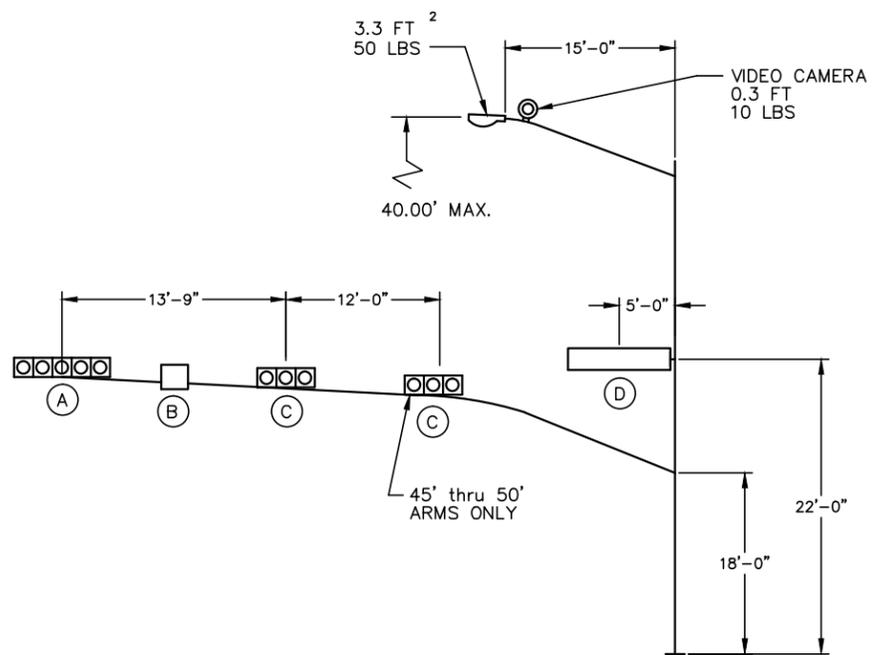


DESIGN CRITERIA:
 THE MAST ARM TRAFFIC STRUCTURES SHOWN ON THIS DRAWING HAVE BEEN DESIGNED IN ACCORDANCE WITH THE LOADING AND THE ALLOWABLE STRESS REQUIREMENTS OF THE 2009 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", FIFTH EDITION, INCLUDING THE 2011 INTERIM. THE WIND LOADS WERE CALCULATED FROM A BASIC WIND VELOCITY OF 90 MPH WITH A RECURRENCE INTERVAL OF 50 YEARS, AND A FATIGUE CATEGORY OF III. THE FATIGUE LOADS WERE CALCULATED ON THE REQUIREMENTS OF SECTION 11 OF THE CODE, AND FOLLOWING DESIGN CONDITIONS.

- VORTEX SHEDDING-INDUCED LOADS ARE NOT APPLICABLE FOR MAST ARM TRAFFIC STRUCTURES.
- STRUCTURES ARE DESIGNED TO RESIST NATURAL WIND GUSTS BASED ON THE YEARLY MEAN WIND VELOCITY OF 11.2 MPH
- STRUCTURES ARE NOT DESIGNED TO RESIST GALLOPING-INDUCED CYCLIC LOADS.
- STRUCTURES ARE DESIGNED FOR TRUCK-INDUCED GUST LOADS, AS REQUIRED BY THE OWNER OF THE STRUCTURE.



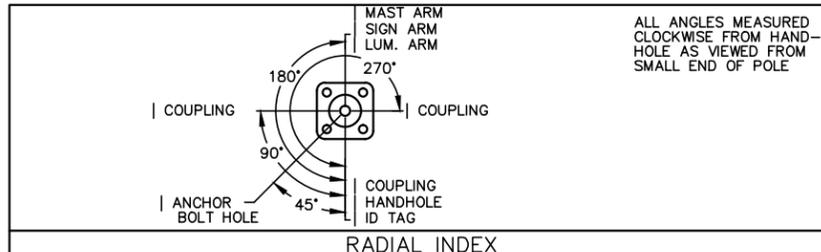
DEVICE	DESCRIPTION	PROJ.AREA (FT) ²	WEIGHT (LBS)
(A)	12"-5 SEC. SIGNAL WITH BACKPLATES	13.50	75
(B)	24" X 24" SIGN	4.00	15
(C)	12"-3 SEC. SIGNAL WITH BACKPLATES	9.00	50
(D)	20" X 96" STREET NAME SIGN	13.33	85

RIO RANCHO, NM TRAFFIC POLES

LOADING INFORMATION

MATERIAL DATA					
COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
TAPERED TUBES	A595 GR. A OR A572	55	ANCHOR BOLTS	F1554 GR.55	55
POLE BASE	A36	36	ANCHOR BOLT TEMPLATE	A36	36
ARM ATTACHMENT	A36	36	GALVANIZING-HARDWARE	HOT DIP ZINC	--
CONNECTING BOLTS	A325	--			
SIGN ARM SHAFT	A53	36			
CLAMP	A36	36			
SIGN ARM CONN. BOLTS	A325	--			

POLE DATA														
QTY.	ITEM	POLE TUBE				POLE BASE				ANCHOR BOLT				SIGNAL ARM SPAN (FT)
		BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	THK. (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	THREAD LENGTH "U" (IN)	THREAD LENGTH "H" (IN)	
	1	12.00	6.89	36.50	0.179	17.00	16.00	1.50	1.75	1.50	68.00	9.00	9.00	20-30
	2	13.00	7.89	36.50	0.239	18.50	17.50	1.75	2.00	1.75	68.00	9.00	9.00	35-50



RADIAL INDEX

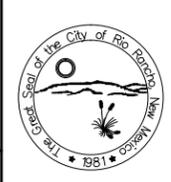
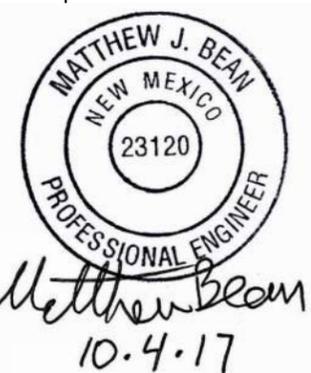
SIGNAL ARM DATA											
QTY.	ARM LENGTH (FT)	ARM BASE DIA.(IN)	THICK (IN)	BOLT PATTERN "B"(IN)	HIGH STRENGTH BOLT "H" (N)	PLATE SQUARE "A"(IN)	PLATE THICKNESS "C"(IN)	GUSSET THICKNESS "D"(IN)	RISE ANGLE "X"	BEND RADIUS "F"(FT)	RISE "R" (FT)
	20	7.00	0.179	13.50	1.25-7UNC X 5.00	18.50	1.50	0.250	16°	30.00	3.00
	25	8.00	0.179	13.50	1.25-7UNC X 5.00	18.50	1.50	0.250	16°	30.00	3.00
	30	9.00	0.179	13.50	1.25-7UNC X 5.00	18.50	1.50	0.250	16°	30.00	3.25
	35	10.00	0.179	15.00	1.25-7UNC X 5.00	19.75	1.50	0.250	11°	70.00	3.00
	40	10.50	0.179	15.00	1.25-7UNC X 5.00	19.75	1.50	0.250	11°	70.00	3.25
	45	10.14	0.239	15.00	1.25-7UNC X 5.00	19.75	1.50	0.250	11°	70.00	3.50
	50	11.00	0.239	15.00	1.25-7UNC X 5.00	19.75	1.50	0.250	11°	70.00	3.50

ALTHOUGH RARE, VIBRATIONS SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN STRUCTURES OF ALL TYPES. BECAUSE THEY ARE INFLUENCED BY MANY INTERACTING VARIABLES, VIBRATIONS ARE GENERALLY UNPREDICTABLE. THE USER'S MAINTENANCE PROGRAM SHOULD INCLUDE OBSERVATION FOR EXCESSIVE VIBRATION AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING. THE VALMONT WARRANTY SPECIFICALLY EXCLUDES FATIGUE FAILURE OR SIMILAR PHENOMENA RESULTING FROM INDUCED VIBRATION, HARMONIC OSCILLATION OR RESONANCE ASSOCIATED WITH MOVEMENT OF AIR CURRENTS AROUND THE PRODUCT.

VIBRATION DISCLAIMER

FINISH DATA	
SYSTEM:	GALVANIZED (GV)
BASE COAT:	HOT-DIP GALVANIZED TO ASTM A123
PRIME COAT:	NONE
FINISH COAT:	NONE
COLOR:	NONE
SPEC:	F-1

G JWK3 07/24/17 JWK3 07/25/17 ADD 65' ARM / REV. 55'-65' ARM TO STRAIGHT
 F JWK3 04/15/16 JWK3 04/15/16 ADD POLE ITEM 3 WITH 55' & 60' MAST ARMS
 E DAH7 11/17/11 RDS9 11/18/11 UPDATED TO AASHTO 2009



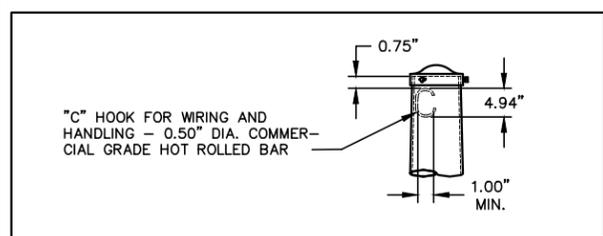
City of Rio Rancho
 Department of Public Works

TRAFFIC SIGNAL MASTARM
 STANDARD DRAWINGS

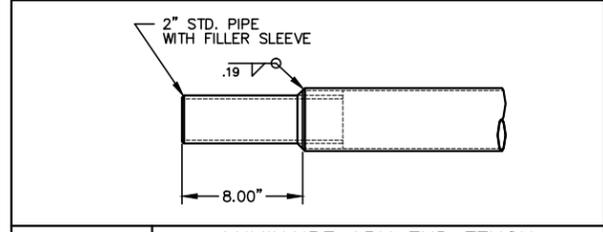
DWG. NO. TSSL-02

OCTOBER 2017

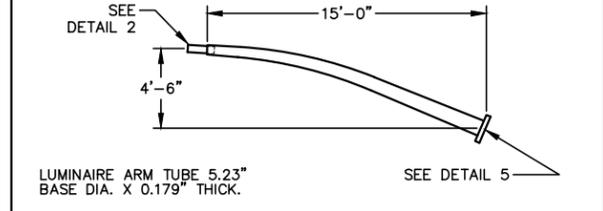
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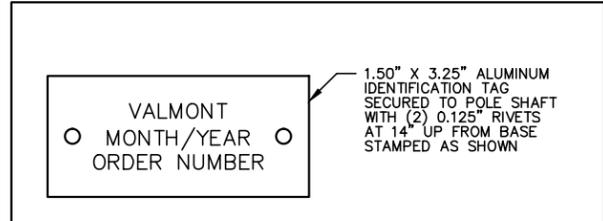
DETAIL 1 POLE TOP



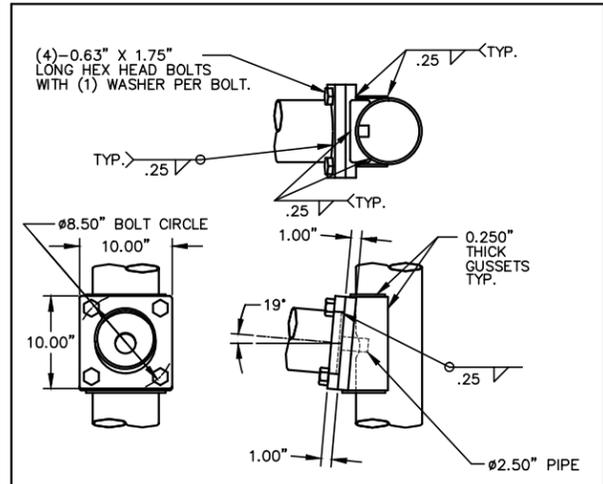
DETAIL 2 LUMINAIRE ARM END TENON



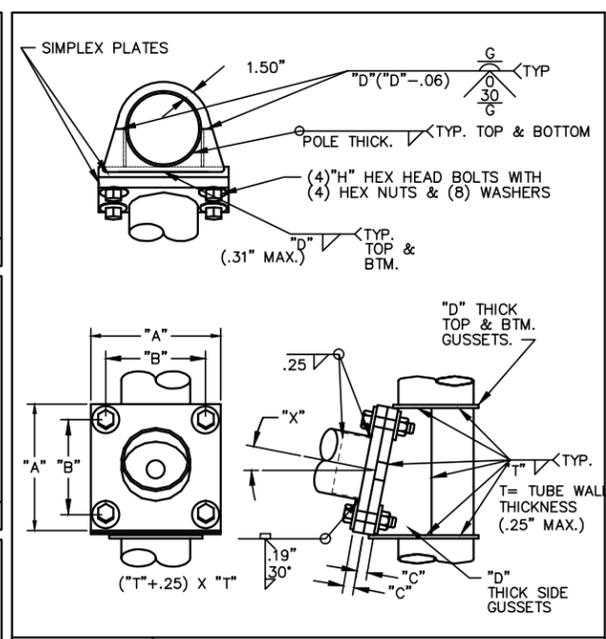
DETAIL 3 LUMINAIRE ARM DATA



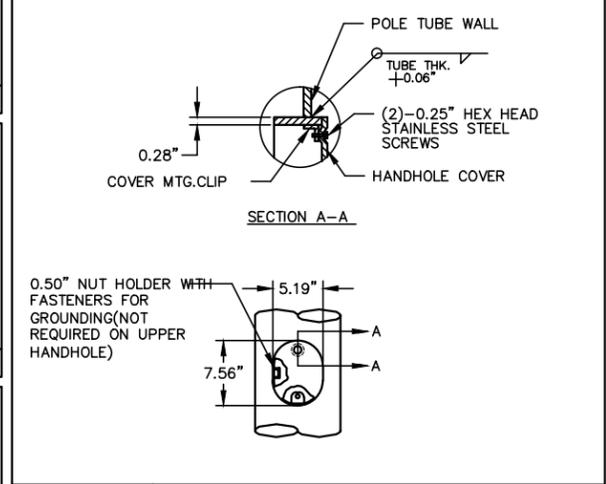
DETAIL 4 I.D. TAG



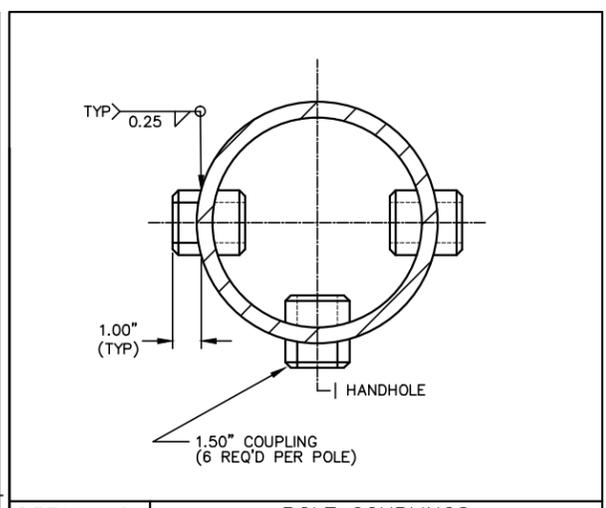
DETAIL 5 LUMINAIRE ARM ATTACHMENT



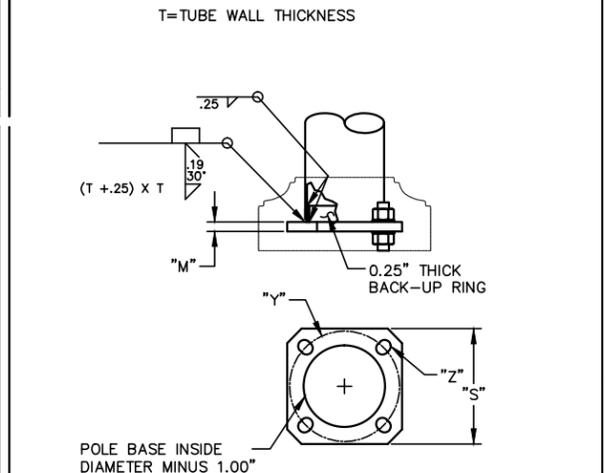
DETAIL 6 SIGNAL ARM ATTACHMENT



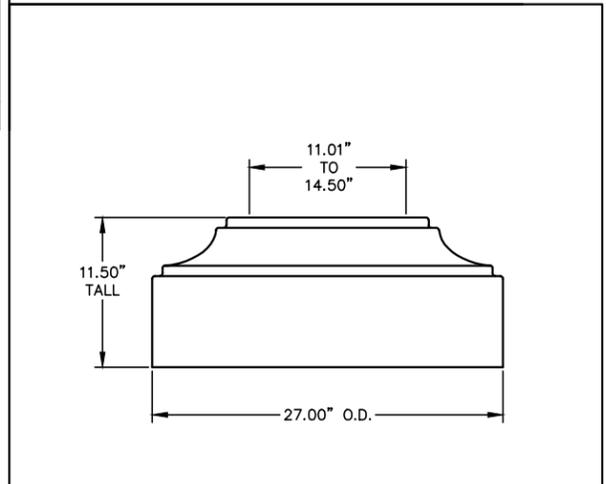
DETAIL 7 4" x 6.5" HANDHOLE



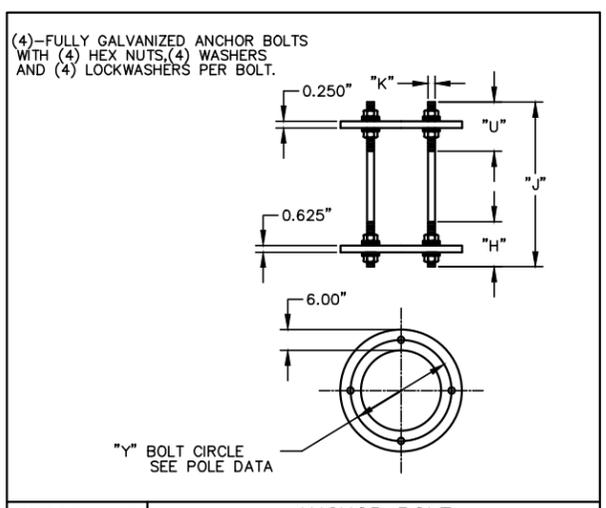
DETAIL 8 POLE COUPLINGS



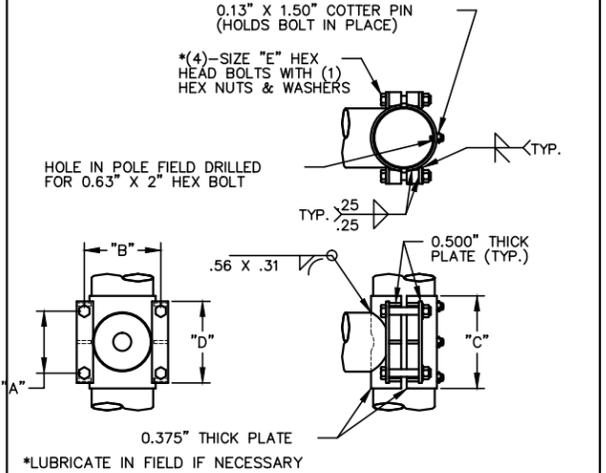
DETAIL 9 POLE BASE



DETAIL 10 CL27AB DECORATIVE BASE



DETAIL 11 ANCHOR BOLT



DETAIL 12 IISNS ARM ATTACHMENT

IISNS ARM ATTACHMENT DATA						
QTY.	POLE BASE DIAMETER	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E"
	12.00	9.25	11.41	13.80	12.37	1.00" X 9.00"
	13.00	10.25	12.66	15.30	13.51	1.25" X 9.75"

IISNS ARM DATA					
QTY.	ARM SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	THK. (IN)	DEGREE RISE
	4.50	3.50	3.50	0.216	0.50
	6.50	3.50	3.50	0.216	0.50
	8.50	3.50	3.50	0.216	0.50

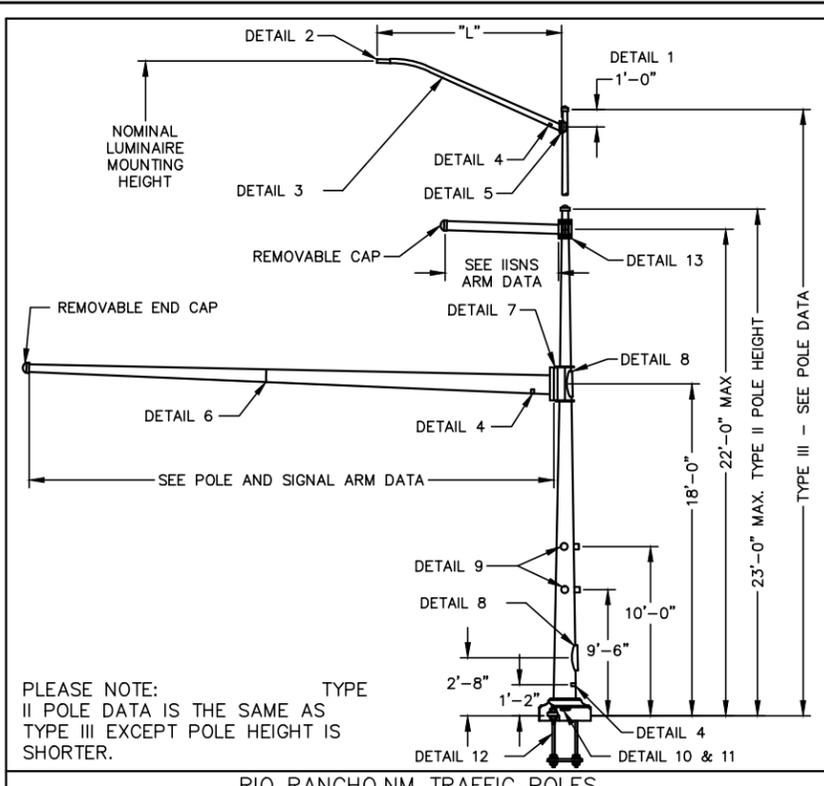
Matthew J. Bean
10.4.17

City of Rio Rancho
Department of Public Works

TRAFFIC SIGNAL MASTARM
STANDARD DRAWINGS

DWG. NO. TSSL-02 OCTOBER 2017

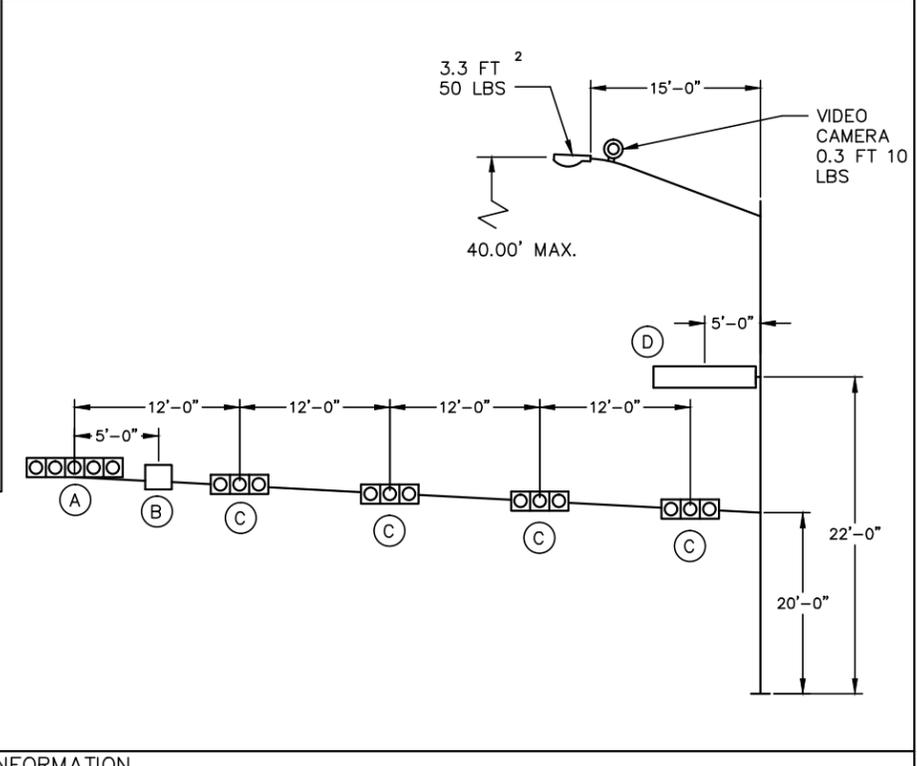
DATE MODIFIED:



RIO RANCHO, NM TRAFFIC POLES

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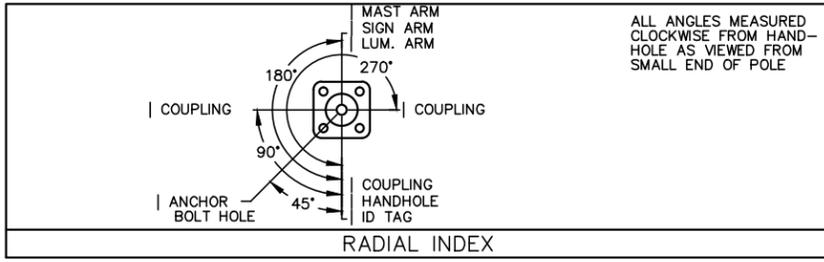


LOADING INFORMATION

DEVICE	DESCRIPTION	PROJ. AREA (FT) ²	WEIGHT (LBS)
(A)	12"-5 SEC. SIGNAL WITH BACKPLATES	13.50	75
(B)	24" X 24" SIGN	4.00	15
(C)	12"-3 SEC. SIGNAL WITH BACKPLATES	9.00	50
(D)	20" X 96" STREET NAME SIGN	13.33	85

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
TAPERED TUBES	A595 GR. A OR A572	55	ANCHOR BOLTS	F1554 GR.55	55
POLE BASE	A36	36	ANCHOR BOLT TEMPLATE	A36	36
ARM ATTACHMENT	A36	36	GALVANIZING-HARDWARE	HOT DIP ZINC	--
CONNECTING BOLTS	A325	--			
SIGN ARM SHAFT	A53	36			
CLAMP	A36	36			
SIGN ARM CONN. BOLTS	A325	--			

QTY.	ITEM	POLE TUBE				POLE BASE				ANCHOR BOLT				SIGNAL ARM SPAN (FT)
		BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	THK. (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	THREAD LENGTH "U" (IN)	THREAD LENGTH "H" (IN)	
	3	15.00	9.89	36.50	0.313	21.00	20.50	2.00	2.25	2.00	90.00	10.00	10.00	55-65



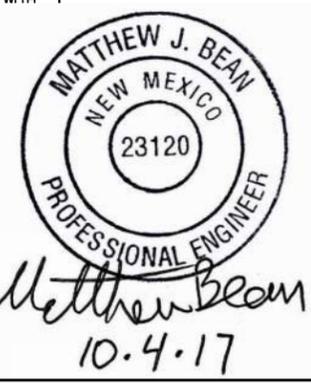
RADIAL INDEX

QTY.	ARM LENGTH (FT)	ARM BASE DIA. (IN)	THICK (IN)	BOLT PATTERN "B" (IN)	HIGH STRENGTH BOLT "H" (IN)	PLATE SQUARE "A" (IN)	PLATE THICKNESS "C" (IN)	GUSSET THICKNESS "D" (IN)	RISE ANGLE "X"
	55	13.00	DET. 6	17.75	1.50-6UNC X 6.25	21.50	2.00	0.313	2.50°
	60	13.50	DET. 6	17.75	1.50-6UNC X 6.25	21.50	2.00	0.313	3.00°
	65	13.50	DET. 6	17.75	1.50-6UNC X 6.25	21.50	2.00	0.313	4.00°

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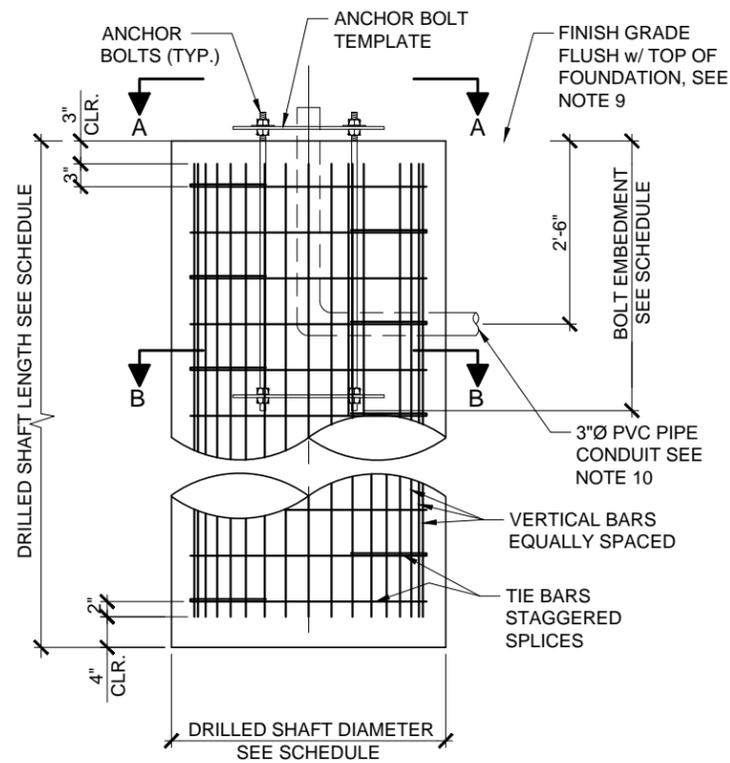
VIBRATION DISCLAIMER

SYSTEM:	GALVANIZED (GV)
BASE COAT:	HOT-DIP GALVANIZED TO ASTM A123
PRIME COAT:	NONE
FINISH COAT:	NONE
COLOR:	NONE
SPEC:	F-1



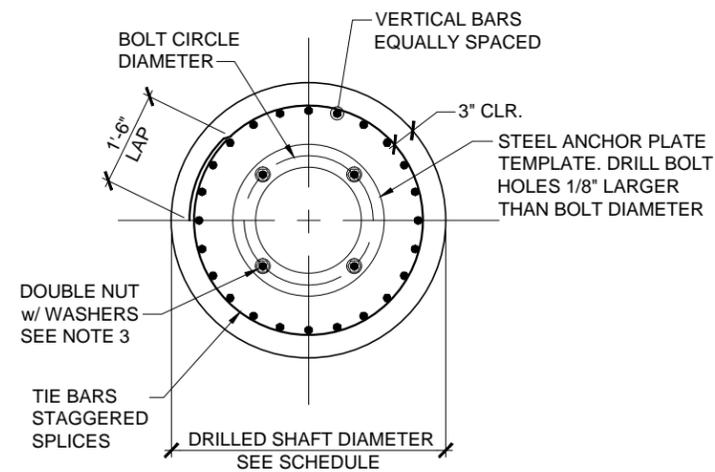
	City of Rio Rancho Department of Public Works
	TRAFFIC SIGNAL MASTARM STANDARD DRAWINGS DWG. NO. TSSL-02 OCTOBER 2017

DATE MODIFIED:



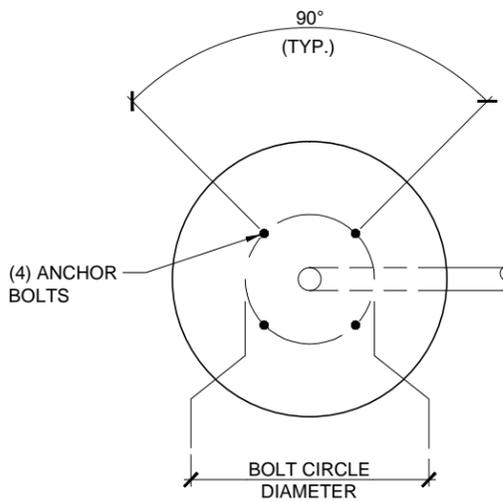
FOUNDATION ELEVATION

NOT TO SCALE



SECTION B-B

NOT TO SCALE



SECTION A-A

NOT TO SCALE

MAST ARM FOUNDATION DESIGN SCHEDULE				
MAST ARM LENGTH (ft)	FOUNDATION DIAMETER (in)	FOUNDATION LENGTH (ft)	VERTICAL REINFORCING	TIE REINFORCING
20-30	36	12	(14) #8	#4 @ 8"OC
35-50	42	13	(18) #8	#4 @ 8"OC
55-65	48	14	(24) #8	#4 @ 8"OC

FOUNDATION LENGTH IS MEASURED AS THE LENGTH OF FOUNDATION IN SOIL.

DESIGN NOTES:

1. CONCRETE TO BE $f'_c = 3000$ PSI @ 28 DAYS.
2. STEEL REINFORCING ASTM A615 GRADE 60. DIMENSION REFERE TO THE CENTERLINE UNLESS NOTED OTHERWISE.
3. SEE DESIGN DRAWINGS AND SCHEDULES FOR ANCHOR BOLT GRADE. PROVIDE LEVELING NUT AS REQUIRED.
4. CONCRETE IS TO BE PLACED IN DRILLED HOLES. DUE TO SOIL CONDITIONS, THE USE OF HOLE CASING MAY BE REQUIRED. THE CASING SHALL BE PULLED AS THE CONCRETE IS PLACED WITH A 6" MINIMUM OVERLAP.
5. FOUNDATION DESIGN IS FOR MAST ARM STANDARD DIAMETERS SHOWN AND A ROUND SHAFT. IF A LARGER DIAMETER IS FURNISHED, THE CONTRACTOR SHALL BUILD A LARGER FOUNDATION AS DETERMINED NECESSARY BY THE CITY ENGINEER AND NO ADDITIONAL PAYMENT OR COMPENSATION SHALL BE MADE.
6. ALTERNATE DESIGN FOR FOUNDATIONS TO BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.
7. THE FOLLOWING SOIL DESIGN PARAMETERS WERE ASSUMED FOR THE MAST ARM FOUNDATION DESIGN:

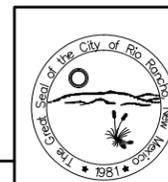
NON-COHESIVE SOIL - SILTY SAND SM, POORLY GRADED SAND SP
 SOIL UNIT WEIGHT = 110 lb/ft³
 SOIL INTERNAL ANGLE OF FRICTION = 38°
 SOIL EFFECTIVE INTERNAL ANGLE OF FRICTION = 23°

SHOULD SOIL CONDITIONS VARY SIGNIFICANTLY TO WHAT IS DESCRIBED ABOVE, THE CITY ENGINEER SHALL BE CONSULTED FOR APPROVAL OF ANY REQUIRED REMEDIAL MEASURES BEFORE FOUNDATION PLACEMENT.

8. ALL HOLES FOR FOUNDATION SHAFTS SHALL BE POURED AGAINST UNDISTURBED EARTH. IF SHAFT IS NOT LOCATED IN UNDISTURBED SOILS THEN COMPACT SOIL TO 95% MINIMUM.
9. FINISHED GRADE FOR ALL FOUNDATION TO BE DETERMINED BY THE PROJECT ENGINEER. THE TOP OF STANDARD FOUNDATIONS SHALL BE FLUSH WITH ADJACENT SIDEWALK OR PAVED AREAS WHEN PRESENT AND SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT.
10. PVC CONDUIT SHALL BE CALLED OUT IN SHOP DRAWINGS USING A MINIMUM 3" CONDUIT PIPE OR AS REQUIRED BY THE MAST ARM MANUFACTURER.
11. FOUNDATIONS SHALL INCLUDE COPPERWELD GROUND RODS AS REQUIRED BY THE MAST ARM MANUFACTURER. PLACEMENT AND INSTALLATION OF GROUND RODS SHALL BE SHOWN WITH SHOP DRAWINGS.



Matthew Bean
10.4.17



City of Rio Rancho
Department of Public Works

TRAFFIC SIGNAL MASTARM
STANDARD DRAWINGS

DATE MODIFIED:

DWG. NO. TSSL-02

OCTOBER 2017