ADDENDUM No. 2 TO THE CONTRACT DOCUMENTS

Project: *City of Unalaska Port Lighting Upgrades*

Addendum Issue Date: April 9, 2014

Issued for Bid Date: March 2014

Bid Due Date: April 17, 2014 at 2:00pm (AKDT) **CHANGED THIS ADDENDUM**

Previous Addenda Issued: No. 1

Issued By: Derrick Honrud
PND Engineers, Inc.
1506 West 36th Avenue
Anchorage, Alaska 99503

Notice to Bidders:

Bidders must acknowledge receipt of this addendum prior to the date set for bid opening by one of the following methods:

(1) By acknowledging receipt of this addendum on the bid submitted.
(2) By fax which includes a reference to the project and addendum number.

The bid documents require acknowledgment individually of all addenda to the drawings and/or specifications. This is a mandatory requirement and any bid received without acknowledgment of receipt of addenda may be classified as not being a responsive bid. If, by virtue of this addendum it is desired to modify a bid already submitted, such modification may be made by fax provided such a fax makes reference to this addendum and is received prior to the opening date specified above.

The Contract Documents for the above project are amended as follows (all other terms and conditions remain unchanged):

ITEM 1
Section: *00030 Invitation To Bid*

1.1 Change the date/time that bids are due to **April 17, 2014 at 2:00 PM (AKDT).**

ITEM 2
Section: *N/A – Answers to Questions*

2.1 Answers to additional questions asked as of 4/8/14:

Q1: Can the City confirm that the laydown area on Sheet 2 will in fact be the laydown area for the project? In talking with freight providers some will dock at the UMC City Dock but others can be directed to other docks due to dock traffic (such as Samson Tug). If the freight company gets pushed to another dock or the City changes the location, the Contractor may incur additional handling costs. These costs could be significant due to the size of the pole bundles, lifting equipment and flatbed trucks required to relocate the loads.

A1: A staging area roughly the size shown on Sheet 2 will be available for the Contractor at the UMC City Dock; however, the staging area will likely be in a different location on the UMC City Dock backreach area than shown. The Contractor shall coordinate the staging area (and work) with the Owner through the Port of Dutch Harbor (Ph. 907-581-1254). A second staging area (approx. 50-ft

x 100-ft) will also be available for the Contractor across from the entrance to the Spit Dock approach. See Item 3 of this addendum for further information.

Q2: Can you confirm that the City of Unalaska Dept. of Public Works (DPW) can offload the scrapped high mast pole sections at their storage yard? Also, can you identify the DPW storage yard on a map?

A2: The City DPW has an excavator at their yard that can lift up to 16,000 lbs., so the pole sections can be offloaded by the DPW Roads Division. The address for the DPW building and yard is 1035 E. Broadway Ave., Unalaska, AK 99685.

Q3: On Plan Sheet 6, detail "UMC City Dock High Mast Light Elevation" calls for jamb nuts to be installed over heavy hex top nuts. Project photos for UMC City Dock South and North pole locations show a single nut and flat washer on each anchor bolt. There does not appear to be sufficient room to install a jamb nut on exposed threads. In addition, suppliers inform us that 1/2 thickness jamb nuts are not available that meet ASTM 563DH. All other poles in the project have double top nuts and carry ASTM ratings. It is unclear if there is sufficient room to lower the leveling nuts to allow for installation of the jamb nut. If there had been, most likely the existing installation would have double top nuts. Please clarify bolting details for UMC City Dock north and south pole bases.

A3: The elevation of the new poles is being lowered by reducing the thickness of the grout pad to 4". Based on field measurements, this should be enough to allow the installation of jam nuts on top of the regular nuts. If, however, jam nuts are not able to be installed in the field, use of a thread-locker compound (such as LOCTITE 277) would be required for the regular nuts. If jam nuts are not available that meet ASTM A563DH, jam nuts meeting ASTM A194 Gr. 2H or even a lower standard would be an approved substitute, as the jam nuts are not considered structural.

Q4: On Plan Sheet E1, "Light Fixture Schedule" does not address the 12-ft poles on the Spit Dock Floating Dock. Please clarify.

A4: For clarification, the Type B fixtures in the schedule are for the 30-ft poles and 12-ft poles.

Q5: On Spit Dock Plan Sheet 5, what is the existing wiring method from the Electrical Connex to the 30-ft poles? What is the provision for wire ways in the dock structure?

A5: Electrical conduit runs underneath the existing dock structure and is supported by Unistrut. See supporting drawing attached to this addendum.

Q6: On Light Cargo Dock Plan Sheet 4, are the existing lighting contactors located in the distribution equipment?

A6: The existing lighting contactors are located in the electrical enclosure, mounted to the wall next to the distribution panelboards.

Q7: Plan Sheet 7 lists the Anchor Bolts and Hardware specification. The nuts are specified to meet ASTM A563DH. Will ASTM A194-2H be accepted as equal?

A7: Yes, ASTM A194-2H nuts are an acceptable substitution for ASTM A563DH nuts.

ITEM 3
Drawing: *Site Plan – Spit Dock (Sheet 5 of 7)*

3.1 Contractor staging area (approx. 50-ft x 100-ft) has been added to the drawing across Ballyhoo Road from the entrance to the Spit Dock approach. Attached to this addendum is a revised version of the drawing.

ITEM 4
Drawing: *High Mast Light Details (Sheet 6 of 7)*

4.1 **Clarification:** Changes have been made to the "UMC USCG Dock & Light Cargo Dock High Mast Light Elevation" to show that new anchor bolts/rods are required to be installed at the UMC USCG Dock high mast lights (for Base Bid) and at the Light Cargo Dock (Additive Alternate Bid Item #1 only). The existing anchor bolts/rods will still be reused with the existing high mast light pole at the Light Cargo Dock for the Base Bid.

4.2 Anchor bolt call-out changed to require installation of new **1 1/2" dia. galvanized ASTM F1554 Gr. 105 anchor bolts/rods** for the UMC USCG Dock (Base Bid) and Light Cargo Dock (Additive Alternate Bid Item #1 only) high mast lights.

4.3 Existing steel base plate call-out changed to indicate that it is **3" thick** and require enlargement of the existing holes in the base plate with a mag drill to accommodate the new anchor bolts/rods that are a larger diameter.

4.4 Existing steel pipe foundation call-out changed to indicate that the pile is **48" dia. (outside) x 0.5" thick**.

4.5 Call-out added for access holes to be plasma cut in the steel pipe foundation for installation of any new anchor bolts. The access holes are to be covered with a steel plate welded to the pipe foundation after use.

4.6 Cover Plate Detail added for UMC USCG Dock and Light Cargo Dock (for when access hole is required for new anchor bolt/rod installation).

4.7 The term "**ANCHOR BOLTS**" was added to Note 2.

4.8 The term "**1 1/2"ϕ ANCHOR BOLTS**" was added to Note 3.

4.9 Note 7 was added.

4.10 Attached to this addendum is a revised version of the drawing.

ITEM 5
Drawing: *General Notes (Sheet 7 of 7)*

5.1 In the "Anchor Bolts & Hardware" specification, **ASTM A194 Gr. 2H** was added as an alternate material for heavy hex nuts.

5.2 "**Structural Steel Welding**" specification was added.

5.3 Three (3) submittals were added to the list as #12, 13, and 14.

5.4 Item #1 in the "Proposed Anchor Bolt Tightening Procedure" was changed to indicate existing "**OR NEW**" anchor bolts.

5.5 Anchor bolts changed from "1 1/4"ϕ ASTM A449 BOLT" to "**1 1/2"ϕ ASTM F1554 GR. 105 ROD**" in "Top Nut Rotation Beyond Snug-Tight" section of the "Proposed Anchor Bolt Tightening Procedure".

5.6 Attached to this addendum is a revised version of the drawing.

ITEM 6
Drawing: *Electrical Specifications (Sheet E14)*

6.1 In the 1st sentence of the 2nd paragraph of the "High Mast Poles" specification, change "3-SECTIONS" to "**4-SECTIONS**".

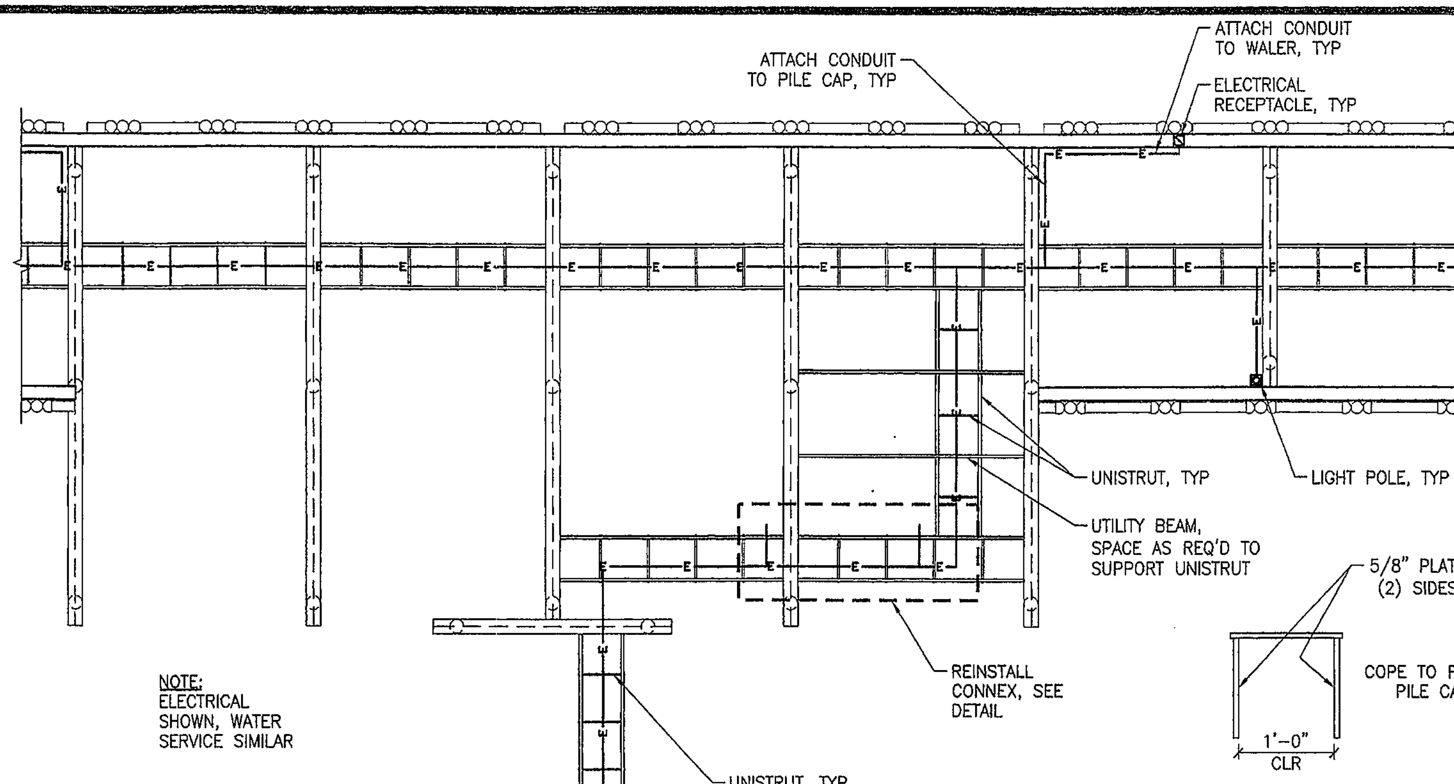
6.2 In the "High Mast Poles" specification, the 3rd and 4th paragraphs have been revised.

6.3 Attached to this addendum is a revised version of the drawing.

- END OF ADDENDUM -

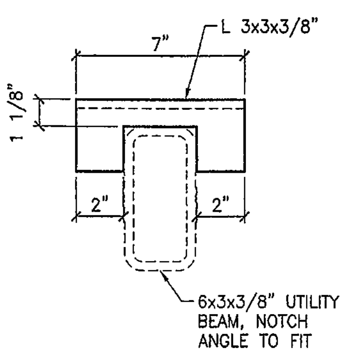
ITEM 2
ATTACHMENT:

Spit Dock Drawing for
Response to Question #5

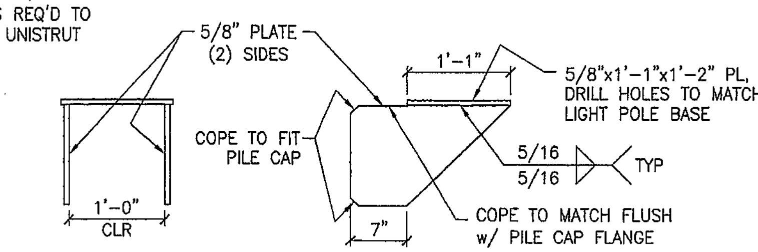


NOTE:
ELECTRICAL SHOWN, WATER SERVICE SIMILAR

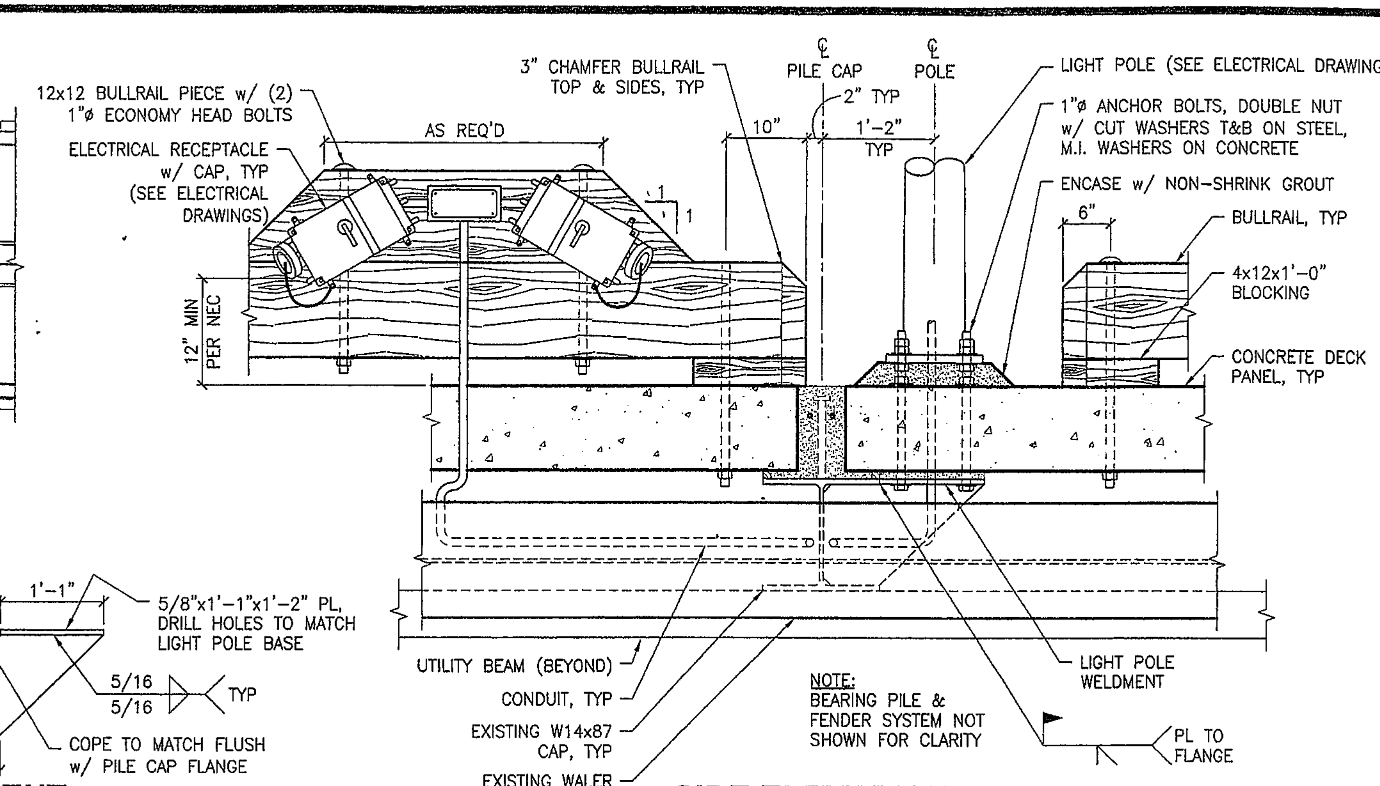
ELECTRICAL SERVICE PLAN
NTS



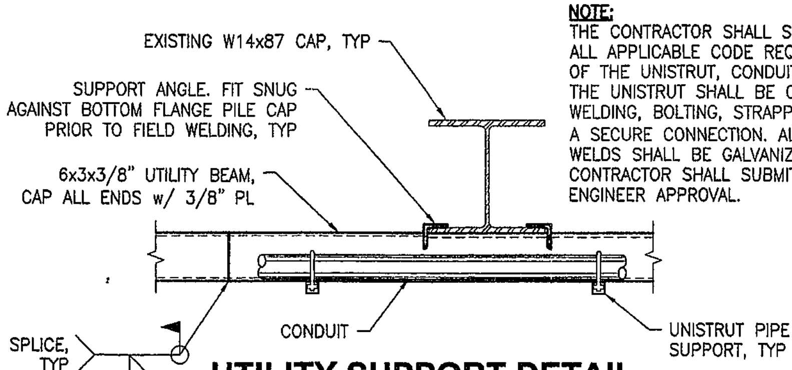
SUPPORT ANGLE
NTS



LIGHT POLE WELDMENT
NTS

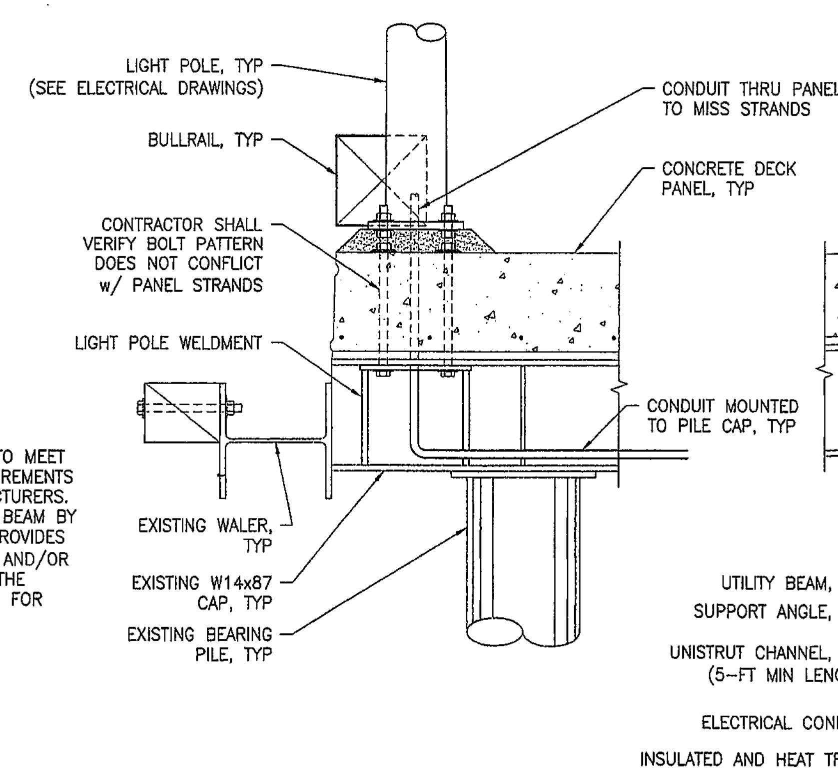


SIDE ELEVATION
NTS

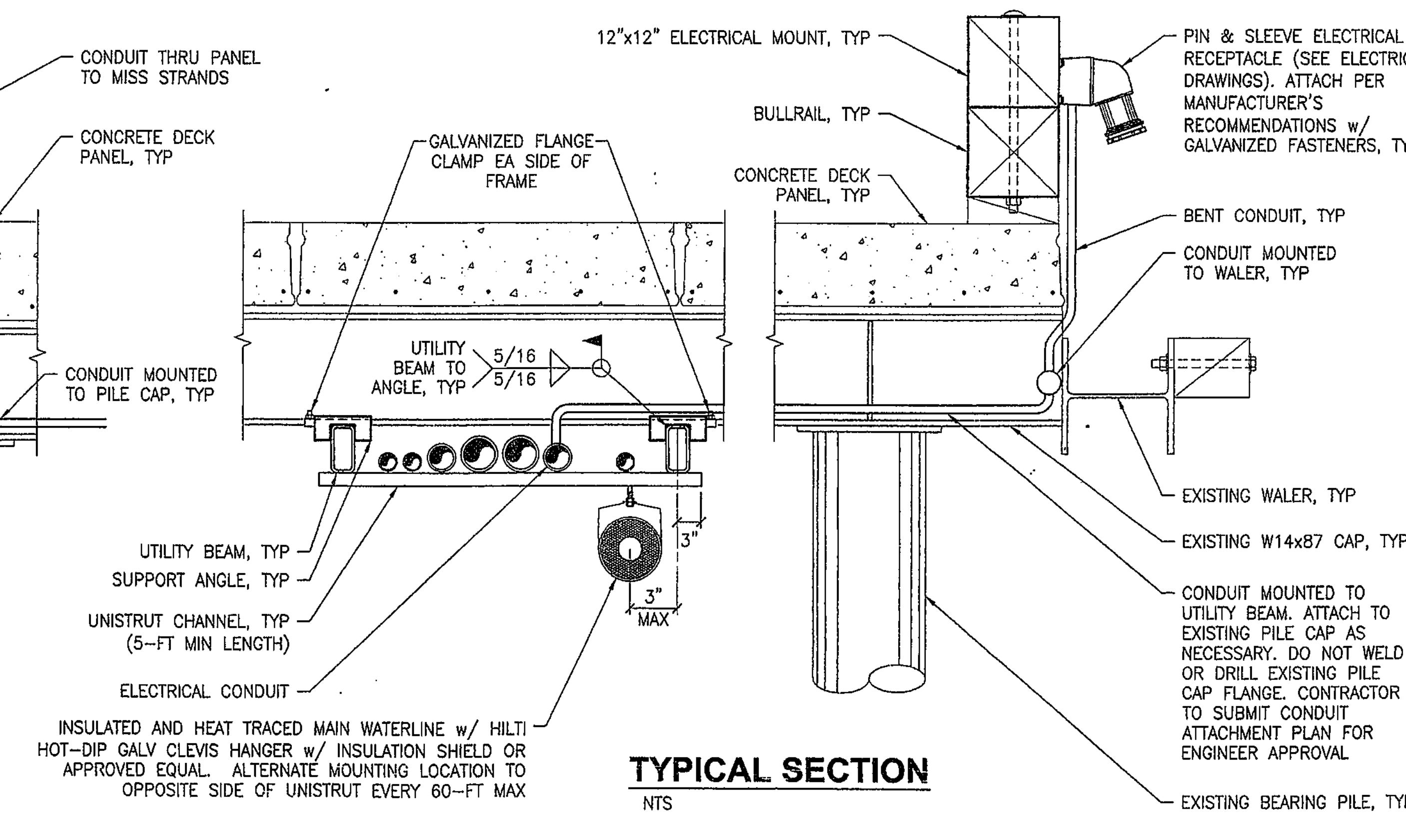


UTILITY SUPPORT DETAIL
NTS

NOTE:
THE CONTRACTOR SHALL SIZE AND SPACE UNISTRUT TO MEET ALL APPLICABLE CODE REQUIREMENTS AND THE REQUIREMENTS OF THE UNISTRUT, CONDUIT, AND WATERLINE MANUFACTURERS. THE UNISTRUT SHALL BE CONNECTED TO THE UTILITY BEAM BY WELDING, BOLTING, STRAPPING, OR A METHOD THAT PROVIDES A SECURE CONNECTION. ALL CONNECTION FASTENERS AND/OR WELDS SHALL BE GALVANIZED OR SPRAY METALIZED. THE CONTRACTOR SHALL SUBMIT THE CONNECTION METHOD FOR ENGINEER APPROVAL.



LIGHT POLE SECTION
NTS



TYPICAL SECTION
NTS

REV	DATE	DESCRIPTION

STATE OF ALASKA 49 TH — Alan B. Christopherson CE-5786 — REGISTERED PROFESSIONAL ENGINEER

3/24/06

1506 West 36th Avenue
Anchorage, Alaska 99503
Phone: 907.561.1011
Fax: 907.563.4220
www.pndengineers.com

PND ENGINEERS, INC.

PROJECT:
CITY OF UNALASKA
SPIT DOCK RENOVATION

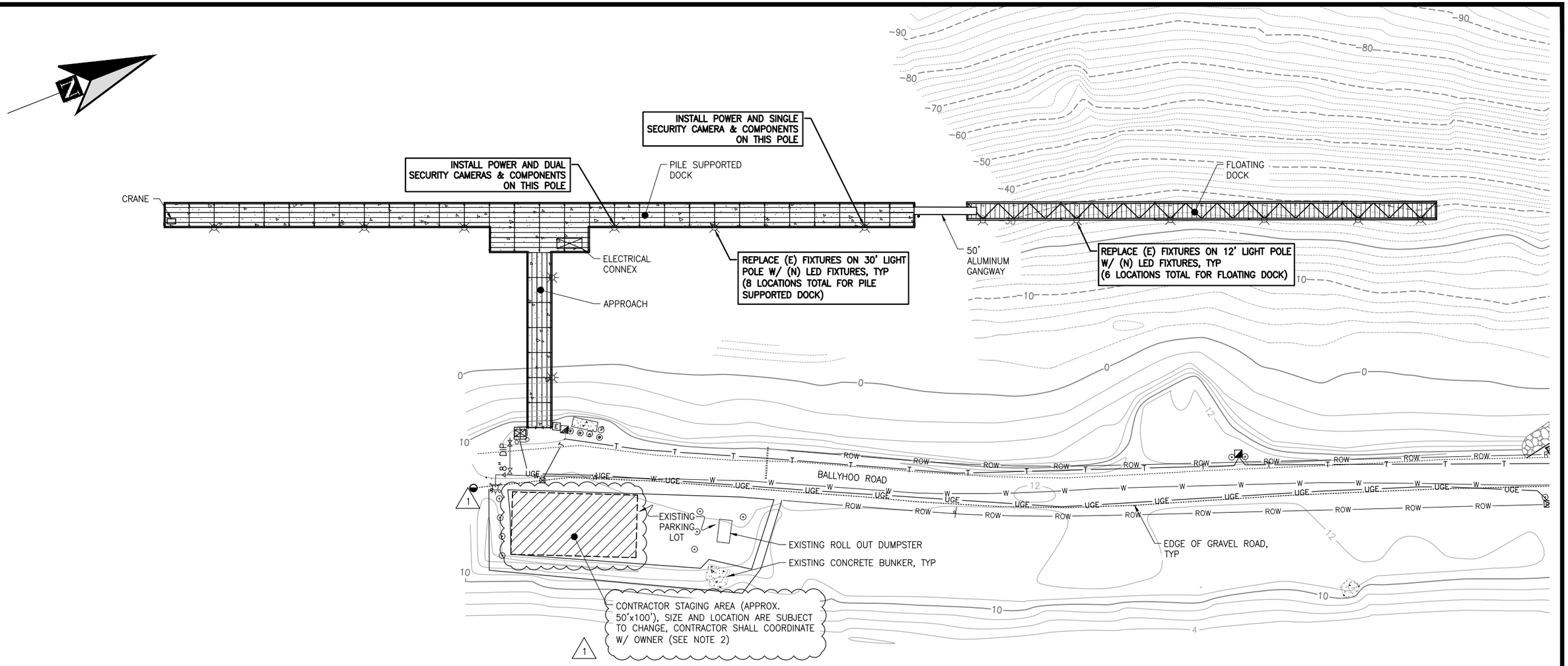
TITLE:
PILE SUPPORTED DOCK ELECTRICAL DETAILS

DESIGNED BY:	DST/BJ	DATE:	3/22/06
CHECKED BY:	ABC	PROJECT NO:	02162

SHEET NO: 14 OF 31

ITEM 3, 4, 5, & 6
ATTACHMENTS:

Site Plan – Spit Dock, Sheet 5 of 7 (Rev. 1)
High Mast Light Details, Sheet 6 of 7 (Rev. 1)
General Notes, Sheet 7 of 7 (Rev. 2)
Electrical Specifications, Sheet E14 (Rev. 1)



SPIT DOCK SITE PLAN

SCALE IN FEET

40 0 40 80 120

LEGEND

- —W— WATER LINE
- —UGE— UNDERGROUND ELECTRICAL
- —ROW— RIGHT OF WAY
- —T— TELEPHONE
- TELEPHONE PEDESTAL
- BOLLARD
- SURVEY MONUMENT
- TELEPHONE PEDESTAL
- LIGHT POLE

NOTES:

1. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL INFORMATION ON LIGHT POLES, FIXTURES, POWER, AND SECURITY CAMERAS & COMPONENTS.
2. COORDINATE STAGING AREA AND WORK WITH OWNER THRU THE PORT OF DUTCH HARBOR, PHONE (907) 581-1254.

ADDENDUM #2
APRIL 2014

REV	DATE	DESCRIPTION
1	4/9/14	ADDENDUM #2

DATE: _____

1506 West 36th Avenue
Anchorage, Alaska 99503
Phone: 907.561.1011
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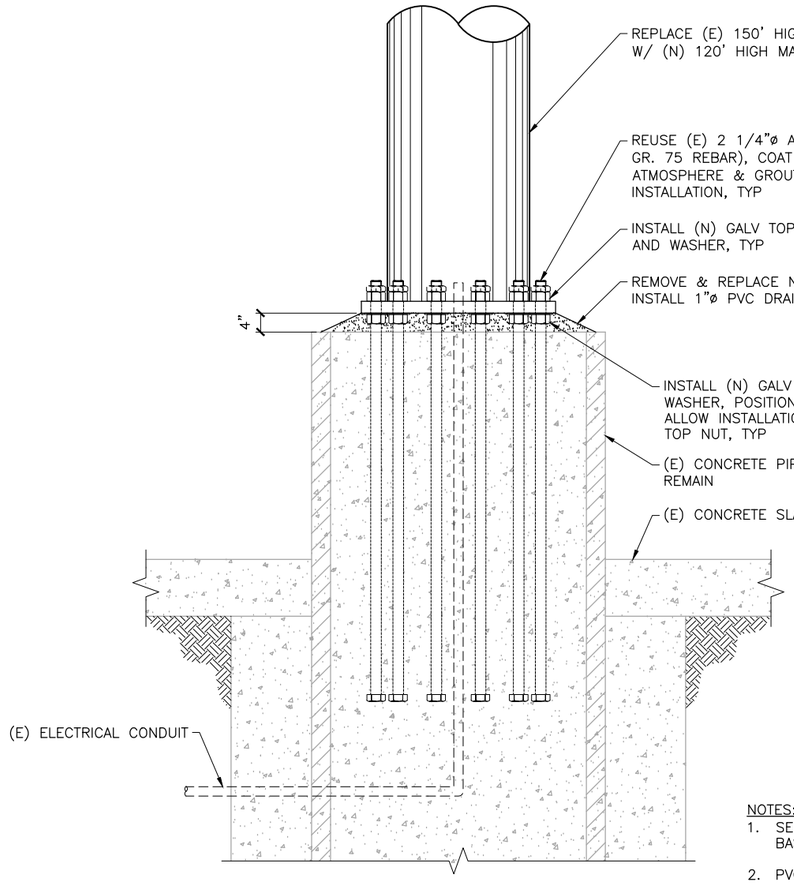
PND ENGINEERS, INC.

PROJECT: CITY OF UNALASKA
PORT LIGHTING UPGRADES

TITLE: SITE PLAN
SPIT DOCK

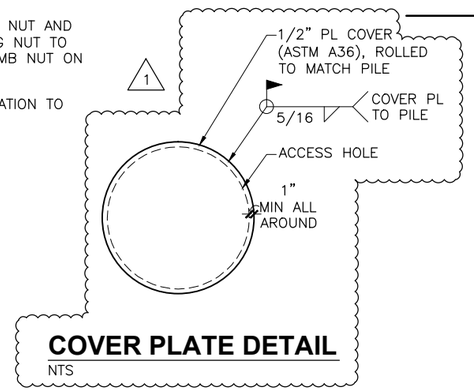
DESIGNED BY:	DDH	DATE:	3/13/14
CHECKED BY:	DST	PROJECT NO:	131018

SHEET NO: 5 OF 7



UMC CITY DOCK
HIGH MAST LIGHT ELEVATION
NTS

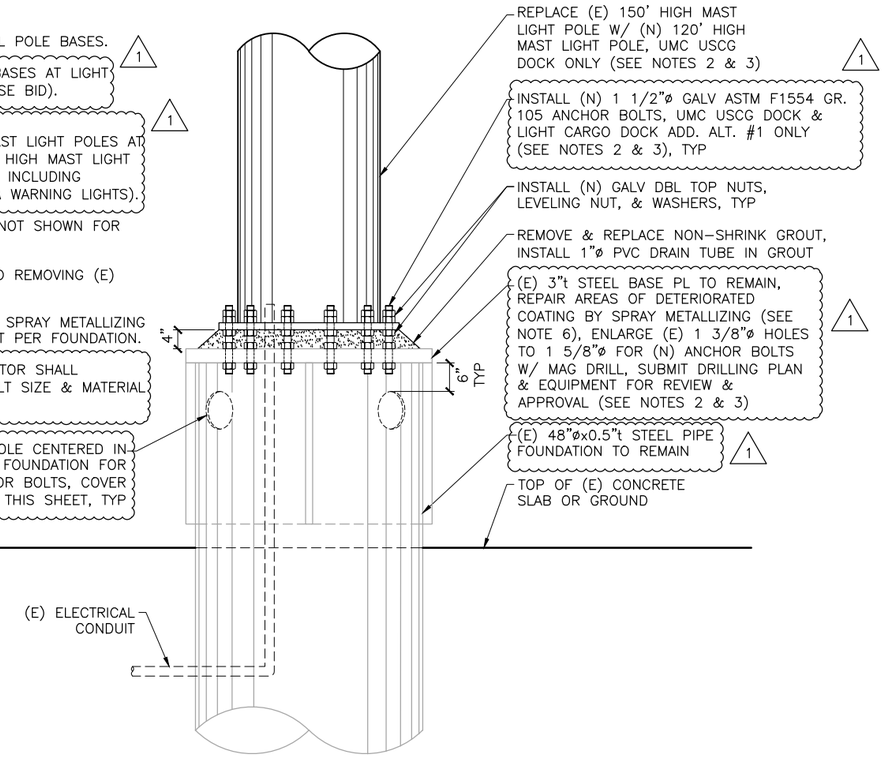
NOTES:
1. SEE TABLE FOR DATA ON (E) HML POLE BASES.
2. PVC DRAIN TUBE IN GROUT PAD NOT SHOWN FOR CLARITY.
3. DISCONNECT ELECTRICAL PRIOR TO REMOVING (E) HIGH MAST LIGHT POLE.



COVER PLATE DETAIL
NTS

NOTES:
1. SEE TABLE FOR DATA ON (E) HML POLE BASES.
2. HML POLES, ANCHOR BOLTS, & BASES AT LIGHT CARGO DOCK TO BE REUSED (BASE BID).
3. ADDITIVE ALTERNATE #1: REPLACE BOTH (E) 120' HIGH MAST LIGHT POLES AT LIGHT CARGO DOCK W/ (N) 120' HIGH MAST LIGHT POLES (ALL NEW COMPONENTS – INCLUDING 1 1/2"ø ANCHOR BOLTS AND FAA WARNING LIGHTS).
4. PVC DRAIN TUBE IN GROUT PAD NOT SHOWN FOR CLARITY.
5. DISCONNECT ELECTRICAL PRIOR TO REMOVING (E) HIGH MAST LIGHT.
6. FOR BIDDING PURPOSES, ASSUME SPRAY METALLIZING REPAIR AREA OF 15 SQUARE FEET PER FOUNDATION.
7. POLE MANUFACTURER & CONTRACTOR SHALL VERIFY/CONFIRM (N) ANCHOR BOLT SIZE & MATERIAL TYPE

PLASMA CUT 8"ø ACCESS HOLE CENTERED IN EACH QUADRANT OF PIPE PILE FOUNDATION FOR INSTALL OF (N) ANCHOR BOLTS, COVER W/ STEEL PL PER DETAIL ON THIS SHEET, TYP



UMC USCG DOCK & LIGHT CARGO DOCK
HIGH MAST LIGHT ELEVATION
NTS

EXISTING HML POLE BASE DATA

LOCATION	POLE HEIGHT	BASE PL DIAMETER	BASE PL THICKNESS	BOLT CIRC. DIAMETER	NO. OF BOLTS	BOLT DIAMETER	BOLT MATERIAL
UMC CITY DOCK	150'	41" (SQUARE)	2.5"	35"	16	2.25"	ASTM A615 GR. 75 (Fy=75ksi)
UMC USCG DOCK	150'	38"	1.5"	34.5"	16	1.25"	ASTM A449 (Fy=81ksi)
LIGHT CARGO DOCK	120'	36"	1.75"	32"	16	1.25"	ASTM A449 (Fy=81ksi)

NOTES:
1. THERE ARE **NO** HML'S LOCATED AT THE SPIT DOCK.
2. DATA SHOWN IN THE TABLE IS BASED ON REVIEW OF CONSTRUCTION SUBMITTALS AND FIELD INSPECTION. CONTRACTOR SHALL VERIFY DATA PRIOR TO ORDERING NEW HML'S AND NOTIFY THE OWNER/ENGINEER OF ANY DISCREPANCIES FOUND.
3. SQUARE BASE PL FOR UMC CITY DOCK HML'S IS CLIPPED AT CORNERS.
4. HML = HIGH MAST LIGHT

ADDENDUM #2
APRIL 2014

REV	DATE	DESCRIPTION
1	4/9/14	ADDENDUM #2

DATE: _____

1506 West 36th Avenue
Anchorage, Alaska 99503
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Fax: 907.563.4220
www.pndengineers.com
PND ENGINEERS, INC.

PROJECT: CITY OF UNALASKA
PORT LIGHTING UPGRADES

TITLE: HIGH MAST LIGHT DETAILS

DESIGNED BY: DDH
CHECKED BY: DST
DATE: 3/13/14
PROJECT NO: 131018
SHEET NO: 6 OF 7

GENERAL NOTES:

OWNER: CITY OF UNALASKA & PORT OF DUTCH HARBOR

NOTICE TO CONTRACTOR
THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL BE POSTED PROMINENTLY AT THE CONTRACTOR'S ONSITE PROJECT OFFICE.

ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, SPECIFICATIONS, SITE CONDITIONS, AND THESE NOTES SHALL BE REPORTED TO THE OWNER/ENGINEER AT ONCE. ANY FURTHER WORK PERFORMED BY THE CONTRACTOR AFTER FINDING SUCH DISCREPANCIES SHALL BE DONE AT HIS OWN RISK.

GENERAL PARAMETERS

DATUM
VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW).

TIDAL INFORMATION
NOAA TIDAL DATUMS FOR 1983–2001 EPOCH AT UNALASKA, DUTCH HARBOR (STATION #9462620):

EXTREME HIGH WATER (EHW)	EL. +6.7 FT
MEAN HIGHER HIGH WATER (MHHW)	EL. +3.6 FT
MEAN HIGH WATER (MHW)	EL. +3.3 FT
MEAN TIDE LEVEL (MTL)	EL. +2.1 FT
MEAN SEA LEVEL (MSL)	EL. +2.1 FT
MEAN LOW WATER (MLW)	EL. +0.9 FT
MEAN LOWER LOW WATER (MLLW)	EL. +0.0 FT
EXTREME LOW WATER (ELW)	EL. –2.5 FT

MATERIALS & INSTALLATION

GENERAL
ALL MATERIALS SHALL BE NEW UNLESS NOTED OTHERWISE (UNO) ON THE DRAWINGS. ALTERNATIVE SCHEMES SHALL BE APPROVED IN WRITING BY THE ENGINEER. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR UNO.

ANCHOR BOLTS & HARDWARE (2)
ANCHOR BOLT MATERIAL SHALL BE AS SHOWN IN THE PLANS. NUTS SHALL BE ASTM A563DH (OR ASTM A194 GR. 2H) HEAVY HEX. WASHERS SHALL BE ASTM F436. WASHERS SHALL BE INSTALLED UNDER THE HEAD OF ANCHOR BOLTS AND UNDER NUTS WHERE THEY WILL BEAR AGAINST STEEL, EXCEPT FOR DOUBLE NUTS OR JAM NUTS WHERE A WASHER IS NOT REQUIRED BETWEEN THE NUTS. ALL NEW ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE HOT–DIP GALVANIZED PER ASTM F2329.

ANCHOR BOLTS AND NUTS SHALL BE SNUG–TIGHTENED AND PRE–TENSIONED PER THE TURN–OF–NUT METHOD AND PROCEDURE PROPOSED IN THESE GENERAL NOTES (SEE FAR RIGHT COLUMN) IN THE PRESENCE OF THE ENGINEER. CONTRACTOR SHALL SUBMIT ANCHOR BOLT TIGHTENING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO TIGHTENING.

NON–SHRINK GROUT
NON–SHRINK GROUT SHALL BE CEMENT–BASED AND NON–METALLIC, MANUFACTURED BY FIVE STAR PRODUCTS (FIVE STAR® GROUT) OR ENGINEER APPROVED EQUAL.

HIGH MAST LIGHT POLES
HIGH MAST LIGHT POLES, BASES, AND ANCHOR BOLTS SHALL BE DESIGNED/ANALYZED PER THE SIXTH EDITION (2013) OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" (AASHTO LTS–6). DESIGN LIFE FOR POLES SHALL BE 50 YEARS. BASIC WIND SPEED FOR POLE CALCULATIONS SHALL BE 130 MPH AND GUST EFFECT FACTOR SHALL BE 1.14. FATIGUE CATEGORY I IMPORTANCE FACTORS SHALL BE USED. THE AVERAGE ANNUAL WIND SPEED USED FOR FATIGUE DESIGN SHALL BE 11.2 MPH. (1)

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATION PACKAGE PROVIDED BY THE POLE MANUFACTURER TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FINAL ORDERING. THE CALCULATION PACKAGE SHALL BE SIGNED AND SEALED BY A CIVIL OR STRUCTURAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF ALASKA.

HIGH MAST LIGHT POLES (CONT'D)
ANCHOR BOLT SIZE AND PATTERN SHALL MATCH THE EXISTING FOUNDATIONS/BASES AS SHOWN IN THE PLANS. CONTRACTOR SHALL FIELD–VERIFY ANCHOR BOLT SIZE AND PATTERN PRIOR TO ORDERING MATERIALS AND NOTIFY OWNER/ENGINEER OF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE PLANS.

SEE ELECTRICAL DRAWINGS FOR FURTHER SPECIFICATIONS FOR HIGH MAST LIGHT POLES AND COMPONENTS.

ZINC–RICH PRIMER
ZINC–RICH PRIMER SHALL CONTAIN AT LEAST 95% (BY WEIGHT) PURE METALLIC ZINC IN THE DRY FILM AND MEET THE REQUIREMENTS OF ASTM A780. PREPARE SURFACE TO BE COATED AND APPLY PRIMER PER MANUFACTURER'S RECOMMENDATIONS IN AT LEAST TWO (2) COATS.

SPRAY METALLIZING
SPRAY METALLIZING SHALL BE PERFORMED PER AWS C2.23–2003. STEEL SUBSTRATE SHALL BE PREPARED TO SSPC–SP/NACE NO.1 WHITE METAL BLAST FINISH WITH A MINIMUM ANGULAR PEAK–TO–VALLEY PROFILE DEPTH OF 2.5 MILS. BLAST MEDIA SHALL BE KLEEN BLAST SIZE 16–30 AS MANUFACTURED BY KLEEN INDUSTRIAL SERVICES (800–227–1134) OR APPROVED EQUAL. AFTER BLASTING, REMOVE DUST AND SPENT ABRASIVE FROM THE SURFACE BY USING OIL–FREE PRESSURIZED AIR, BRUSHING, OR VACUUM CLEANING. THE STEEL SURFACE TEMPERATURE SHALL BE AT LEAST 5 °F ABOVE THE DEW POINT OF THE AMBIENT AIR TEMPERATURE. FOR FLAME SPRAYING, THE INITIAL STARTING AREA SHALL BE PREHEATED TO 250 °F. FEEDSTOCK SHALL BE 100% ZINC APPLIED IN SEVERAL PASSES (APPROXIMATELY 2–4 MILS PER PASS) TO A MINIMUM DRY COATING FILM THICKNESS OF 10 MILS. DURING APPLICATION, SPRAY GUN SHALL BE HELD PERPENDICULAR TO THE SUBSTRATE AT A STAND–OFF DISTANCE OF 6 TO 10 INCHES.

THE CONTRACTOR SHALL PERIODICALLY VERIFY PASS AND TOTAL COATING THICKNESSES. TENSILE BOND STRENGTH SHALL BE MEASURED PER ASTM D4541 ON A TEST PLATE AT THE START OF EACH SHIFT, AFTER ANY CHANGE TO THE APPLICATION METHOD, OR EVERY 500 SQUARE FT. THE MINIMUM TENSILE BOND SHALL BE 500 PSI. FIELD METALLIZING SHALL BE BOND TESTED BY THE CONTRACTOR IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. (2)

STRUCTURAL STEEL WELDING
ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1 BY WELDERS QUALIFIED PER AWS FOR THE TYPE AND POSITION OF THE WELDS. ALL FILLER METAL SHALL MEET CHARPY IMPACT CRITERIA OF 20 FT–LBS AT –20 DEGREES F AND SHALL HAVE A MAXIMUM CARBON CONTENT OF 0.20%. ALL SMAW ELECTRODES SHALL BE PROPERLY CONDITION LOW HYDROGEN. SUBMIT WELDING PROCEDURES AND WELDER QUALIFICATIONS TO ENGINEER FOR APPROVAL.

THE CONTRACTOR SHALL PROVIDE A CWI TO PERFORM 100% VISUAL INSPECTION OF ALL FIELD WELDS. ANY WELD FAILING INSPECTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, WHICH WILL INCLUDE THE COST FOR RETESTING. THE OWNER MAY PROVIDE ADDITIONAL INSPECTION OF FIELD WELDS AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS AS A RESULT OF ADDITIONAL OWNER INSPECTIONS.

ACCEPTANCE CRITERIA FOR ALL WELD INSPECTION SHALL CONFORM TO AWS D1.1 CRITERIA FOR STATICALLY LOADED STRUCTURES.

NO WELDING THROUGH GALVANIZED OR SPRAY METALLIZED COATINGS SHALL BE PERFORMED. ALL COATING WITHIN ONE INCH OF THE WELD SHALL BE REMOVED AND REPAIRED BY SPRAY METALLIZING AFTER WELDING.

DEMOLISHED MATERIAL DISPOSAL (1)
THE OWNER RESERVES FIRST RIGHT OF REFUSAL FOR ALL DEMOLISHED MATERIALS. THE OWNER WILL ACCEPT THE REMOVED STEEL POLES IN SECTIONS LESS THAN APPROX. 40 FEET IN LENGTH, BUT NOT SHORTER THAN 20 FEET IN LENGTH. CONTRACTOR SHALL COORDINATE WITH THE DEPARTMENT OF PUBLIC WORKS (DPW) ROADS DIVISION (PH.907–581–1260) FOR DELIVERY TO THE DPW YARD. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DISPOSE OF ALL DEMOLISHED MATERIALS NOT CLAIMED BY THE OWNER, INCLUDING HAZARDOUS MATERIALS, IN ACCORDANCE WITH ALL FEDERAL, STATE, & LOCAL REGULATIONS. FOR HAZARDOUS MATERIALS, CONTRACTOR SHALL SUBMIT TO THE OWNER A "WASTE MANIFEST" AND "CERTIFICATE OF DISPOSAL" OR OTHER APPROVED DOCUMENTATION TO VERIFY PROPER DISPOSAL OR RECYCLING OF MATERIALS.

SUBMITTALS

SHOP DRAWINGS FOR ALL FABRICATED MATERIALS SHALL BE SUBMITTED TO THE ENGINEER FOR WRITTEN APPROVAL PRIOR TO FABRICATION OR SHIPPING OF ANY ITEM. CERTIFICATIONS, MANUFACTURER'S DATA, AND OTHER INFORMATION FOR ALL MATERIALS, INCLUDING THOSE NOT SPECIFICALLY NOTED IN THE GENERAL NOTES OR SHOWN ON INDIVIDUAL DRAWINGS, SHALL BE SUBMITTED TO THE ENGINEER FOR WRITTEN APPROVAL. ALL METHODS AND MATERIALS SHALL CONFORM TO THE CONTRACT DOCUMENTS, GENERAL NOTES, THE PLANS, GOOD WORKMANSHIP, GENERALLY ACCEPTED INDUSTRY STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS. ELECTRONIC SUBMITTALS ARE PREFERRED. FOR HARD COPY SUBMITTALS, A MINIMUM OF THREE (3) SETS SHALL BE PROVIDED WITH EACH SUBMITTAL. REVIEWED COPIES WILL BE RETURNED TO THE CONTRACTOR AND MARKED AS REQUIRED FOR ACCEPTANCE OR NON–ACCEPTANCE. THE ENGINEER'S REVIEW OF SUBMITTALS WILL BE FOR GENERAL CONFORMANCE ONLY, AND IT SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. ANY INTENDED

DEVIATION FROM THE PLANS AND SPECIFICATIONS MUST BE SPECIFICALLY IDENTIFIED BY THE CONTRACTOR AND SPECIFICALLY APPROVED BY THE ENGINEER TO BE ACCEPTABLE. WORK PERFORMED BY THE CONTRACTOR PRIOR TO RECEIVING ENGINEER'S OR OWNER'S WRITTEN APPROVAL SHALL BE AT THE CONTRACTOR'S OWN RISK. ANY SUCH WORK REQUIRED BY THE ENGINEER OR OWNER TO BE REMOVED AND/OR REPLACED SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

THE FOLLOWING IS A LIST OF REQUIRED SUBMITTALS FOR THIS PROJECT (ADDITIONAL SUBMITTALS MAY BE REQUIRED BY THE ENGINEER OR OWNER):

1. CONSTRUCTION WORK PLAN & CPM SCHEDULE, PRIMAVERA OR MS PROJECT ELECTRONIC FILE (INCLUDING LOGIC)
2. CERTIFICATIONS FOR ALL STEEL USED (INCLUDING ANCHOR BOLT HARDWARE) INCLUDING CHEMISTRY, YIELD, AND MILL NUMBERS
3. HIGH MAST LIGHT POLE SHOP DRAWINGS
4. HIGH MAST LIGHT POLE CALCULATIONS PACKAGE
5. HIGH MAST LIGHT POLE ANCHOR BOLT TIGHTENING PLAN
6. ANCHOR BOLT & NUT THREAD LUBRICATION MATERIAL
7. NON–SHRINK GROUT MATERIAL
8. GALVANIZING CERTIFICATIONS
9. ZINC–RICH PRIMER MATERIAL
10. RED–LINED AS–BUILT DRAWINGS
11. DOCUMENTATION OF PROPER DISPOSAL FOR HAZARDOUS MATERIALS (1)
12. AWS WELDING QUALIFICATIONS FOR ALL WELDERS UTILIZED
13. WELDING PROCEDURE SPECIFICATIONS (WPS) AND PROCEDURE QUALIFICATION RECORDS (PQR) AS APPROPRIATE
14. ANCHOR BOLT HOLE ENLARGEMENT/DRILLING PLAN & EQUIPMENT (2)

AS–BUILT PLANS
THE CONTRACTOR SHALL MAINTAIN A SET OF AS–BUILT PLANS IN THE ONSITE PROJECT OFFICE. THE AS–BUILT PLANS SHALL BE KEPT UP TO DATE THROUGHOUT THE PROJECT WITH THE LATEST AS–BUILT DIMENSIONS AND DETAILS AS APPROVED BY THE ENGINEER AND SHALL BE SUBMITTED TO THE OWNER WITHIN 30 DAYS AFTER THE END OF THE PROJECT.

PROPOSED ANCHOR BOLT TIGHTENING PROCEDURE**: (2)

1) VERIFY THAT THE NUTS CAN BE TURNED ONTO THE EXISTING (OR NEW) ANCHOR BOLTS PAST THE ELEVATION CORRESPONDING TO THE BOTTOM OF EACH IN–PLACE LEVELING NUT AND BE BACKED OFF BY THE EFFORT OF ONE MAN ON A 12–INCH LONG WRENCH OR EQUIVALENT (I.E., WITHOUT EMPLOYING A PIPE EXTENSION ON THE WRENCH HANDLE). CONTRACTOR SHALL HAVE CORRECTLY SIZED DIES ONSITE TO CHASE THE THREADS (GALVANIZED) OF THE ANCHOR BOLTS IF NUTS CANNOT BE TURNED ONTO THE BOLTS AS SPECIFIED ABOVE.
2) CLEAN AND LUBRICATE THE EXPOSED THREADS OF ALL ANCHOR BOLTS AND THE THREADS AND BEARING SURFACES OF ALL LEVELING NUTS WITH A COMMERCIAL WAX PRODUCT OR APPROVED EQUIVALENT. RE–LUBRICATE THE EXPOSED THREADS OF THE ANCHOR BOLTS AND THE THREADS OF THE LEVELING NUTS IF MORE THAN 24 HOURS HAS ELAPSED SINCE EARLIER LUBRICATION, OR IF THE BOLTS AND LEVELING NUTS HAVE BECOME WET SINCE THEY WERE FIRST LUBRICATED.
3) TURN THE LEVELING NUTS ONTO THE ANCHOR BOLTS AND ALIGN THE NUTS TO THE SAME ELEVATION.
4) PLACE STRUCTURAL WASHERS ON TOP OF THE LEVELING NUTS (ONE WASHER CORRESPONDING TO EACH ANCHOR BOLT).
5) INSTALL THE BASE PLATE ATOP THE LEVELING NUTS, PLACE STRUCTURAL WASHERS ON TOP OF THE BASE PLATE (ONE WASHER CORRESPONDING TO EACH ANCHOR BOLT), AND TURN THE TOP NUTS ONTO THE ANCHOR BOLTS.
6) TIGHTEN TOP NUTS TO A SNUG–TIGHT CONDITION IN A STAR PATTERN. SNUG–TIGHT IS DEFINED AS THE MAXIMUM NUT ROTATION RESULTING FROM THE FULL EFFORT OF ONE MAN ON A 12–INCH LONG WRENCH OR EQUIVALENT. A STAR TIGHTENING PATTERN IS ONE IN WHICH THE NUTS ON OPPOSITE OR NEAR–OPPOSITE SIDES OF THE BOLT CIRCLE ARE SUCCESSIVELY TIGHTENED IN A PATTERN RESEMBLING A STAR. TIGHTENING TO SNUG–TIGHT CONDITION SHALL BE WITNESSED BY THE ENGINEER.
7) TIGHTEN LEVELING NUTS TO A SNUG–TIGHT CONDITION IN A STAR PATTERN. TIGHTENING TO SNUG–TIGHT CONDITION SHALL BE WITNESSED BY THE ENGINEER.
8) BEFORE FINAL TIGHTENING OF THE TOP NUTS, MARK THE REFERENCE POSITION OF EACH TOP NUT IN A SNUG–TIGHT CONDITION WITH A SUITABLE MARKING ON ONE FLAT WITH A CORRESPONDING REFERENCE MARK ON THE BASE PLATE AT EACH BOLT IN THE PRESENCE OF THE ENGINEER. THEN INCREMENTALLY TURN THE TOP NUTS USING A STAR PATTERN UNTIL ACHIEVING THE REQUIRED NUT ROTATION SPECIFIED BELOW. TURN THE NUTS IN AT LEAST TWO FULL TIGHTENING CYCLES (PASSES). AFTER TIGHTENING, VERIFY NUT ROTATION WITH THE ENGINEER.

TOP NUT ROTATION BEYOND SNUG–TIGHT: (2)

1 1/2"ø ASTM F1554 GR. 105 ROD	1/4 TURN*
2 1/4"ø ASTM A615 GR. 75 ROD	1/12 TURN*

* TOLERANCE IS PLUS (+) 20 DEGREES (1/18 TURN)

** THIS PROCEDURE HAS BEEN ADAPTED FROM AASHTO LTS–6 FOR USE ON THIS PROJECT ONLY.

ADDENDUM #2
APRIL 2014

PND Engineers, Inc. (PND) is not responsible for safety programs, methods or procedures of operation, or the construction of the design shown on these drawings. Where specifications are general or not called out, the specifications shall conform to standards of industry. Drawings are for use on this project only and are not intended for reuse without written approval from PND. Drawings are also not to be used in any manner that would constitute a detriment directly or indirectly to PND.

REV	DATE	DESCRIPTION
2	04/9/14	ADDENDUM #2
1	04/2/14	ADDENDUM #1

DATE: _____

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PND ENGINEERS, INC.

PROJECT: CITY OF UNALASKA
PORT LIGHTING UPGRADES

TITLE: GENERAL NOTES

DESIGNED BY:	DDH	DATE:	3/13/14
CHECKED BY:	DST	PROJECT NO:	131018

SHEET NO: 7 OF 7

ELECTRICAL SPECIFICATIONS

SCOPE OF WORK – FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR AN EXTENSION TO THE EXISTING ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

STANDARDS, CODES AND REGULATIONS – COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, AND INTERNATIONAL FIRE CODE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION.

DRAWINGS – THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ENGINEER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

RECORD DRAWINGS – MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

WORKMANSHIP – INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

SUBMITTALS – PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE BOUND IN HARD COVER, LOOSE-LEAF BINDERS SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

OPERATION AND MAINTENANCE MANUALS – PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FROM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.

WARRANTY – THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM SUBSTANTIAL COMPLETION. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

PERMITS – SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES.

REFERENCE SYMBOLS – THE ELECTRICAL "LEGEND" ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE "LEGEND" AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.

ELECTRICAL DEMOLITION – DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DRAWING. REPORT DISCREPANCIES TO ENGINEER BEFORE DISTURBING THE EXISTING INSTALLATION. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

CONDUIT – ALL WIRING SHALL BE INSTALLED IN METALLIC OR NON-METALLIC RACEWAY. RACEWAY SHALL BE INSTALLED CONCEALED EXCEPT AT SURFACE MOUNTED CABINETS, MOTORS AND EQUIPMENT CONNECTIONS. INSTALL AN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS. UTILIZE GALVANIZED RIGID STEEL IN WET LOCATIONS, IN DIRECT CONTACT WITH CONCRETE OR BELOW GRADE OR WHERE EXPOSED TO DAMAGE. ELECTRICAL METALLIC TUBING MAY BE USED IN ALL CONCEALED, DRY, INTERIOR LOCATIONS. COMPLETELY AND THOROUGHLY SWAB RACEWAY SYSTEM BEFORE INSTALLING CONDUCTORS.

WIRE AND CABLE – ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #18 AWG. ALL WIRING OUTSIDE OF HEATED STRUCTURES, BELOW GRADE, IN WET LOCATIONS OR IN AREAS WITH TEMPERATURES BELOW 32° F SHALL HAVE XHHW INSULATION. PULL ALL CONDUCTORS INTO THE RACEWAY AT THE SAME TIME. USE UL LISTED WIRE PULLING LUBRICANT FOR PULLING 4 AWG AND LARGER WIRES. COLOR CODE CONDUCTORS AS FOLLOWS: 120/208 VOLT SYSTEMS: BLACK, RED, BLUE AND WHITE; 277/480 VOLT SYSTEMS: BROWN, ORANGE, YELLOW, AND WHITE WITH AN IDENTIFIABLE COLORED STRIPE. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER.

LIGHTING EQUIPMENT – PROVIDE AND INSTALL ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, MOUNTING SUPPORTS, HARDWARE, ETC.

LAMPS: LED LAMPS SHALL BE COLORED AS NOTED IN THE FIXTURE SCHEDULE, WITH A MINIMUM 75CRI AND A MINIMUM RATED LIFE OF 50,000 HOURS AT 40 F DEGREES AVERAGE AMBIENT TEMPERATURE.

LED POWER SUPPLIES: PROVIDE UL LISTED POWER SUPPLY AS RECOMMENDED BY THE LED FIXTURE MANUFACTURER FOR OPERATION OF THE SPECIFIED LED LAMPS. POWER SUPPLY SHALL BE INTEGRAL TO THE LUMINAIRE UNLESS OTHERWISE NOTED ON THE PLANS. POWER SUPPLY SHALL OPERATE AT THE SUPPLY VOLTAGE INDICATED ON THE PLANS AND SHALL BE LISTED FOR STARTING AND OPERATING THE LAMPS AT -20F.

HIGH MAST POLES:

GENERAL REQUIREMENTS: BASIS OF DESIGN FOR HIGH MAST POLES AND LOWERING SYSTEMS ARE MILLERBERND SSLD2. ALL SUBSTITUE SYSTEMS SHALL BE OR EQUAL AND APPROVED BY THE ENGINEER. HIGH MAST POLES SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH LOADING AND ALLOWABLE STRESS REQUIREMENTS OF 2013 AASHTO, LTS-6, FOR THE LIGHT FIXTURE CONFIGURATIONS AS REQUIRED BY THESE DRAWINGS, SEE CIVIL SPECIFICATIONS FOR FURTHER DESIGN CRITERIA. LOWERING SYSTEMS SHALL BE BOTTOM LATCH AND ALL POLE AND LOWERING SYSTEM HARDWARE SHALL BE STAINLESS STEEL UNLESS SPECIFICALLY NOTED. THE COMPREHENSIVE UNIT SHALL BE ENTIRELY MANUFACTURED, ASSEMBLED, AND WARRANTED BY A SINGLE MANUFACTURER. PRODUCT SUBMITTALS AND/OR CUT-SHEETS SHALL BE DETAILED AND INCLUDE A COMPREHENSIVE BILL OF MATERIAL. ALL WELDING WILL BE PERFORMED BY CERTIFIED AWS WELDERS UNDER THE QUALITY CONTROL OF AN AISC FABRICATION FACILITY. ALL GALVANIZING SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM A123. ALL HARDWARE SHALL BE SUPPLIED AS STAINLESS STEEL. SUPPORTING POLE STRUCTURE DESIGNS SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER FOR THE STATE IN WHICH THE PRODUCT WILL BE INSTALLED. THE SYSTEM MANUFACTURER SHALL HAVE A MINIMUM OF 5 YEARS EXPERIENCE IN THE DESIGN, DEVELOPMENT, MANUFACTURE, AND INSTALLATION OF RAISING AND LOWERING DEVICES.

POLE SHAFT: SHAFT MATERIAL IN ACCORDANCE WITH ASTM A572, HOT-DIPPED GALVANIZING IN ACCORDANCE WITH ASTM A123, 120 FT HEIGHT, 4-SECTIONS IN ACCORDANCE WITH ALASKA DEPARTMENT OF TRANSPORTATION REQUIREMENTS AND SHALL HAVE NOT MORE THAN TWO LONGITUDINAL 60% PENETRATION SEAM WELDS. EACH SECTION SHALL BE UNIFORMLY TAPERED AND SHALL BE JOINED TOGETHER TO FORM THE POLE SHAFT ASSEMBLY BY TELESCOPING THE SECTIONS OVER THE NEXT LOWER SECTION WITH A MINIMUM SLIPFIT OF 1.5 TIMES THE OUTSIDE SHAFT DIAMETER AT THE TOP OF THE LOWER SECTION.

THE BASE SHALL BE ATTACHED TO THE SHAFT WITH A 100% PENETRATION CIRCUMFERENTIAL WELD. IT SHALL TAPER TO A ROUND BOTTOM ALLOWING AMPLE ROOM TO HOUSE THE WINCH MOTOR AND DRUM. THE BASE PLATE SHALL BE A COLD FORMED RING OF STEEL WITH A YIELD STRENGTH OF 50,000 PSI BEFORE FORMING, AND SHALL BE DESIGNED TO WITHSTAND THE FULL BENDING MOMENT OF THE POLE SHAFT. THE BASE PLATE SHALL BE 2" THICK AND BE DRILLED FOR THE REQUIRED ANCHOR BOLTS. THE SURFACE AROUND EACH HOLE SHALL BE MILLED FLAT AND SMOOTH TO RECEIVE THE LEVELING NUT WITHOUT THE USE OF WASHERS. THE BASE PLATE SHALL BE ATTACHED TO THE TAPERED PANELS BY MEANS OF TWO CIRCUMFERENTIAL FILLET WELDS. A FLUSH MOUNTED DOOR WITH STAINLESS STEEL LOOSE JOINT BUTT HINGES AND A PADLOCK HASP FOR SECURING IT SHALL BE PROVIDED. THE DOOR OPENING WILL BE REINFORCED WITH STEEL EQUAL TO THE VOIDED AREA OF THE DOOR.

POLE TOP: THE POLE TOP SHALL BE FITTED WITH A CHANNEL OR FLANGE FOR MOUNTING THE MASTHEAD ASSEMBLY TO THE POLE. POLE AND LOWERING SYSTEM SHALL BE COMPATIBLE WITH THE POLE TOP.

HIGH MAST LOWERING DEVICES:

THE LOWERING SYSTEM SHALL BE A TWO CABLE LOWERING SYSTEM CONSISTING OF A STAINLESS STEEL MASTHEAD ASSEMBLY, DUAL STAINLESS STEEL LUMINAIRE RINGS AND JUNCTION BOXES, DUAL STAINLESS STEEL WINCH DRUMS AND CORROSIVE RESISTANT WINCHING SYSTEM, WITH AN INTERNAL (ONE HP) 60 HERTZ, SINGLE PHASE, 115/240 VOLT, REVERSIBLE, AC, TEFC, CONTINUOUS DUTY MOTOR WITH BUILT-IN MAGNETIC BRAKE AND DUAL THERMAL PROTECTION CIRCUIT BREAKERS. THE SYSTEM SHALL INCORPORATE AN FAA APPROVED AIRCRAFT WARNING LIGHT AND 36" AIR TERMINAL AT THE TOP OF THE STRUCTURE. THE SYSTEM SHALL BE DEMONSTRATED TO PROPERLY OPERATE THROUGH 10 SEQUENTIAL RAISE-THEN-LOWER OPERATIONS WHILE THE RING PLATFORM IS OUT OF LEVEL IN RELATIONSHIP TO THE HEAD-FRAME BY AT LEAST 6-INCHES. THE DEMONSTRATION WILL PROVIDE VALIDATION TO THE SYSTEMS DEPENDABILITY AND REPEATABILITY REGARDLESS OF OFFSET ISSUES OUTSIDE THE CONTROL OF THE MANUFACTURER.

MASTHEAD ASSEMBLY

THE MASTHEAD ASSEMBLY SHALL BE MANUFACTURED OF STAINLESS STEEL AND SHALL BE BOLTED TO A FORMED CHANNEL, WHICH IS WELDED TO THE TOP OF THE POLE, WITH FOUR STAINLESS STEEL BOLTS, NUTS AND LOCKWASHERS. THE MASTHEAD SHALL SUPPORT FOUR 6" DIAMETER SOLID STEEL HOISTING CABLE SHEAVES WITH SPECIAL CABLE KEEPER TO ASSURE PROPER CABLE GUIDANCE, AND TWO CENTERING GUIDE TUBES TO PROPERLY POSITION THE LUMINAIRE RING TO THE MASTHEAD. THE POWER CORD SHEAVE SHALL BE MADE OF CAST ALUMINUM WITH A MINIMUM OF 16" DIAMETER. THE POWER SHEAVE GROOVE SHALL HAVE STRAIGHT WALLS AND A RADIUS BOTTOM TO FIT THE POWER CORD. THE POWER CABLE SHEAVE SHALL BE EQUIPPED WITH A CLOSE TOLERANCE CURVED AND HINGED SHEAVE COVER WHICH FUNCTIONS AS A CABLE KEEPER AND ALLOWS ACCESS TO THE POWER CABLE SHEAVE BUT PREVENTS THE POWER CABLE FROM WORKING OUT OF THE SHEAVE. ALL SHEAVES SHALL HAVE PERMANENTLY LUBRICATED BRONZE BUSHINGS AND STAINLESS STEEL PINS.

LUMINAIRE RING ASSEMBLY

THE LUMINAIRE DUAL RING ASSEMBLY SHALL BE FABRICATED OF STAINLESS STEEL AND CONSIST OF THE LUMINAIRE RINGS, DUAL HOISTING CABLE TERMINATOR TUBES, AND NEMA 4X WEATHER PROOF JUNCTION BOXES, ALL OF STAINLESS STEEL. THE INNER PORTION OF THE RING SHALL BE EQUIPPED WITH A PVC SHOCK ABSORBING TUBE PROTECTING THE POLE AND LUMINAIRES DURING THE RAISING-LOWERING OPERATION. THE RING SHALL BE SUPPLIED WITH BOLT ON 2" STAINLESS STEEL PIPE TENONS FOR THE REQUIRED NUMBER OF LUMINAIRES. TWO OF THE STAINLESS STEEL TENONS TO HAVE A 1" HALF COUPLING WELDED TO THE TENON FOR THE POSSIBLE INSTALLATION OF FAA APPROVED OBSTRUCTION LIGHTS.

FIXTURE MOUNTING CAGE SHALL CONSIST OF HORIZONTAL AND VERTICAL STEEL SUPPORTING MEMBERS OF VARIOUS SIZE STRUCTURAL TUBING. THE TWO MAIN LIGHT FIXTURE SUPPORTING PIECES SHALL BE OF WELDED CONSTRUCTION AND BE HOT-DIP GALVANIZED TO MEET ASTM A-123 AFTER CONSTRUCTION. ALL OTHER SUPPORTING MEMBERS SHALL BE HOT DIP GALVANIZED. FIXTURE MOUNTING CAGES SHALL BE CONNECTED TO THE LOWERING RING USING STAINLESS STEEL FASTENERS. EACH FIXTURE MOUNTING CAGE SHALL BE CAPABLE OF SUPPORTING UP TO 12 FLOODLIGHTS AND PROVIDE FOR AIMING AND TILTING OF THE FLOODLIGHTS IN THE DIRECTIONS SHOWN ON THE DRAWINGS.

THE POWER CORD TO BE TERMINATED INTO THE STAINLESS STEEL JUNCTION BOX ON THE LUMINAIRE RING BY A DELUXE KELLEMS GRIP WITH A NEOPRENE BUSHING. THE LUMINAIRE RING SHALL BE A TOTALLY ENCLOSED WIRE WAY. THE RING SHALL BE RAISED, SUPPORTED AND LOWERED BY TWO (2) 1/4" STAINLESS STEEL 7X19 STRAND CABLES, EACH WITH A HOISTING STRENGTH OF 6400 POUNDS. THE TWO HOISTING CABLES SHALL BE CONTINUOUS FROM THE LUMINAIRE RING TO THE WINCH DRUM AND OF SUFFICIENT LENGTH TO BE TWO (2) TIMES THE LENGTH OF THE POLE SHAFT PLUS TWENTY (20) FEET.

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ADDENDUM #2
APRIL 2014

REV	DATE	DESCRIPTION
1	4/9/14	ADDENDUM #2

DATE: _____

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PROJECT:
CITY OF UNALASKA
PORT LIGHTING UPGRADES

TITLE: ELECTRICAL SPECIFICATIONS

DESIGNED BY:	WKR	DATE:	3/13/14
CHECKED BY:	TEH	PROJECT NO:	L3099.00

SHEET NO: E14