

CMBY 2011 INVESTMENT, LLC MA148A - PUA SUBDIVISION-PUUNENE CIVIL DEFENSE SIREN KULA, MAUI, HAWAII

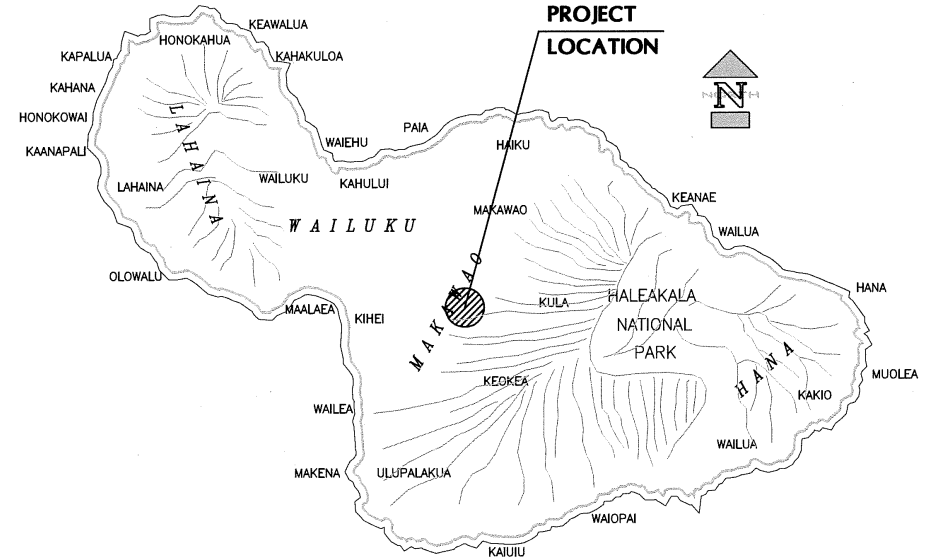
APPROVALS:

ADMINISTRATOR OF EMERGENCY MANAGEMENT
DEPARTMENT OF DEFENSE
STATE OF HAWAII

DATE _____

CHIEF ENGINEERING OFFICER
DEPARTMENT OF DEFENSE
STATE OF HAWAII

DATE _____



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"AS-BUILT"

COMMERCIAL ELECTRIC, INC.
1010 Paapu Street
Honolulu, HI 96819

By *[Signature]* Date DEC 16 2020



Ronald N. S. Ho & Associates, Inc.
Electrical Engineers
2153 North King Street, Suite 201
Honolulu, Hawaii 96819

CMBY 2011 INVESTMENT, LLC
MA148A - PUA SUBDIVISION-PUUNENE
SIREN

TITLE SHEET

DESIGNED BY: BHK	CHECKED BY: KKO	SHEET T-1 1 OF 12 SHTS
DRAWN BY: CAD	DATE: MAY 2019	



MAUI ELECTRIC COMPANY NOTES

1. LOCATION OF MECO FACILITIES

The Location Of MECO's Overhead Facilities Shown On The Plans Are From Existing Records With Varying Degrees Of Accuracy And Are Not Guaranteed As Shown. The Contractor Shall Verify In The Field The Locations Of The Facilities And Shall Exercise Proper Care In Excavating And Working In The Area. Wherever Connections Of New Utilities To Existing Utilities And Utility Crossings Are Shown, The Contractor Shall Expose The Existing Lines At The Proposed Connections And Crossings To Verify The Depths Prior To Excavation For The New Lines. The Contractor Shall Be Responsible For Any Damages To MECO's Facilities Whether Shown Or Not Shown On The Plans.

2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS

The Contractor Shall Comply With The State Of Hawaii's Occupational Safety And Health Laws And Regulations, Including Without Limitation, Those Related To Working On Or Near Exposed Or Energized Electrical Lines And Equipment.

3. EXCAVATION PERMIT

The Contractor Shall Obtain An Excavation Permit From MECO Two Weeks Prior To Starting Construction. Please Refer To Our Request Number At That Time.

4. CAUTION!!! ELECTRICAL HAZARD!!!

Existing MECO Overhead Lines Are Energized And Will Remain Energized During Construction Unless Prior Special Arrangements Have Been Made With MECO. Only MECO Personnel Are To Handle These Energized Lines And Erect Temporary Guards To Protect These Lines From Damage. The Contractor Shall Work Cautiously At All Times To Avoid Accidents And Damage To Existing MECO Facilities Which Can Result In Electrocution.

5. OVERHEAD LINES

State Law Requires That A Worker And The Longest Object He Or She May Contact Cannot Come Closer Than A Minimum Radial Clearance Of 10 Feet When Working Close To Or Under Any Overhead Lines Rated 50KV And Below. For Each Additional 1KV Above 50KV, An Additional 0.4 Inch Shall Be Added To The 10-foot Clearance Requirement. The Preceding Information On Line Clearance Requirements Is Provided As A Convenience And It Is The Contractor's Responsibility To Be Informed Of And Comply With Any Revisions Or Amendments To The Law.

Should The Contractor Anticipate That His Work Will Result In The Need To Encroach Within The Minimum Required Clearance At Any Time, The Contractor Shall Notify MECO At Least Four (4) Weeks Prior To The Planned Encroachment So That, If Feasible, The Necessary Protections (e.g. Relocate, De-energize, Or Blanket MECO Lines) Can Be Put In Place. MECO's Cost Of Safeguarding Its Lines Will Be Charged To The Contractor.

Contact MECO's Engineering Department At 871-2390 For Assistance In Identifying And Safeguarding Overhead Power Lines.

Refer To Section X Of MECO's Electrical Service Installation Manual For Additional Guidelines When Working Around MECO's Facilities. A Copy May Be Obtained From MECO's Engineering Department.

6. POLE BRACING

A Minimum Clearance Of 10 Feet Must Be Maintained When Excavating Around Utility Poles And/Or Their Anchor System To Prevent Weakening Or Pole Support Failure. Should Work Require Excavating Within 10-feet Of A Pole And/or Its Anchor System, The Contractor Shall Protect, Support, Secure, And Take All Other Precautions To Prevent Damage To Or Leaning Of These Poles. The Contractor Is Responsible For All Associated Costs To Brace, Repair, Or Straighten Poles. All Means Of Structural Support For The Poles Proposed By The Contractor Shall First Be Reviewed By MECO Before Implementation. For Pole Bracing Instructions, The Contractor Shall Request Pole Bracing Instructions From MECO A Minimum Of Two (2) Weeks In Advance.

7. EXCAVATIONS

When Trench Excavation Is Adjacent To Or Beneath MECO's Existing Structures Or Facilities, The Contractor Is Responsible For:

- A) Sheeting And Bracing The Excavation And Stabilizing The Existing Ground To Render It Safe And Secure And To Prevent Possible Slides, Cave-ins, And Settlements.
- B) Properly Supporting Existing Structures Or Facilities With Beams, Struts, Or Under-pinnings To Fully Protect It From Damage.
- C) Backfilling With Proper Backfill Material Including Special Thermal Backfill Where Existing (refer To Engineering Department For Thermal Backfill Specifications).

8. RELOCATION OF MECO FACILITIES

Any Work Required To Relocate Or Modify MECO Facilities Shall Be Done By MECO, Or By The Contractor Under MECO's Supervision. The Contractor Shall Be Responsible For All Coordination, And Shall Provide Necessary Support For MECO's Work, Which May Include, But Not Limited To, Excavation And Backfill, Permits And Traffic Control, Barricading, And Restoration Of Pavement, Sidewalks, And Other Facilities.

All Costs Associated With Any Relocation Or Modification (either Temporary Or Permanent) For The Convenience Of The Contractor, Or To Enable The Contractor To Perform His Work In A Safe And Expedious Manner In Fulfilling His Contract Obligations Shall Be Borne By The Contractor.

9. CONFLICTS

Any Redesign Or Relocation Of MECO's Facilities Not Shown On The Plans May Be Cause For Lengthy Delays. The Contractor Acknowledges That MECO Is Not Responsible For Any Delay Or Damage That May Arise As A Result Of Any Conflicts Discovered Or Identified With Respect To The Location Or Construction Of MECO's Electrical Facilities In The Field, Regardless Of Whether The Contractor Has Met The Requested Minimum Advance Notices. In Order To Minimize Any Delay Or Impact Arising From Such Conflicts, MECO Should Be Notified Immediately Upon Discovery Of Identification Of Such Conflict.

10. DAMAGE TO MECO FACILITIES

The Contractor Shall Be Responsible For The Protection Of All MECO Surface And Subsurface Utilities And Shall Be Responsible For Any Damages To MECO's Facilities As A Result Of His Operations. The Contractor Shall Immediately Report Such Damages To MECO. Repair Work Shall Be Done By MECO Or By The Contractor Under MECO's Supervision. Cost For Damages To MECO's Facilities Shall Be Borne By The Contractor.

11. MECO STAND-BY PERSONNEL

The Contractor May Request MECO To Provide An Inspector To Stand-by During Construction Near MECO's Facilities. The Cost Of Such Inspection Will Be Charged To The Contractor.

The Contractor Shall Call MECO A Minimum Of 5 Working Days In Advance To Arrange For MECO Stand-By Personnel.

12. The Contractor Shall Indemnify, Defend And Hold Harmless MECO From And Against All Losses, Damages, Claims, And Actions, Including But Not Limited To Reasonable Attorney's Fees And Costs Based Upon Or Arising Out Of Damage To Property Or Injuries To Persons, Or Other Tortious Acts Caused By Contributed To By Contractor Or Anyone Acting Under Its Direction Or Control Or On Its Behalf; Provided Contractor's Indemnity Shall Not Be Applicable To Any Liability Based Upon The Sole Negligence Of MECO.

"AS-BUILT"

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By *[Signature]* Date DEC 16 2020

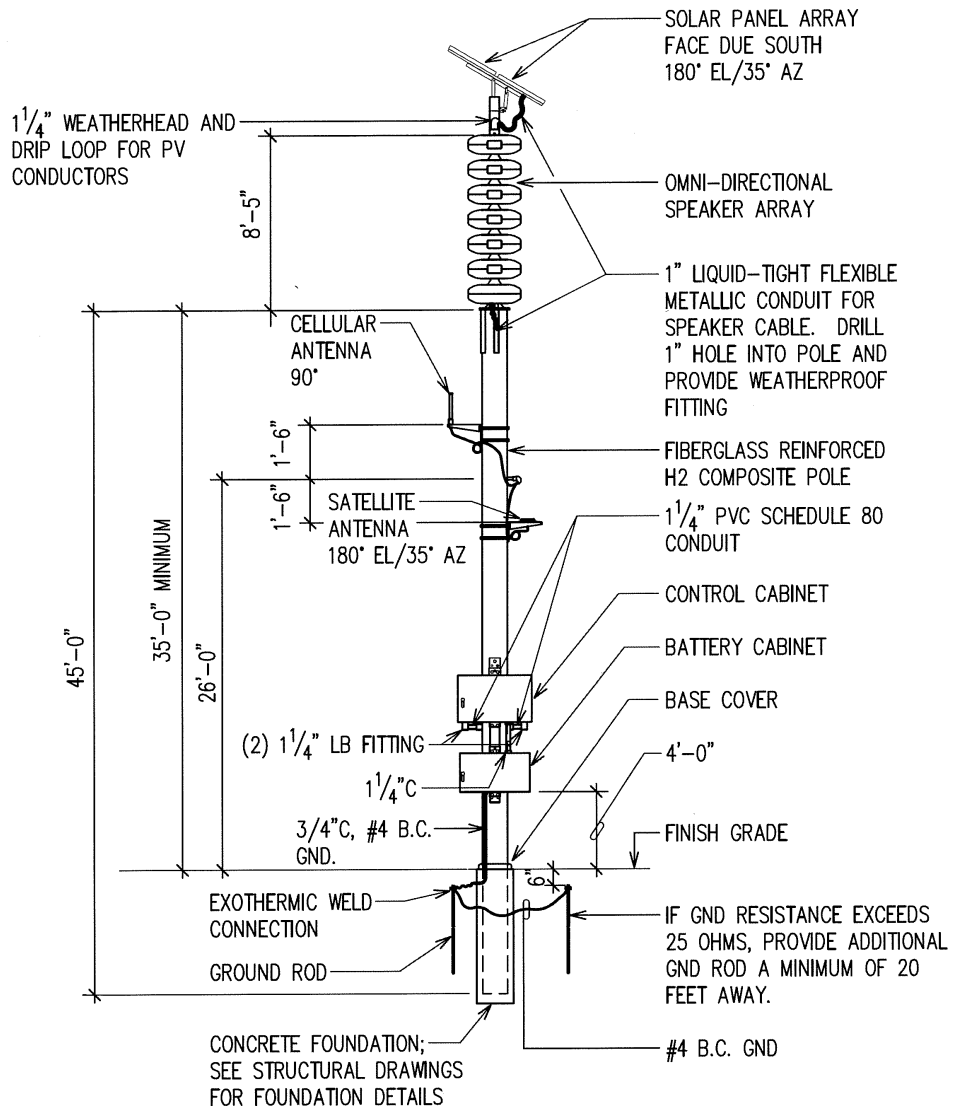


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MECO NOTES

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DRAWN BY: CAD	DATE: MAY 2019	



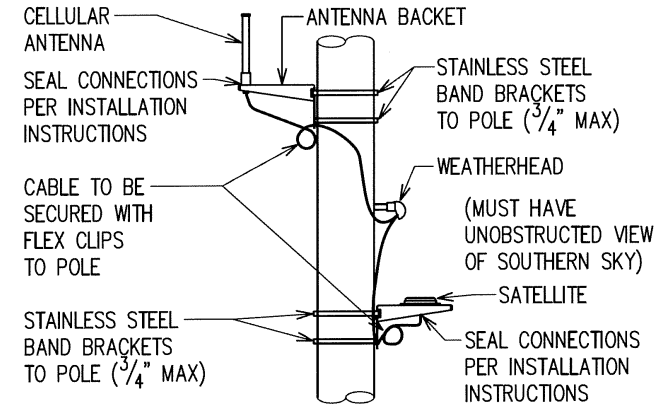
NOTE: CABINETS SHALL BE MOUNTED SO THAT IT OPENS OPPOSITE OF ONCOMING TRAFFIC.
COORDINATE CABINET HEIGHT AND DOOR DIRECTION WITH HAWAII EMERGENCY MANAGEMENT AGENCY.

OMNI-DIRECTIONAL SPEAKER POLE DETAIL

NOT TO SCALE

NOTES:

1. CONDUCTORS/CABLES FOR THE SOLAR PANELS, SPEAKER ARRAY, AND COMMUNICATIONS ANTENNA SHALL BE ROUTED FROM THE ASSOCIATED CABINET, INTO THE POLE, AND EXIT THE POLE VIA THE WEATHERHEAD ADJACENT TO THE RESPECTIVE DEVICE.
2. PROVIDE A CONTINUOUS GROUNDING CONDUCTOR FROM THE OMNI-DIRECTIONAL SPEAKER ARRAY, SATELLITE, CELLULAR ANTENNA, CABINETS AND MOUNTING BRACKETS TO THE GND ROD PER THE MANUFACTURER'S REQUIREMENTS.



SATELLITE & ANTENNA MOUNTING DETAIL

NOT TO SCALE

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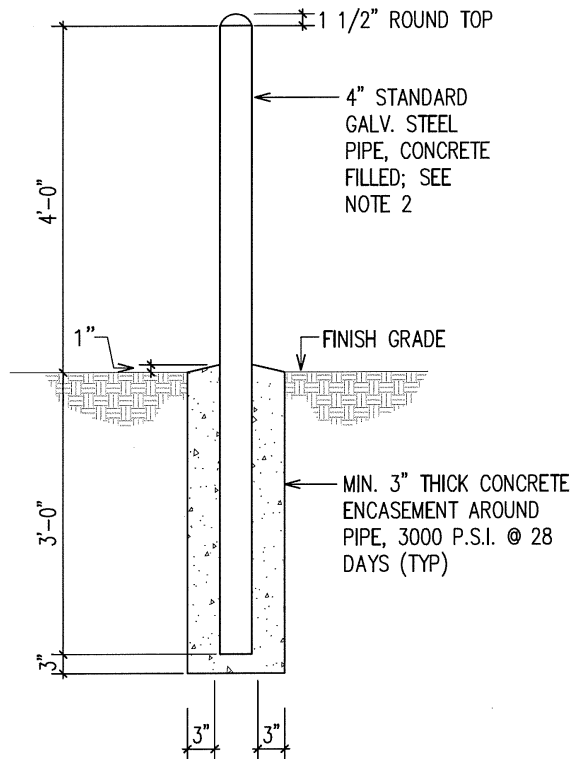
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OMNI-DIRECTIONAL SPEAKER POLE DETAIL

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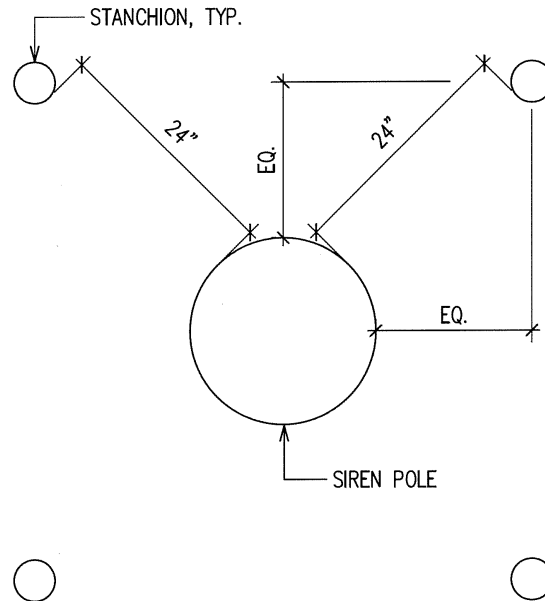


STATIONARY STANCHION

STANCHION NOTES:

1. STANCHIONS SHALL CONFORM TO ASTM A43.
2. STATIONARY GALV. PIPE TO BE FILLED WITH CONCRETE TO WEIGH APPROXIMATELY 150 LBS.
3. STANCHIONS SHALL BE PAINTED YELLOW WITH BLACK STRIPING.

TYPICAL STANCHION DETAILS
NOT TO SCALE



STANCHION SPACING

NOTES:

1. STANCHIONS SHALL NOT OBSTRUCT OPENING OF THE CABINET DOORS.

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TYPICAL STANCHION DETAILS

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SCALE: 1"=50'



GRAPHIC SCALE

"AS-BUILT" 1"=50'

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By ACW Date DEC 16 2020



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ELECTRICAL SITE PLAN

DESIGNED BY:
BHK

CHECKED BY: KKO

DRAWN BY:
CAD

DATE: MAY 2019

SHEET

E-4

5 OF 12 SHTS



EASEMENT

- PACRIM BOUNDARY

NOTES:

1. INSTALL UV6024B SIREN ASSEMBLY. SEE E-2 FOR DETAILS.
2. INSTALL (2) PAIRS OF 4" DIAMETER STANCHIONS WITH CONCRETE INFILL.

— ROAD CURB

- RIGHT-OF-WAY

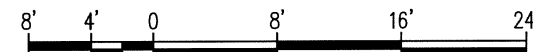
— EASEMENT

NORTH



ELECTRICAL PLAN

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



SCALE:

GRAPHIC SCALE

"AS-BUILT"

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ELECTRICAL PLAN

DESIGNED BY:
BHK

DRAWN BY:
CAD

CHECKED BY:
KKO

DATE:
MAY 2019

SHEET

E-5

6 OF 12 SHTS

GENERAL NOTES:

- 1. THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. ALL DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE CONTRACTING OFFICER.
- 2. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
- 3. ALL WORK SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, 2006 EDITION.

REINFORCING STEEL:

- 1. UNLESS OTHERWISE INDICATED ON PLANS AND/OR SCHEDULE, ALL REINFORCING STEEL SHALL BE HIGH STRENGTH GRADE DEFORMED BARS WHICH SHALL CONFORM TO THE STANDARD SPECIFICATION OF ASTM A615 GRADE 60 EXCEPT REINFORCING THAT IS TO BE WELDED. REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706 GRADE 60.
- 2. REINFORCING SHALL BE SPLICED ONLY AS SHOWN OR NOTED. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED BY THE CONTRACTING OFFICER.
- 3. BARS NOTED AS "CONT." VERTICAL AND HORIZONTAL WALL REINFORCING AND COLUMN REINFORCING SHALL HAVE A MINIMUM SPLICE EQUAL TO 48 BAR DIAMETERS BUT NOT LESS THAN 2'-0".
- 4. PROVIDE DOWELS IN FOOTINGS THE SAME SIZE AND NUMBER AND IN THE SAME LOCATION AS VERTICAL COLUMN REINFORCING. DOWELS SHALL HAVE A MINIMUM PROJECTION EQUAL TO STANDARD LAP SPLICES UNLESS OTHERWISE SHOWN.
- 5. ALL REINFORCING STEEL, ANCHOR BOLTS AND OTHER INSERTS SHALL BE SECURED IN POSITION PRIOR TO PLACING CONCRETE.
- 6. MINIMUM CONCRETE PROTECTION FOR REINFORCING STEEL UNLESS OTHERWISE SHOWN:

CONCRETE CAST AGAINST EARTH:	
CIP DRILLED SHAFTS	.4"
OTHER WORK	.3"
CONCRETE EXPOSED TO EARTH OR WEATHER:	
NO. 6 AND LARGER BARS	.2"
NO. 5 AND SMALLER BARS	.1½"

CONCRETE:

- 1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318-08.
- 2. SLEEVES EXCEEDING ONE-THIRD THE SLAB OR WALL THICKNESS SHALL NOT BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED. PIPE MAY PASS THROUGH STRUCTURAL CONCRETE IN SLEEVES BUT SHALL NOT BE EMBEDDED THEREIN.
- 3. SECURE ALL BOLTS, ANCHORS, INSERTS, ETC. AND VERIFY ALL GROOVES, SLOTS, AND FINISHES PRIOR TO PLACING CONCRETE.
- 4. 48 HOURS PRIOR TO THE POURING OF ANY STRUCTURAL CONCRETE, THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER SO AN INSPECTION CAN BE MADE OF ALL FORMS AND REINFORCING STEEL.
- 5. THE 28-DAY COMPRESSIVE STRENGTH AND MAXIMUM AGGREGATE SIZE OF CONCRETE SHALL BE AS FOLLOWS:

	STRENGTH (PSI)	MAXIMUM AGGREGATE
DRILLED SHAFTS (INCLUDING TREMIE)	4,500	¾"

- 6. WATER-TO-CEMENT RATIO OF DRILLED SHAFT CONCRETE SHALL NOT BE GREATER THAN 0.45.
- 7. TREMIE CONCRETE SHALL CONTAIN A MINIMUM 600 LB. OF CEMENT PER CUBIC YARD. TREMIE CONCRETE SHALL CONTAIN AN ANTI-WASH ADMIXTURE.

CONTROLLED LOW STRENGTH MATERIAL (CLSM):

- 1. CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL CONFORM TO ACI 229R-99.
- 2. CLSM SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 50 PSI.
- 3. CLSM SHALL HAVE A DENSITY OF 145 PCF MINIMUM. CLSM SHALL HAVE GOOD FLOWABILITY WITH NO NOTICEABLE SEGREGATION WITH A MATERIAL SPREAD OF AT LEAST 8-INCHES IN DIAMETER AS MEASURED USING TESTS IN ACCORDANCE WITH ASTM 6103.
- 4. CLSM SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND SHALL BE SUBMITTED FOR REVIEW AND ACCEPTANCE AT LEAST 7-DAYS BEFORE ACTUAL CLSM PLACING OPERATIONS.
- 5. CLSM FLOW AND CONSISTENCY AND FLOW SHALL BE TESTED IN ACCORDANCE TO ASTM D 1603. CLSM COMPRESSIVE STRENGTH SHALL BE VERIFIED IN ACCORDANCE TO ASTM 4832. COST OF TESTING SHALL BE BORNE BY THE CONTRACTOR.

DESIGN LOADS:

- 1. WIND LOAD PER STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS, AASHTO, FIFTH EDITION 2009, 2010 INTERIM REVISIONS.
EXPOSURE C
105 MPH WIND SPEED (3-SECOND GUST)
RECURRENCE INTERVAL - 100 YEARS

SPECIAL INSPECTION REQUIREMENTS:

- 1. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE SPECIAL INSPECTOR(S) TO ENSURE THAT ALL ELEMENTS REQUIRING SPECIAL INSPECTION ARE INSPECTED.
- 2. THE SCOPE OF WORK FOR THE SPECIAL INSPECTOR SHALL INCLUDE THE FOLLOWING:
 - A. DRILLED SHAFT ELEVATION: OBSERVE THE FOUNDATION EXCAVATION.
 - B. CONCRETE AND CLSM: OBSERVE THE TAKING OF TEST SPECIMENS AND PLACING OF CONCRETE AND CLSM FOR ALL ELEMENTS.
 - C. REINFORCING STEEL: OBSERVE THE PLACEMENT OF ALL REINFORCING STEEL. THE SPECIAL INSPECTOR NEED NOT BE PRESENT CONTINUOUSLY DURING PLACING OF REINFORCING STEEL, PROVIDED HE HAS INSPECTED FOR CONFORMANCE WITH APPROVED PLANS PRIOR TO CLOSING OF FORMS OR THE DELIVERY OF CONCRETE TO THE PROJECT SITE.

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By *[Signature]* Date DEC 16 2020



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**CMBY 2011 INVESTMENT, LLC
PUAA SUBDIVISION SIREN**

GENERAL NOTES

DESIGNED BY: W.H.	CHECKED BY: W.H.	SHEET S-1 7 OF 12 SHTS
DRAWN BY: M.M.	DATE: MAY 2019	



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Wayne K. Higuchi
2019.05.15 4-30-20
EXP. DATE

Wed, 15 May 2019 - 9:39am
C:\2017\17C043_Civil Defense Siren at Puoa (Pulehunui) Subd\CAD_Files\S-1 thru 6.dwg

FOUNDATION NOTES:

- 1. FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS, DATED MAY 12, 2017 BY ISLAND GEOTECHNICAL ENGINEERS,, INC.
- 2. THE CONTRACTOR SHALL EXERCISE CARE IN DRILLING THE SHAFT HOLES AND PLACING CONCRETE IN THE HOLES. THE LOAD BEARING CAPACITIES OF THE DRILLED SHAFTS DEPEND, TO A LARGE EXTENT, ON THE CONTACT BETWEEN THE DRILLED SHAFTS AND THE SURROUNDING SOILS.
- 3. DRILLING BY METHODS UTILIZING DRILLING FLUIDS SHALL NOT BE USED.
- 4. EACH DRILLED SHAFT SHALL BE POURED IN ONE CONTINUOUS LIFT. CONSTRUCTION OR COLD JOINTS SHALL NOT BE ALLOWED.
- 5. THE SHAFT DEPTH SHALL BE TAKEN FROM THE LOWEST ADJACENT GRADE ELEVATION.
- 6. CONCRETE SHALL NOT BE PLACED WITHOUT INSPECTION AND APPROVAL OF THE SPECIAL INSPECTOR AND CONTRACTING OFFICER. CONCRETE SHALL BE PLACED IN THE DRILLED SHAFT EXCAVATION THE SAME DAY THAT THE EXCAVATIONS ARE MADE OR WITHIN 24 HOURS AFTER SUBSTANTIAL COMPLETION OF THE DRILLED SHAFT EXCAVATION.
- 7. BASALT ROCK MAY BE ENCOUNTERED NEAR THE BOTTOM OF THE DRILLED SHAFT.

ABBREVIATIONS:

A.B.	ANCHOR BOLT	JT	JOINT
ARCH.	ARCHITECTURAL OR ARCHITECT	KSF	KIPS PER SQUARE FOOT
@	AT	LONG.	LONGITUDINAL
BAL.	BALANCE	MAX.	MAXIMUM
BOT.	BOTTOM	M.B.	MACHINE BOLT
BM.	BEAM	MECH.	MECHANICAL
B.T.B.	BASALTIC TERMITE BARRIER	MIN.	MINIMUM
C.I.P.	CAST IN PLACE	N.T.S.	NOT TO SCALE
C.J.	CONSTRUCTION OR CONTROL JOINT	NO.	NUMBER
CL	CENTER LINE	O.C.	ON CENTER
CLR.	CLEAR	OPP.	OPPOSITE
CLSM	CONTROLLED LOW-STRENGTH MATERIAL	PL.	PLATE
CMU	CONCRETE MASONRY UNIT	PSI.	POUNDS PER SQUARE INCH
COL.	COLUMN	PSF	POUNDS PER SQUARE FOOT
CONC.	CONCRETE	PSF	POUNDS PER SQUARE FOOT
CONT.	CONTINUOUS	R.F. OR	REINFORCED OR
CONN.	CONNECTION	REINF.	REINFORCEMENT
DIA. OR Ø	DIAMETER	REQ'D.	REQUIRED
DIAG.	DIAGONAL	SHT.	SHEET
DET.	DETAIL	SP.	SPACE OR SPACES
EA.	EACH	SIM.	SIMILAR
E.J.	EXPANSION JOINT	SQ.	SQUARE
E.F.	EACH FACE	STD.	STANDARD
EL.	ELEVATOR	T & B	TOP AND BOTTOM
ELEV.	ELEVATION	THK.	THICK
EQ.	EQUAL	T.O.C.	TOP OF CONCRETE
EXP.	EXPANSION	T.O.F.	TOP OF FOOTING
EXT.	EXTERIOR	T.O.S.	TOP OF SLAB
E.W.	EACH WAY	T.O.W.	TOP OF WALL
F.P.	FULL PENETRATION	TRANS.	TRANSVERSE
FT.	FOOT OR FEET	TYP.	TYPICAL
FTG.	FOOTING	VERT.	VERTICAL
GA.	GAGE	W/	WITH
GALV.	GALVANIZE	W/O	WITH OUT
HORIZ.	HORIZONTAL	W.J.	WALL JOINT
HSB	HIGH STRENGHT BOLT	W.W.F.	WELDED WIRE FABRIC
INT.	INTERIOR	W.W.M.	WELDED WIRE MESH

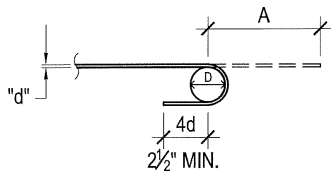
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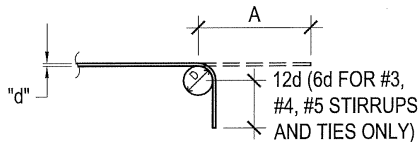


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WILL BE UNDER MY OBSERVATION.
Wayne K. Higuchi
2019.05.15 4-30-20 EXP. DATE

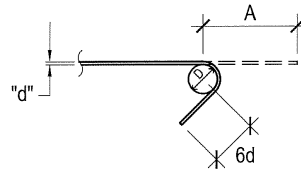
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DRAWN BY: M.M.	DATE: MAY 2019	8 OF 12 SHTS



STANDARD HOOK 180°



BAR BEND 90°

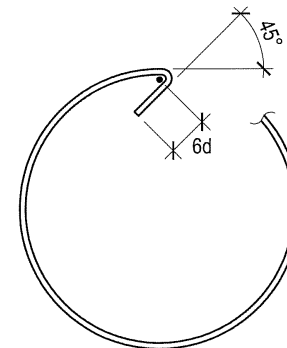


BAR BEND 135°

MINIMUM EXTENSION LENGTHS "A"				
BAR SIZE	STANDARD HOOKS		TIES AND STIRRUPS	
	180° HOOKS	90° HOOKS	90° HOOKS	135° HOOKS
#3	6"	7"	5"	6"
#4	8"	9"	6"	7"
#5	9"	11"	7"	9"
#6	11"	13"	14"	12"
#7	12"	15"	16"	14"
#8	14"	17"	19"	16"
#9	19"	21"	NA	NA
#10	21"	24"	NA	NA
#11	24"	26"	NA	NA
#14	34"	34"	NA	NA
#18	45"	45"	NA	NA

A TYPICAL REBAR BENDING
S-3 NOT TO SCALE

BAR SIZE	"D"
#3,#4,#5 #6,#7,#8	6d
#9,#10,#11	8d
#14,#18	10d



AT TERMINATION OF SPIRAL TIES

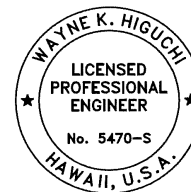
NOTES:

1. THIS DETAIL SHALL APPLY TO #6 SPIRAL TIES.
2. ALL BARS SHALL BE BENT COLD.
3. MINIMUM FINISHED BEND DIAMETER = 6d FOR #6 SPIRAL TIES.

B TYPICAL TIE AND STIRRUP DETAIL
S-3 NOT TO SCALE

"AS-BUILT"
COMMERCIAL ELECTRIC, INC.
1010 Paapu Street
Honolulu, HI 96819

By *[Signature]* Date DEC 16 2020



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Wayne K. Higuchi
2019.05.15 4-30-20 EXP. DATE

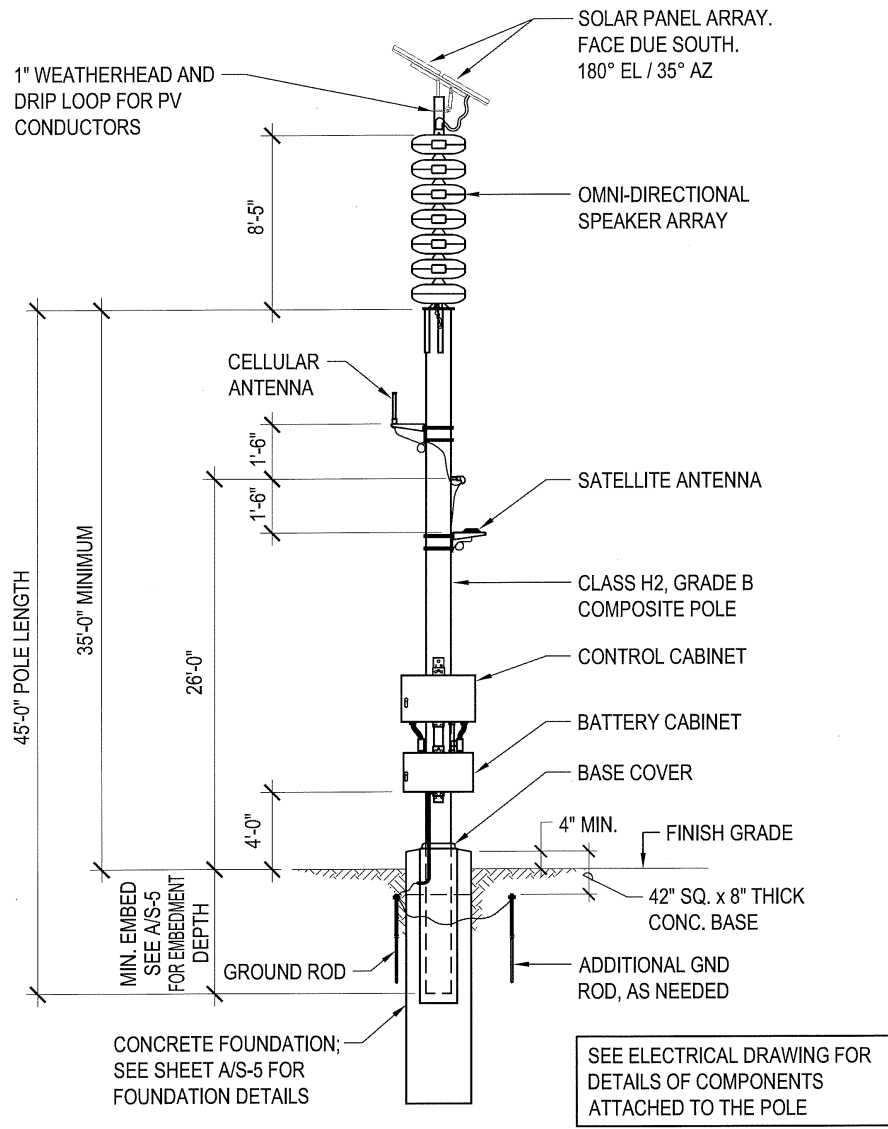
Ronald N.S. Ho & Associates, Inc.
Electrical Engineers
2153 North King Street, Suite 201
Honolulu, Hawaii 96819

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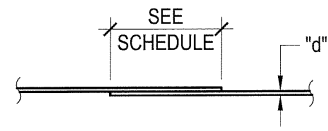
TYPICAL DETAILS

DESIGNED BY: W.H.	CHECKED BY: W.H.	SHEET S-3 9 OF 12 SHTS
DRAWN BY: M.M.	DATE: MAY 2019	

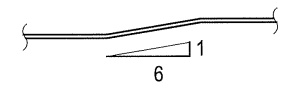
Wed, 15 May 2019 - 9:41am
C:\2017\170043_Civil Defense Siren at Puua (Pulehunui) Subd\CAD_Files\S-1 thru 6.dwg



A
S-4
OMNI DIRECTIONAL SPEAKER POLE DETAIL
NOT TO SCALE



LAP SPLICE



BAR OFFSET

BAR SIZE	f _c = 3000 PSI		f _c = 4000 PSI		f _c = 5000 PSI		f _c = 6000 PSI	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	24"	24"	24"	24"	24"	24"	24"	24"
#4	29"	24"	25"	24"	24"	24"	24"	24"
#5	36"	28"	31"	24"	28"	24"	26"	24"
#6	43"	33"	37"	29"	34"	26"	31"	24"
#7	63"	48"	54"	42"	49"	38"	45"	34"
#8	72"	55"	62"	48"	56"	43"	51"	39"
#9	81"	62"	70"	54"	63"	48"	57"	44"
#10	91"	70"	79"	61"	70"	54"	64"	50"
#11	101"	78"	87"	67"	78"	60"	71"	55"

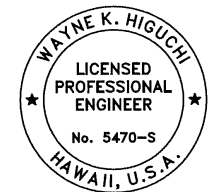
- NOTES:**
1. LAP SPLICE LENGTHS ARE FOR CLASS A LAP SPLICES ONLY.
 2. LAP SPLICE LENGTHS ARE FOR GRADE 60 DEFORMED BARS.
 3. LAP SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH THIS TABLE, UNLESS OTHERWISE SHOWN OR NOTED.

B
S-4
TYPICAL LAP SPLICE DETAIL
NOT TO SCALE

"AS-BUILT"

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By *[Signature]* Dnt. DEC 16 2020



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2019.05.15 4-30-20 EXP. DATE

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TYPICAL DETAILS

DESIGNED BY: W.H.	CHECKED BY: W.H.	SHEET S-4 10 OF 12 SHTS
DRAWN BY: M.M.	DATE: MAY 2019	

COMPOSITE POLE SIZED BY
POLE MANUFACTURER

3'-6" SQ. x 8" THICK BASE WITH
5 - #4, E.W., TOP & BOTTOM,
SEE DETAIL B/S-6.

FINISHED ADJACENT
GRADE

WHERE ADJACENT SURFACE
IS NOT SOIL, BACKFILL WITH
CONTROLLED LOW-STRENGTH
MATERIALS (CLSM) AND PLACE
SIMILAR PRE-EXISTING
SURFACE MATERIAL OVER
BACKFILL MATCHING
THICKNESS, ELEVATION, AND
SLOPE OF EXISTING
SURROUNDING SURFACE.

EMBED BUTT END OF
POLE A DEPTH EQUAL
TO 10% OF THE POLE
LENGTH PLUS 2'-0" OR
AS RECOMMENDED BY
POLE MANUFACTURER,
WHICH EVER IS
GREATER.

1" SLOPE
4" MIN.
8"

START SPIRAL
WITH 1½ TURNS

RUN ELECTRICAL CONDUCT
INTO FOOTING AND STUB OUT
INTO BASE OF POLE. SEE
ELECTRICAL DRAWINGS

A
S-6

3" COVER TO SPIRAL

18 - #7 VERT. CONTINUOUS

42" Ø C.I.P.
DRILLED SHAFT

WHERE SPIRAL IS SPLICED,
PROVIDE MINIMUM 45-INCH
LAP

4" COVER

TERMINATE SPIRAL WITH 1½ TURNS

TIP ELEVATION - SEE SCHEDULE

COMPOSITE POLE CONCRETE FOUNDATION SCHEDULE

SOIL TYPE	DIAMETER	DEPTH	VERT. REINF.
STIFF SANDY SILT, CLAY	3'-6"	12'-0"	18 - #7

NOTES:

1. SOIL TYPE (REF. 2006 IBC, TABLE 1804.2):
STIFF SILT - SOIL CLASSIFICATION ML & CL

2. SIREN DATA:
MOD6024B SIREN PROJECTOR WT = 450 LB
HORIZONTAL PROJECTED AREA = 23 SF

"SIREN WEIGHTS AND DIMENSIONS ARE MAXIMUM APPLICABLE TO THESE DETAILS. WHEN THE SIRENS CHARACTERISTICS EXCEED THE WEIGHTS OR DIMENSIONS SHOWN ABOVE, SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS, STAMPED AND SIGNED BY A REGISTERED STRUCTURAL ENGINEER, INDICATING FOUNDATION AND POLE DESIGN FOR THE SPECIFIC SIREN PROPOSED TO BE FURNISHED FOR APPROVAL".

"AS-BUILT"

COMMERCIAL ELECTRIC, INC.
1010 Paapu Street
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By *[Signature]* Date **DEC 16 2020**

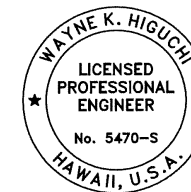


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DRILLED SHAFT SECTION AND DETAILS

DESIGNED BY: W.H.	CHECKED BY: W.H.	SHEET S-5
DRAWN BY: M.M.	DATE: MAY 2019	11 OF 12 SHTS



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Wayne K. Higuchi
2019.05.15 4-30-20
EXP. DATE

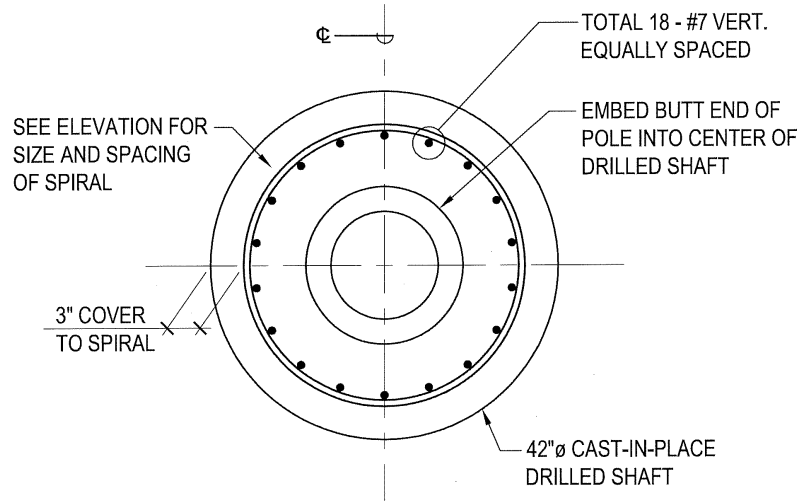
#6 SPIRAL AT
3" PITCH FOR 5'-0"

#6 SPIRAL AT 4" PITCH

A
S-5

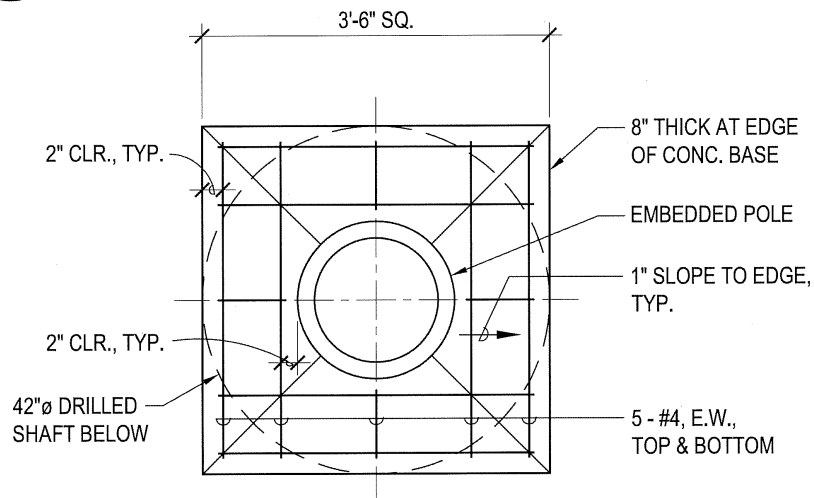
TYPICAL NEW POLE FOUNDATION DETAIL

NOT TO SCALE



A TYP. DRILLED SHAFT FOOTING SECTION

S-6 NOT TO SCALE



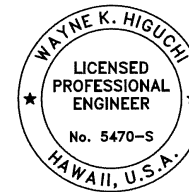
B TYP. SQUARE BASE DETAIL (PLAN VIEW)

S-6 NOT TO SCALE

"AS-BUILT"

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EXP. DATE



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DRILLED SHAFT PLAN

DESIGNED BY: W.H.	CHECKED BY: W.H.	SHEET S-6
DRAWN BY: M.M.	DATE: MAY 2019	12 OF 12 SHTS