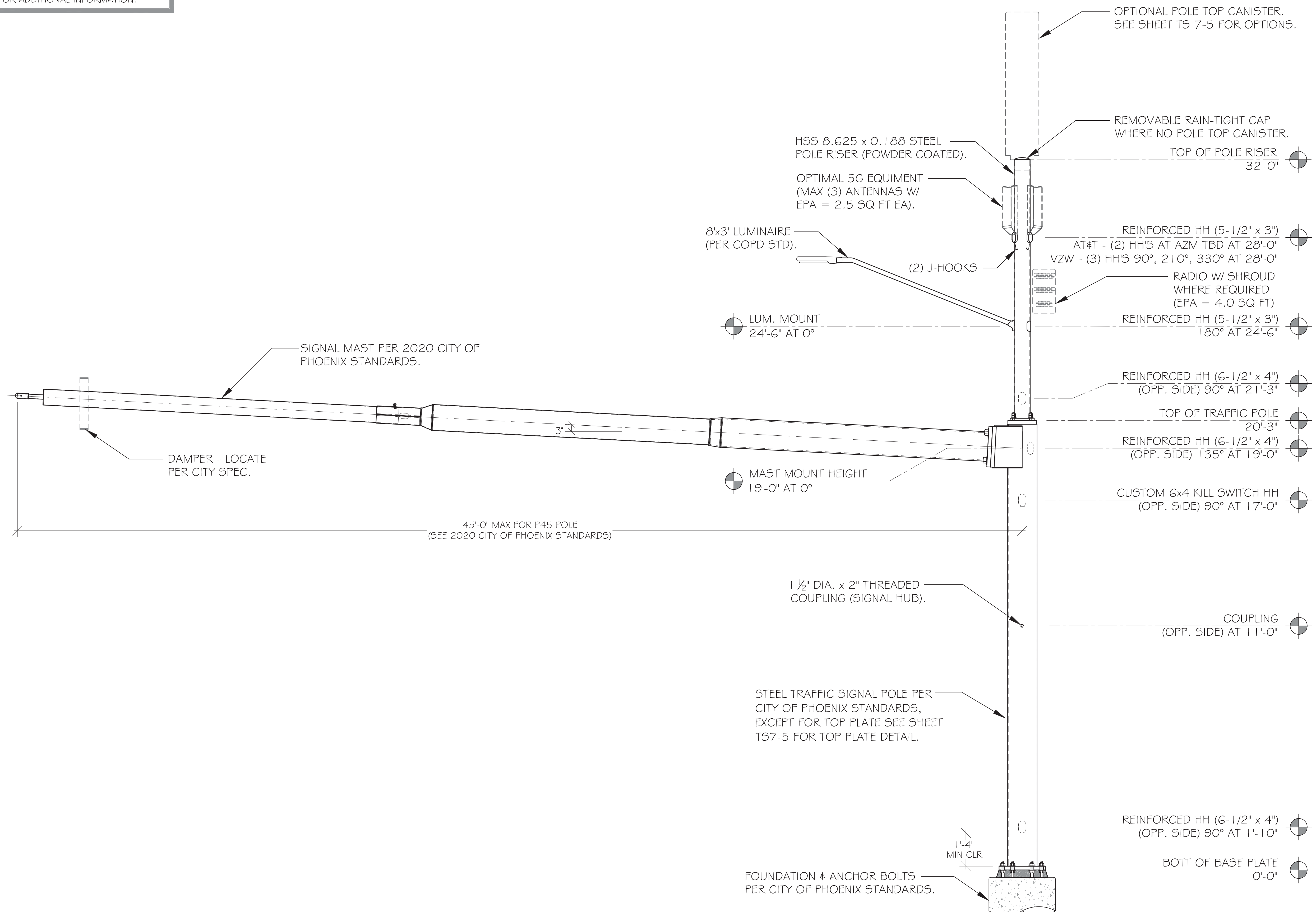
COMM-P45, COMM-P70
 SMALL CELL P45 / P70 POLES
 GENERAL STRUCTURAL NOTES



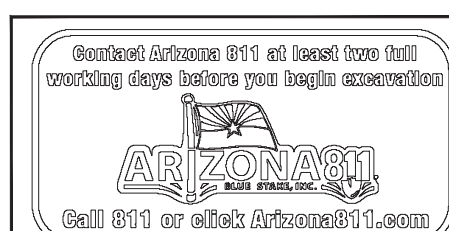
TPP File Number TSJ 64
 TS 7-2
 TRAFFIC SERVICES ENGINEER
 03/29/2022

PROJECT #:				
DR. DATE:	DES. DATE:	CK. DATE:	SHEET NO.:	TOTAL SHEETS:
SCALE:		CS. #:		

NOTE:
SEE 2020 CITY OF PHOENIX TRAFFIC STANDARD DRAWINGS
AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.



COMM-P45 POLE ELEVATION



PER PHOENIX CITY CODE CHAPTER 2, SECTION 2-2B, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE FURNISHED FOR INSPECTION OR COPYING, EXCEPT AS SPECIFICALLY STATED IN THE CITY CODE, OR AS REQUIRED BY LAW.

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

TRAFFIC SIGNAL DETAILS
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

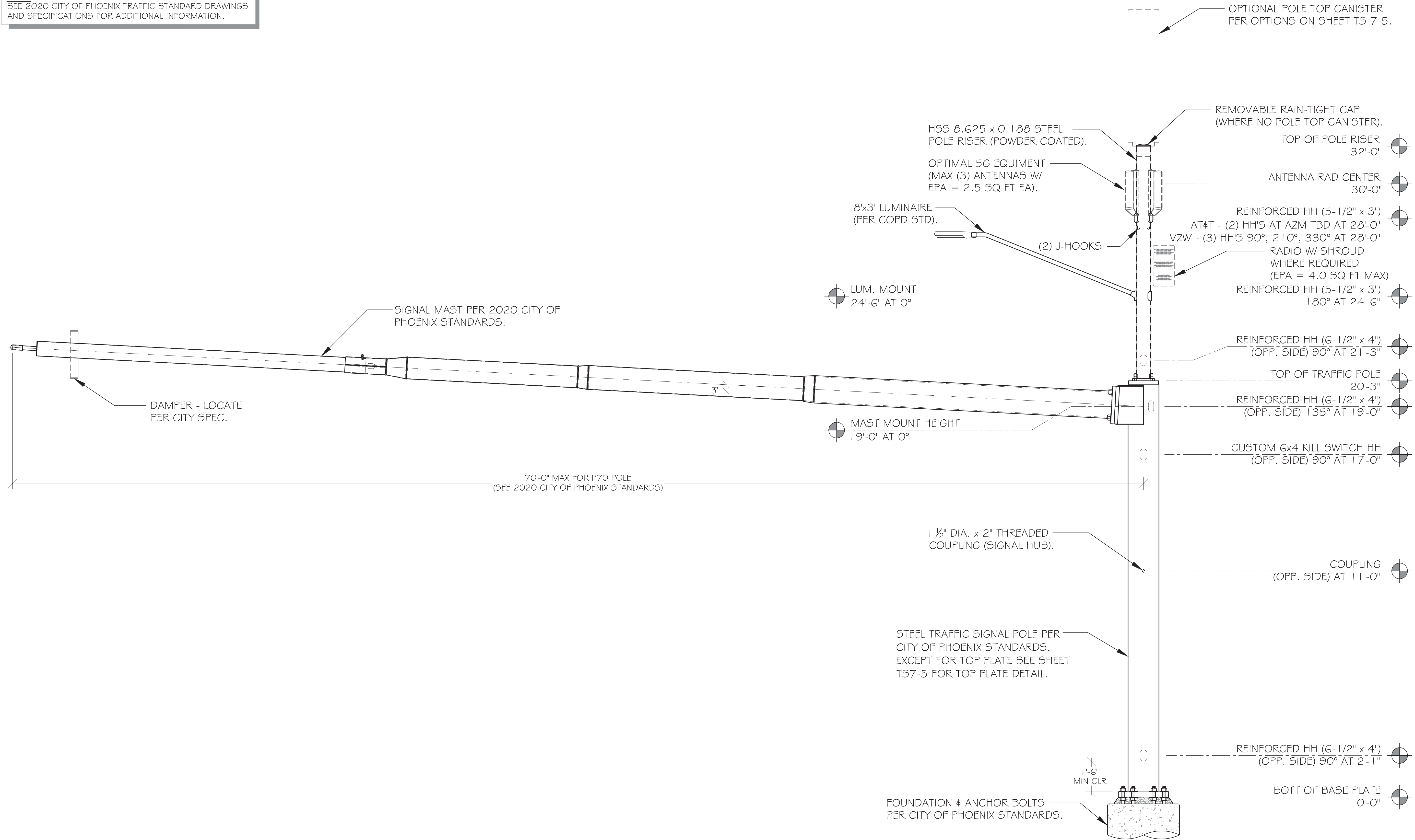
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GILBERT, AZ 85295
480.329.0493
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COMM-P45
SMALL CELL TYPE P45 POLE
POLE ELEVATION

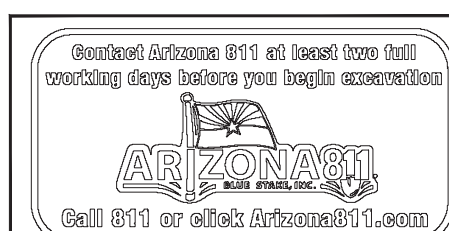
TPP File Number: TS-64
TS-7-3
TRAFFIC SERVICES ENGINEER
03/29/2022

PROJECT #:				
DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		CS. #:		

NOTE:
SEE 2020 CITY OF PHOENIX TRAFFIC STANDARD DRAWINGS
AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.



COMM-P70 POLE ELEVATION



PER PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE FURNISHED FOR INSPECTION OR COPYING, EXCEPT AS SPECIFICALLY STATED IN THE CITY CODE, OR AS REQUIRED BY LAW.

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

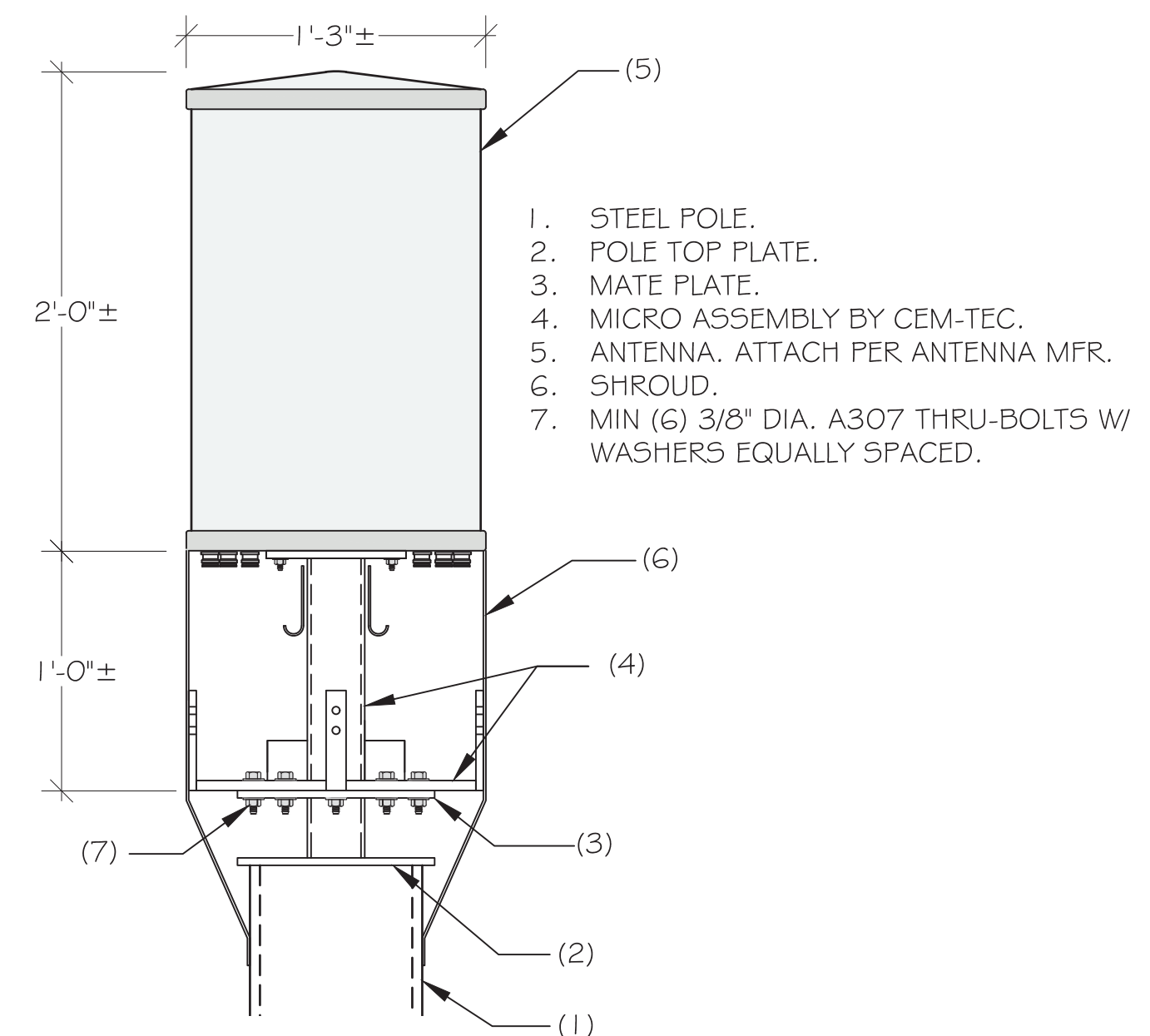
TRAFFIC SIGNAL DETAILS
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

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COMM-P70
SMALL CELL TYPE P70 POLE
POLE ELEVATION

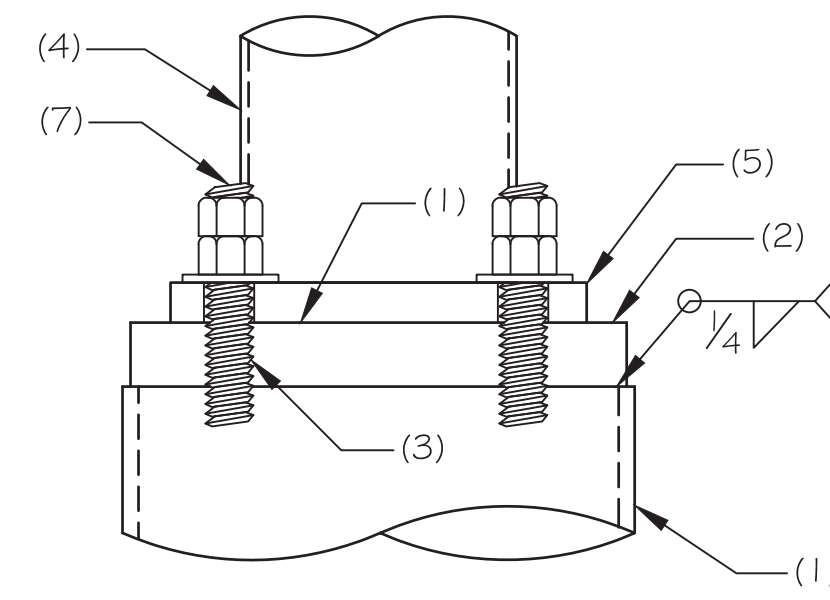
TPP File Number: TS 64
TS 7-4
03/29/2022

PROJECT #:	DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS:
	DATE:	DATE:	DATE:		
SCALE:	TRAFFIC SERVICES ENGINEER:	DATE:	QS #:		



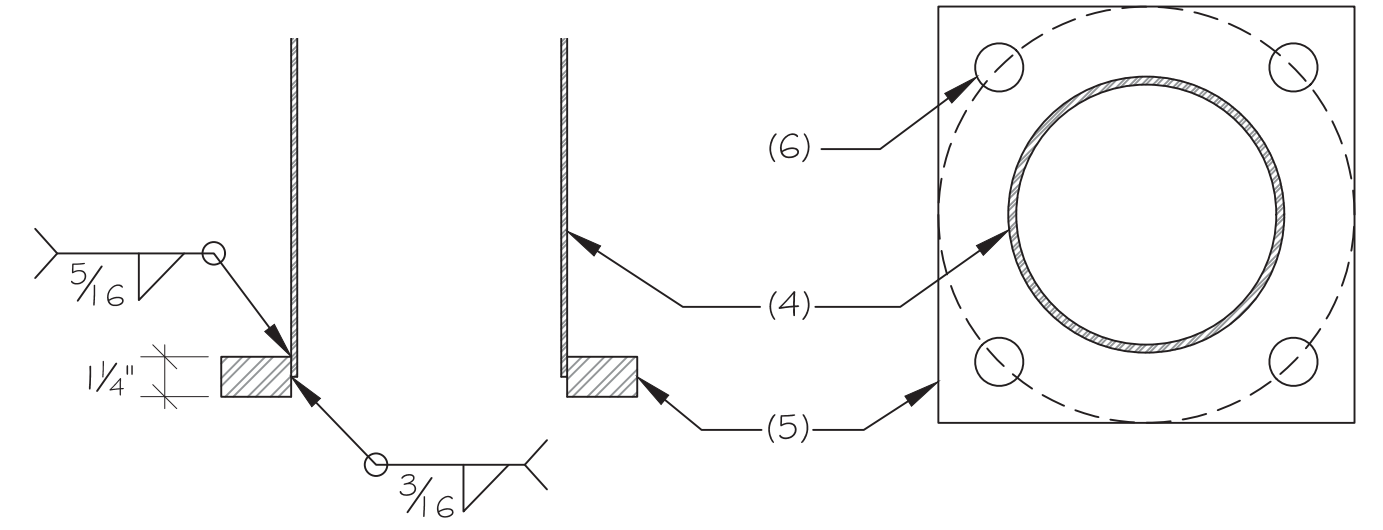
1. STEEL POLE.
2. POLE TOP PLATE.
3. MATE PLATE.
4. MICRO ASSEMBLY BY CEM-TEC.
5. ANTENNA. ATTACH PER ANTENNA MFR.
6. SHROUD.
7. MIN (6) 3/8" DIA. A307 THRU-BOLTS W/ WASHERS EQUALLY SPACED.

AT&T OPTIONAL MICRO POLE TOP ANTENNA
NTS



1. TOP OF MAIN TRAFFIC POLE.
2. 2" THK TOP PLATE.
3. PROVIDE HOLES DRILLED & TAPPED IN TOP PLATE TO ACCEPT THREADED RODS.
4. RISER POLE BASE - ATTACH TO RISER PLATE PER Y & Z BELOW.
5. 1 3/4 x 1 3/4 x 1/4 RISER BASE PLATE.
6. 1-1/2" DIA. HOLES IN RISER PLATE ON 1 3/4" DIA. BOLT CIRCLE.
7. 1-1/4" DIA. A325 THREADED RODS - PRETENSION PER G5N. PROVIDE SECOND NUT OR LOCKING MECHANISM AFTER TENSIONING.

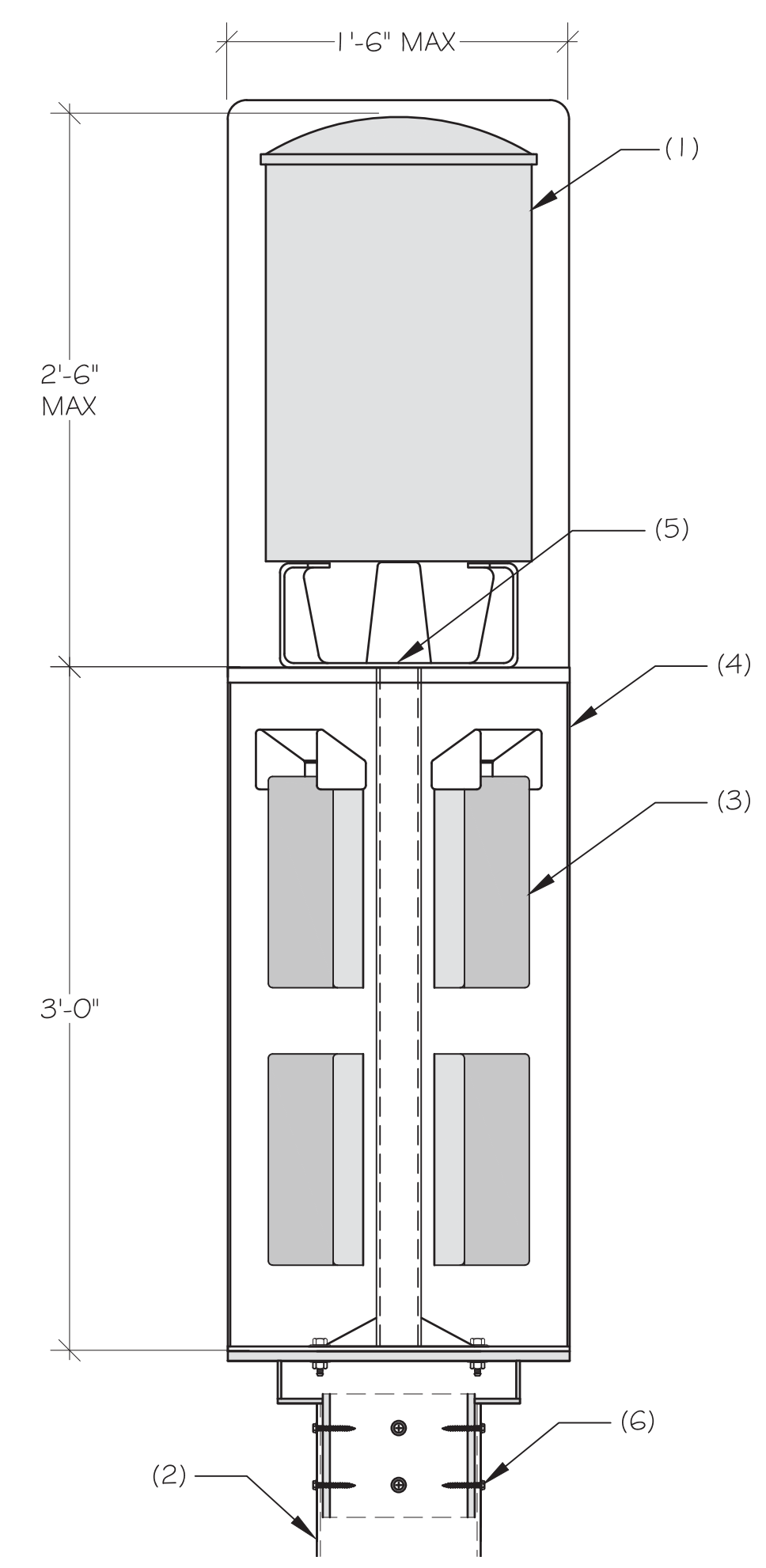
(X) RISER AT POLE



(Y) RISER PLATE WELD

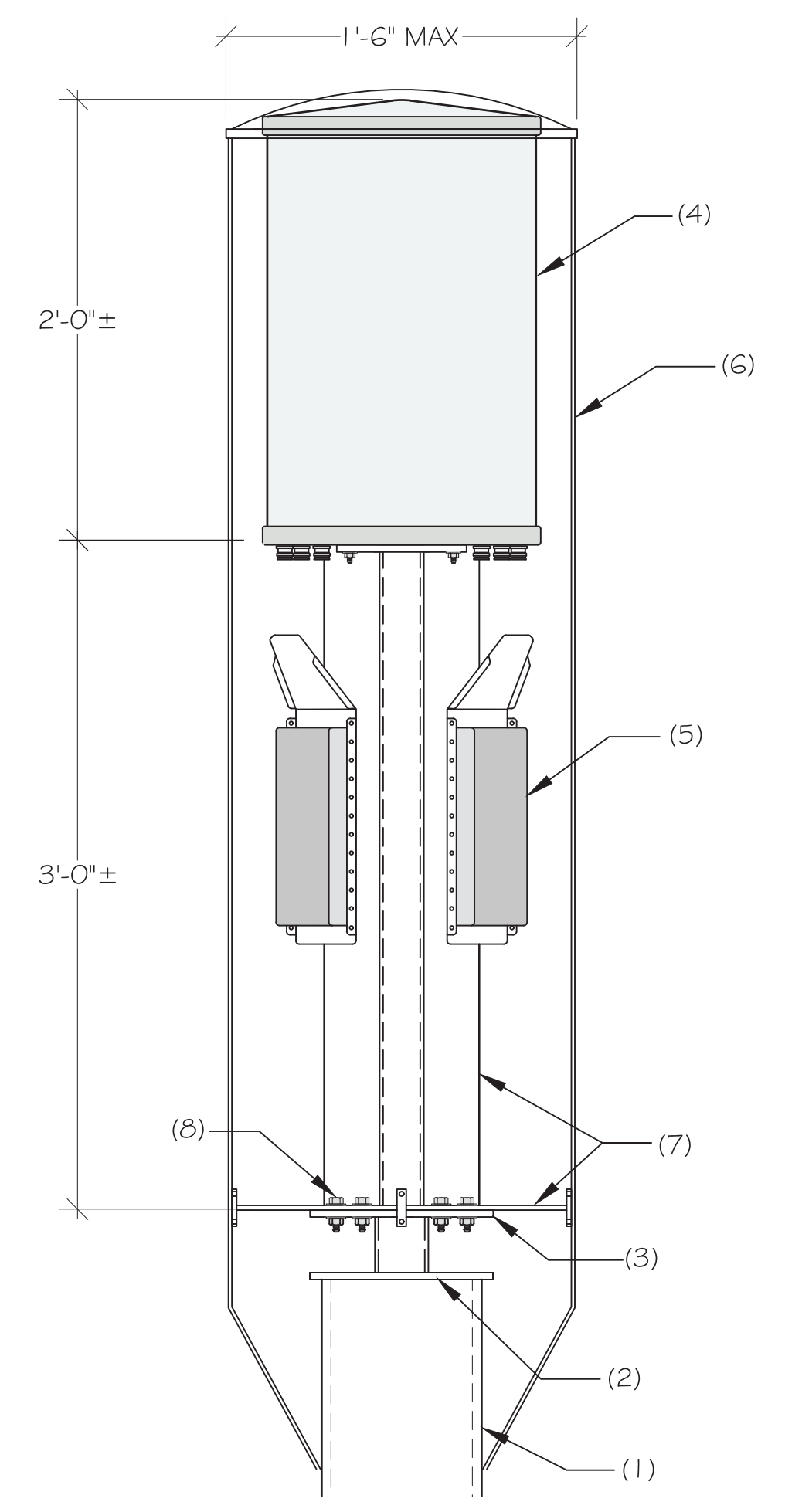
(Z) RISER PLATE PLAN

P45 / P70 RISER PLATE & RISER CONNECTION TO MAIN POLE
NTS



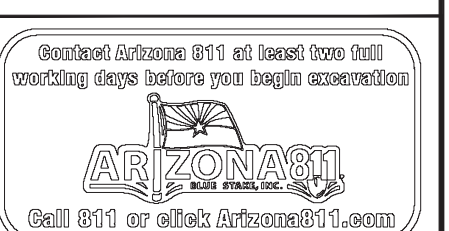
1. ANTENNA.
2. STEEL POLE.
3. RADIO EQUIPMENT.
4. EQUIPMENT CANISTER & SHROUD BY COMMSCOPE.
5. ANTENNA BRACKET & ATTACHMENT PROVIDED BY ANTENNA MANUFACTURER.
6. (4) VERT LINES OF (2) 1/4" DIA. TEKS SELECT SCREWS. (2) SCREWS AT 3-1/2" O.C. VERTICALLY & 90° HORIZONTALLY (8 TOTAL).

VERIZON OPTIONAL POLE TOP CANISTER
NTS



1. STEEL POLE.
2. POLE TOP PLATE.
3. MATE PLATE.
4. ANTENNA.
5. RADIO EQUIPMENT.
6. SHROUD & ASSEMBLY BY CHARLES INDUSTRIES.
7. MOUNT & PLATE ASSEMBLY PROVIDED BY CHARLES INDUSTRIES.
8. (6) 3/8" DIA. A307 THRU-BOLTS WITH WASHER EACH SIDE. ALIGN (6) HOLES WITH HOLES PROVIDED BY CHARLES SHROUD AND BOLT DOWN. OTHER (6) HOLES ARE FOR ANTENNA ROTATIONAL ADJUSTMENTS.

AT&T OPTIONAL PICO POLE TOP CANISTER
NTS



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CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

TRAFFIC SIGNAL DETAILS
CITY OF PHOENIX, ARIZONA
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SMALL CELL TRAFFIC POLES
COMM-LP, -P45, -P70
POLE TOP DETAILS

TPP File Number: TS\64
TS 7-5

TRAFFIC SERVICES ENGINEER: [Signature]

DATE: 03/29/2022

PROJECT #:	DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS:
	DATE:	DATE:	DATE:		
SCALE:	Q5. #:				