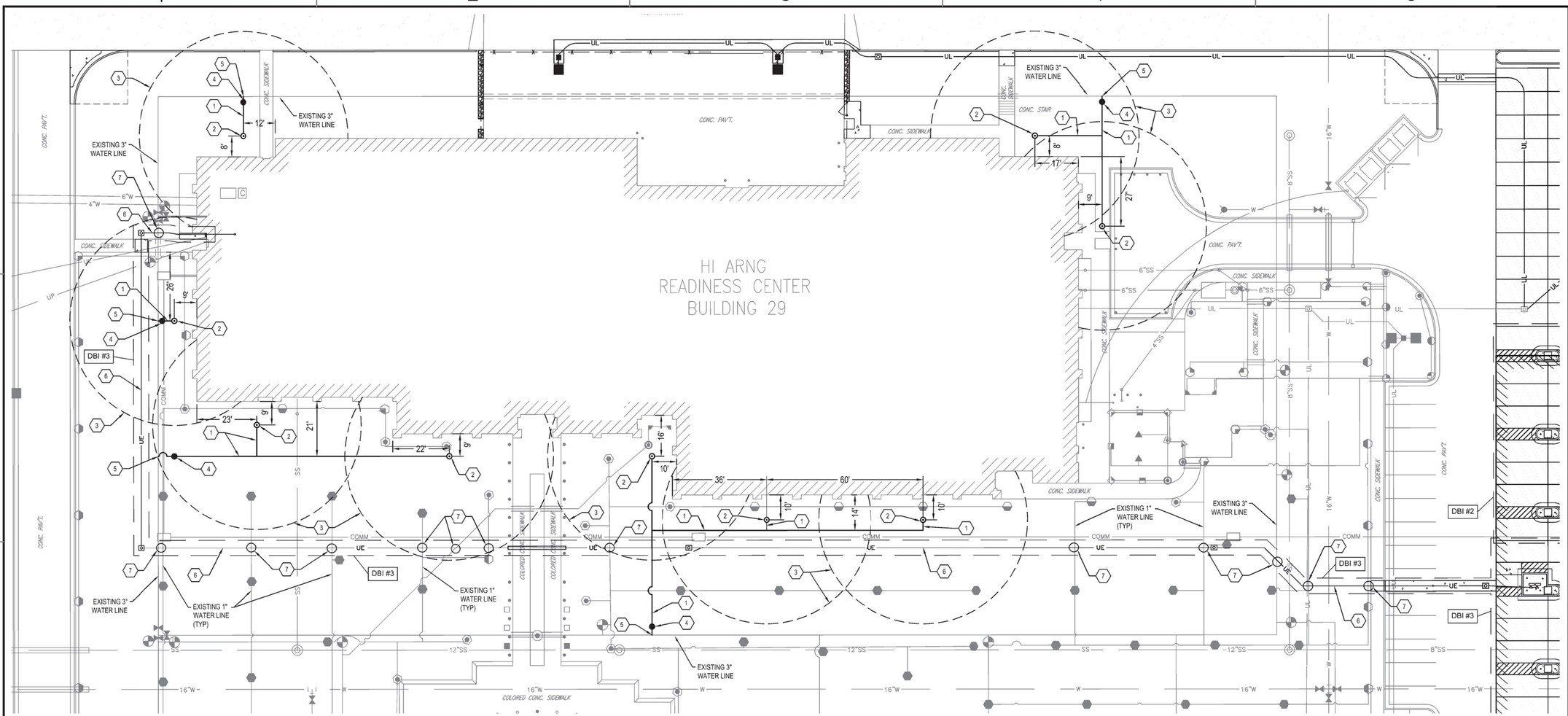


PLAN NORTH

1 IRRIGATION SITE PLAN

1"=20' 0 10' 20' 40'

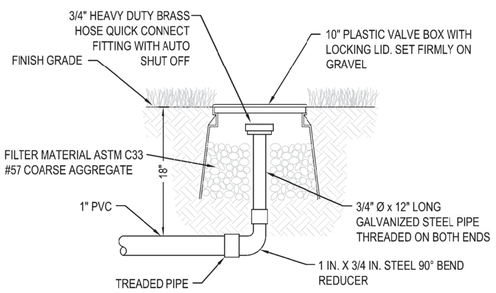
Scale: 1" = 20'

KEYED NOTES:

1. 1" DIA. SCHEDULE 40 PVC, MINIMUM 18" BELOW GRADE.
2. QUICK COUPLER (SEE DETAIL 1 THIS SHEET)
3. 40' RADIUS HOSE PULL
4. ISOLATION VALVE (SEE DETAIL 2 THIS SHEET)
5. CONNECT TO EXISTING 3" WATER LINE
6. ELECTRICAL DUCTBANK (DBI #3)
7. DUCTBANK CROSSING (SEE GENERAL IRRIGATION NOTE 3) (DBI #3)

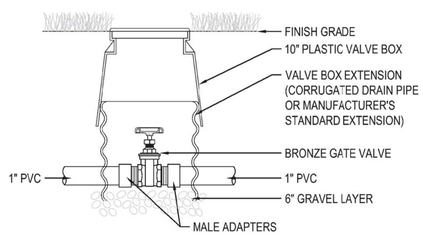
SHEET NOTES:

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN. BEFORE STARTING ANY WORK, LOCATE AND PROTECT ALL EXISTING BURIED UTILITY LINES, WHETHER OR NOT SHOWN ON THESE DRAWINGS, DURING THE COURSE OF CONSTRUCTION.
2. EXISTING SITE IMPROVEMENTS SHOWN ON DRAWINGS HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. A TOPOGRAPHIC SURVEY FOR THE SITE WAS NOT PERFORMED. THEREFORE, EXISTING SITE IMPROVEMENTS MUST BE CONSIDERED AS APPROXIMATE ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF ANY CONSTRUCTION.



1 / LI-401 HOSE QUICK CONNECT FITTING

NO SCALE



2 / LI-401 ISOLATION VALVE

NO SCALE

DEDUCTIVE BID ITEM (DBI):

DBI #2 - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE STRUCTURAL CANOPY AS INDICATED. RECONFIGURE PARKING LOT STRIPING PROVIDING FOR AN ADDITIONAL 2 SPACES, AND ADDITIONAL ASPHALT PAVEMENT WHERE COLUMN ISLANDS WERE REMOVED FROM PROJECT.

DBI #3 - DELETE THE REMAINING 50% OF THE PHOTOVOLTAIC SYSTEM AND THE AND ASSOCIATED STRUCTURAL CANOPY. RECONFIGURE PARKING LOT STRIPING PROVIDING FOR AN ADDITIONAL 3 SPACES, DELETION OF 2 MOTORCYCLE SPACES AND ASSOCIATED CONCRETE SECTION, AND ADDITIONAL ASPHALT PAVEMENT WHERE COLUMN ISLANDS AND MOTORCYCLE PARKING WERE REMOVED FROM PROJECT. REMOVE DEMOLITION/REPLACEMENT WORK ASSOCIATED WITH UNDERGROUND POWER.

GENERAL IRRIGATION NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND AVOIDING ALL EXISTING SITE UTILITY LINES.
2. PIPE ROUTING IS DIAGRAMMATIC ONLY. ADJUST AS REQUIRED FOR FIELD CONDITIONS.
3. (DBI #3) CONTRACTOR SHALL COORDINATE ROUTING OF PHOTOVOLTAIC SYSTEM ELECTRICAL DUCTBANK WITH EXISTING IRRIGATION SYSTEM PIPING. CONTRACTOR SHALL LOCATE, CUT AND REPAIR IRRIGATION PIPING AS REQUIRED TO FACILITATE DUCTBANK INSTALLATION.

BENHAM
a Haskell Company
1250 N. PONTIAC TRAIL,WALLED LAKE,MI 48390
WESTHEIMER,HOUSTON,TX 77042
9400 N. BROADWAY, OKLAHOMA CITY,OK 73114
622 EMERSON ROAD,ST. LOUIS,MO 63141
60 PLATO BOULEVARD E,ST. PAUL,MN 55107
ONE WEST THIRD STREET, TULSA,OK 74103

SEAL

MICHAEL J. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 15651-C
HAWAII, U.S.A.
2/15/18

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
EXPIRATION DATE OF LICENSE: 4/30/2018

APPR	DATE	DESCRIPTION	NO

SUBMITTAL PHASE: 100% FINAL BID SET

SUBMITTAL DATE: 16/02/2018

DES: GWS DRW: SMW CHK: MJS

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD
FACILITIES DESIGN & PROJECTS BRANCH
KALAELOA, KAPOLEI, OAHU, HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE:
91-1387 SARATOGA AVENUE

BUILDING 29 PARKING, PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

LANDSCAPE
IRRIGATION SITE PLAN

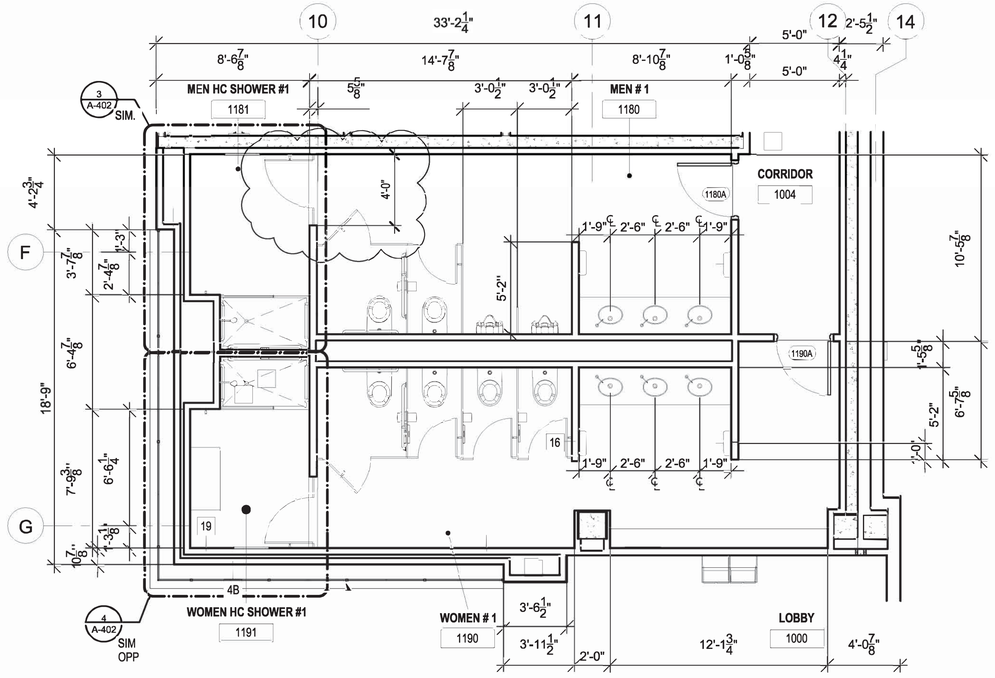
SCALE: AS NOTED

STATE JOB NO. CA–1512–C

FEDERAL PROJECT NO. 15150023

SHEET OF

LI.401

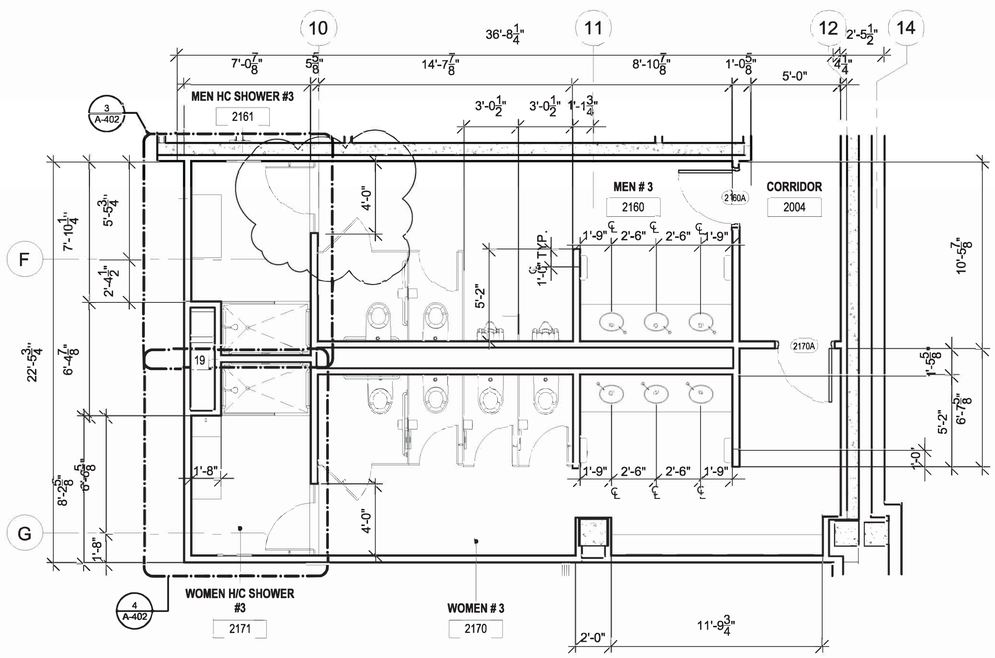


PLAN NORTH

1 A-402

ENLARGED FLOOR PLAN- RESTROOMS 1180, 1190

SCALE: 1/4" = 1'-0"

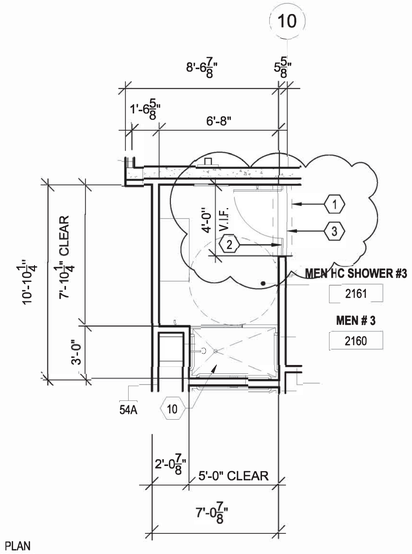


PLAN NORTH

3 A-402

ENLARGED FLOOR PLAN- RESTROOMS 2160, 2170

SCALE: 1/4" = 1'-0"

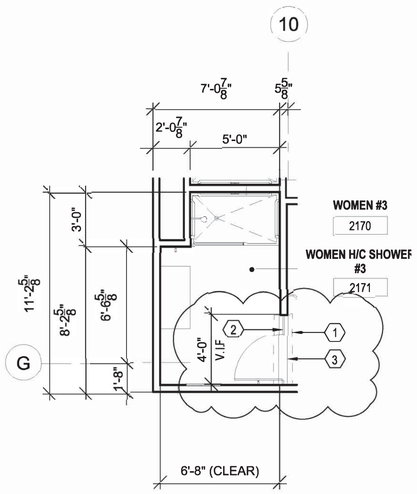


PLAN NORTH

3 A-402

ENLARGED FLOOR PLAN- 2161

SCALE: 1/4" = 1'-0"

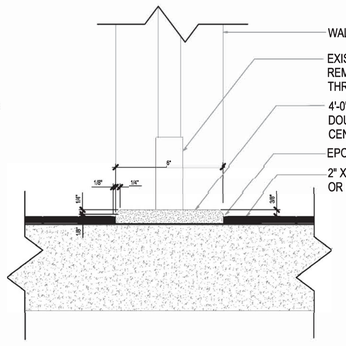


PLAN NORTH

4 A-402

ENLARGED FLOOR PLAN- 2171

SCALE: 1/4" = 1'-0"



5 A-402

THRESHOLD DETAIL

SCALE: 3" = 1'-0"

GENERAL NOTES - NEW THRESHOLDS

1. FIELD VERIFY OPENING DIMENSIONS.
2. CUT THRESHOLDS TO FIT OPENING AS REQUIRED.
3. USE MILDEW RESISTANT SISLCONE SEALANT TO FILL ANY GAPS. MATCH EXISING SEALANT COLOR.
4. CLEAN AND REMOVE ALL DEBRIS AFTER INSTALLATION OF THRESHOLD IS COMPLETE.

KEYNOTES

1. CUT AND REMOVE EXISTING TILE AT TILE JOINT LINES AS REQUIRED FOR INSTALL OF NEW THRESHOLD. DO NOT DAMAGE EXISTING UNDERLAYMENT MEMBRANE. REPAIR ANY DAMAGE TO EXISTING MEMBRANE.
2. REMOVE EXISTING SHOWER STALL PARTITION. ADJUST OR CUT DOWN PILASTERS AS REQUIRED TO ACCOMMODATE REINSTALLATION OVER NEW THRESHOLD. REINSTALL CENTERED ON NEW WALL AND THRESHOLD AFTER INSTALLATION OF NEW THRESHOLD.
3. NEW 48" LONG X 6" WIDE X 3/4" HIGH BEVELED MARBLE THRESHOLD - CUT DOWN AS REQUIRED TO FIT OPENING INSTALL ON LATEX PORTLAND CEMENT MORTAR. INSTALL EPOXY GROUT TO MATCH EXISTING GROUT. UTILIZE EXISTING ATTIC STOCK OR SALVAGED TILE TO REPAIR TILE FLOORING AS REQUIRED.
   BASIS OF DESIGN THRESHOLD: MSI INTERNATIONAL - DURANGO 6 X 72 X .75 HONEY DOUBLE BEVELED THRESHOLD
   BASIS OF DESIGN EPOXY GROUT: MAPEI - STRAW #94. VERIFY COLOR MATCH.

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1250 N. PONTIAC TRAIL,WALLED LAKE,MI 48390
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622 EMERSON ROAD,ST. LOUIS,MO 63141
60 PLATO BOULEVARD E,ST. PAUL,MN 55107
ONE WEST THIRD STREET,TULSA,OK 74103

SEAL

GARY M. WUNDERLICH LICENSED PROFESSIONAL ARCHITECT No. AR 14667 HAWAII U.S.A. FEB. 16, 2018

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
EXPIRATION DATE OF LICENSE:

NO.	DESCRIPTION	DATE	APPR
3			
4			

SUBMITTAL PHASE
100% FINAL BID SET

SUBMITTAL DATE: 16/02/2018
DES: AKG DRW: AKG CHK: AKG

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD
FACILITIES DESIGN & PROJECTS BRANCH
KALAELOA, KAPOLEI, OAHU, HAWAII
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FACILITY MANAGEMENT OFFICE
91-1387 SARATOGA AVENUE

BUILDING 29 PARKING, PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

ENLARGED FLOOR PLANS - RESTROOMS

SCALE: AS NOTED
STATE JOB NO. CA–1512–C
FEDERAL PROJECT NO. 15150023
SHEET OF
A.402

STRUCTURAL DESIGN CRITERIA

UNIFIED FACILITIES CRITERIA (UFC)		
UFC 1-200-01	DESIGN: GENERAL BUILDING REQUIREMENTS (20 JUNE 2016)	
UFC 3-301-01	STRUCTURAL ENGINEERING (1 JUNE 2013 CHANGE 3, 12 SEPTEMBER 2016)	
UFC 4-010-01	DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS (CHANGE 1, 1 OCTOBER 2013)	
UFC 3-310-04	SEISMIC DESIGN OF BUILDING (1 JUNE 2013, CHANGE 1, 20 June 2016)	
INTERNATIONAL CODE COUNCIL (ICC)	INTERNATIONAL BUILDING CODE 2015	
AMERICAN CONCRETE INSTITUTE (ACI)	ACI 318-14	
ACI 117-10	STANDARD SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS	
ACI 302.1R-04	GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION	
ACI 315-99	DETAILS AND DETAILING OF CONCRETE REINFORCEMENT	
ACI 360R-10	GUIDE TO DESIGN OF SLAB-ON-GRADE	
ACI 318-11	BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE	
ACI 530-11/530.1-11	BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES	
AMERICAN WELDING SOCIETY		
AWS D.1.1	STRUCTURAL WELDING CODE (2012)	
AWS D.1.3	STRUCTURAL WELDING CODE SHEET STEEL 2008	
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)		
AISC 325-11	STEEL CONSTRUCTION MANUAL, 14TH EDITION	
AISC 360-10	SPECIFICATION AND CODES FOR STRUCTURAL STEEL BUILDINGS	
AMERICAN IRON AND STEEL INSTITUTE (AISI)		
AISI S100-2007	NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS 2007 EDITION	
AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE/SEI)		
ASCE/SEI 7-10	MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES	
STEEL JOIST INSTITUTE (SJI)		
43rd EDITION CATALOG	CATALOG OF STANDARD SPECIFICATION AND LOAD TABLES FOR STEEL JOIST AND JOIST GIRDER	
STEEL DECK INSTITUTE (SDI)		
	SDI DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS (PUBLICATION No 31)	
	SDI DIAPHRAGM DESIGN MANUAL (3rd EDITION) STRUCTURAL LOADS	
STRUCTURAL LOADS		
DEAD LOADS		
	SELF WEIGHT OF ALL STEEL ELEMENTS INCORPORATED INTO ROOF CONSTRUCTION (DECK, PURLINS, JOIST, BEAMS, TRUSSES, ETC).	
	UNIFORMLY DISTRIBUTED PHOTOVOLTAIC SYSTEM (40 LBS PER PANEL) + LIGHT FIXTURES	3psf
LIVE LOADS		
	ROOF LIVE LOAD UNIFORM (REDUCIBLE PER BUILDING CODE)	20psf
	ROOF LIVE LOAD CONCENTRATED	300lbs
	GROUND FLOOR LIVE LOAD	250psf
SNOW LOADING		
	GROUND SNOW	0psf
	SNOW IMPORTANCE FACTOR (Is) FOR RISK CATEGORY IV (UFC 3-301-01 TABLE 2-2)	1.0
	THERMAL FACTOR Ct	1.0
	EXPOSURE FACTOR Ce	0.9
WIND LOADING		
	WIND IMPORTANCE FACTOR	1.0
	EXPOSURE	D
	BASIC WIND SPEED (UFC 3-301-01 TABLE E-1) FOR RISK CAEGORY II	130 mph
	BUILDING ENCLOSURE: CANOPY: OPEN STRUCTURE	
SEISMIC LOADING		
	RISK CATEGORY	II
	SEISMIC IMPORTANCE FACTOR (Ie) FOR RISK CATEGORY II (UFC 3-301-01 TABLE 2-2)	1.0
	SITE CLASS (ASSUMED)	D
	SPECTRAL RESPONSE ACCELERATION, SHORT PERIOD (Ss) (FROM UFC 3-301-01)	0.59
	SPECTRAL RESPONSE ACCELERATION, 1 SECOND PERIOD (S1) (FROM UFC 3-301-01)	0.17
	SEISMIC DESIGN CATEGORY	D
	SEISMIC RESISTING SYSTEM ORDINARY MOMENT RESISTING FRAME SYSTEM R=	1.0

GENERAL NOTES

1 VERIFY ALL DIMENSIONS BEFORE STARTING WORK. THE A/E AND CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES FOUND.

2 SPECIFIC DETAILS AND NOTES TAKE PRECEDENCE OVER STANDARD DETAILS AND NOTES. WHERE CONFLICTS EXIST BETWEEN THE DRAWINGS, THE SPECIFICATIONS AND THE GENERAL STRUCTURAL NOTES, SPECIFIC DETAILS SHALL GOVERN.

3 VERIFY THE COORDINATION OF ALL TRADES AND REPORT ANY CONFLICTS IMMEDIATELY TO THE A/E AND THE CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE.

4 OPENINGS FOR CONDUIT, PIPE BANKS, ETC., NOT SHOWN ON STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE A/E PRIOR TO INSTALLATION. ADDITIONAL STRUCTURAL REINFORCEMENT AND CLOSURES FOR FLOOR AND WALL SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE GOVERNMENT.

5 DETAILS ENTITLED OR NOTED AS TYPICAL SHALL APPLY NOT ONLY WHERE SPECIFICALLY INDICATED OR REFERENCED, BUT WHERE THE NATURE OF THE CONSTRUCTION REQUIRES THEIR USE.

6 INFORM THE A/E AND THE CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY OF SUCH DEVIATION BY THE A/E's REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE A/E AND THE CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE A/E HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

7 DO NOT SCALE THESE DRAWINGS, USE DIMENSIONS.

8 NO OPENING SHALL BE MADE IN ANY STRUCTURAL MEMBERS WITHOUT WRITTEN APPROVAL OF THE E.O.R.

9 NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE A/E.

10 OPENINGS LESS THAN 10 INCHES ARE GENERALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR SUCH OPENINGS.

11 THE STRUCTURE, INCLUDING, BUT NOT LIMITED TO, STEEL MOMENT FRAMES, CAST-IN-PLACE CONCRETE SLABS, AND STEEL ROOF DECK DIAPHRAGM, IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES SHALL BE DESIGNED AND FURNISHED BY CONTRACTOR.

FOUNDATION EXCAVATION AND BACKFILL

1 THE FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL ENGINEERING REPORT PREPARED FOR THIS PROJECT BY AMEL TECHNOLOGIES, INC. DATED JUNE 2015

2 ALLOWBLE SOIL BEARING PRESSURE FOR SHALLOW FOUNDATIONS EQUALS 3000 PSF.

4 REMOVE FILL MATERIALS WITHIN BUILDING FOOTPRINT AND TO 10 FEET OUTSIDE THE BUILDING FOOTPRINT. BACKFILL WITH STRUCTURAL FILL PER SOIL REPORT RECOMMENDATIONS. SLAB-ON-GRADE SHALL BE OVER 6" MINIMUM THICK DRAINAGE LAYER (AASHTO SP-57 STONE)

5. IN AREAS WHERE BEDROCK IS ENCOUNTERED AT THE PROPOSED FOUNDATION BEARING ELEVATION. THE AREA SHALL BE UNDERCUT 12 INCHES. THE 12 INCHES UNDERCUT SHALL BE REPLACED WITH AASHTO #57 STONE UP TO THE PROPOSED FOUNDATION BOTTOM ELEVATION.

6 PROVIDE SOILS SPECIAL INSPECTION PER IBC. SEE SPECIAL INSPECTION NOTES THIS SHEET. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH ENGINEERED FILL.

7 CONTRACTOR SHALL PROVIDE MEANS TO ADEQUATELY DRAIN ALL EXTRANEOUS WATER FROM THE SITE TO ENSURE A DRY FOUNDATION BASE.

	ABBREVIATIONS
@	AT
A/E	ARCHITECT AND ENGINEER OF RECORD
ABI	ALTERNATE BID ITEM
ANEX T.O.S.M	ANEX TOP OF STEEL MIDDLE (COL AB)
ARCH.	ARCHITECT OR ARCHITECTURAL DRAWINGS
ASD	ALLOWABLE STRENGTH DESIGN
B	BOTTOM
B.O.S.	BOTTOM OF STEEL
C	CENTER LINE
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
CLR.	CLEAR
COL.	COLUMN
CONT.	CONTINUOUS
COORD.	COORDINATE
DIA.	DIAMETER
DWGS	DRAWINGS
E.O.R.	ENGINEER OF RECORD
ELEV.	ELEVATION
EQ.	EQUAL
EXP.	EXPANSION
EXT.	EXTERIOR
FND.	FOUNDATION
GA	GAGE
GALV.	GALVANIZED
H, HI	HIGH
H.P.	HIGH POINT
HORIZ.	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
JB	JOIST BEARING
L, LO	LOW

	ABBREVIATIONS
L.P.	LOW POINT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAX.	MAXIMUM
MIN.	MINIMUM
O.C.	ON CENTER
OPP.	OPPOSITE
P.A.F.	POWDER ACTUATED FASTENERS
PL	PLATE
RECT.	RECTANGULAR
REQ'D	REQUIRED
SIM	SIMILAR
SJ	SAWED JOINT
SP.	SPACES
SYMM.	SYMMETRICAL
T	TOP
T.O. OR T/	TOP OF
T.O.L.R.S.	TOP OF LOW ROOF STEEL
T.O.S.	TOP OF STEEL
THRU	THROUGH
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
VIF	VERIFY IN FIELD
W.P.	WORK POINT
W/	WITH
W/O	WITH OUT
Ø	DIAMETER

SPECIAL INSPECTION

PER UFC 1-200-01 (2-17.1), THE CONTRACTOR "SHALL RETAIN THIRD PARTY QUALITY ASSURANCES AGENCIES TO CONDUCT THE SPECIAL INSPECTIONS REQUIRED BY THE IBC. THE INSPECTING AGENCY SHALL PROVIDE REPORTS OF THE SPECIAL INSPECTIONS DIRECTLY TO THE GOVERNMENT." THE INSPECTING AGENCY SHALL ALSO SUBMIT COPIES OF THESE REPORTS TO THE GENERAL CONTRACTOR (WITHIN TWO DAYS FOLLOWING INSPECTION) AND THE CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE.

THE FOLLOWING STRUCTURAL ELEMENTS OF CONSTRUCTION SHALL REQUIRE SPECIAL INSPECTION PER IBC SECTION 1704:

TYPE OF CONSTRUCTION	IBC SECTION	IBC TABLE	NOTES
STEEL FABRICATION	1704.2	-	-
STEEL CONSTRUCTION	1704.3	1704.3	-
CONCRETE	1704.4	1704.4	-
SOILS	1704.7	1704.7	SEE NOTE 4
MASONRY	1704.5	1704.5.1	

SPECIALLY INSPECTED WORK WHICH IS INSTALLED OR COVERED WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE IS SUBJECT TO REMOVAL.

CONTRACTOR SHALL RETAIN THE SERVICES OF A LICENSED GEOTECHNICAL ENGINEER TO PERFORM SOIL SPECIAL INSPECTION.

THE SPECIAL INSPECTORS MUST BE CERTIFIED BY THE GENERAL CONTRACTOR TO PERFORM THE TYPES OF INSPECTION SPECIFIED.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THE SPECIAL INSPECTOR OR INSPECTION AGENCY, AND THE GENERAL CONTRACTOR DESIGNATED REPRESENTATIVE AT LEAST TWO (2) WORKING DAYS PRIOR TO PERFORMING ANY WORK THAT REQUIRES SPECIAL INSPECTION. ANY WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION IS SUBJECT TO REMOVAL.

PROVIDE SPECIAL INSPECTION FOR ALL POST-INSTALLED ANCHORS. PERIODICALLY INSPECT THE FOLLOWING:

7.1. GENERAL COMPLIANCE WITH MANUFACTURER'S INSTRUCTION
7.2. PRODUCT NAME AND DESCRIPTION
7.3. ADHESIVE EXPIRATION DATE FOR ADHESIVE ANCHORS
7.4. HOLE DIAMETER, DEPTH, LOCATION AND EDGE DISTANCE
7.5. CLEANLINESS OF HOLE AND ANCHOR
7.6. ANCHOR DIAMETER, LENGTH AND STEEL GRADE
7.7. ANCHOR EMBEDMENT AND SPACING
7.8. TORQUE REQUIREMENT PER MANUFACTURER'S INSTRUCTION

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ONE WEST THIRD STREET,TULSA,OK 74103

JOHN D. WESTERHEIDE III
LICENSED PROFESSIONAL ENGINEER
No. 13074-S
HAWAII U.S.A.
2/16/18
SEAL:

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: 100% FINAL BID SET
SUBMITTAL DATE: 16/02/18
DES: HMH DRW: JDF CHK: JDW

DEPARTMENT OF DEFENSE
FACILITIES DESIGN & PROJECT BRANCH
HAWAII ARMY NATIONAL GUARD
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91-1387 SARATOGA AVENUE
BUILDING 29 PARKING PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS
STRUCTURAL
BASE BID DBI #1 GENERAL STRUCTURAL NOTES - DESIGN CRITERIA

SCALE:
STATE JOB NO. CA-1512-C
FEDERAL PROJECT NO. 314202
SHEET OF
S.001

C:\Temp\S-314202-KalaeoaB29 Parking-CF2015_fluegqej.rvt

MISCELLANEOUS

1 THE CONTRACTOR SHALL INCLUDE AND PROVIDE THE FOLLOWING SERVICES -

A VERIFICATION OF ALL DIMENSIONS, ELEVATIONS, OPENING SIZES, AND MECHANICAL EQUIPMENT WEIGHTS PRIOR TO STARTING WORK AND INCORPORATE THIS INFORMATION INTO THE PROJECT SHOP AND ERECTION DRAWINGS.

B VERIFICATION OF ALL DIMENSIONS AND MEMBER SIZES RELATING TO ANY EXISTING CONSTRUCTION.

C COORDINATE WITH THE OWNER AND REMOVE ALL ABANDONED FOUNDATIONS, UTILITIES, PIPELINES, ETC. THAT MAY INTERFERE WITH THE NEW CONSTRUCTION.

D THE GENERAL CONTRACTOR SHALL REVIEW AND APPROVE ALL SHOP DRAWINGS PRIOR TO SUBMITTAL NOTING CHANGES MADE WHICH DO NOT COMPLY WITH DESIGN DRAWINGS. PRIOR WRITTEN APPROVAL FROM THE CONTRACTING OFFICER, STRUCTURAL ENGINEER OF RECORD, AND ARCHITECT SHALL BE REQUIRED FOR ALL DEVIATIONS FROM THE DESIGN DOCUMENTS MADE BY THE CONTRACTOR. REQUEST FOR INFORMATION SHALL NOT BE USED TO INTRODUCE SUBSTITUTIONS, DEVIATIONS, OR CHANGES FROM THE REQUIREMENTS INDICATED BY THE CONSTRUCTION DOCUMENTS.

E PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED FOR STABILITY DURING CONSTRUCTION.

2 PLANS, SECTIONS, AND DETAILS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.

3 SHOP DRAWINGS SHALL BE ORIGINAL DRAWINGS, PREPARED BY CONTRACTOR, SUBCONTRACTOR, SUPPLIER OR DISTRIBUTOR. REPRODUCTION OF STRUCTURAL CONTRACT DOCUMENTS AS ERECTION PLANS OR DETAILS WILL NOT BE PERMITTED AND WILL BE REJECTED WITHOUT REVIEW.

4 CONSTRUCTION DOCUMENTS CONSIST OF THESE DRAWINGS AND A SEPARATE BOOK OF SPECIFICATIONS. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY, NEITHER IS MEANT TO STAND ALONE FOR ANY PORTION OF THE WORK DESCRIBED HEREIN. ANY CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT/ENGINEER.

5 THE DESIGN DOCUMENTS REFLECT THE FINAL COMPLETED STATE OF THE STRUCTURAL SYSTEMS AND ELEMENTS. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION RELATED ENGINEERING TO INCLUDE BUT NOT BE LIMITED TO CONSTRUCTION MEANS AND METHODS, TEMPORARY SUPPORTS AND BRACING, TEMPORARY USE OF STRUCTURES, PARTIALLY CONSTRUCTED STRUCTURES AND INCOMPLETE STRUCTURES. ALL CONSTRUCTION AND RELATED ENGINEERING SHALL BE IN ACCORDANCE WITH ASCE 37-02 DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION''.

6 THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SURVEY AND SUBSURFACE INVESTIGATION REPORT BEFORE BEGINNING CONSTRUCTION

7 EACH SUBCONTRACTOR IS RESPONSIBLE FOR INSTRUCTIONS DIRECTED TO THE "CONTRACTOR", WHERE APPLICABLE, UNLESS SPECIFICALLY RELIVED OF RESPONSIBILITY BY THE GENERAL CONTRACTOR.

8 THE CONTRACTOR SHALL DESIGN AND PROVIDE ALL ITEMS FOR ATTACHING PLUMBING, ELECTRICAL, AND PROCESS EQUIPMENT AND ELEMENTS TO THE BUILDING STRUCTURE TO RESIST ALL LOADS INCLUDING SEISMIC LOADS. ATTACHMENT SHALL BE MADE SO AS NOT TO OVERSTRESS THE STRUCTURAL MEMBERS. THE CONTRACTOR SHALL COORDINATE THE ATTACHMENTS AND LOCATIONS OF THE EQUIPMENT AND ELEMENTS AND INCORPORATE THEIR REQUIREMENTS INTO THE STRUCTURAL STEEL SHOP DRAWINGS. THE SHOP DRAWING SUBMITTAL SHALL INCLUDE ATTACHMENT CALCULATIONS AND SHALL BE SEALED AND SIGNED BY A PROFESSI0NAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. REFER TO THE PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

CONCRETE

1 ALL CONCRETE SHALL HAVE A MINIMUM DENSITY OF 145 PCF AND A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.

2 BEFORE PLACING CONCRETE, COORDINATE WITH MECHANICAL, PLUMBING AND ELECTRICAL CONTRACTOR FOR BLOCKOUTS AND EMBEDDED ITEMS NOT SHOWN ON STRUCTURAL DRAWINGS.

3 EXPOSED EDGES OF CONCRETE ABOVE GRADE SHALL HAVE 3/4" X 45 DEGREE CHAMFERS, UNLESS NOTED OTHERWISE (U.N.O.)

4 PROVIDE STANDARD HOOKS ON BARS TERMINATING AT A CONCRETE FACE UNLESS NOTED (E.G.: EDGES OF OPENINGS, SLAB EDGES, EXPANSION JOINTS, ENDS OF BEAMS, AND AT TOP, BOTTOM, AND ENDS OF WALLS, ETC.).

5 THE CONTRACTOR SHALL FURNISH TO THE CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE, COMPLETE LEGIBLE COPIES OF ALL CONCRETE POUR TICKETS WITHIN FOUR (4) HOURS OF THE PLACEMENT OF THE CONCRETE THAT WAS RECEIVED. THE POUR TICKETS SHALL CLEARLY IDENTIFY THE CONCRETE SUPPLIER, THE BATCHING DATA, THE TIME OF THE LOADING/DEPARTURE AND THE ACCURATE TIME OF DELIVERY, AND ANY ADDITIONS OF WATER ENROUTE TO OR AT THE JOB SITE. CLEARLY LOCATE ON A PLAN SHEET THE LOCATIONS OF THE CONCRETE WHERE ADDITIONAL WATER HAD BEEN ADDED.

6 ALL FOUNDATIONS ARE DESIGNED WITH FORMED SIDES. IF THE CONTRACTOR ELECTS TO USE EARTH FORMED SIDES, 1 1/2" INCHES OF ADDITIONAL CONCRETE THICKNESS SHALL BE ADDED TO EACH EARTH FORMED FACE TO PROVIDE ADEQUATE COVER OVER THE REINFORCING. TOP PORTIONS OF EXTERIOR FOUNDATIONS EXPOSED TO FINAL GRADE SHALL BE FORMED AT LEAST 6" BELOW FINAL GRADE AT NO ADDITIONAL COST TO THE GOVERNMENT. ANY RELATED ADDITIONAL COSTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

7 THE WATER CEMENT RATIO FOR ANY STRENGTH CONCRETE SHALL NOT BE MORE THAN 0.45, EXCEPT THAT THE WATER CEMENT RATIO FOR ENTRAINED CONCRETE SHALL NOT BE MORE THAN 0.4.

REINFORCEMENT

1 REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A-615, GR 60, AND DEFORMED WELDED WIRE FABRIC CONFORMING TO ASTM A496 OR A497 AS INDICATED ON DRAWINGS. WELDED WIRE FABRIC SHALL BE SUPPLIED IN MATS NOT ROLLS.

2 ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, INSERTS, ETC. SHALL BE WELL SECURED IN PLACE AND INSPECTED BY THE CONTRACTING OFFICER OR DESIGNATED REPRESENTATIVE PRIOR TO PLACING CONCRETE

3 ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED, IN ACCORDANCE WITH ACI DETAILING MANUAL AND ALL APPLICABLE CODES.

4 ALL REINFORCING SHALL BE SUPPORTED IN FORMS, SPACED WITH NECESSARY ACCESSORIES AND SHALL BE SECURELY WIRED TOGETHER, IN ACCORDANCE WITH ACI 318.

5 MINIMUM CONCRETE COVER FOR THE REINFORCEMENT SHALL BE AS DETAILED ON THE DRAWINGS. WHERE THE COVER IS NOT DIMENSIONED, USE THE SAME FOR SIMILAR ITEMS. WHERE NO SIMILAR ITEMS INDICATE THE AMOUNT OF COVER, USE THE FOLLOWING IN CONJUNCTION WITH ACI 318:

A. CONCRETE DEPOSITED AGAINST THE EARTH ..... .3"
B. CONCRETE DEPOSITED AGAINST FORMS AND EXPOSED TO EARTH OR WEATHER ..... 2"
C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER
SLABS AND WALLS ..... 3/4"
BEAMS AND COLUMNS ..... 1 1/2"

6 DEVELOPMENT OF REINFORCEMENT AND LAP SPLICES SHALL BE IN ACCORDANCE WITH ACI 318 UNLESS NOTED OTHERWISE.

7 MECHANICAL SPLICES SHALL BE IN ACCORDANCE WITH ACI 318 AND DEVELOP AT LEAST 125 PERCENT OF THE SPECIFIED YIELD STRESS OF THE BAR.

STRUCTURAL STEEL

1 STEEL SHALL CONFORM TO THE FOLLOWING GRADES:

A. ALL W SHAPES A992 (Fy=50 KSI)
B. ALL ANGLE, CHANNEL A36 (Fy=36 KSI)
C. ALL BASE PLATES, CONN. PLATES A36 (Fy=36 KSI)
D. STRUCTURAL PIPE A53 GR. B (Fy=35 KSI)
E. STRUCTURAL HSS A500 GR. B (Fy=46 KSI)

2 ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE", FOURTEENTH EDITION.

3 UNLESS NOTED OTHERWISE, THE MINIMUM PLATE THICKNESS SHALL BE 3/8"; BOLT DIAMETER SHALL BE 3/4"; MINIMUM WELD SHALL BE 3/16".

4 BOLTED CONNECTIONS SHALL BE BEARING TYPE USING A325N BOLTS, UNLESS NOTED OTHERWISE. OVERSIZED HOLES AND LONG-SLOTTED HOLES ARE NOT ALLOWED, UNLESS SHOWN ON THE DRAWINGS.

5 WELDED CONNECTIONS SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE." ALL WELDS SHALL DEVELOP FULL STRENGTH OF THE WEAKER MEMBER, UNLESS SPECIFICALLY DETAILED OR LOADS ARE INDICATED ON DRAWINGS. WELDING ELECTRODES SHALL BE E70XX.

6 SPLICING OF STEEL MEMBERS, UNLESS SHOWN ON DRAWINGS, IS PROHIBITED.

7 NO CHANGE IN SIZE OR POSITION OF THE STRUCTURAL ELEMENTS SHALL BE MADE AND HOLES, SLOTS, CUTS, ETC. ARE NOT PERMITTED THROUGH ANY MEMBER UNLESS THEY ARE DETAILED ON THE APPROVED SHOP DRAWINGS, AND THEY CAN BE HANDLED PRIOR TO THE SHOP DRAWING PROCESS AS PER PROCEDURES NOTED IN DIVISION 1 IN SPECIFICATION FOR GENERAL REQUIREMENTS.

8 NO FINAL BOLTING OR WELDING SHALL BE MADE UNTIL THE STRUCTURE HAS BEEN PROPERLY ALIGNED.

9 FABRICATE ALL BEAMS WITH THE MILL CAMBER UP.

10 NO BEAM CONNECTION SHALL HAVE LESS THAN TWO (2) BOLTS OR AN EQUIVALENT WELD.

11 CORROSION PROTECTION: PAINTING OF STRUCTURAL STEEL (OR GALVANIZING WHERE APPLICABLE) IS REQUIRED FOR ANY EXPOSED STEEL, SEE SPECIFICATIONS.

HAWAII ARMY NATIONAL GUARD

BENHAM a Haskell Company

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ONE WEST THIRD STREET,TULSA,OK 74103

JOHN D. WESTERHEIDE III
LICENSED PROFESSIONAL ENGINEER
No. 13074-S
HAWAII U.S.A.
2/16/18
SEAL:

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: 100% FINAL BID SET

SUBMITTAL DATE: 16/02/18

DES: HMH DRW: JDF CHK: JDW

STATE OF HAWAII
DEPARTMENT OF DEFENSE
FACILITY MANAGEMENT OFFICE
FACILITIES DESIGN & PROJECT BRANCH
91-1387 SARATOGA AVENUE
KALAELOA, KAPOLEI, OAHU, HAWAII

BUILDING 29 PARKING PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

STRUCTURAL

BASE BID DBI #1 GENERAL STRUCTURAL NOTES

SCALE:

STATE JOB NO. CA-1512-C

FEDERAL PROJECT NO. 314202

SHEET OF

S.002

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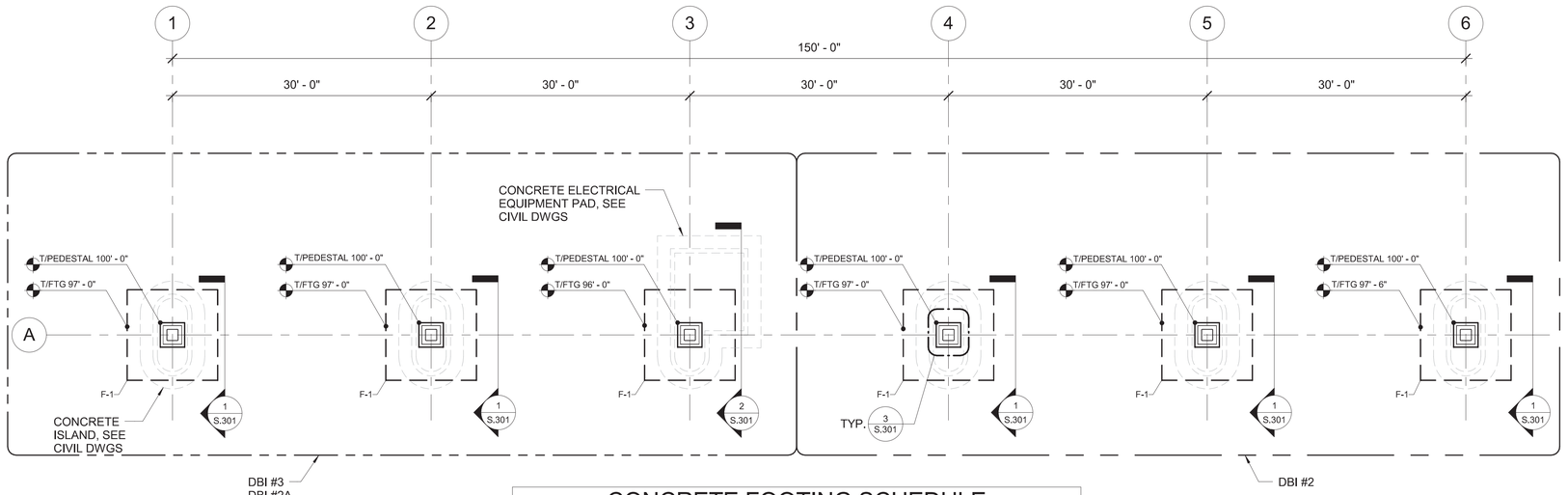

CONCRETE FOOTING SCHEDULE

MARK	QUANTITY	WIDTH	LENGTH	THICKNESS	REINFORCING	
					TOP EACH WAY	BOTTOM EACH WAY
F-1	6	10' - 6"	10' - 6"	3' - 0"	11 - #8	11 - #8

1 BASE BID FOUNDATION PLAN (DBI #1, 2, 2A, 3)
1/8" = 1'-0"

0 4' 8' 16'
Scale = 1/8" = 1'-0"

SHEET NOTES

1. FOR GENERAL NOTES, SEE SHEET S-001.
2. ALL PEDESTALS ARE CENTERED UNDER COLUMNS UNLESS NOTED OTHERWISE.
3. FOR COLUMN SIZES, SEE ROOF FRAMING PLAN ON SHEET S-111.
4. DESCRIPTION OF DEDUCTIVE BID ITEMS (DBI's):
   - DBI #1 - IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.
   - DBI #2 - DELETE (50%) OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED.
   - DBI #2A - DELETE (50%) OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED. IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.
   - DBI #3 - DELETE THE REMAINING 50% OF THE PHOTOVOLTAIC (PV) SYSTEM AND THE REMAINING SUPERSTRUCTURE COMPONENTS FOR A COMPLETE DELETION OF THE PV SYSTEM AND ASSOCIATED STRUCTURE.

KEYED NOTES (THIS SHEET) AS- DENOTED BY (#)

BENHAM a Haskell Company
1250 N. PONTIAC TRAIL,WALLED LAKE,MI 48390
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JOHN D. WESTERHEIDE III
LICENSED PROFESSIONAL ENGINEER
No. 13074-S
HAWAII U.S.A.
2/16/18
SEAL:

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DEPARTMENT OF DEFENSE
FACILITIES DESIGN & PROJECT BRANCH
KALAELOA, KAPOLEI, OAHU, HAWAII
STRUCTURAL
BASE BID FOUNDATION PLAN (DBI #1, 2, 2A, 3)

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HAWAII ARMY NATIONAL GUARD
91-1387 SARATOGA AVENUE
BUILDING 29 PARKING PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

SCALE: 1/8" = 1'-0"
STATE JOB NO. CA-1512-C
FEDERAL PROJECT NO. 314202
SHEET OF
S.101

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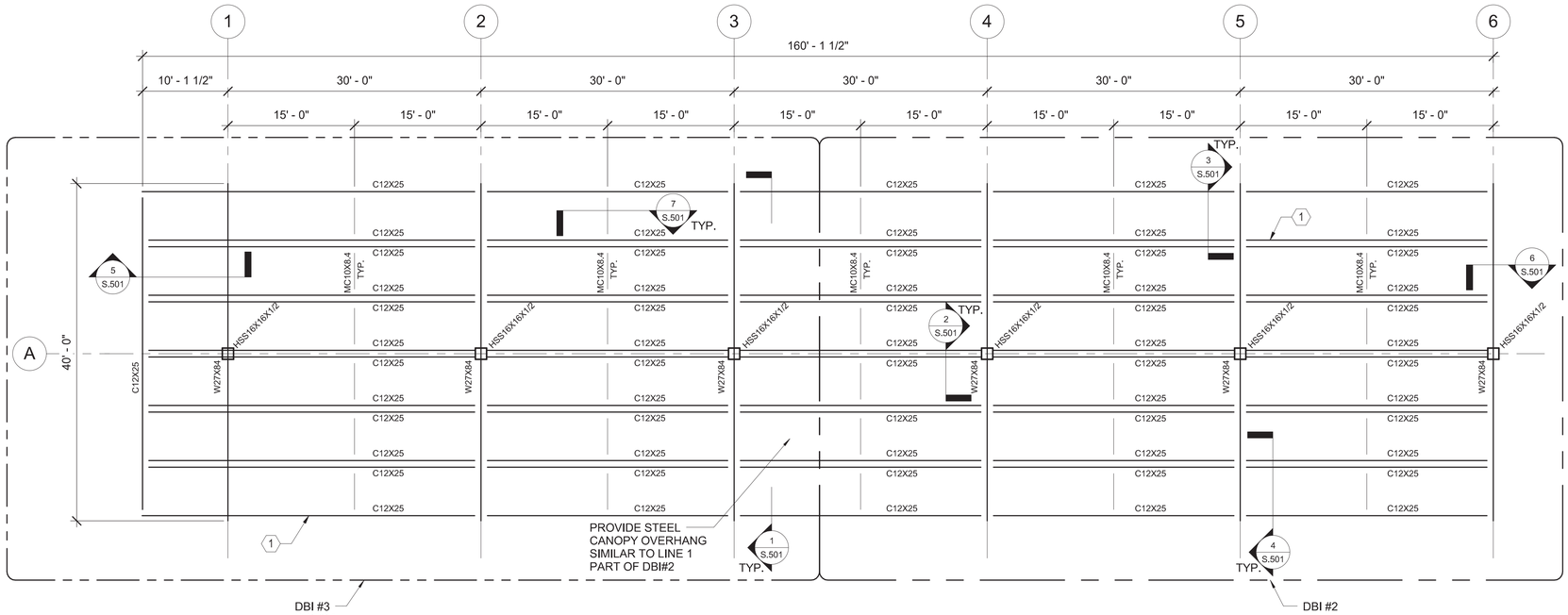

1 BASE BID ROOF FRAMING PLAN (DBI #1, 2, 2A, 3)

1/8" = 1'-0"

0 4' 8' 16'

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

SHEET NOTES

1. SOLAR PANELS NOT SHOWN FOR CLARITY.
2. HIGH POINT OF STEEL IS 121'-6" AND THE LOW POINT OF STEEL IS 115'-0".
3. DESCRIPTION OF DEDUCTIVE BID ITEMS (DBI's):
   - DBI #1 - IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.
   - DBI #2 - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED.
   - DBI #2A - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED. IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.
   - DBI #3 - DELETE THE REMAINING 50% OF THE PHOTOVOLTAIC (PV) SYSTEM AND THE REMAINING SUPERSTRUCTURE COMPONENTS FOR A COMPLETE DELETION OF THE PV SYSTEM AND ASSOCIATED STRUCTURE.

KEYED NOTES (THIS SHEET) AS- DENOTED BY (#)

1 SPACING OF C12'S TO BE COORDINATED WITH P.V. MANUFACTURER.

KEYPLAN - NOT TO SCALE

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STATE OF HAWAII
FACILITY MANAGEMENT OFFICE

KALAELOA, KAPOLEI, OAHU, HAWAII
91-1397 SARATOGA AVENUE

BUILDING 29 PARKING PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

STRUCTURAL

BASE BID ROOF FRAMING PLAN (DBI #1, 2, 2A, 3)

SCALE: 1/8" = 1'-0"

STATE JOB NO. CA-1512-C

FEDERAL PROJECT NO. 314202

SHEET OF

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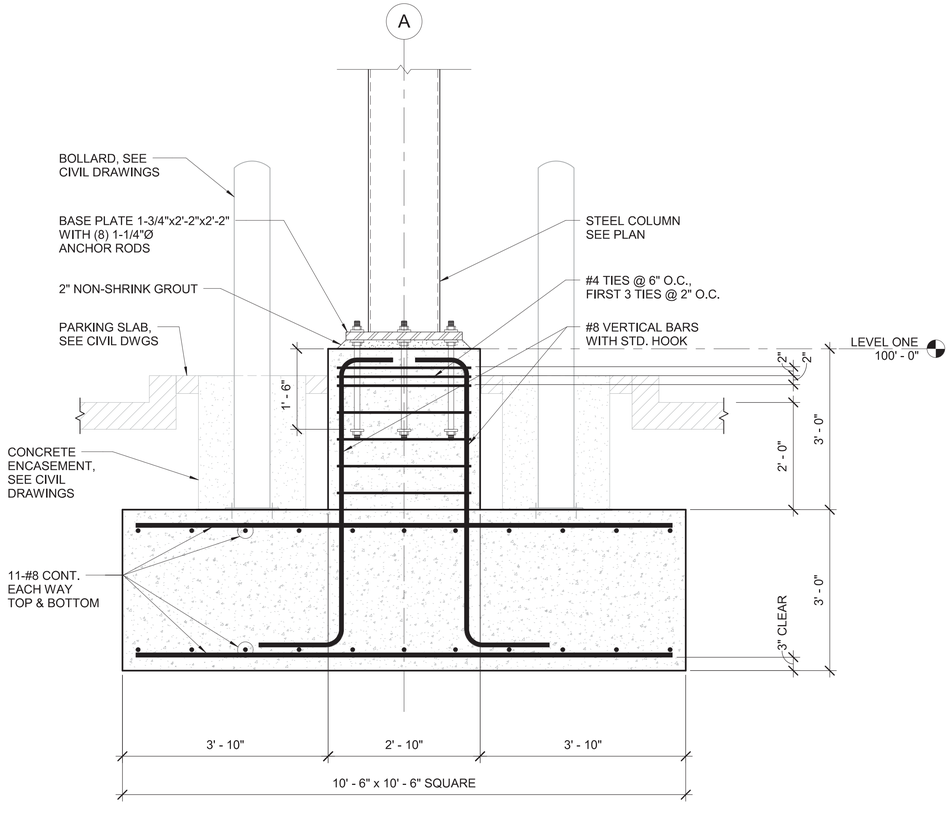
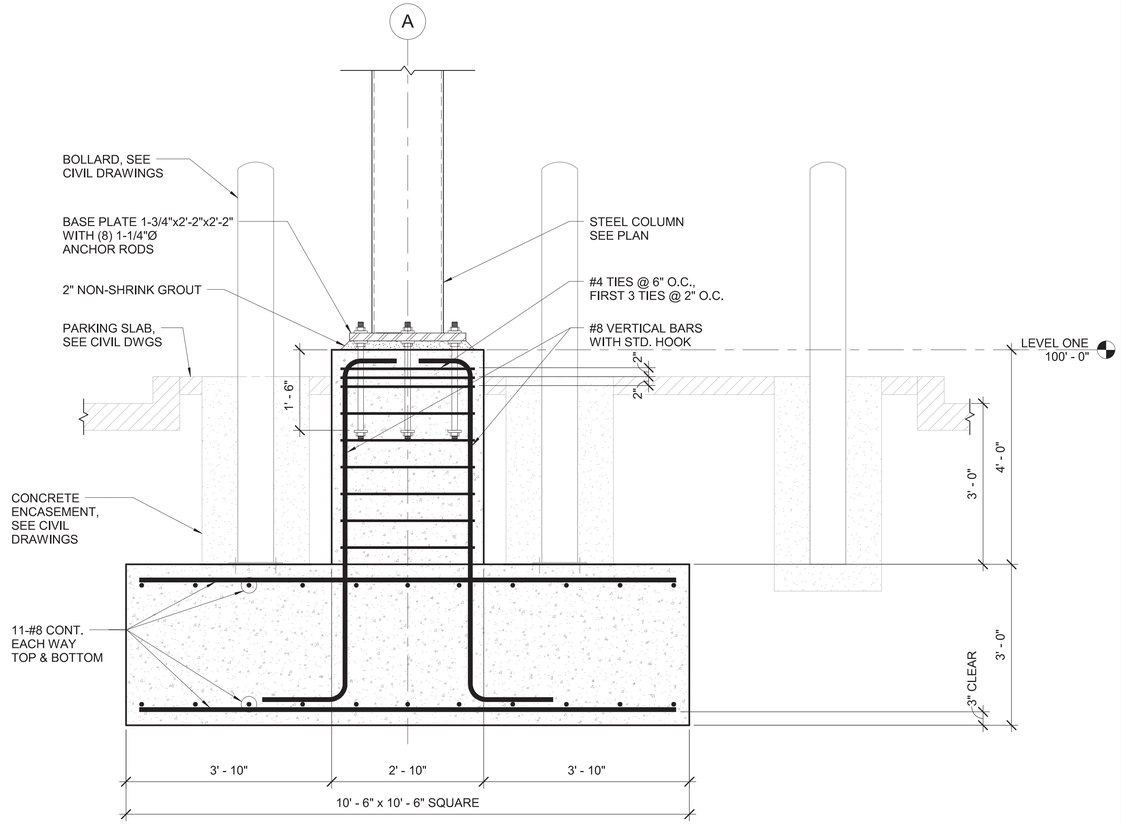


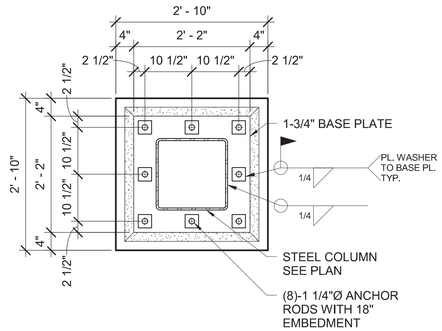
1 SECTION
3/4" = 1'-0"

0 8" 1'-4" 2'-8"
Scale = 3/4" = 1'-0"



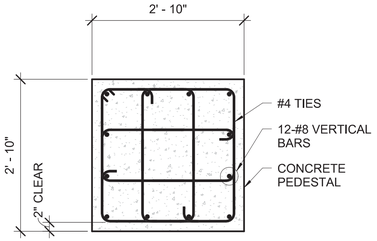
2 SECTION
3/4" = 1'-0"

0 8" 1'-4" 2'-8"
Scale = 3/4" = 1'-0"



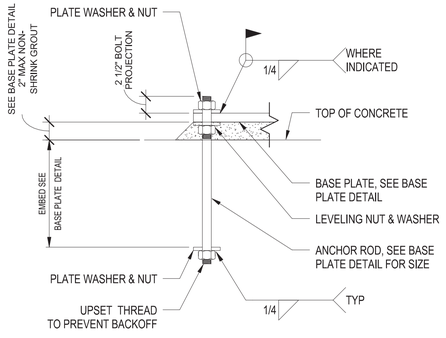
3 DETAIL
3/4" = 1'-0"

0 8" 1'-4" 2'-8"
Scale = 3/4" = 1'-0"



4 DETAIL - PILASTER REINFORCING
3/4" = 1'-0"

0 8" 1'-4" 2'-8"
Scale = 3/4" = 1'-0"



5 TYPICAL ANCHOR ROD DETAIL
1 1/2" = 1'-0"

0 4 1/2" 9" 1'-6"
Scale = 1'-1/2" = 1'-0"

COLUMN BASE PLATE & ANCHOR ROD NOTES

1 COLUMN BASE PLATE ARE ASTM A36. (Fy = 36 KSI, TYP. U.N.O.).
2 ANCHOR RODS ARE ASTM F1554 GRADE 36 Fy = 36 KSI (TYP. U.N.O.).
3 FOR 3/4" DIAMETER ANCHOR RODS, PROVIDE 1-1/4" DIAMETER OVERSIZE HOLES IN BASE PLATE ONLY AND USE 1/4"X2"X2" PLATE WASHERS ABOVE AND BELOW THE BASE PLATE.
4 FOR 1" DIAMETER ANCHOR RODS, PROVIDE 1-3/4" DIAMETER OVERSIZE HOLES IN BASE PLATE ONLY AND USE 3/8"X3"X3" PLATE WASHERS ABOVE AND BELOW THE BASE PLATE.
5 FOR 1-1/4" DIAMETER ANCHOR RODS, PROVIDE 2" DIAMETER OVERSIZE HOLES IN BASE PLATE ONLY AND USE 1/2"X3"X3" PLATE WASHERS ABOVE AND BELOW THE BASE PLATE.
6 SEE THE BASE PLATE DETAILS FOR REFERENCED INFORMATION.
7 PROVIDE VENT HOLES AS REQUIRED FOR FABRICATION AND GROUT PLACEMENT.

DESCRIPTION OF DEDUCTIVE BID ITEMS (DBI'S):

DBI #1 - IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS. IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.

DBI #2 - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED.

DBI #2A - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED. IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE REDUCED QUANTITY OF PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.

DBI #3 - DELETE THE REMAINING 50% OF THE PHOTOVOLTAIC (PV) SYSTEM AND THE REMAINING SUPERSTRUCTURE COMPONENTS FOR A COMPLETE DELETION OF THE PV SYSTEM AND ASSOCIATED STRUCTURE.

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STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
91-1387 SARATOGA AVENUE

BUILDING 29 PARKING PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

STRUCTURAL

BASE BID FOUNDATION SECTIONS & DETAILS (DBI #1, 2, 2A, 3)

SCALE: As indicated

STATE JOB NO. CA-1512-C

FEDERAL PROJECT NO. 314202

SHEET OF

S.301

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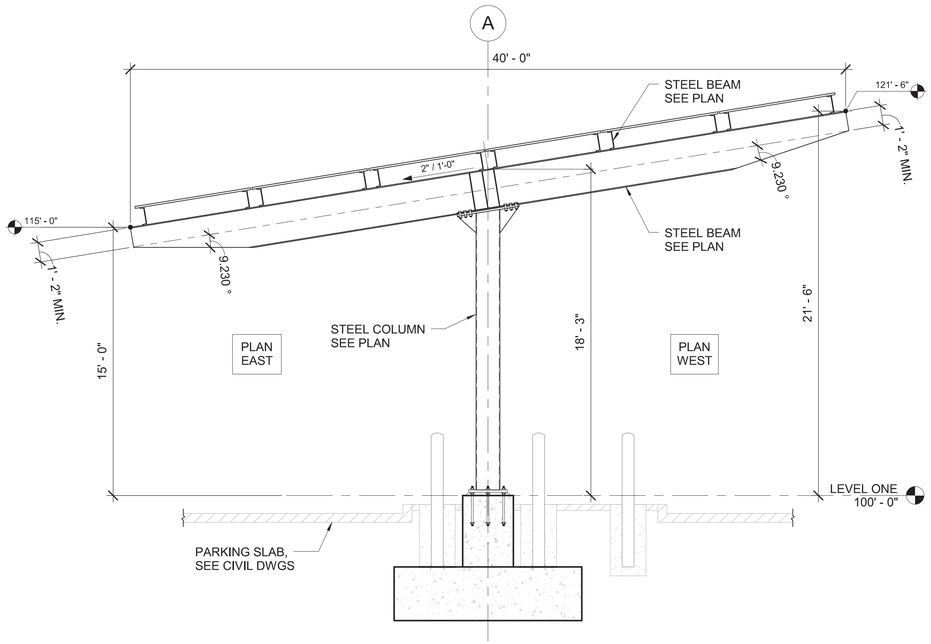
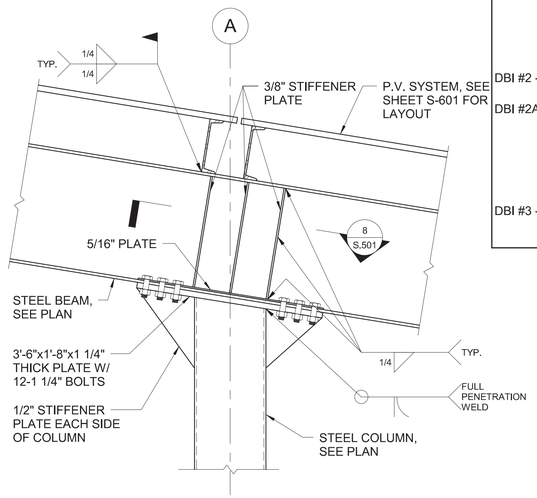


1 SECTION
1/4" = 1'-0"
Scale = 1/4" = 1'-0"



2 SECTION
3/4" = 1'-0"
Scale = 3/4" = 1'-0"

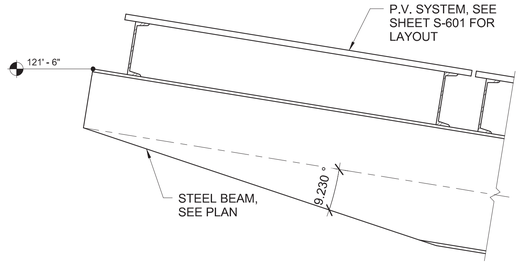
DESCRIPTION OF DEDUCTIVE BID ITEMS (DBI'S):

DBI #1 - IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS. IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.

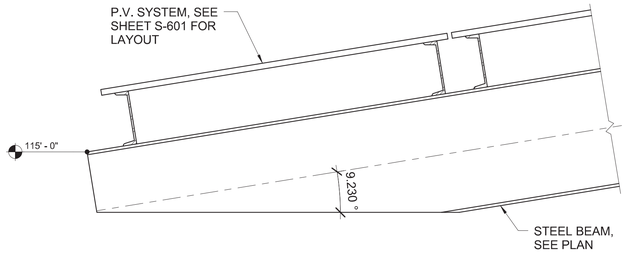
DBI #2 - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED.

DBI #2A - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED. IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE REDUCED QUANTITY OF PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.

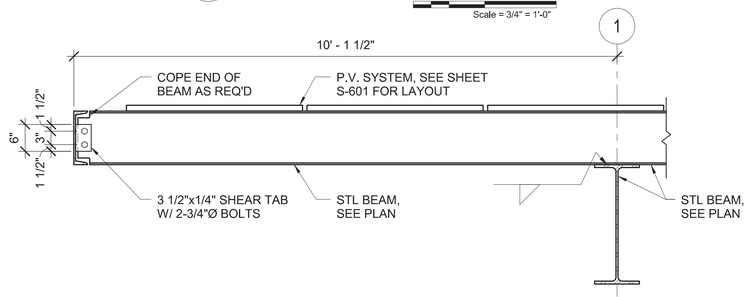
DBI #3 - DELETE THE REMAINING 50% OF THE PHOTOVOLTAIC (PV) SYSTEM AND THE REMAINING SUPERSTRUCTURE COMPONENTS FOR A COMPLETE DELETION OF THE PV SYSTEM AND ASSOCIATED STRUCTURE.



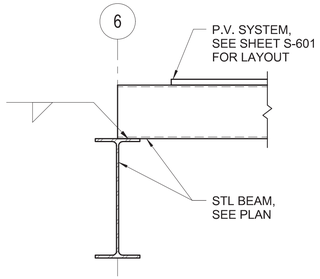
3 SECTION
3/4" = 1'-0"
Scale = 3/4" = 1'-0"



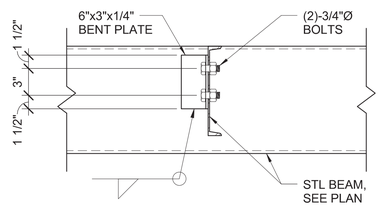
4 SECTION
3/4" = 1'-0"
Scale = 3/4" = 1'-0"



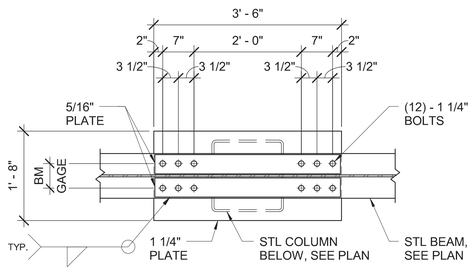
5 SECTION
3/4" = 1'-0"
Scale = 3/4" = 1'-0"



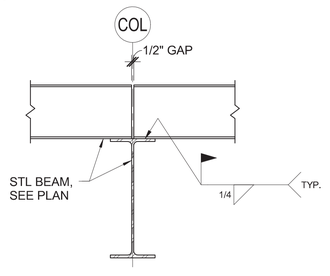
6 SECTION
3/4" = 1'-0"
Scale = 3/4" = 1'-0"



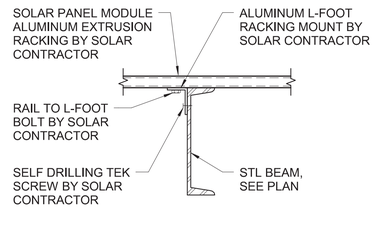
7 SECTION
1 1/2" = 1'-0"
Scale = 1'-1/2" = 1'-0"



8 SECTION
3/4" = 1'-0"
Scale = 3/4" = 1'-0"



9 TYPICAL INTERIOR BEAM CONNECTION
3/4" = 1'-0"
Scale = 3/4" = 1'-0"



10 TYPICAL RACKING SYSTEM CONNECTION DETAIL
1 1/2" = 1'-0"
Scale = 1'-1/2" = 1'-0"

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622 EMERSON ROAD,ST. LOUIS,MO 63141
60 PLATO BOULEVARD E,ST., PAUL,MN 55107
ONE WEST THIRD STREET,TULSA,OK 74103

JOHN D. WESTERHEIDE III
LICENSED PROFESSIONAL ENGINEER
No. 13074-S
HAWAII U.S.A.
2/16/18
SEAL:

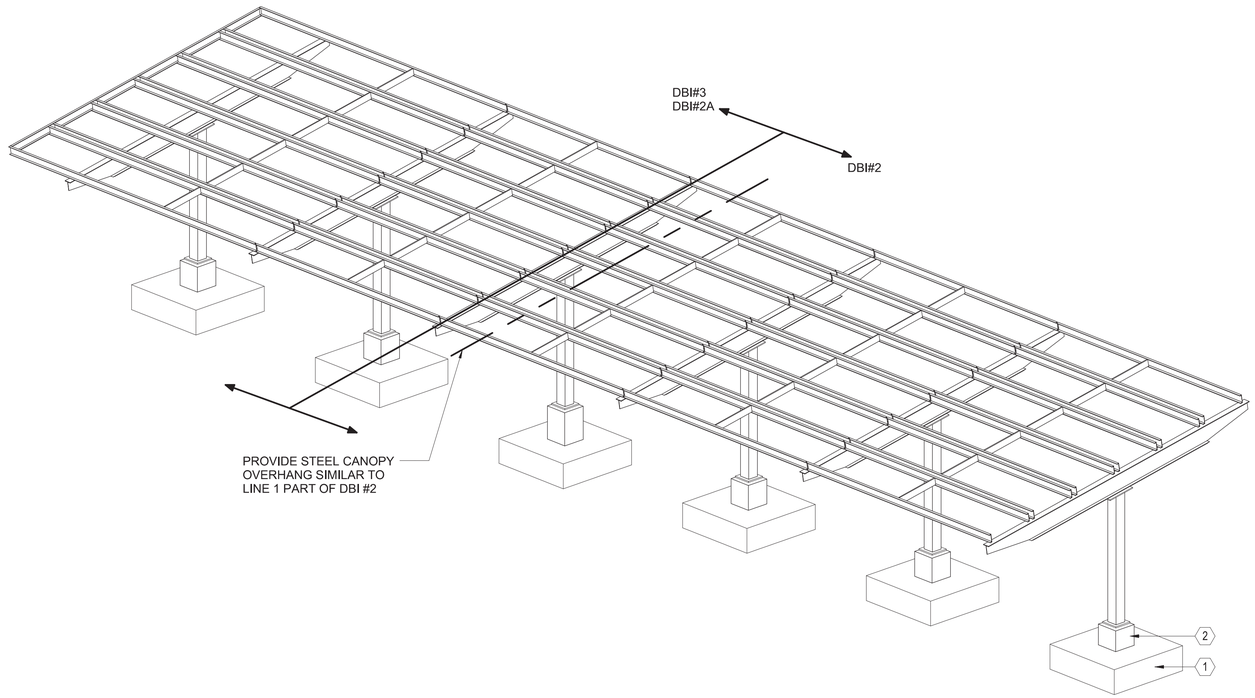
SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE:
100% FINAL BID SET
SUBMITTAL DATE: 16/02/18
DES: HMH DRW: JDF CHK: JDW

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD
FACILITIES DESIGN & PROJECT BRANCH
KALAELOA, KAPOLEI, OAHU, HAWAII
BUILDING 29 PARKING PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS
AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS
STRUCTURAL
BASE BID FRAMING SECTIONS & DETAILS (DBI #1, 2, 2A, 3)
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
91-1387 SARATOGA AVENUE

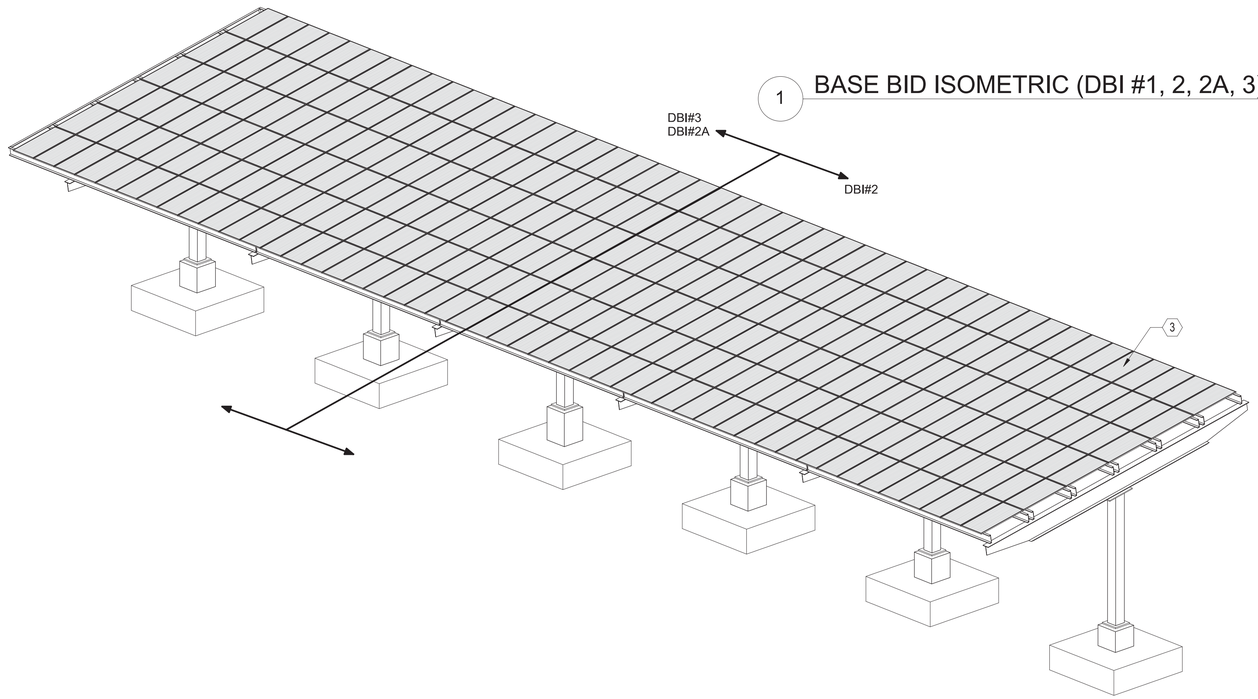
SCALE: As indicated
STATE JOB NO. CA-1512-C
FEDERAL PROJECT NO. 314202
SHEET OF
S.501

C:\Temp\S-314202-KalaeoaB29 Parking-CF2015_fluegel.rvt



1 BASE BID ISOMETRIC (DBI #1, 2, 2A, 3)

0 4' 8' 16'
Scale = 1/8" = 1'-0"



2 PHOTOVOLTAIC SYSTEM ISOMETRIC (DBI #1, 2, 2A, 3)

0 4' 8' 16'
Scale = 1/8" = 1'-0"

SHEET NOTES

1. SOLAR PANELS NOT SHOWN FOR CLARITY.
2. HIGH POINT OF STEEL IS 121'-6" AND THE LOW POINT OF STEEL IS 115'-0".
3. SEE SHEET S-111 FOR ROOF FRAMING INFORMATION.
4. DESCRIPTION OF DEDUCTIVE BID ITEMS (DBI's):
   - DBI #1 - IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.
   - DBI #2 - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED.
   - DBI #2A - DELETE 50% OF THE PHOTOVOLTAIC SYSTEM AND APPROXIMATELY 50% OF THE SUPERSTRUCTURE AS INDICATED. IN LIEU OF THE SUPERSTRUCTURE DETAILED WITHIN THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL PROVIDE A CONTRACTOR-DESIGNED AND ENGINEERED SOLUTION INCLUDING STRUCTURAL CANOPY, COLUMNS, FOOTINGS, ETC, AS REQUIRED FOR A COMPLETE STRUCTURAL SYSTEM TO SUPPORT THE PHOTOVOLTAIC PANELS AND ALL COMPONENTS. CONTRACTOR SHALL UTILIZE THE DESIGN CRITERIA INDICATED ON DRAWING S.001 AS HIS MINIMUM DESIGN PARAMETERS.
   - DBI #3 - DELETE THE REMAINING 50% OF THE PHOTOVOLTAIC (PV) SYSTEM AND THE REMAINING SUPERSTRUCTURE COMPONENTS FOR A COMPLETE DELETION OF THE PV SYSTEM AND ASSOCIATED STRUCTURE.

KEYED NOTES (THIS SHEET) AS- DENOTED BY (#)

1 CONCRETE FOOTING, TYP.
2 CONCRETE PILASTER, TYP.
3 SOLAR PANELS. COORDINATE LOCATION WITH ELECTRICAL DRAWINGS.

HAWAII ARMY NATIONAL GUARD

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JOHN D. WESTERHEIDE III
LICENSED PROFESSIONAL ENGINEER
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HAWAII U.S.A.
2/16/18
SEAL:

APPR	DATE	DESCRIPTION	STM

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SUBMITTAL DATE: 16/02/18

DES: HMH DRW: JDF CHK: JDW

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD
FACILITIES DESIGN & PROJECT BRANCH
KALAELOA, KAPOLEI, OAHU, HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
91-1387 SARATOGA AVENUE

BUILDING 29 PARKING PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

STRUCTURAL
BASE BID ISOMETRIC VIEW (DBI #1, 2, 2A, 3)

SCALE:

STATE JOB NO.
CA-1512-C

FEDERAL PROJECT NO.
314202

SHEET OF

S.601

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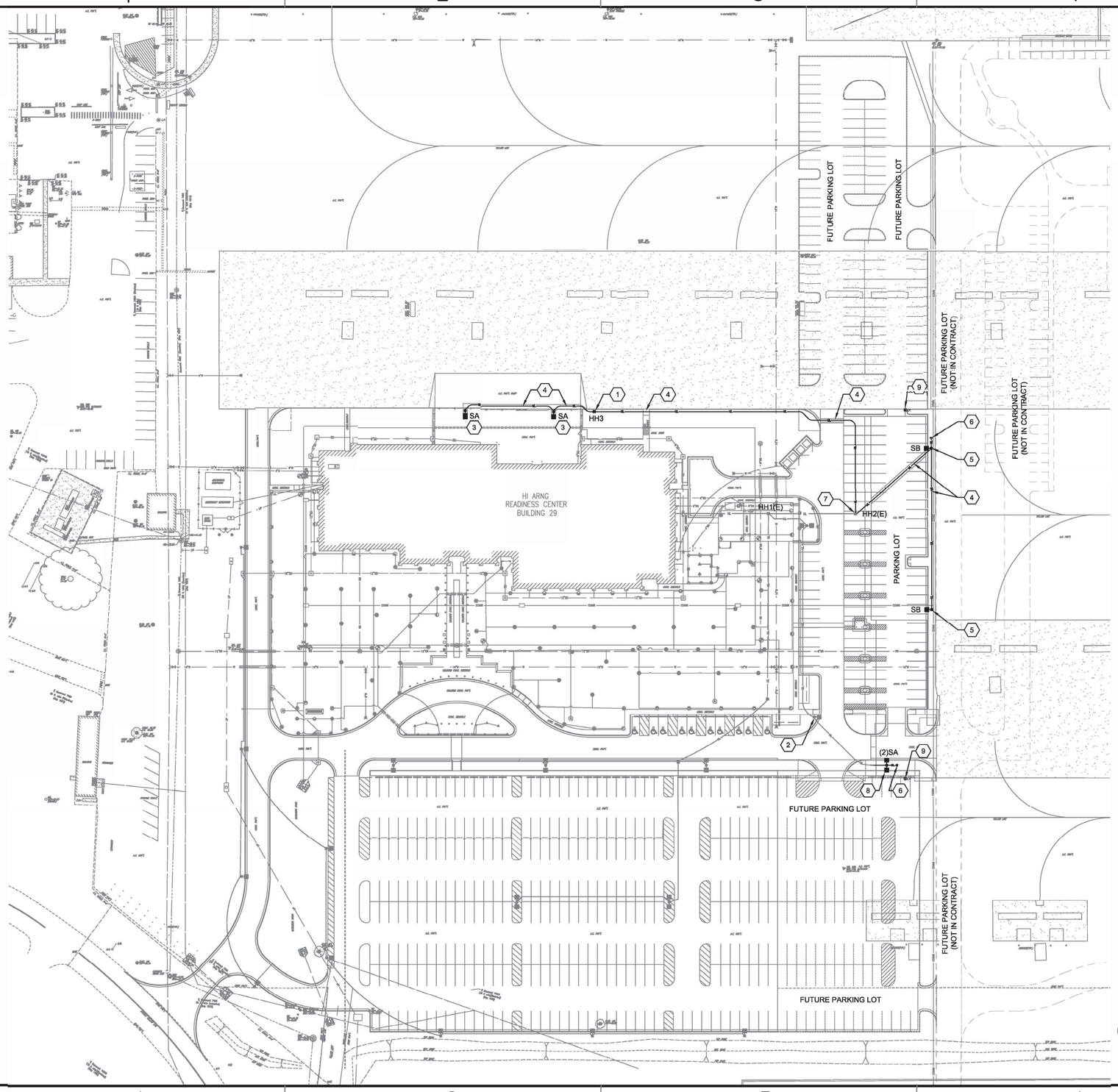
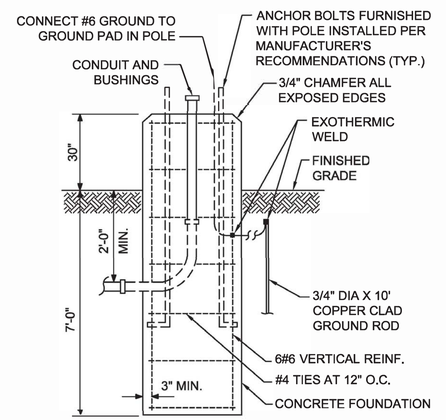


SHEET NOTES:

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN. BEFORE STARTING ANY WORK, LOCATE AND PROTECT ALL EXISTING BURIED UTILITY LINES, WHETHER OR NOT SHOWN ON THESE DRAWINGS, DURING THE COURSE OF CONSTRUCTION.
2. ALL SITE LIGHTING CIRCUITS SHALL BE 2#8,1#8GND,1"C MINIMUM AND DIRECT BURIED AT 24" BELOW FINISHED GRADE, UNLESS NOTED OTHERWISE. WIRING AT POLE MAY BE REDUCED TO #10AWG.

KEYED NOTES: ⬡

1. PROVIDE PRECAST HANDHOLE FOR SITE LIGHTING.
2. EXISTING POLE MOUNTED LIGHT FIXTURE.
3. PROVIDE FIXTURE "SA" (McGRAW-EDISON #VTS-E12-LED-E1-T4-BK-VA1033BK) AND 20' POLE (VALMONT DS330 #500W200 W/BLACK POWDERCOAT FINISH) ON CONCRETE BASE. CUT AND REMOVE EXISTING PAVEMENT AS REQUIRED FOR INSTALLATION OF CONCRETE BASE. SEE DETAIL 2 BELOW. EXTEND CIRCUIT 1ELP1-26 FROM EXISTING HANDHOLE HH1.
4. NEW UNDERGROUND LIGHTING BRANCH CIRCUIT. CUT AND REMOVE EXISTING PAVEMENT AS REQUIRED FOR INSTALLATION OF NEW CONDUIT.
5. PROVIDE FIXTURE "SB" (McGRAW-EDISON #VTS-E12-LED-E1-SL3-BK-VA1033BK) AND 30' POLE (VALMONT DS330 #500W300 W/BLACK POWDERCOAT FINISH) ON CONCRETE BASE. CUT AND REMOVE EXISTING PAVEMENT AS REQUIRED FOR INSTALLATION OF CONCRETE BASE. COORDINATE EXACT POLE LOCATION WITH EXISTING UNDERGROUND COMMUNICATIONS. SEE DETAIL 2 BELOW. EXTEND CIRCUIT 1ELP1-26 FROM EXISTING HANDHOLE HH1.
6. STUB CONDUIT OUT AND CAP FOR FUTURE PARKING LOT LIGHTING.
7. ADJUST EXISTING HANDHOLE HH2 AS REQUIRED TO BE FLUSH WITH SURFACE OF NEW PAVEMENT.
8. PROVIDE (2) TYPE "SA" FIXTURES (McGRAW-EDISON #VTS-E12-LED-E1-T4-BK-VA1034BK) AND 30' POLE (VALMONT DS330 #500W300 W/BLACK POWDERCOAT FINISH) ON CONCRETE BASE. CUT AND REMOVE EXISTING PAVEMENT AS REQUIRED FOR INSTALLATION OF CONCRETE BASE. SEE DETAIL 2 BELOW. EXTEND CIRCUIT 1ELP1-26 FROM EXISTING LIGHT POLE IDENTIFIED BY KEYED NOTE #2.
9. DEMOLISH EXISTING LIGHT POLE AND CONCRETE BASE.



NOTES:
1. COORDINATE POLE BASE DIAMETER WITH EXISTING POLE BASES INSTALLED UNDER B29 PROJECT.
2. COORDINATE ANCHOR BOLT LOCATION TO PROVIDE PROPER ORIENTATION OF LIGHT FIXTURE.

2 POLE BASE DETAIL - FIXTURE "SA" & "SB"
NOT TO SCALE

PLAN NORTH

1 OVERALL SITE PLAN
1"=50'
0 25' 50' 100'
Scale: 1" = 50'

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622 EMERSON ROAD,ST. LOUIS,MO 63141
60 PLATO BOULEVARD E,ST. PAUL,MN 55107
ONE WEST THIRD STREET,TULSA,OK 74103

SEAL

DOYLE W. MAGNUS
LICENSED PROFESSIONAL ENGINEER
No. 13091-E
2/16/18
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
EXPIRATION DATE OF LICENSE:

APPR	DATE	DESCRIPTION	SYM

SUBMITAL PHASE
100% FINAL BID SET

SUBMITAL DATE: 16/02/2018
DES: WJB DRW: WJB CHK: DWM

STATE OF HAWAII
DEPARTMENT OF DEFENSE
FACILITY MANAGEMENT OFFICE
FACILITIES DESIGN & PROJECTS BRANCH
91-1387 SARATOGA AVENUE
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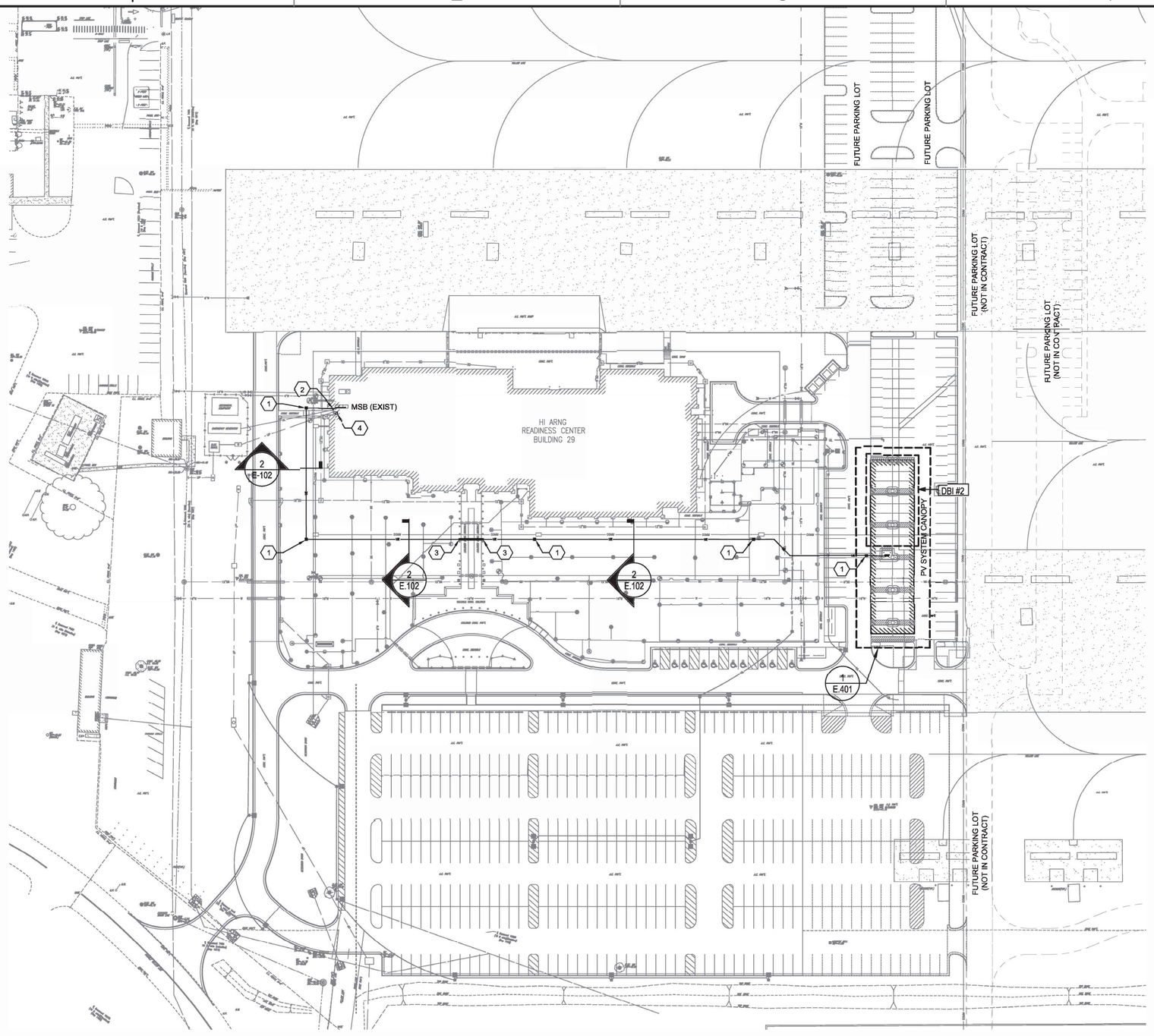
HAWAII ARMY NATIONAL GUARD
BUILDING 29 PARKING, PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS

ELECTRICAL
OVERALL SITE LIGHTING PLAN

SCALE: AS NOTED
STATE JOB NO. CA-1512-C
FEDERAL PROJECT NO. 15150023
SHEET OF
E.101



PLAN NORTH

1 PHOTOVOLTAIC SYSTEM SITE PLAN
1"=50'

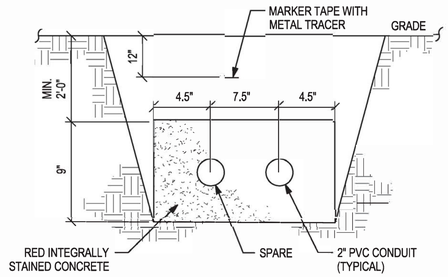
0 25' 50' 100'
Scale: 1" = 50'

SHEET NOTES:

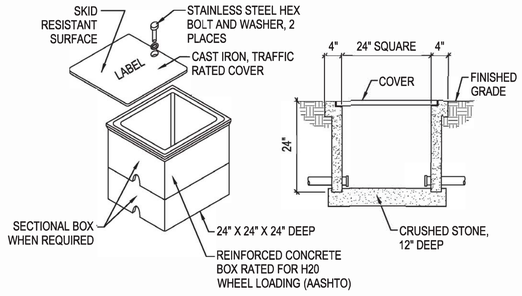
1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN. BEFORE STARTING ANY WORK, LOCATE AND PROTECT ALL EXISTING BURIED UTILITY LINES, WHETHER OR NOT SHOWN ON THESE DRAWINGS, DURING THE COURSE OF CONSTRUCTION.
2. COORDINATE CONSTRUCTION OF PHOTOVOLTAIC (PV) SYSTEM DUCTBANK WITH EXISTING UTILITIES AND IRRIGATION SYSTEM PIPING.
3. REFER TO ONE-LINE DIAGRAM, SHEET E.601 FOR FEEDER SIZES.

KEYED NOTES: ⬡

1. PROVIDE PRECAST HANDHOLE FOR PV SYSTEM FEEDER. SEE DETAIL 3 BELOW.
2. TRANSITION FROM PVC TO RIGID GALVANIZED STEEL BEFORE STUB-UP AT FACE OF BUILDING. CAP (1) ONE CONDUIT AT 6" AFF, AND EXTEND (1) CONDUIT UP FACE OF BUILDING TO 10'-0" AFF, PENETRATE WALL AND EXTEND CONDUIT TO EXISTING MSB. PAINT CONDUIT TO MATCH EXTERIOR FINISH.
3. CONTRACTOR SHALL PUSH (2) 3" RMC CONDUIT SLEEVES APPROXIMATELY 28" BELOW SIDEWALK FOR ROUTING OF PV SYSTEM CONDUITS. CONTRACTOR SHALL TAKE EVERY PRECAUTION SO AS NOT TO DAMAGE FINISH OF SIDEWALK.
4. PV SYSTEM KILL SWITCH (RED MUSHROOM HEAD PUSH-BUTTON) LOCATED IN ELECTRICAL ROOM 1090, ALONGSIDE GENERATOR KILL SWITCH. KILL SWITCH SHALL HAVE IDENTIFICATION NAMEPLATE "PHOTOVOLTAIC KILL SWITCH", AND ACTIVATE SHUNT-TRIP DEVICE OF PV SYSTEM CIRCUIT BREAKER.



2 DUCTBANK DETAIL
NOT TO SCALE



3 HANDHOLE DETAIL
NOT TO SCALE

DESCRIPTION OF DEDUCTIVE BID ITEMS (DBI's):

DBI #2 DELETE 50% OF THE PHOTOVOLTAIC (PV) SYSTEM, GENERALLY DESCRIBED AS FOLLOWS:

- REDUCE QUANTITY OF SOLAR PANELS FROM 288 TO 144 (6 ROWS OF 24).
- REDUCE QUANTITY OF 36kW STRING INVERTERS FROM TWO (2) TO ONE (1).
- REDUCE QUANTITY OF 100A FUSED DISCONNECTS WITH 80A FUSES FROM TWO (2) TO ONE (1).
- REDUCE SIZE OF PV SYSTEM SHUNT-TRIP CIRCUIT BREAKER FROM 150A TO 80A.
- REDUCE FEEDER SIZE FROM 4#3/0,1#6G,2"C TO 4#2,1#8G,2"C.

DBI #3 DELETE THE REMAINING 50% OF THE PHOTOVOLTAIC (PV) SYSTEM FOR A COMPLETE DELETION OF THE PV SYSTEM.

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SEAL

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LICENSED PROFESSIONAL ENGINEER
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2/16/18
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
EXPIRATION DATE OF LICENSE:

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SUBMITAL PHASE
100% FINAL BID SET

SUBMITAL DATE: 16/02/2018
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DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD
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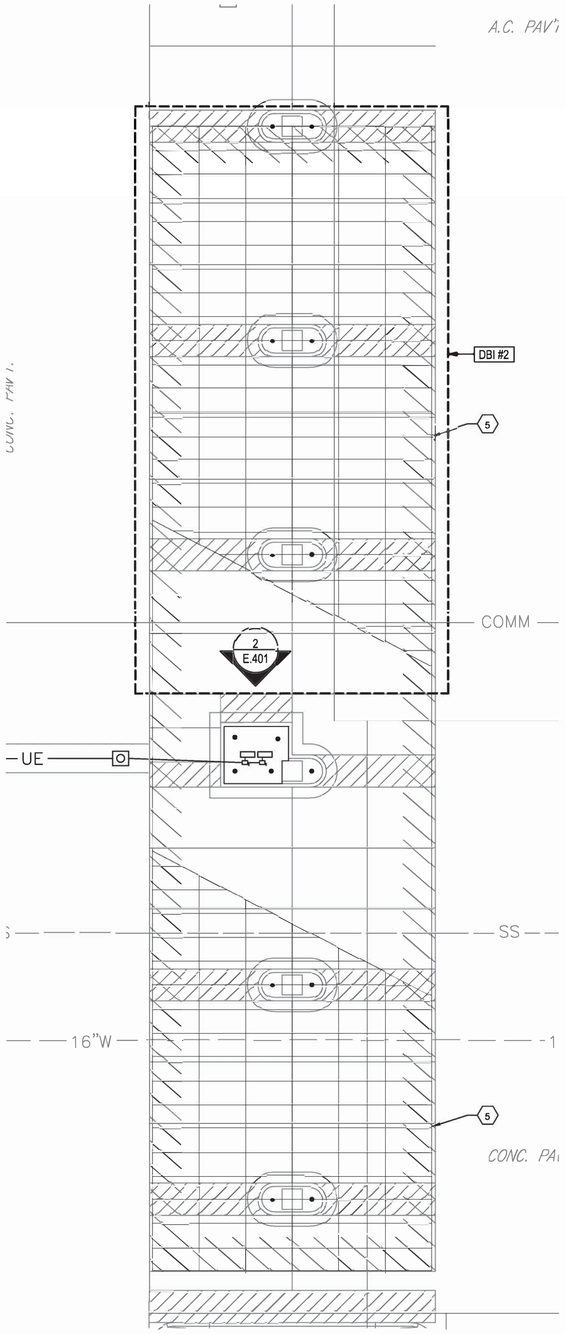
BUILDING 29 PARKING, PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS
ELECTRICAL
BASE BID DBI #2,3 PHOTOVOLTAIC SYSTEM SITE PLAN
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
91-1387 SARATOGA AVENUE

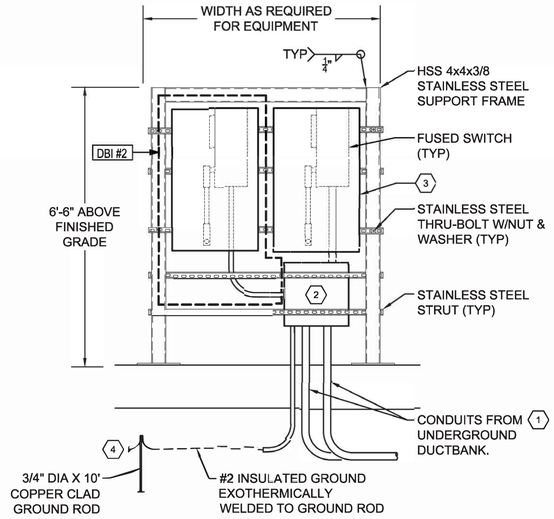
SCALE: AS NOTED
STATE JOB NO. CA-1512-C
FEDERAL PROJECT NO. 15150023
SHEET OF
E.102



PLAN NORTH

1 PHOTOVOLTAIC SYSTEM ENLARGED PLAN
1"=10'

0 5' 10' 20'
Scale: 1" = 10'



2 PV INVERTER SUPPORT FRAME DETAIL
SCALE: NOT TO SCALE

SHEET NOTES:

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN. BEFORE STARTING ANY WORK, LOCATE AND PROTECT ALL EXISTING BURIED UTILITY LINES, WHETHER OR NOT SHOWN ON THESE DRAWINGS, DURING THE COURSE OF CONSTRUCTION.
2. REFER TO ONE-LINE DIAGRAM, SHEET E.601 FOR FEEDER SIZES.

KEYED NOTES: ⬡

1. TRANSITION FROM PVC TO RIGID GALVANIZED STEEL BEFORE STUB-UP AT JUNCTION BOX.
2. PROVIDE 18"x18"x6" STAINLESS STEEL JUNCTION BOX FOR FEEDER TAP.
3. PROVIDE (2)36kW, 3 PHASE, TRANSFORMERLESS STRING INVERTERS. INVERTERS SHALL HAVE 1000VDC MAXIMUM OPEN CIRCUIT VOLTAGE, MINIMUM OF 10 FUSED STRING POSITIONS, 480VAC 3-PH OUTPUT VOLTAGE, AND MINUMUM 10 YEAR WARRANTY. INVERTERS SHALL BE CAPABLE OF CONNECTING 50.4kW OF SOLAR PANELS WITHOUT RISK OF DAMAGE. INVERTERS SHALL BE FURNISHED WITH WEB BASED EXTERNAL DATA LOGGER AND MONITORING SUBSCRIPTION.
4. EXOTHERMICALLY WELD GROUND CONDUCTOR TO COLUMN.
5. PROVIDE 288 (6 ROWS OF 48) 72 CELL, SOLAR PANELS WITH 350W OUTPUT EACH (39.4" WIDE BY 78.46" LONG), FOR A TOTAL OF 100.8kW CONNECTED. SOLAR PANELS SHALL HAVE A MINIMUM 20 YEAR WARRANTY.

DBI #2 & DBI #3:
REFER TO DRAWING E.102
FOR DESCRIPTION OF DBI #2
& DBI #3.

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2/16/18
HAWAII U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
EXPIRATION DATE OF LICENSE:

STM	DESCRIPTION	DATE	APPR

SUBMITAL PHASE
100% FINAL BID SET
SUBMITAL DATE: 16/02/2018
DES: WJB DRW: WJB CHK: DWM

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD
FACILITIES DESIGN & PROJECTS BRANCH
KALAELOA, KAPOLEI, OAHU, HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
91-1387 SARATOGA AVENUE
BUILDING 29 PARKING, PHOTOVOLTAIC SYSTEM, SITE IMPROVEMENTS AND MISCELLANEOUS EXTERNAL AND INTERNAL IMPROVEMENTS
ELECTRICAL
BASE BID DBI #2,3 ENLARGED PLAN

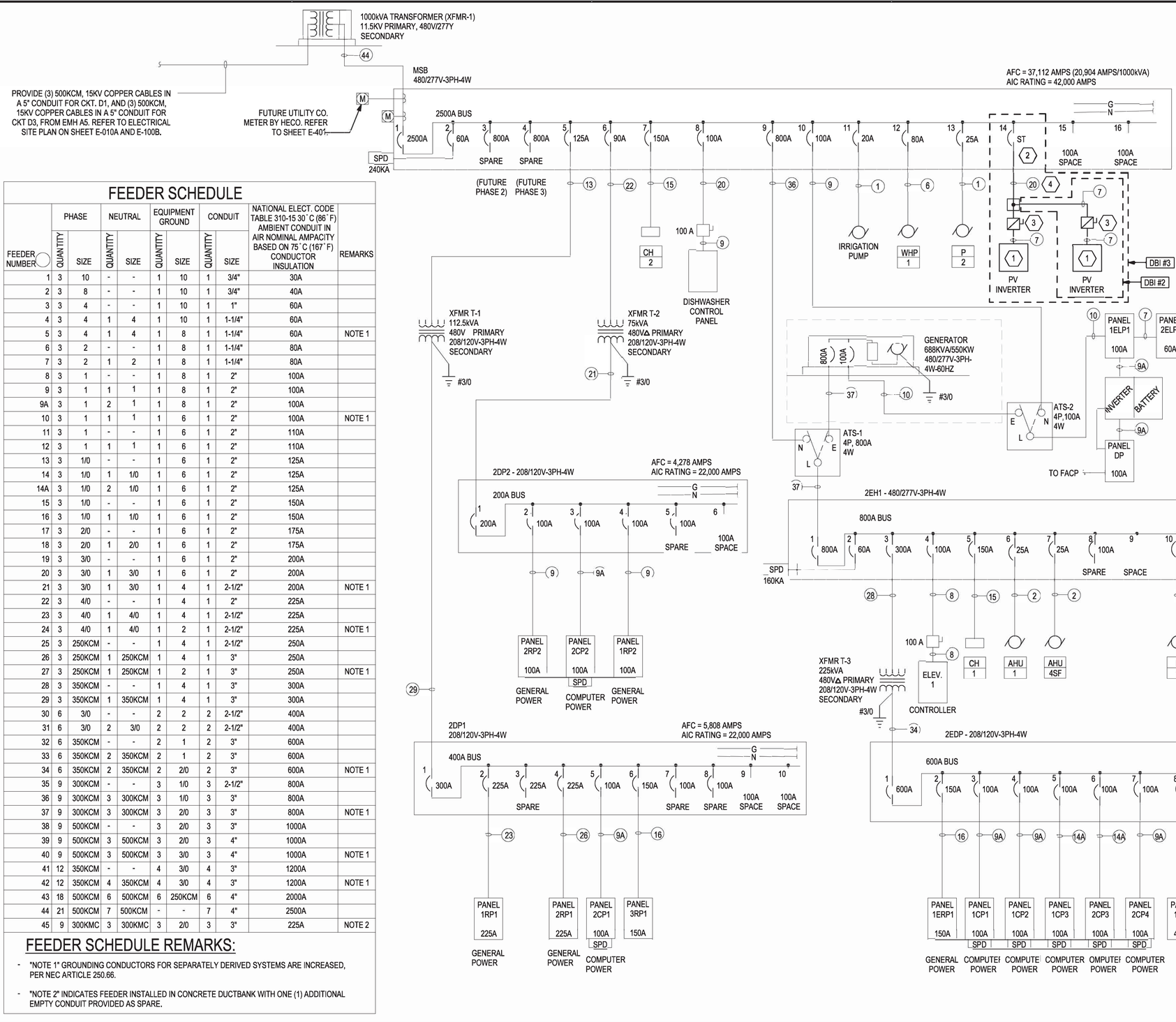
SCALE: AS NOTED
STATE JOB NO. CA-1512-C
FEDERAL PROJECT NO. 15150023
SHEET OF
E.401

FEEDER SCHEDULE

FEEDER NUMBER	PHASE QUANTITY	PHASE SIZE	NEUTRAL QUANTITY	NEUTRAL SIZE	EQUIPMENT GROUND QUANTITY	EQUIPMENT GROUND SIZE	CONDUIT QUANTITY	CONDUIT SIZE	NATIONAL ELECT. CODE TABLE 310-15 30˚C (86˚F) AMBIENT CONDUIT IN AIR NOMINAL AMPACITY BASED ON 75˚C (167˚F) CONDUCTOR INSULATION	REMARKS
1	3	10	-	-	1	10	1	3/4"	30A	
2	3	8	-	-	1	10	1	3/4"	40A	
3	3	4	-	-	1	10	1	1"	60A	
4	3	4	1	4	1	10	1	1-1/4"	60A	
5	3	4	1	4	1	8	1	1-1/4"	60A	NOTE 1
6	3	2	-	-	1	8	1	1-1/4"	80A	
7	3	2	1	2	1	8	1	1-1/4"	80A	
8	3	1	-	-	1	8	1	2"	100A	
9	3	1	1	1	1	8	1	2"	100A	
9A	3	1	2	1	1	8	1	2"	100A	
10	3	1	1	1	1	6	1	2"	100A	NOTE 1
11	3	1	-	-	1	6	1	2"	110A	
12	3	1	1	1	1	6	1	2"	110A	
13	3	1/0	-	-	1	6	1	2"	125A	
14	3	1/0	1	1/0	1	6	1	2"	125A	
14A	3	1/0	2	1/0	1	6	1	2"	125A	
15	3	1/0	-	-	1	6	1	2"	150A	
16	3	1/0	1	1/0	1	6	1	2"	150A	
17	3	2/0	-	-	1	6	1	2"	175A	
18	3	2/0	1	2/0	1	6	1	2"	175A	
19	3	3/0	-	-	1	6	1	2"	200A	
20	3	3/0	1	3/0	1	6	1	2"	200A	
21	3	3/0	1	3/0	1	4	1	2-1/2"	200A	NOTE 1
22	3	4/0	-	-	1	4	1	2"	225A	
23	3	4/0	1	4/0	1	4	1	2-1/2"	225A	
24	3	4/0	1	4/0	1	2	1	2-1/2"	225A	NOTE 1
25	3	250KCM	-	-	1	4	1	2-1/2"	250A	
26	3	250KCM	1	250KCM	1	4	1	3"	250A	
27	3	250KCM	1	250KCM	1	2	1	3"	250A	NOTE 1
28	3	350KCM	-	-	1	4	1	3"	300A	
29	3	350KCM	1	350KCM	1	4	1	3"	300A	
30	6	3/0	-	-	2	2	2	2-1/2"	400A	
31	6	3/0	2	3/0	2	2	2	2-1/2"	400A	
32	6	350KCM	-	-	2	1	2	3"	600A	
33	6	350KCM	2	350KCM	2	1	2	3"	600A	
34	6	350KCM	2	350KCM	2	2/0	2	3"	600A	NOTE 1
35	9	300KCM	-	-	3	1/0	3	2-1/2"	800A	
36	9	300KCM	3	300KCM	3	1/0	3	3"	800A	
37	9	300KCM	3	300KCM	3	2/0	3	3"	800A	NOTE 1
38	9	500KCM	-	-	3	2/0	3	3"	1000A	
39	9	500KCM	3	500KCM	3	2/0	3	4"	1000A	
40	9	500KCM	3	500KCM	3	3/0	3	4"	1000A	NOTE 1
41	12	350KCM	-	-	4	3/0	4	3"	1200A	
42	12	350KCM	4	350KCM	4	3/0	4	3"	1200A	NOTE 1
43	18	500KCM	6	500KCM	6	250KCM	6	4"	2000A	
44	21	500KCM	7	500KCM	-	-	7	4"	2500A	
45	9	300KMC	3	300KMC	3	2/0	3	3"	225A	NOTE 2

FEEDER SCHEDULE REMARKS:

- "NOTE 1" GROUNDING CONDUCTORS FOR SEPARATELY DERIVED SYSTEMS ARE INCREASED, PER NEC ARTICLE 250.66.
- "NOTE 2" INDICATES FEEDER INSTALLED IN CONCRETE DUCTBANK WITH ONE (1) ADDITIONAL EMPTY CONDUIT PROVIDED AS SPARE.



KEYED NOTES:

1. CONTRACTOR SHALL DESIGN, ENGINEER, AND PROVIDE INVERTER(S), PV PANELS, ETC FOR A COMPLETELY FUNCTIONAL, HECO COMPLIANT, 100KW PHOTOVOLTAIC SYSTEM. CONTRACTOR SHALL DETERMINE INVERTER SIZE(S) AND QUANTITIES AS PART OF HIS DESIGN. CONTRACTOR SHALL ALSO DETERMINE RELATED FEEDER AND INPUT CIRCUIT BREAKER SIZE(S). EQUIPMENT SHOWN, (INCLUDING BREAKER SIZES, FEEDER SIZES, INVERTER SIZES, DISCONNECT AND FUSE SIZES, ETC.) ARE PROVIDED TO ESTABLISH A BASIS OF DESIGN FOR ESTIMATING PURPOSES ONLY.
2. PROVIDE 150AMP CIRCUIT BREAKER WITH SHUNT-TRIP DEVICE AND GROUND FAULT PROTECTION FOR PHOTOVOLTAIC SYSTEM. SHUNT-TRIP DEVICE TO BE ACTIVATED BY KILL SWITCH (RED MUSHROOM HEAD PUSH-BUTTON) LOCATED IN ELECTRICAL ROOM 1090, ALONGSIDE GENERATOR KILL SWITCH. LOSS OF NORMAL POWER SHALL ALSO ACTIVATE SHUNT-TRIP DEVICE. PER NEC 705.10, PROVIDE PERMANENT PLAQUE OR DIRECTORY DENOTING ALL ELECTRIC POWER SOURCES AT EACH SERVICE EQUIPMENT LOCATION.
3. PROVIDE 100A, STAINLESS STEEL, WEATHER PROOF, FUSED DISCONNECT SWITCH WITH 80A FUSES.
4. INDICATED FEEDERS ARE INTENTIONALLY OVERSIZED TO ACCOMODATE VOLTAGE DROP.

DBI #2 & DBI #3:
REFER TO DRAWING E.102
FOR DESCRIPTION OF DBI #2
& DBI #3.

BENHAM
a Tetra Tech Company
1250 N. PONTIAC TRAIL,WALLED LAKE,MI 48390
WESTHEIMER,HOUSTON,TX 77042
9400 N. BROADWAY,OKLAHOMA CITY,OK 73114
622 EMERSON ROAD,ST. LOUIS,MO 63141
60 PLATO BOULEVARD E,ST. PAUL,MN 55107
ONE WEST THIRD STREET,TULSA,OK 74103
SEAL
DOYLE W. MAGNUS
LICENSED PROFESSIONAL ENGINEER
No. 13091-E
2/16/18
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STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
91-1387 SARATOGA AVENUE

SCALE: AS NOTED
STATE JOB NO. CA--1512--C
FEDERAL PROJECT NO. 15150023
SHEET -- OF --
E.601