



We've engineered a customized Patent Pending Collar Nut that reduces construction time and lowers the costs of carriers' small cell 4G/5G build-out projects.

What's so special about the Patent Pending Collar Nut?

The patent centers on a signature hardened steel with a tapered collar which sits inside the holes of the baseplate. 40% of the strength of each nut, sit below the top of the baseplate. Our strength comes from within the baseplate. As it's tightened, the hardened nut is strong enough to move the softer steel base plate and pole just enough to fasten itself and self-correct the threaded rod J-Bolt.

The design didn't come easy. But after a few attempts, we landed on a product that changed everything. It's come through thorough testing and now stands as a practical, economic alternative to coupler and welding solutions.

DFConceal is the leading supplier of equipment mounts in the Bay Area, and we're consistently in tune with the latest technological needs and challenges our nation's main cell carriers face.

The most recent needs and challenges proved to be costly problems. As 5G projects launched, we observed carriers securing permits to modify city infrastructure. When they did, they were forced to bring light poles up to current codes. At any costs.

Many poles were outdated and required upgrades. We noticed carriers spending big money replacing poles, foundations and concrete. They secured permits, allowed for weeks of scheduling, underwent special welding inspections, and arranged for lane closures and traffic control at each light pole.

We thought, "There has to be a better way." Good news: there was.

Now, there is a better way that's simple yet efficient. And DFConceal is the team behind it.

Say hello to our custom Patent Pending Collar Nut. Best of all, say goodbye to those high-dollar, heavily involved overhauls. With DFConceal's certified installation, we bring carrier costs down. And we make it happen with two guys in a day instead of with an entire crew on a two-week timeline.

According to a myriad of engineers, the Patent Pending Collar Nut is a game-changing no-brainer. In our speedy fix, there's no concrete replacement or shutting down lanes of traffic for days.

We simply change four nuts on a light pole. It's a win-win for all involved. No more headaches and expensive, time-consuming upgrades. The Patent Pending Collar Nut boasts a unique and elegant design. Carriers get faster results for less as cities across the U.S. gain access to new and improved services and features.

We always say our products "stand out" by "blending in." The Patent Pending Collar Nut is no different. It's a relatively small adjustment with massive impact. We're thrilled to offer carriers our no-hassle installation.

Have specific questions, or interested in learning more? Contact us today. The process has literally never been simpler.

In short, you get the permit. We do the rest. At lower costs, in record time.

AMMTEC CONSULTANTS, PLLC

CONSULTING ENGINEERING SERVICES

March 11, 2020

DFConceal, LLC
2455 Vista Del Monte
Concord, California 94520
Attention: Mr. Tom Borst

SUBJECT: Collar Nut Approval for
Light Cell Anchor Plate Connection

Dear Mr. Borst:

This letter summarizes our review of laboratory testing of rod-nut combinations to be used for light pole base plate anchor connections. The proposed configuration consists of a tapered end to a nut which allows the nut to embed into the anchor plate which allows the configuration to salvage the existing anchor rod length. Reference is made to the Collar Nut Solution prepared by DFConceal, LLC for this project presented in Appendix A attached.

Current approved anchor rod solutions include cutting rods, adding couplers or welds to extend the existing rods to meet the minimum (3) exposed thread as defined by current codes. Examples of approved solutions are presented in Appendix B also attached. The current approved solutions are complicated, time consuming to install and NOT cost effective.

AMMTEC has reviewed the laboratory tests with respect to tensile strength testing of rod-nut combinations. Reference is made to the Laboratory Certificate prepared by Anamet dated February 22, 2020, (Anamet

Laboratory Number 5005.7938) presented in APPENDIX C also attached. Sample test results document the existing rod fails before any noticeable distress occurs to the Electric Tech Construction Collar Nut. In addition, the tensile strength of the configuration exceeds the required tensile strength for the project.

Based on the above, it is AMMTEC's professional opinion that the DFConceal, LLC Collar Nut is a practical economic alternative to coupler and welding solutions and can be used for construction purposes. AMMTEC recommends that uncoated hardened small collar nuts be used for construction purposes. We trust this provides you with the necessary information at this time, if you have any questions regarding this letter, please contact us

Respectfully submitted,

AMMTEC CONSULTANTS

Alan E. Money P.E.
Senior Engineer



Digitally signed by Alan Money
Date: 2020.03.11 10:02:02 -07'00'

APPENDIX A
DFConceal, LLC Collar-Nut Solution

NOTES:

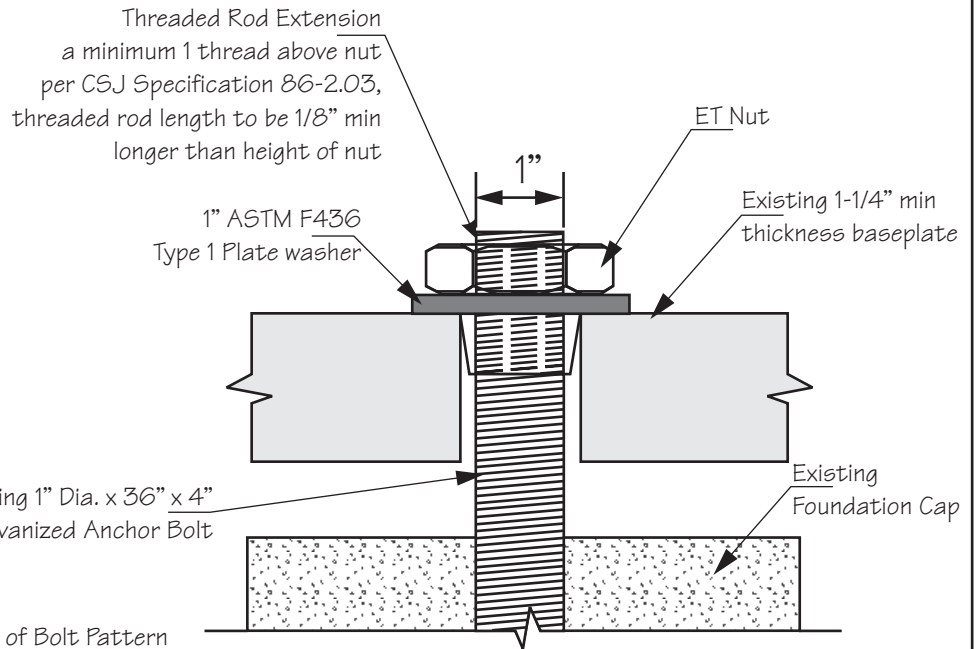
*Nut provided by Electric Tech Construction

*Approval of installation by AMMTEC

*Approval of installation to include

- 1) Documentation of Bolt
- 2) Documentation of Installation Pattern
- 3) Documentation of Minimum Rod Extension
- 4) Documentation of Installation Performed by A Certified Installer

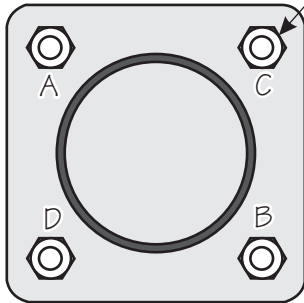
*AMMTEC to provide summary letter of approval of installation inspection to CSJ



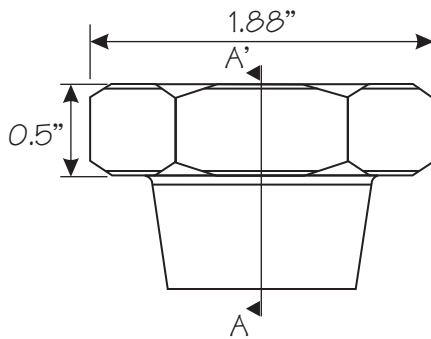
Anchor Rod Detail

Installation of Bolt Pattern

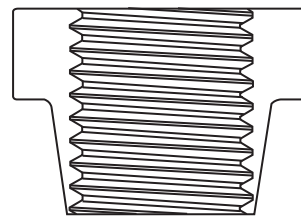
- 1) Remove existing nut at A
- 2) Replace existing nut with ET nut to partial embedment into base plate
- 3) Repeat 1 & 2 at B, C, & D in sequential order
- 4) Tighten bolts to meet extension minimum in sequential order (A, B, C, & D)
- 5) Continue tightening as necessary in sequential order until rod extension minimum is met at all four locations



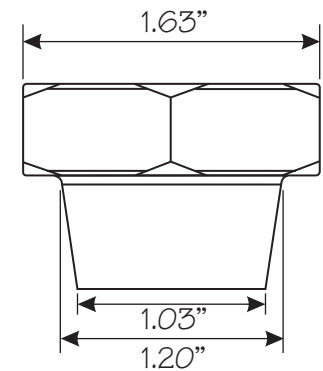
Plan View



ET Nut Details



Section A-A'



Detail ETB
Electric Tech (ET) Bolt Installation

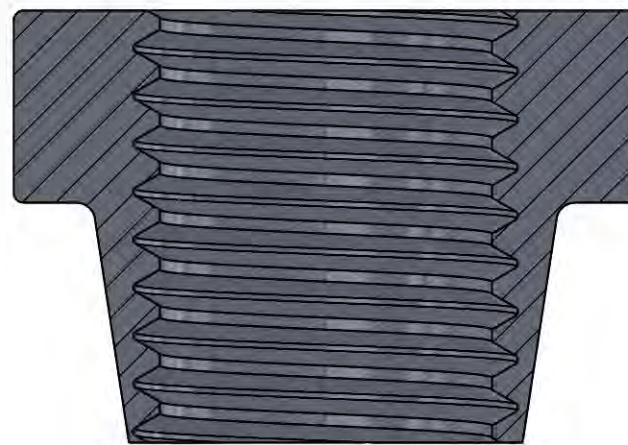
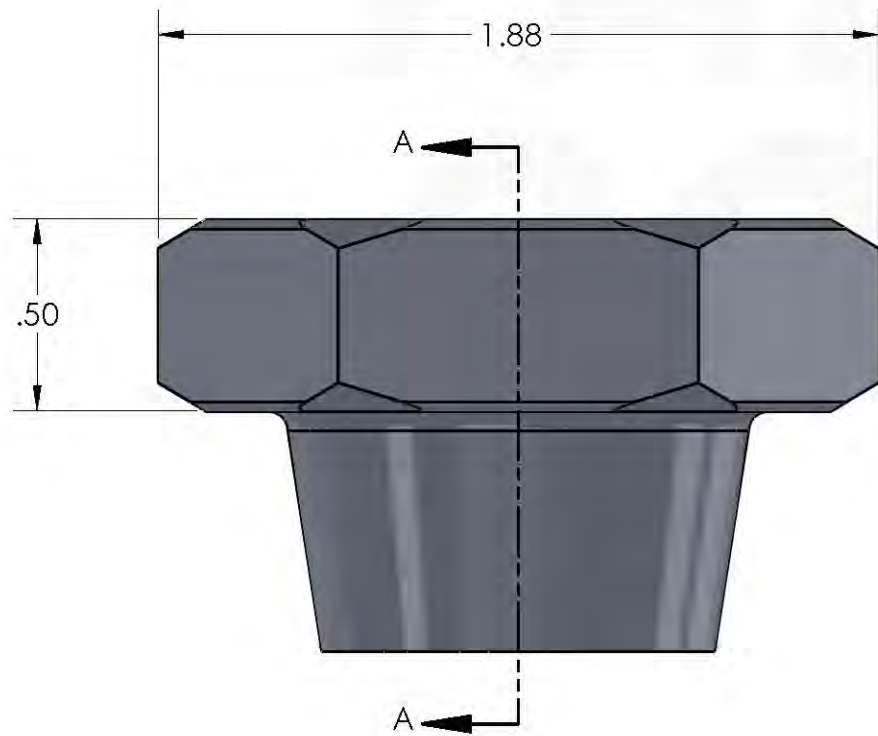
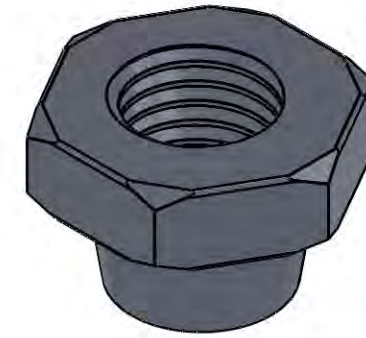
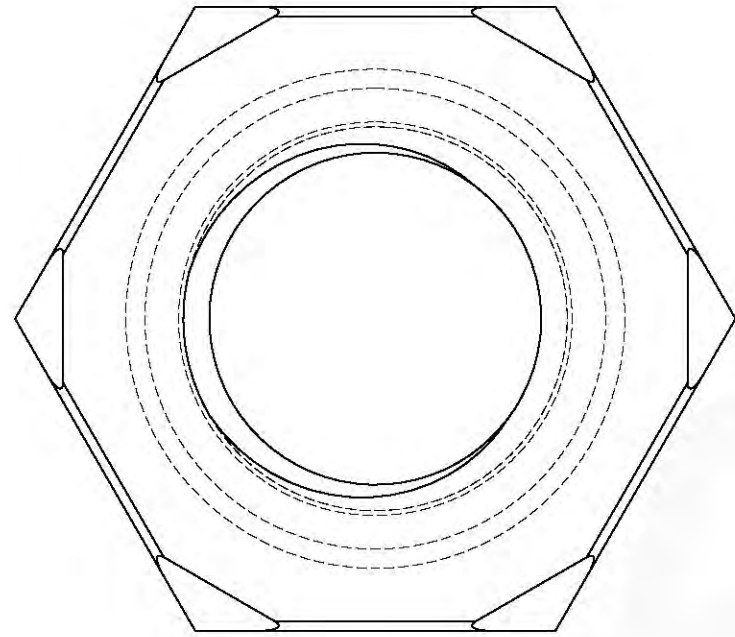


AMMTEC CONSULTANTS, PLLC

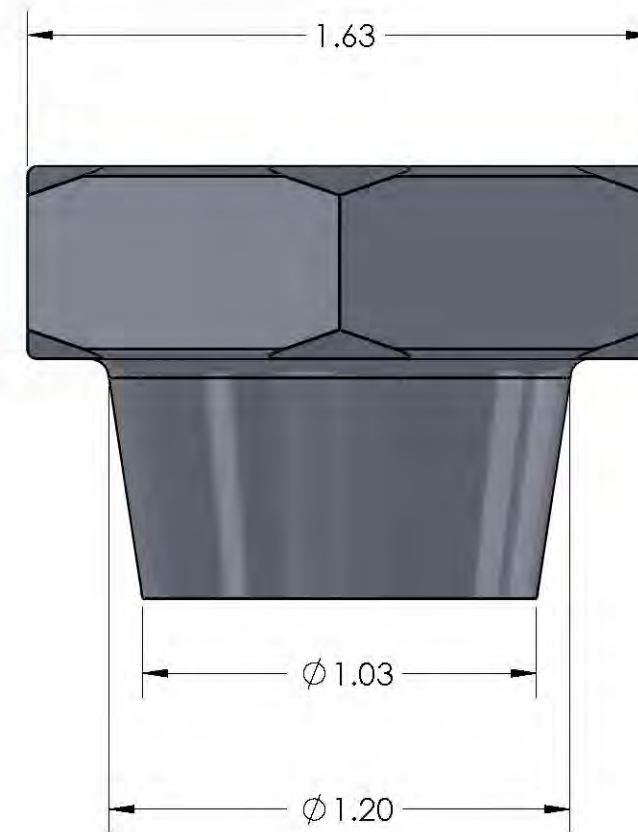
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Tempe, Arizona 85281
E-Mail: ammtec@ammtec.com

Phone: 480 927-9696
Fax: 480 927-9797
www.ammtec.com

Prepared By: LAH
Reviewed By: AEM
Date: 5/4/20
Revision: N/A



SECTION A-A



STAMP

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE INCHES
 TOLERANCES:
 FRACTIONAL \pm
 ANGULAR: MACH \pm
 BEND \pm
 TWO PLACE DECIMAL $\pm .010$
 THREE PLACE DECIMAL $\pm .005$
 MATERIAL:
 FINISH:

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APPROVALS & DATES

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 LABELED AS CONSTRUCTION SET

SITE NUMBER

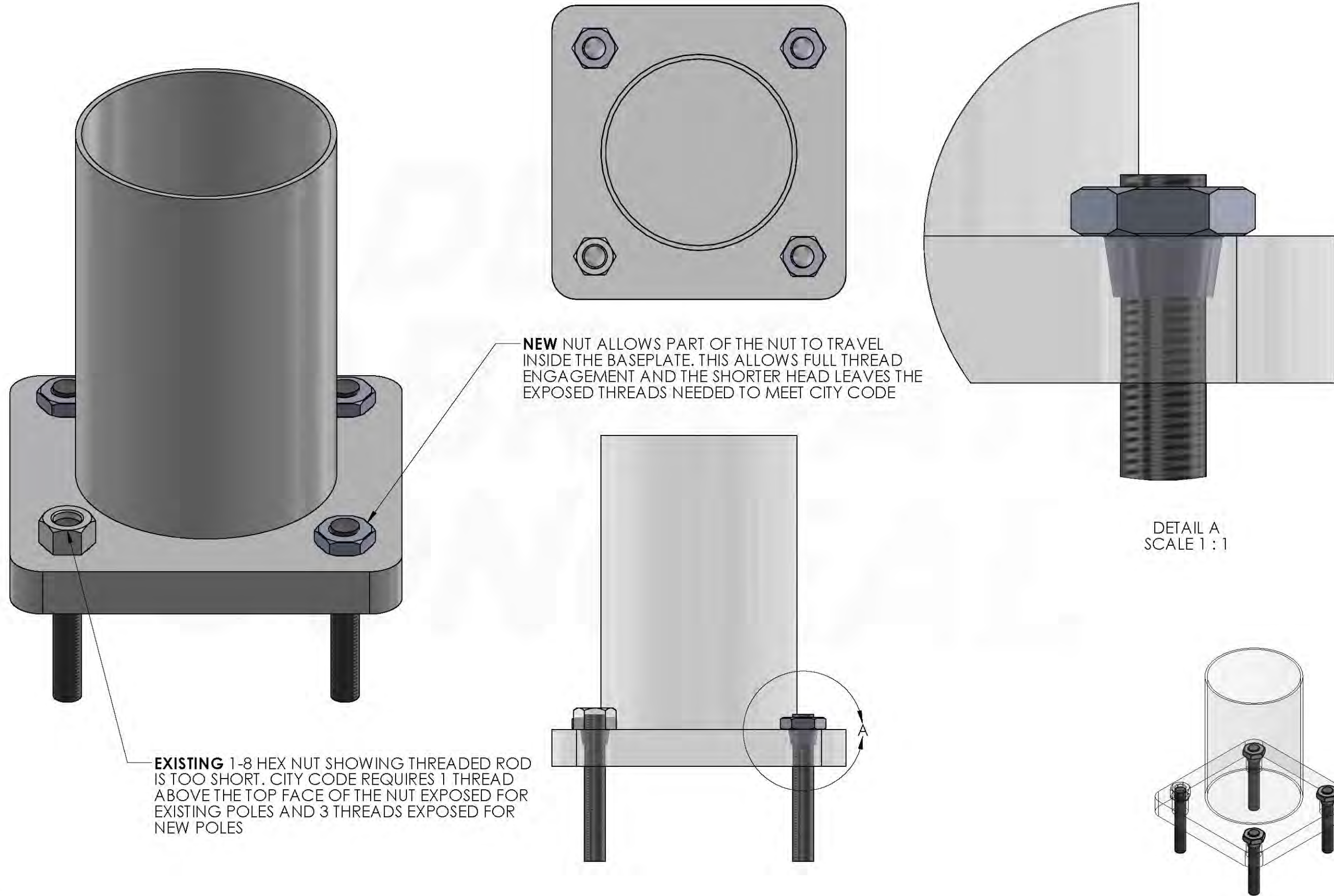
SITE NAME

PRODUCT ID #
 COLLAR NUT UPDATES

REV | A

**PRODUCT
 DESCRIPTION**

STAMP



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ±
BEND ±
TWO PLACE DECIMAL ±.010
THREE PLACE DECIMAL ±.005

MATERIAL:
FINISH:

PROPRIETARY AND CONFIDENTIAL

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APPROVALS & DATES

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PROJECT NAME

SITE NAME

PRODUCT ID #
COLLAR NUT UPDATES

REV | A

PRODUCT DESCRIPTION

AMMTEC CONSULTANTS, PLLC

CONSULTING ENGINEERING SERVICES

April 24, 2020

TNH Development, LLC
2455 Vista Del Monte
Concord, California 94520
Attention: Mr. Tom Borst

Regarding: **Anchor Bolt Approval Summary**
Light Pole Installation
Verizon's Proposed Antennas and Equipment
Site: CA_SJ_SANJOSE_DTSOUTH_008
Location Code: 517351

Dear Mr. Borst:

This letter summarizes our activities regarding placement of collared anchor nut at the base of the subject light pole. Reference Detail ETB prepared by AMMTEC. The project consists of improving a light pole for telecommunications purposes. The pole is considered to be a lightweight structure with foundation loads on the order of less than 1,500 psf. Our activities included a review of project documents, a review of project photos, a review of the installer certification., and an interview with Mr. Tom Borst, the project coordinator. Presented below is a summary of our notes as they pertain to construction of this project:

- The tapered bolts used at the anchor locations were the ET Nuts presented on Detail ETB
- The ET Nuts were installed following the pattern A, B, C, and D as presented on Detail ETB
- When final, the minimum rod extinction of was in accordance with CSJ Specification 86-2.03
- The installation of the ET Nut was performed under the supervision of Mr. Jorge Villaneda, an E-Tech Certified Installer.

Based on the above, it is AMMTEC's professional opinion that the ET Nuts as described herein are in general accordance with the project plans. Attached please find photos of the ET nut used, the patterned sequence, the minimum rod extension, and the Certified Installer card. We trust this provides you with the necessary information required at this time. If you have any question, please contact me at 480-927-9696.

Sincerely,

AMMTEC^{PLLC} CONSULTANTS

Alan E. Money P.E.
Senior Engineer



**Anchor Bolt Photo – Typical
 Can be the same for all projects**



Installation of Bolt A



Installation of Bolt B



Installation of Bolt C



Installation of Bolt D



Photo of Minimum Rod Extension



Certified Approved Installer

Electric Tech Construction, Inc. 1910 Mark Ct. #130 Concord, CA 94520
 Tel: (925)849-5324 Fax: (925)849-5356 www.etech-inc.net



On April 5th, 2020

Thomas Borst

NAME

successfully completed the Nut Installer Certification and is hereby designated a certified installer of ET Nuts.

Thomas Borst

SIGNED

April 6, 2021

EXPIRES



Electric Tech Construction, Inc. 1910 Mark Ct. #130 Concord, CA 94520
 Tel: (925)849-5324 Fax: (925)849-5356 www.etech-inc.net



On April 5th, 2020

Jorge Villaneda

NAME

successfully completed the Nut Installer Certification and is hereby designated a certified installer of ET Nuts.

Jorge Villaneda

SIGNED

April 6, 2021

EXPIRES



LABORATORY CERTIFICATE



February 22, 2020

LABORATORY NUMBER: 5005.7938
CUSTOMER AUTHORIZATION: P.O. Credit card
DATE SUBMITTED: February 19, 2020
REPORT TO: Tom Borst
Vice President
2455 Vista Del Monte
Concord, CA 94553

SUBJECT

Four 1"-8 threaded rods were submitted for tensile testing with four nuts.

FASTENER TEST (ASTM F606 - 16)

Four different threaded rod-nut combinations were tested. Each rod was tested with the nut inserted at the bottom end leaving one complete thread open at the end and a flat plate with a hole inserted to bear against the nut. The top end of the threaded rod was inserted into a threaded fixture attached to the upper crosshead of the testing machine. The lower crosshead of the testing machine was then moved downwards to contact the flat plate and apply a tensile load on the assembly until failure occurred in the test assembly. The rod-nut combinations, maximum failure loads and the failure locations are in Table 1.

Figure 1 is a photograph of the uncoated, hardened small collar nut used for two of the tests. The uncoated, unhardened small collar nut in the assembly C was similar in dimensions to the nut in Figure 1. Figure 2 shows the specimens after testing.

This testing was completed on February 21, 2020 and was performed in accordance with the customer's authorization.

Submitted by:

M. Dilip Bhandarkar, D.Eng., P.E.,
Senior Materials Engineer and Testing Manager

LABORATORY CERTIFICATE



Anamet

Laboratory No. 5005.7938

TABLE 1
THREADED ROD-NUT COMBINATIONS AND TENSILE TEST RESULTS

Sample ID	Threaded Rod	Nut	Maximum Load (lbf)	Failure Location
B	Hardened, Uncoated	Zinc-Coated, Unhardened Hex Nut	56,988	Threads of the Nut
C	Hardened, Uncoated	Uncoated, Unhardened Small Collar Nut	76,789	Threads of the Nut
D	Hardened, Uncoated	Uncoated, Hardened Small Collar Nut	94,558	Threads of the Rod
E	New, Zinc-Coated, Unhardened J Bar	Uncoated, Hardened Small Collar Nut	51,065	Threads of the Rod

LABORATORY CERTIFICATE



Anamet

Laboratory No. 5005.7938



Figure 1 Photographs showing three views of a small collar nut used in testing.

LABORATORY CERTIFICATE



Laboratory No. 5005.7938



(a) Rod-nut assemblies after testing - assemblies B, C, D and E from left to right



(b) End views of collar nuts B and C after testing

Figure 2 Photographs of the threaded rod-nut assemblies and nuts after tensile testing.

JAMES E. BRUNTON
Attorney At Law

Patent, Trademark and Copyright Matters
1667 S. Mission Road, Suite G
Fallbrook, California 92028
(760) 631-3081 • (818) 956-7154

Mailing Address:
P.O. Box 1990
Fallbrook, California 92088

April 3, 2020

Mr. Tom Borst
2455 Vista Del Monte
Concord, CA 94520

Re: Patent Application
"Collar Nut"

Dear Mr. Borst:

This is to confirm that, per your request, this office has filed in the United States Patent and Trademark Office an application for United States Letters Patent for a "Collar Nut".

This being the case, you can now use a patent pending notice on a product, marketing material, website or other materials related to the product.

If you have any questions, please don't hesitate to call.

Very truly yours,



JAMES E. BRUNTON, ESQ.

JEB/dr

APPENDIX B
Samples of Approved Extension Solutions.

NOTES:

*ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-14.

*CEMENT SHALL CONFORM TO ASTM C150, TYPE II.

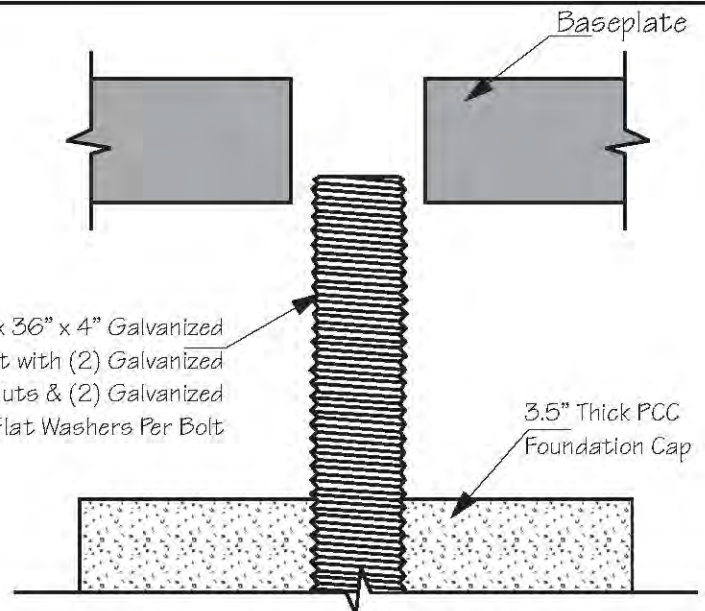
*CONCRETE AGGREGATES SHALL CONFORM TO ASTM C33.

*ALL REINFORCING STEEL SHALL BE GRADE 60 AND CONFORM TO ASTM A615 UNLESS OTHERWISE NOTED. SEE PLAN FOR SIZE AND PLACEMENT.

*ALL ANCHOR BOLTS & THREADED ROD SHALL BE ASTM F1554 GRADE 36 MINIMUM. NEW: & WITHOUT SIGNIFICANT RUST. TOP 2 FEET & HARDWARE TO BE GALVANIZED PER ASTM A123.

*PROPOSED ALTERATION FOR ALL ANCHOR BOLTS PER POLE, MAX OF 4 BOLTS PER POLE

*SPECIAL INSPECTIONS ARE REQUIRED. IN LIEU, CSJ WILL ACCEPT SIGNED AND STAMPED EOR LETTER FROM INSTALLATION OBSERVATION INDICATING PROPER INSTALLATION



Existing Anchor Rod Detail

Proof load of ASTM A563 coupling nut is 68 ksi, which is much greater than the 36 ksi yield strength of the existing anchor rod. Additionally, section modulus of the coupler nut is 0.172 in³ exceeding 0.098 in³ which is the section modulus of the existing anchor rod. In both cases, existing rod would fail before the coupler

Threaded Rod Extension, 2-5/8" max projection from bottom of baseplate, minimum 3 threads above nut per CSJ Specification 86-2.03

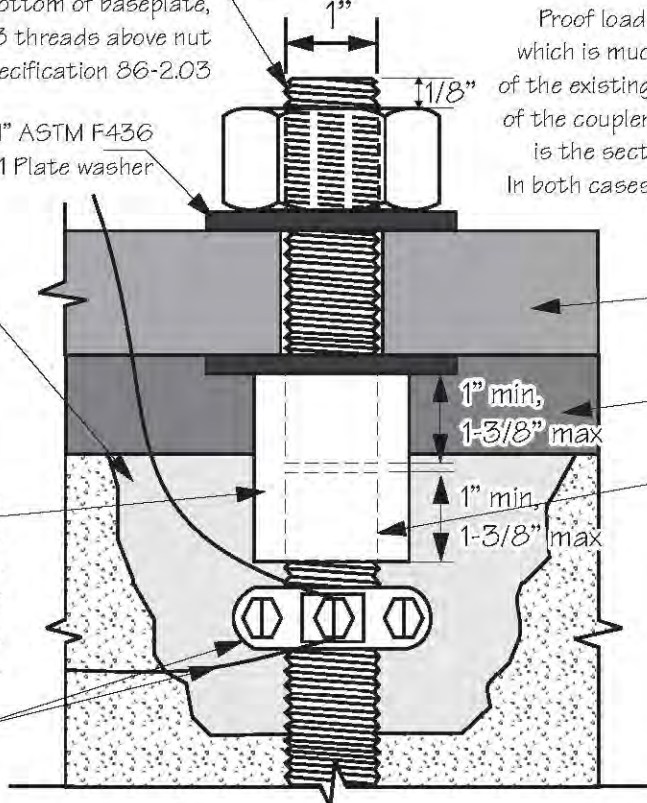
All anchor bolt threads cut, per CSJ Specification 86-2.03

1" ASTM F436 Type 1 Plate washer

Chip out existing foundation cap a maximum of 3.5" deep and a maximum diameter of 3.5", chipped area to be filled with ASTM C1107 high strength, non-shrink grout

1" Dia. thread x 2.75" length ASTM A563 grade A galvanized, to minimum zinc coating thickness of 4.0 mils per section 5.18 of AASHTO LTS-6 and ASTM A153, coupling nut

Ground clamp and ground wire, maximum 3" from the top of existing foundation cap to the bottom of the clamp



New Anchor Rod Detail

Existing 1-1/4" min thickness baseplate

Cut areas of existing rod to be protected with zinc based solder rod to a minimum coat thickness of 4.0 mils, per ASTM A780

Anchor bolt extensions and washers to be hot dipped galvanized to a minimum zinc coating thickness of 4.0 mils per section 5.18 of AASHTO LTS-6 and ASTM A153

Detail ARECN

Anchor Rod Extension using Coupling Nut

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Fax: 480 927-9797
www.ammtec.com

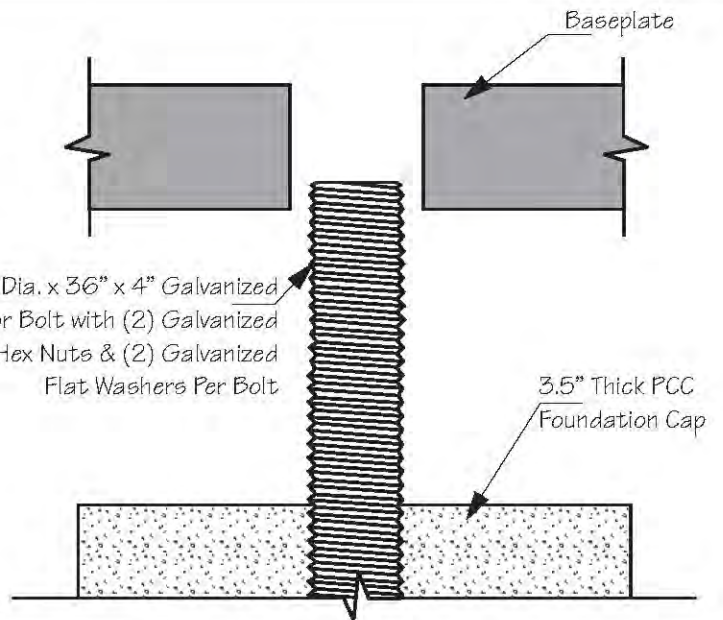
Prepared By: LAH
Reviewed By: AEM
Date: 1/27/20
Revision: N/A



APPENDIX C
Anamet Laboratory Certificate

NOTES:

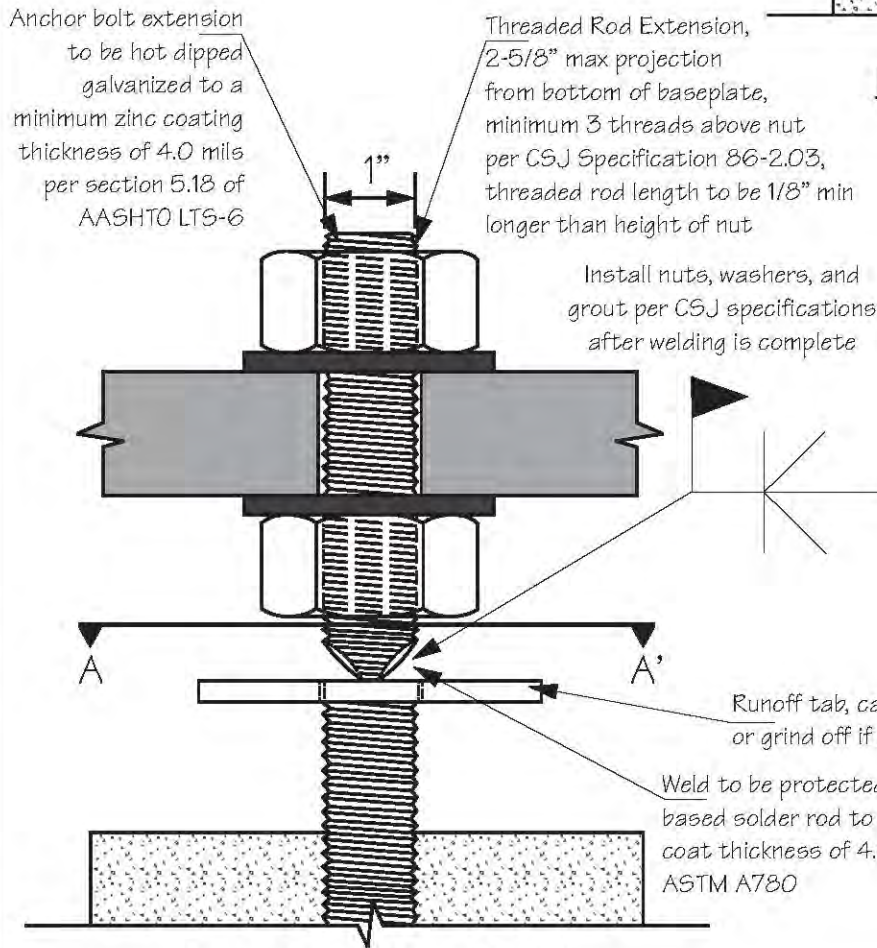
- *ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-14.
- *CEMENT SHALL CONFORM TO ASTM C150, TYPE II.
- *CONCRETE AGGREGATES SHALL CONFORM TO ASTM C33.
- *ALL REINFORCING STEEL SHALL BE GRADE 60 AND CONFORM TO ASTM A615 UNLESS OTHERWISE NOTED. SEE PLAN FOR SIZE AND PLACEMENT.
- *ALL ANCHOR BOLTS & THREADED ROD SHALL BE ASTM F1554 GRADE 36 MINIMUM. NEW: & WITHOUT SIGNIFICANT RUST. TOP 2 FEET & HARDWARE TO BE GALVANIZED PER ASTM A123.
- *SPECIAL INSPECTION REQUIRED FOR FIELD WELDING
- *PROPOSED ALTERATION FOR ALL ANCHOR BOLTS PER POLE, MAX OF 4 BOLTS PER POLE



Existing Anchor Rod Detail

Note: ASTM F1554 Gr. 36 and Gr. 55 with Supplement 1 only, See Welding Notes for full Weld Details

All anchor bolt threads cut, per CSJ Specification 86-2.03



New Anchor Rod Detail

Runoff tab, can trim or grind off if required

Weld to be protected with zinc based solder rod to a minimum coat thickness of 4.0 mils, per ASTM A780

Install nuts, washers, and grout per CSJ specifications after welding is complete

Threaded Rod Extension, 2-5/8" max projection from bottom of baseplate, minimum 3 threads above nut per CSJ Specification 86-2.03, threaded rod length to be 1/8" min longer than height of nut

Anchor bolt extension to be hot dipped galvanized to a minimum zinc coating thickness of 4.0 mils per section 5.18 of AASHTO LTS-6

Backgouge for CJP, see Note

17/16 in. dia.

Section A-A'

Detail ARE
Anchor Rod Extension



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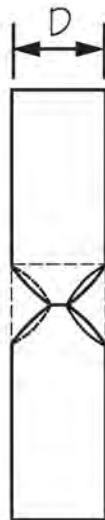
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Tempe, Arizona 85281
E-Mail: ammtec@ammtec.com

Phone: 480 927-9696
Fax: 480 927-9797
www.ammtec.com

Prepared By: aem
Reviewed By: AEM
Date: 2/7/20
Revision: N/A

WELDING NOTES:

- *UNLESS NOTED OTHERWISE, ALL WELDS PER LATEST EDITION OF THE AWS STANDARDS.
- *ALL WELDING DONE BY E70 SERIES LOW HYDROGEN RODS UNLESS NOTED OTHERWISE.
- *FOR GRADE 60 REINFORCING BARS, USE E90 SERIES.
- *DUE TO CONSTRAINTS, THE ANCHOR BOLT WELDS CANNOT BE ULTRASONICALLY TESTED FOR QUALITY ASSURANCE. THEREFORE, ALL WELDERS SHALL BE QUALIFIED BY A CITY OF SAN JOSE RECOGNIZED INSPECTION AGENCY PRIOR TO PERFORMING THE REQUIRED FIELD WELDING. THE INSPECTION AGENCY SHALL HAVE AN AWS CERTIFIED WELDING INSPECTOR (CWI) OVERSEE THE QUALIFICATION PROCESS.
- *ALL WELDERS SHALL PROVIDE NECESSARY CERTIFICATIONS TO THE INSPECTION AGENCY TO BEGIN THE QUALIFICATION PROCESS.
- *QUALIFICATION PROCESS SHALL INCLUDE PERFORMING THE CJP WELDS ON A MOCK SETUP THAT RESEMBLES FIELD CONDITIONS TO THE FULLEST EXTENT POSSIBLE.
- *QUALIFICATION SHALL INCLUDE PULL TEST OF EACH FINISHED CJP WELD. TEST LOAD SHALL BE 20 KIPS FOR A DURATION OF 10 SECONDS. A MINIMUM OF FOUR CJP WELDS SHALL PASS THE PULL TEST.
- *ONCE QUALIFIED BY THE INSPECTION AGENCY, WELDERS SHALL RECEIVE DOCUMENT(S) AS PROOF THAT THEY HAVE SUCCESSFULLY COMPLETED THE QUALIFICATION PROCESS. THE NAMES OF THE QUALIFIED WELDERS SHALL BE SUBMITTED TO THE CITY OF SAN JOSE PUBLIC WORKS FOR RECORDS.
- *AFTER QUALIFICATION PROCESS, THE INSPECTION AGENCY SHALL SUBMIT ALL RECORDS (I.E. WPS, CERTIFICATIONS, PROCEDURES, TESTING DOCUMENTS, ETC.) TO THE CITY OF SAN JOSE PUBLIC WORKS.
- *CONTINUOUS VISUAL INSPECTION IS REQUIRED FOR FIELD WELDING OF THE ANCHOR BOLT EXTENSIONS.
- *ALL WELDERS SHALL KEEP THEIR QUALIFICATION DOCUMENTS ON-SITE AND FURNISH AT THE REQUEST OF INSPECTORS AND CITY OF SAN JOSE EMPLOYEES.



Weld Effective Area:

$$A_w = D \times \pi D$$

$$A_w = 1" \times \pi \times 1"$$

$$A_w = 3.14 \text{ in}^2$$

Weld Capacity:

$$\phi F_w A_w = 0.80(0.60) F_{EXX} A_w$$

$$\phi F_w A_w = 0.80 \times 0.60 \times 70 \times 3.14 \text{ in}^2$$

$$\phi F_w A_w = 105.5 \text{ psi}$$

Detail ARE
Anchor Rod Extension

Welding Notes

AMMTEC CONSULTANTS, PLLC

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Tempe, Arizona 85281

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Prepared By: aem
Reviewed By: AEM
Date: 2/7/20
Revision: N/A

