

ATTACHMENT A:

LEASE AGREEMENT

**THE CITY OF SEATTLE - SEATTLE PUBLIC UTILITIES DEPARTMENT
GROUND LEASE AGREEMENT
T14-802**

THIS GROUND LEASE AGREEMENT (“Ground Lease”) is made by and between The City of Seattle, a municipal corporation of the State of Washington, by and through its Seattle Public Utilities Department, having offices for the transaction of business at 700 Fifth Avenue, Suite 5200, Seattle, Washington 98124-4689 (collectively, “SPU”), and King County, a political subdivision of the State of Washington, having offices for the transaction of business at 500 Fourth Avenue, Suite 830, Seattle, Washington 98104 (“Lessee”). SPU and Lessee may jointly be referred to herein as the “Parties,” or individually a “Party.” The “Effective Date” of this Ground Lease shall be the last date signed by an authorized Party representative.

WHEREAS, SPU is the owner of a series of contiguous real property parcels that geographically link the Tolt Watershed to the City of Seattle and together make up the necessary and critical corridor for the Tolt Water Supply System located within King County, Washington (the “Tolt Water Corridor”); and

WHEREAS, Lessee desires to lease from SPU a portion of one of the parcels located within the Tolt Water Corridor, which parcel is more specifically set forth in Exhibit A annexed hereto (“Property”), to construct, operate and maintain a communication facility, including but not limited to a tower, communications equipment shelter, auxiliary power generator and associated equipment and improvements, as well as obtain the rights from SPU to access the property and install utilities in conjunction therewith; and

WHEREAS, the Lessee plans to fund and procure sites for such communication facilities, and along with other municipalities in King County establish the Puget Sound Emergency Radio Network (the “PSERN System”) to eventually provide service in King County as authorized by Proposition 1 and King County Ordinances 17993, 18074 and 18075; and

WHEREAS, the Lessee plans to later assign this Ground Lease and the communication facilities to a governmental entity or to any entity existing now or in the future that will be responsible for the operation, maintenance, management, updating and upgrade or replacement of the PSERN System as authorized by law.

NOW THEREFORE, for and in consideration of the mutual promises set forth hereinafter and as provided for in the above-referenced recitals, which are made a part of this Ground Lease, the Parties do hereby agree:

Section 1. Land

1.1 Leased Land. Subject to the terms and conditions set forth below, SPU leases to Lessee and Lessee leases from SPU, a portion of the Property, situated in King County, Washington, consisting of a 104' x 77' area, approximately 8,008 square feet (“Leased Land”) for Lessee’s exclusive use for the construction, operation and maintenance of a communication facility, including but not limited to a tower and associated equipment, necessary utilities for the PSERN System’s facilities, a drainage field and improvements (the “Tower Facilities”), along with non-

exclusive routes for ingress, egress, access and electric utilities over, under and across the Property, as more particularly described and depicted in Exhibit B annexed hereto, to conduct the Authorized Activities set forth in Section 4 and for no other purpose.

The Leased Land is leased from SPU to Lessee in an "as is, with all faults" condition, without warranty and without regard to Lessee's intended uses. Lessee acknowledges it has had the right and opportunity to inspect such Leased Land and that it relies on its own or its experts' knowledge in regard to the Leased Land.

Section 2. Consideration

2.1 Rent. Lessee agrees to pay the following fees for the rights and privileges set forth in this Ground Lease:

a. The annual rental fee to be paid SPU for the use of said Leased Land shall be TWENTY THOUSAND DOLLARS (\$20,000.00), commencing on the first day of the month following the earlier of the date Lessee commences construction of the Tower Facilities or twenty-four (24) months after the Effective Date ("Rent Commencement Date"). From and after the Rent Commencement Date, all of the annual rental fee shall be paid in lawful money of the United States of America in advance of or on the first day of January for each year of the Term (defined in Section 3.4). If the commencement, expiration or termination of the Term does not coincide with the calendar year, then the annual rental fee for such partial year shall be prorated. Notwithstanding anything in this Ground Lease to the contrary, provided SPU receives the first rental fee within forty-five (45) days after the Rent Commencement Date, such rental fee shall not be deemed past due and Lessee shall not be deemed to be in Default (defined in Section 7.1) of this Ground Lease.

b. If Lessee fails to make payment on or before January 1st of each year during the Term, and such failure is not cured within ten (10) business days after Lessee's receipt of written notice that such amount is past due, a late payment charge shall be assessed in the amount of FIVE HUNDRED DOLLARS (\$500.00). SPU shall notify Lessee of any assessment of late fees if rental fees are late. Late payment charges shall be paid within thirty (30) days of Lessee's receipt of SPU's written notice that a late fee has been assessed based on the late payment of the annual rental fee.

c. The Parties agree that they shall acknowledge in writing the Rent Commencement Date as follows: Lessee shall notify SPU in writing of the Rent Commencement Date and within ten (10) business days of receipt thereof, SPU shall acknowledge such date in writing as the Rent Commencement Date and return such signed written instrument to Lessee.

d. To assure proper posting of payments, Lessee shall note on its checks "SPU Ground Lease P.M. #T14-802." Annual rental fee payments shall be sent to:

Seattle Public Utilities
Accounts Receivable
PO Box 34018
Seattle WA 98124-4018

e. The rental fee will be subject to an annual escalation of one and one-half percent (1.5%), commencing on the first day of January after the first full year of the Term, and on each January first thereafter during the Term.

f. Lessee hereby acknowledges and agrees that, in the event of an increase of rental fee either pursuant to Section 2.1.e or mutually agreed upon in writing by the Parties, all other provisions of this Ground Lease shall remain in full force, changed only by such alterations in the amount of the rental fee and not otherwise.

2.2 SPU's Right to Utilize Lessee's Facilities. Provided the Parties first enter into a mutually acceptable sublease agreement, SPU shall have the right to attach its own facilities on, to and within Lessee's Tower Facilities and/or occupy space within the Leased Land; provided such use and operations do not unreasonably interfere with the operation and maintenance of Lessee's Tower Facilities and Lessee's use of the Leased Land by Lessee or any pre-existing tenants thereon; and provided further that the Tower Facilities are structurally capable of supporting SPU's facilities without exceeding radio frequency ("RF") emission limits and there is sufficient space on the Leased Land to accommodate SPU's facilities. SPU shall provide Lessee with a written notice of intent to enter into a sublease with Lessee for the uses provided in this Section, and Lessee shall provide a draft sublease agreement to SPU for such attachment or use of space within a reasonable period of time thereafter. SPU and Lessee shall both use commercially reasonable efforts to negotiate and enter into a mutually acceptable sublease agreement for SPU's proposed use.

2.3. Lessee's Obligation to Remove Lessee's Tower Facilities and Personal Property.

a. Except as otherwise provided in this Ground Lease, all portions of the Tower Facilities brought and/or erected onto the Property by Lessee, including the tower itself and its foundation, will be and remain Lessee's personal property during the Term of this Ground Lease ("Personal Property"). During the Term of this Ground Lease and upon termination, Lessee shall have the right to remove some or all of its Personal Property, whether or not attached to the Leased Land, provided that such may be removed without serious damage to the Property. All damage to the Property caused by removal of Lessee's Personal Property shall be promptly restored or repaired by Lessee.

b. Lessee specifically acknowledges that as part of the consideration required for this Ground Lease, Lessee shall remove its Personal Property, including the tower itself and its foundations, from the Property within forty-five (45) days after the expiration or earlier termination of this Ground Lease, or within one (1) year after any written notice of early termination given pursuant to the terms of this Ground Lease, whichever is later. Lessee acknowledges and agrees that Lessee is obligated to pay the rental fee to SPU for the Leased Land until such time as the Lessee's Personal Property has been removed from the Leased Land or ownership thereof has transferred to SPU, in accordance with Section 2.3(e).

c. Upon the expiration or earlier termination of this Ground Lease, to the extent that Lessee has failed to comply with its obligation to remove its Personal Property from the Property, as provided in this Section, SPU shall have the right, but not the obligation, to remove

and dispose of some or all of the Personal Property at Lessee's sole cost and expense; provided that Lessee need only reimburse SPU for its reasonable direct costs incurred to remove and dispose of the Personal Property.

d. Within forty-five (45) days after the expiration or earlier termination of this Ground Lease, or within one (1) year after any written notice of early termination given pursuant to the terms of this Ground Lease, whichever is later, Lessee shall at Lessee's sole cost and expense restore the Leased Land to the condition that existed prior to Lessee's occupancy, reasonable wear and tear excepted, including removal of the Personal Property in accordance with the terms of this Section, but excluding the replacement of trees or other landscaping that was removed during the construction process. To the extent that Lessee fails to restore the Leased Land to its original condition in accordance with this Section, and has failed to comply with this obligation within a reasonable period of time after receipt of written notice thereof, SPU shall have the right, but not the obligation, to restore the Leased Land, as provided for in this Section, at Lessee's sole cost and expense.

e. To the extent that Lessee fails to remove any of its Personal Property as provided in this Section, SPU shall have the right but not the obligation, and at its sole discretion, to take ownership of such property or a portion thereof "as is, with all faults" upon written notice to Lessee and at no cost to SPU.

2.4 Payment of Taxes. The Parties acknowledge there are no real estate taxes assessed against the Leased Land, but there may be a leasehold tax. Provided Lessee is not otherwise exempt, Lessee will pay .1284% annual leasehold tax, and any taxes that may be imposed on the leasehold interest of the Lessee in the future, on an annual basis, unless a different payment schedule is approved by SPU.

2.5 Payment of Electric Utility Consumption Charges. All charges for electricity consumption by the Lessee are included in the annual rental fee paid by Lessee to SPU.

2.6 Pro Rata Return for Termination. In the event that the rights granted by this Ground Lease are terminated prior to the expiration of the Term, Lessee shall be entitled to a refund or credit, whatever the case may be, of the pro rata share of any consideration paid to SPU and attributable to the unexpired Term of this Ground Lease; provided that Lessee shall remain obligated to pay the rental fee to SPU after the termination of this Ground Lease in accordance with the terms of Section 2.3 herein above.

2.7 Remaining in Possession/Holdover. In the event Lessee holds over on the Leased Land, in accordance with Section 3.3, provided the Parties are actively, in good faith, negotiating a new ground lease for Lessee's continued use of the Leased Land, Lessee shall continue to pay the rental fee in effect immediately prior to the expiration of this Ground Lease for such holdover period. In the event the Parties do not mutually agree on a new ground lease for Lessee's continued use of the Leased Land within six (6) months after the expiration of this Ground Lease, then Lessee shall pay on a monthly basis from that time going forward, as consideration for the continuing holdover, the equivalent of one hundred twenty-five percent (125%) of the equivalent monthly rental rate during the last month of the final Extension Term (defined in Section 3.2).

Section 3. Term

3.1 Initial Term. The initial term of this Ground Lease shall be twenty-five (25) years, commencing on the Rent Commencement Date and shall terminate on the twenty-fifth anniversary of the Rent Commencement Date, unless terminated sooner under the terms of this Ground Lease.

3.2 Extension Terms. Lessee shall have the right to extend the term of this Ground Lease for an additional three (3) periods of five (5) years each (each an "Extension Term"). Each Extension Term shall be exercised automatically, unless Lessee provides SPU written notice of its intent not to extend the term at least ninety (90) days prior to the expiration of the then-current initial term or Extension Term.

3.3 Holdover. In the event Lessee continues to utilize and occupy the Leased Land after the expiration of the initial term and all Extension Terms and such continued use is permitted by SPU, the Term of this Ground Lease shall convert to a month-to-month tenancy, terminable by either Party on thirty (30) days written notice. During such holdover term both Parties shall continue to remain bound and subject to all the terms and provisions of this Ground Lease.

3.4 Term. The initial twenty-five (25) year term, the Extension Terms and any holdover term whereby Lessee remains in possession of the Leased Land and continues operations of the Tower Facilities thereon, may be collectively referred to herein as the "Term."

Section 4. Lessee's Authorized Activities

4.1 Authorized Activities. Lessee's use of the Leased Land shall only be for the construction, installation, operation, maintenance, repair, replacement, modification, upgrade, update and removal of the Tower Facilities for the PSERN System as it is presently designed or may hereinafter be modified or changed, as well as the right to access the Leased Land across the Property from a public right-of-way, and the right to install one electric service line to the Leased Land from existing SPU electric facilities located on the Property, for a communications system to be used primarily for government use, including emergency services, public safety and other governmental purposes. Private uses of the Leased Land are not permitted without SPU's prior written consent. Lessee's proposed use of the Leased Land is subject to plan review and approval by SPU. From and after the date Lessee's plans have been approved by SPU, the use depicted thereon shall be referred to herein as the "Authorized Activities". No other activities may be conducted on the Leased Land without the prior written permission of SPU. Lessee shall have the continuing obligation to keep its Tower Facilities in a structurally safe, secure, and good working order. Lessee shall remove any antennae, dishes, cables, and related appurtenances that are no longer actively being used, or being maintained for contingent purposes. Not included in this Ground Lease are any rights to harvest, collect, or damage any natural resource, including aquatic life or living plants, unless required to facilitate Lessee's Authorized Activities on the Leased Land.

4.2 Compliance with Laws. Lessee shall, at all times, keep current and comply with all conditions and terms of any permits, licenses, certificates, regulations, ordinances, statutes, and

other government rules and regulations regarding the use of the Leased Land, including any authorized use of Hazardous Substances (defined in Section 4.4.d.) by Lessee. Lessee shall, at its sole expense, obtain all regulatory or proprietary consents or approvals required to be obtained from any federal, state or local entity in connection with the Authorized Activities on the Leased Land or Lessee's use and/or occupation of the Leased Land (collectively referred to hereinafter as "Government Approvals").

4.3 No Unlawful Use. Lessee shall not use or permit the Leased Land or any part thereof to be used for any purpose in violation of any municipal, county, state or federal law, ordinance or regulation. Lessee shall promptly comply, at its sole cost and expense, with all laws, ordinances and regulations now in force or hereafter adopted (but only if such newly adopted law, ordinance or regulation requires pre-existing uses to come into compliance therewith), relating to or affecting the condition, use or occupancy of the Leased Land.

4.4 No Hazardous Substances.

a. SPU is not aware of any Hazardous Substances (defined in Section 4.4.d) located on the Property in the soil, groundwater, or other environmental media, in violation of applicable laws. Lessee and SPU agree that they will not place, dispose of or store any Hazardous Substance on the Property in violation of applicable laws. The Parties acknowledge that, consistent with this Section, Lessee may be installing on the Property backup power devices such as batteries in quantities normal and customary for such use.

b. In addition to and without limiting the obligation under Section 8.2, Lessee shall indemnify, defend and hold harmless SPU with respect to any and all Claims (defined in Section 8.2) arising from the release of any Hazardous Substances on the Property caused by Lessee, its employees or agents, except to the extent that such Claims are caused by SPU, its employees or agents, another tenant, its employees or agents, or a third-party.

c. Without limiting the Lessee's obligation under Section 8.2, SPU shall indemnify, defend and hold harmless Lessee with respect to any and all Claims arising from the presence or release of any Hazardous Substances on the Property caused by SPU or its employees or agents, except to the extent that such Claims are caused by Lessee, its employees or agents. In addition, SPU hereby agrees to indemnify and hold harmless Lessee with respect to any and all Claims arising from the presence of any Hazardous Substances on the Property as of the Effective Date; provided that such Claims do not arise from, and are not otherwise exacerbated by, any of Lessee's actions or work on the Property.

d. For purposes of this Ground Lease, "Hazardous Substances" shall mean any substance subject to regulation under the Washington Hazardous Waste Management Act (Ch. 70.105 RCW) and implementing regulations, any "hazardous substance" under the Washington Model Toxics Control Act (Ch. 70.105D RCW) and implementing regulations, and any "hazardous substance" or "hazardous waste" as defined by the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 USC §§ 9602 et seq.) and implementing regulations, as these laws are amended from time to time; underground storage tanks, whether empty, filled or partially filled with any substance; asbestos; urea formaldehyde foam insulation; PCBs; and any other substance, waste, material or chemical deemed or defined as hazardous,

toxic, a pollutant, contaminant, dangerous or potentially dangerous, noxious, flammable, explosive, or radioactive, the removal of which is required or the manufacture, preparation, production, generation, use, maintenance, treatment, storage, transfer, handling, or shipment of which is restricted, prohibited, regulated or penalized by any federal, state, county, municipal or other local governmental statute, regulation, ordinance or resolution as these laws are amended from time to time.

4.5 Lessee's Restrictions on Use. Lessee shall not cause or permit any damage to natural resources on the Leased Land, except as contemplated by the Authorized Activities. Lessee shall also not cause or permit any filling activity to occur on the Leased Land. This prohibition includes any deposit of rock, earth, ballast, refuse, garbage, waste matter (including chemical, biological or toxic wastes), hydrocarbons, any other pollutants, or other matter in or on the Leased Land, except as approved in writing by SPU. Lessee shall neither commit nor allow waste to be committed to or on the Leased Land. If Lessee fails to comply with all or any of the restrictions in use set out in this Section 4.5, SPU may take any steps reasonably necessary to remedy such failure. Upon demand by SPU, Lessee shall pay all costs of such remedial action, including but not limited to the costs of removing and disposing of any material deposited improperly on the Leased Land.

4.6 Due Diligence. For a period of thirty (30) days beginning from the Effective Date of this Ground Lease, Lessee shall have the right to obtain a title report or commitment for a leasehold title policy from a title insurance company of its choice and to have the Property surveyed by a surveyor of its choice. Lessee may also perform and obtain during this thirty (30) day period, at Lessee's sole cost and expense, soil borings, percolation tests, engineering procedures, environmental investigation or other tests or reports on, over, and under the Property, necessary to determine if Lessee's use of the Leased Land will be compatible with Lessee's engineering specifications, system, design, operations or Government Approvals. In the event that Lessee determines that the Leased Land is incompatible for Lessee's Authorized Activities, Lessee may terminate this Ground Lease upon written notice to SPU within this thirty (30) day period.

4.7 Access and Utilities.

a. As part of the consideration for this Ground Lease, SPU hereby grants Lessee non-exclusive access routes on, over, under and across the areas designated in Exhibit B for ingress and egress, between the public right of way and the Leased Land, along the Tolt Pipeline Road, adequate to construct, install, operate, maintain, repair, replace, upgrade, update, and remove the Tower Facilities, and to service the Leased Land at all times during the Term of this Ground Lease. The right to use the access route provided hereunder shall have the same Term as this Ground Lease, commencing upon the Effective Date; provided that Lessee shall retain its access rights across the Property to and from the Leased Land after the effective expiration or termination date for the sole purpose of compliance with the removal and restoration terms of this Ground Lease. Such access route is provided in an "as is" condition, without warranty and without regard to Lessee's intended uses. Lessee acknowledges it has had the right and opportunity to inspect the access route identified in Exhibit B and that it relies on its own or its experts' knowledge in regard to such access rights.

b. Lessee shall have the right to access the Leased Land, seven (7) days a week, twenty-four (24) hours a day, on foot, motor vehicle, including trucks, or by air over or along the access route depicted in Exhibit B.

c. Lessee shall have the right to construct a fence, lighting, cameras or alarm systems to secure the Leased Land. SPU shall not allow the placement, construction, or installation of any equipment or materials in the Leased Land without Lessee's prior written consent, which consent may not be unreasonably withheld, conditioned or delayed.

d. Intentionally omitted.

e. Lessee shall have the right to construct and maintain, at Lessee's expense, an underground electric utility conduit and supporting utility facilities, for electric power delivery to the Leased Land, the locations for which are generally depicted in Exhibit B. The design and construction of such electric service facilities shall be subject to SPU's written consent, which shall not be unreasonably withheld, conditioned or delayed. Both Parties acknowledge and agree that Lessee's annual rental fee includes Lessee's submetered electricity usage.

f. SPU agrees to provide Lessee at least twenty-four (24) hours advance written notice of any planned interruptions of electrical service that Lessee is submetering from existing electrical utilities located on the Property; provided SPU has actual knowledge of such planned interruption. SPU acknowledges that Lessee provides emergency communication services that require electrical power to operate and must operate twenty-four (24) hours per day, seven (7) days per week. SPU will not be responsible for interference with, interruption of or failure, beyond the reasonable control of SPU, of such services to be furnished or supplied by SPU facilities.

Section 5. SPU's Retained Rights and Continuing Operations


5.1 SPU's Retained Rights Continuing Operations. SPU reserves for itself, its officials, agents, contractors, employees, successors and assigns the right to construct, operate, test, repair and maintain existing and additional overhead and/or underground transmission and/or distribution and/or service lines, together with but not limited to, the facilities which are necessary and convenient for utility purposes on the Leased Land ("SPU Facilities"); provided such construction, operation, testing, repair and maintenance of the SPU Facilities does not unreasonably interfere with Lessee's physical use of the Leased Land or physical operation of the Tower Facilities thereon.

5.2 SPU Access and Right to Exclude. SPU shall maintain the right to access all areas of the Leased Land, including access and utility routes permitted herein, as necessary and convenient for its utility purposes. SPU's rights shall include the right to exclude Lessee, and Lessee's officials, employees, agents, consultants, contractors, representatives, licensees, invitees, or visitors from certain areas of the Property (not including the Leased Land) and the access route, as necessary and convenient for utility purposes. In the event SPU exercises its right to exclude, (a) SPU shall use commercially reasonable efforts to cooperate with Lessee to obtain access to the Leased Land from a public right-of-way, at no cost to SPU; and (b) SPU shall endeavor to give Lessee as much advanced written notice as is reasonably possible, but in

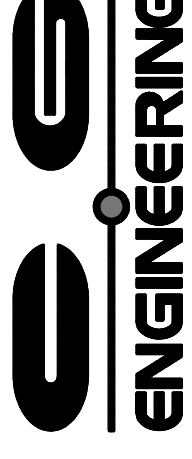


King County

SWAN
(NEW BUILD)
39025 NE NORTH FORK RD.
DUWALL WA 98019



PACIFIC CORPORATION
5906 6TH AVE. S. SUITE 202
SEATTLE, WA 98108
PHONE: (206) 490-3826
WWW.OBELIA.COM



250 4TH AVE. S. SUITE 200
EDMUNDS, WASHINGTON 98020
PHONE (425) 778-8500
FAX (425) 778-8536
CG PROJECT# 16015.917

PROJECT MANAGER: VD
PREPARED BY: ZOS
APPROVED BY: JPU

REV	DATE	DESCRIPTION
1	07/29/17	PERMIT RESUBMITTAL
2	05/08/17	PERMIT RESUBMITTAL
3	10/19/16	PERMIT SUBMITTAL

PLAN REVIEWERS SIGNATURE

ENGINEERS' STAMP
GUILTY
WASHINGTON STATE PROFESSIONAL ENGINEERS BOARD
DATE: 07/20/17

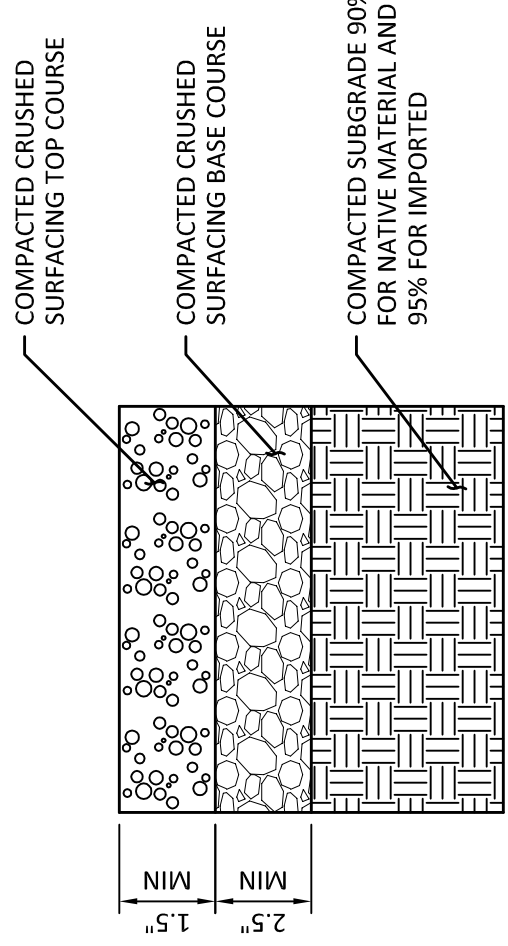
SHEET NAME
GRADING AND DRAINAGE PLAN

SHEET NUMBER
C3.1

FLOW CONTROL BMP(S):
1. GRAVEL FILLED INFILTRATION TRENCH FOR LID PERFORMANCE STANDARD PER SECTION C.2.2.3 OF THE 2016 KING COUNTY SURFACE WATER DESIGN MANUAL

GRADING QUANTITIES	
TOTAL EXCAVATION (CUT) -	15 CU YDS TOTAL
EMBANKMENT (FILL) -	50 CU YDS
TOTAL	65 CU YDS

THE QUANTITIES SHOWN ABOVE ARE FOR THE PERMIT PROCESS ONLY. THESE VALUES ARE APPROXIMATE. DO NOT USE FOR BIDDING, PAYMENT, OR ESTIMATING PURPOSES.

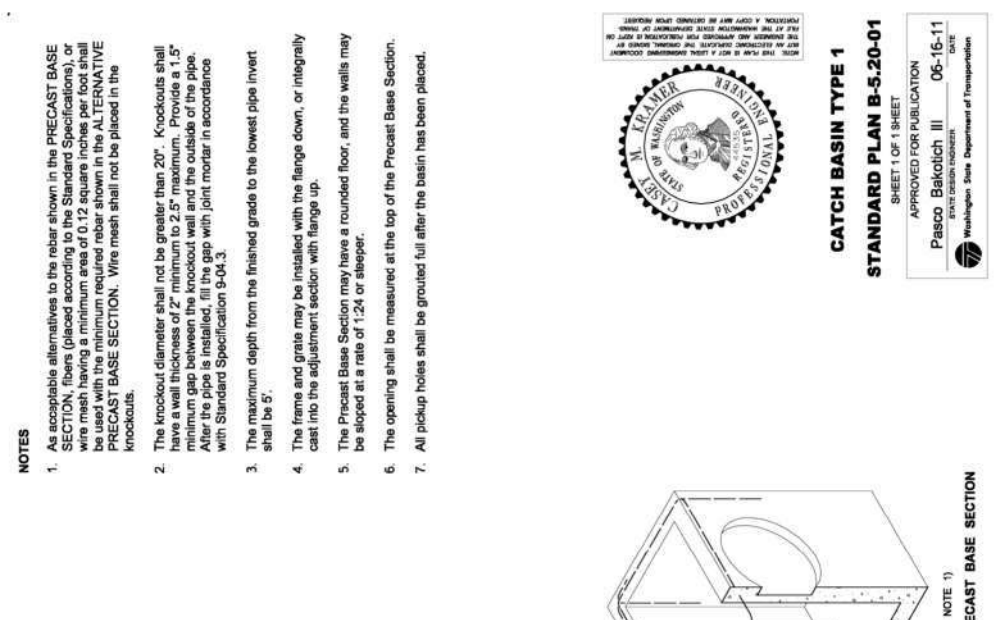


2 GRAVEL PAVING DETAIL
SCALE: NTS

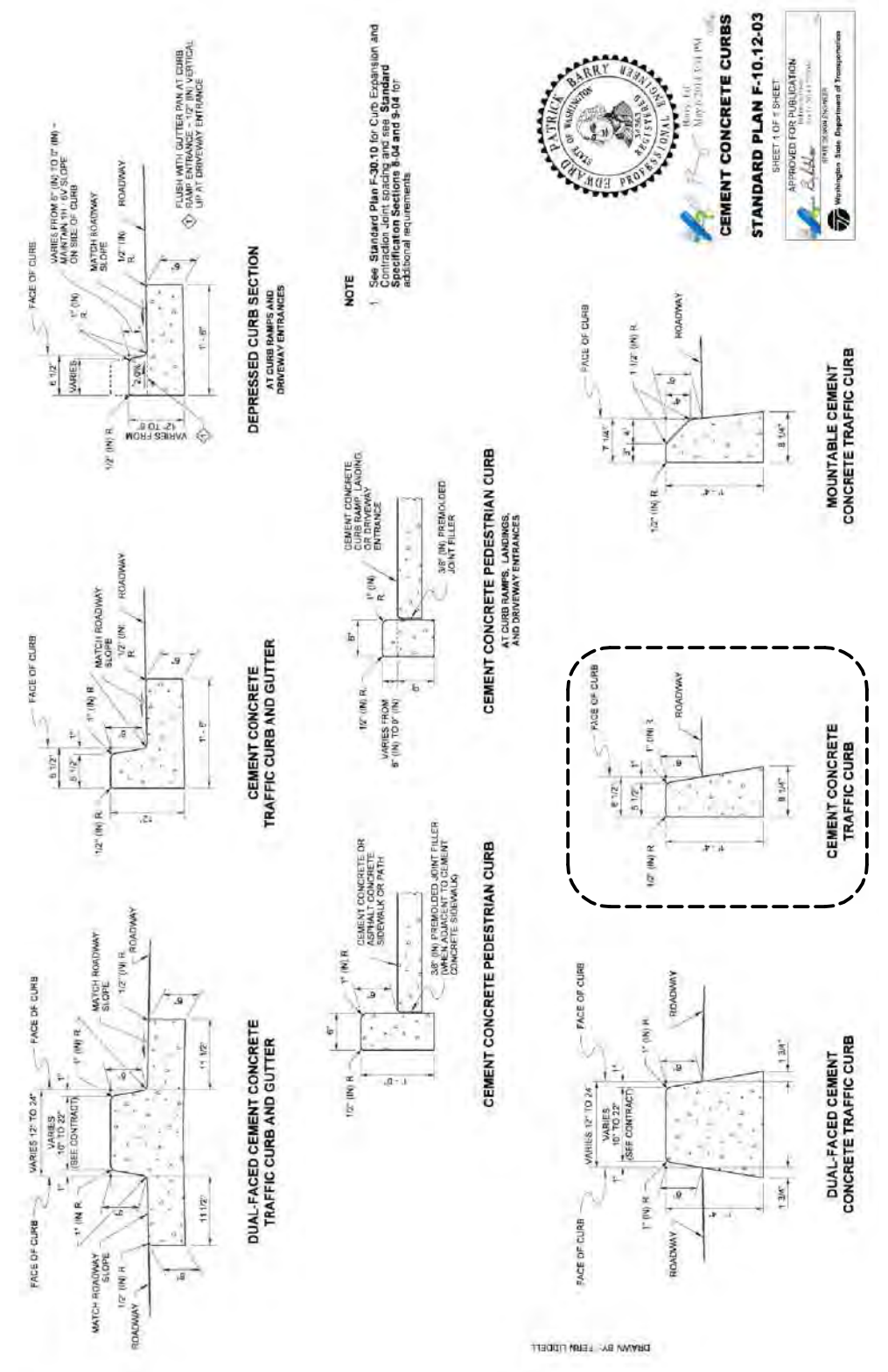
PIPE ALLOWANCES

PIPE MATERIAL	MINIMUM COVER	MINIMUM DEPTH
12" DIA. PIPE	2'	3'
18" DIA. PIPE	3'	4'
24" DIA. PIPE	4'	5'
30" DIA. PIPE	5'	6'
36" DIA. PIPE	6'	7'
42" DIA. PIPE	7'	8'
48" DIA. PIPE	8'	9'
54" DIA. PIPE	9'	10'
60" DIA. PIPE	10'	11'
66" DIA. PIPE	11'	12'
72" DIA. PIPE	12'	13'

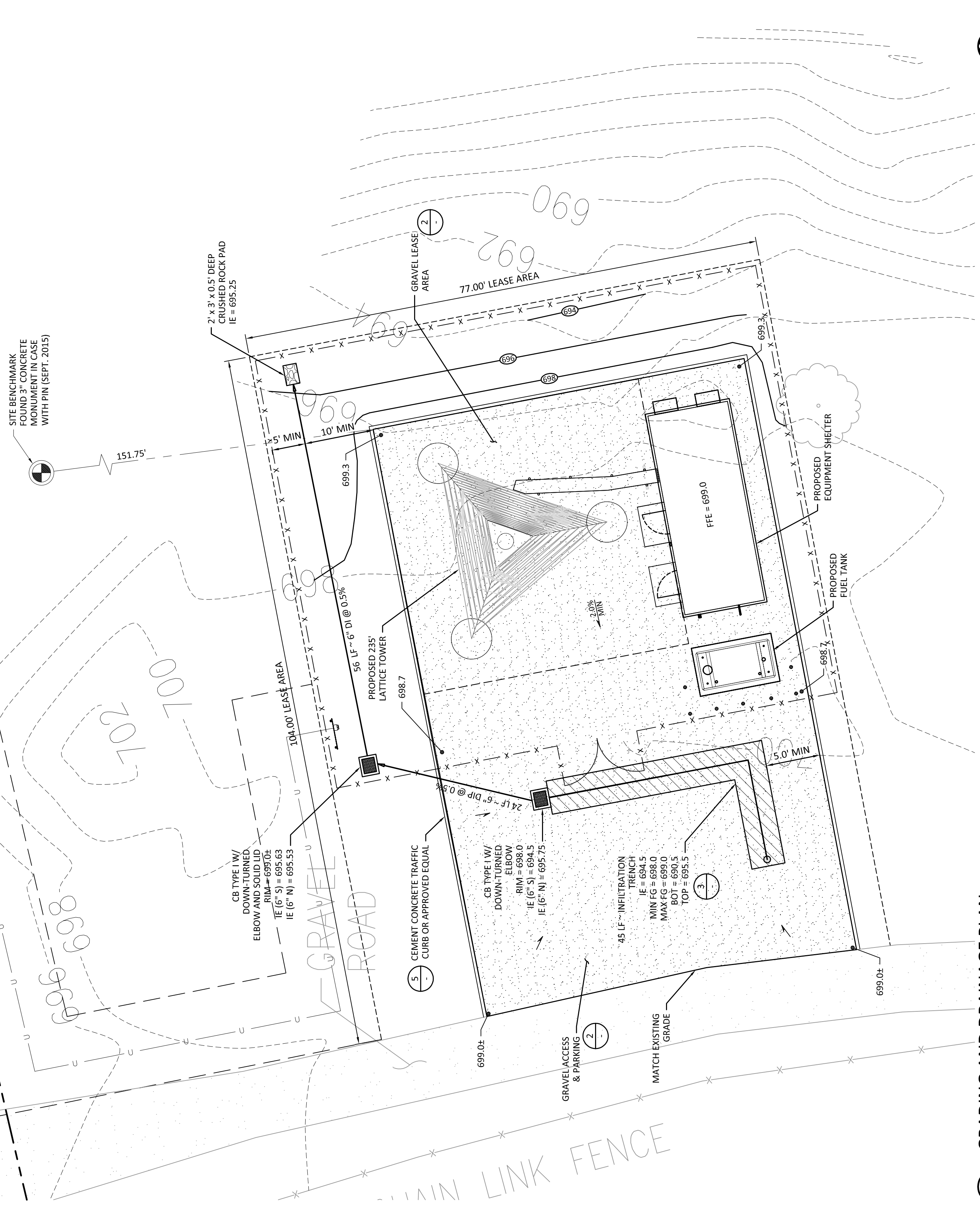
NOTE: * COVERED POLYETHYLENE GLASS REINFORCED FIBER



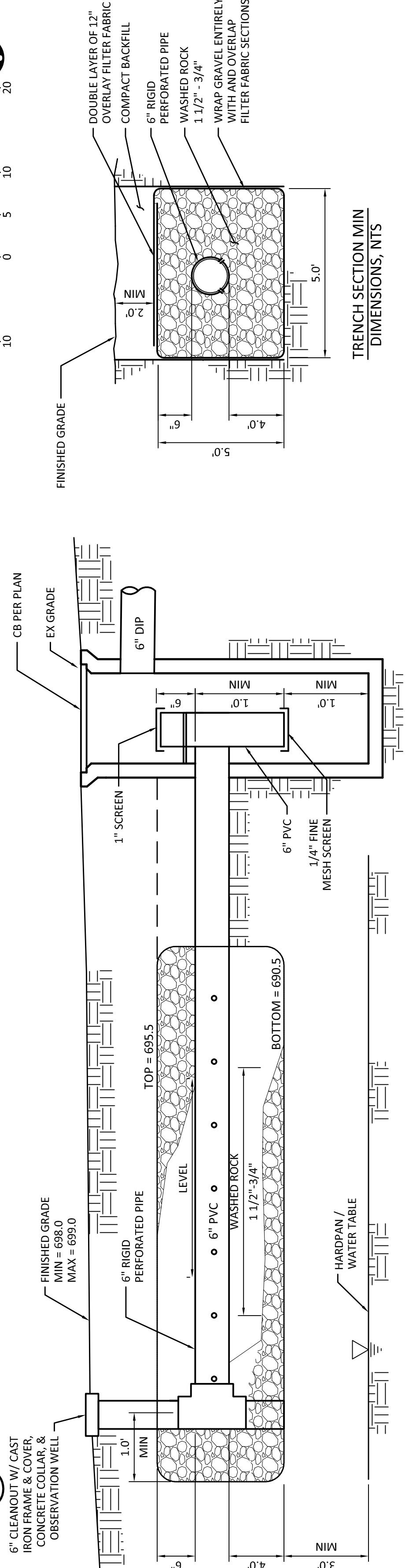
4 WSDOT STANDARD DETAIL
SCALE: NTS



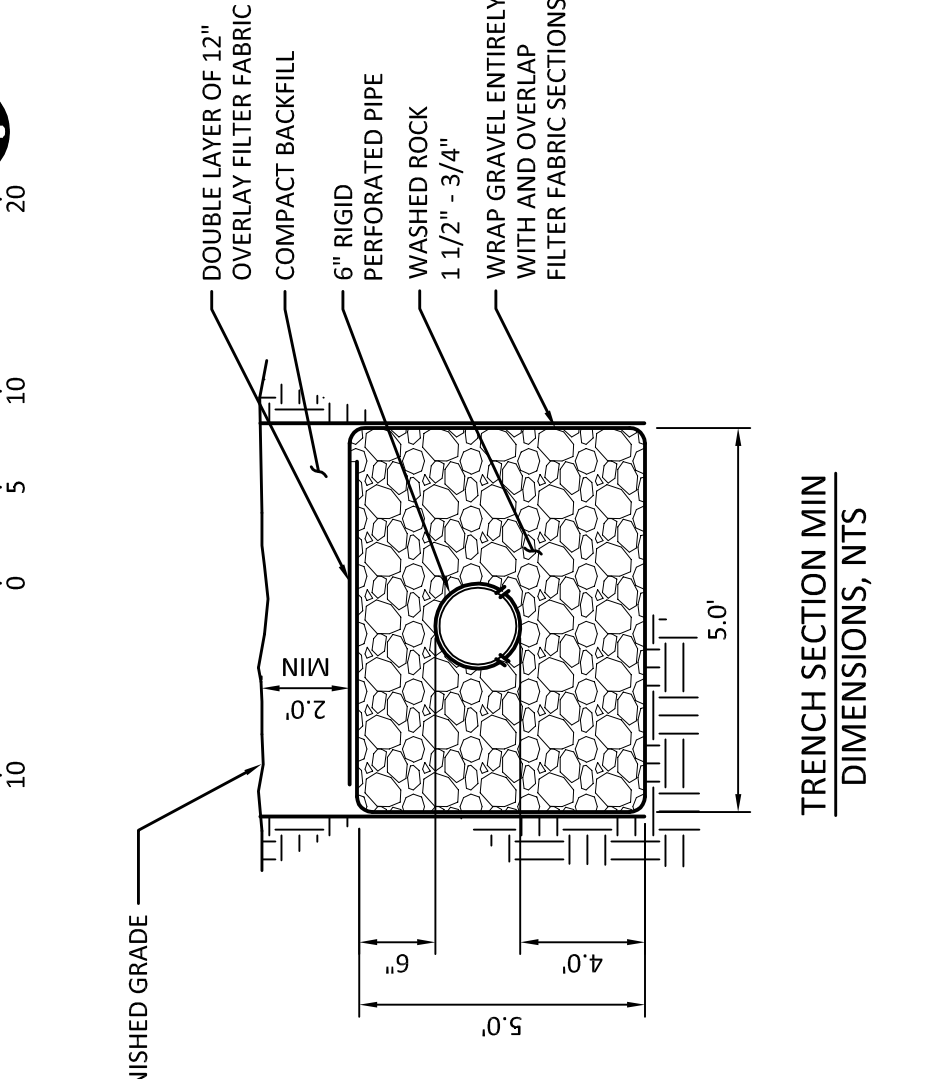
6 WSDOT STANDARD DETAIL
SCALE: NTS



1 GRADING AND DRAINAGE PLAN
SCALE: 1" = 10'



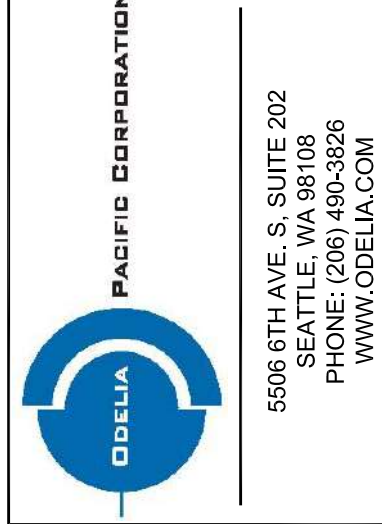
3 INFILTRATION TRENCH
SCALE: NTS



TRENCH SECTION MIN DIMENSIONS, NTS



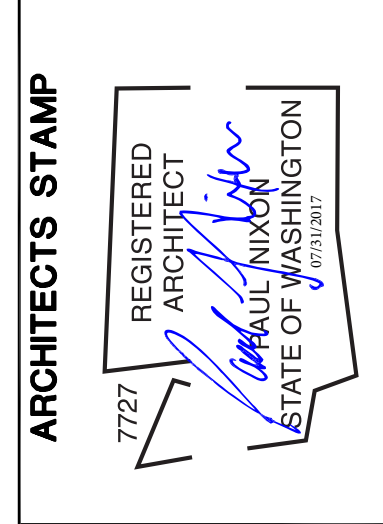
SWAN
(NEW BUILD)
39025 NE NORTH FORK RD.
DUVALL, WA 98019



PROJECT MANAGER: EJC
PREPARED BY: AIO/EAT
APPROVED BY: PN

- 07/31/17 UPDATED SURVEY
- 07/31/17 DPER COMMENTS
- 06/27/17 ELECTRICAL TIE-IN W/ SCL
- 06/15/17 ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE



SHEET NAME
OVERALL
PROPOSED
SITE PLAN

SHEET NUMBER
A-1.0

PARCEL SIZE: 457.3 ACRES (100.00%)
NEW IMPERVIOUS: 4,931 SQ. FT. (0.025%)
REPLACED IMPERVIOUS: 0.00 SQ. FT. (0.00%)
NEW PLUS REPLACED IMPERVIOUS: 4,931 SQ. FT. (0.025%)

BEFORE WORK CAN COMMENCE A MANDATORY PRE-CONSTRUCTION MEETING SHALL BE HELD. THE REQUIRED ATTENDEES SHALL INCLUDE:
- PSE&N CONSTRUCTION MANAGER
- GENERAL CONTRACTOR
- SEATTLE PUBLIC UTILITIES REPRESENTATIVE
- SEATTLE CITY LIGHT REPRESENTATIVE

PARCEL:
292608-9002
ZONING: F

SUBJECT PARCEL:
292608-9004
ZONING: F



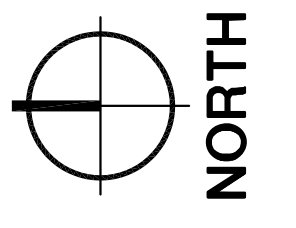
TREES TO BE REMOVED

NUMBER	TRUNK DIAMETER	TYPE	HEIGHT	QTY.	NUMBER	DIAMETER	TYPE	HEIGHT	QTY.
1	10"	ALDER	30'	1	13	4"	ALDER	35'	1
2	8"	ALDER	40'	1	14	10"	ALDER	40'	1
3	8"	ALDER	45'	1	15	6"	MAPLE	40'	1
4	6"	ALDER	30'	1	16	4"	ALDER	35'	1
5	12"	FIR	45'	1	17	4"	ALDER	35'	1
6	10"	ALDER	35'	1	18	12"	MAPLE	45'	1
7	10"	ALDER	30'	1	19	8"	MAPLE	45'	1
8	10"	ALDER	35'	1	20	4"	MAPLE	30'	1
9	10"	ALDER	35'	1	21	12"	MAPLE	40'	1
10	12"	ALDER	45'	1	22	12"	ALDER	40'	1
11	12"	ALDER	40'	1	23	12"	ALDER	30'	1
12	12"	MAPLE	45'	1	24	8"	ALDER	15'	1

TOTAL TREES TO BE REMOVED: 24

2 TREE REMOVAL PLAN
SCALE: 1/16" = 1'-0" (22x34), 1/32" = 1'-0" (11x17)

1 OVERALL PROPOSED SITE PLAN
SCALE: 1" = 30'-0" (22x34), 1" = 60'-0" (11x17)

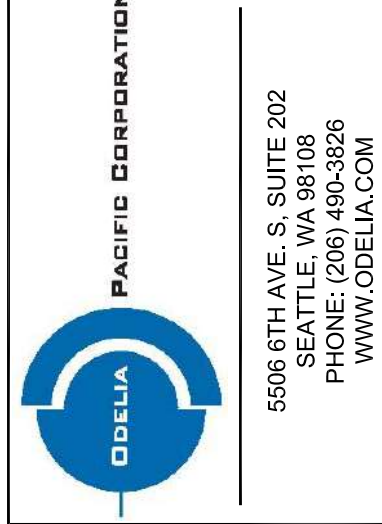


0 30 60 90



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 SEATTLE, WA 98148
 PHONE: (425) 740-8392
 FAX: (425) 252-2880
 WWW.CAMPASSOC.COM

PROJECT MANAGER: EJC

PREPARED BY: AIO/EAT

APPROVED BY: PN

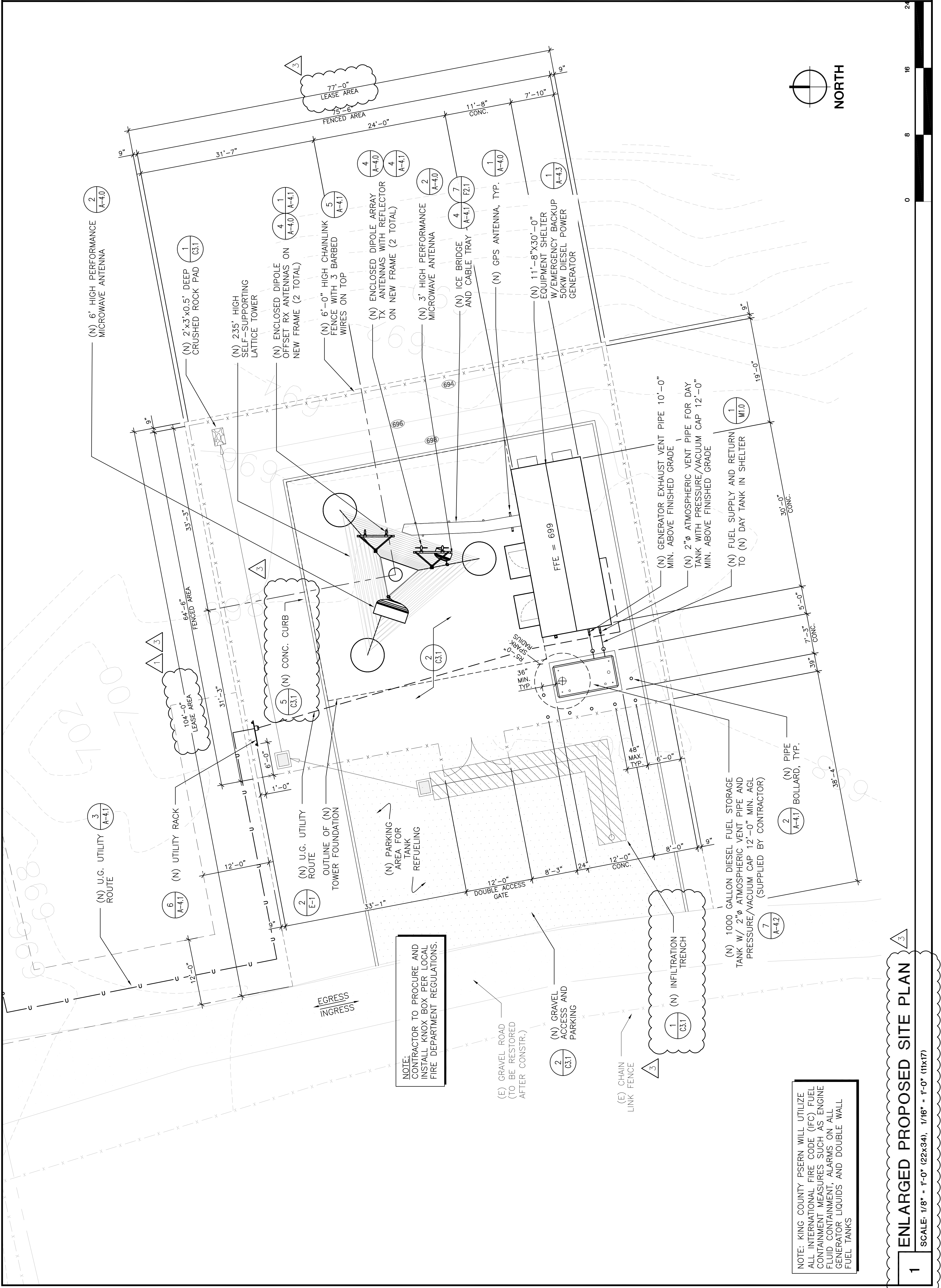
07/31/17	UPDATED SURVEY
07/31/17	OPER COMMENTS
06/27/17	ELECTRICAL TIE-IN W/ SCL
06/15/17	ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE

ARCHITECTS STAMP
 7727
 REGISTERED ARCHITECT
 PAUL NIXON
 STATE OF WASHINGTON

SHEET NAME
 ENLARGED PROPOSED SITE PLAN

SHEET NUMBER
 A-1.1

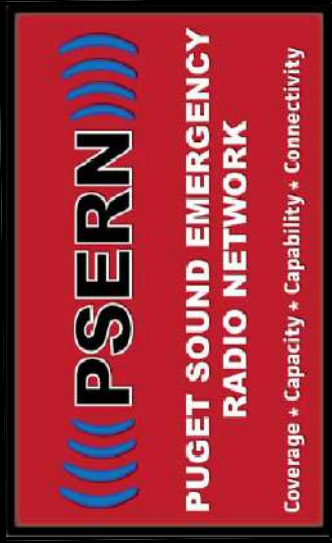


NOTE:
 CONTRACTOR TO PROQUIRE AND INSTALL KNOX BOX PER LOCAL FIRE DEPARTMENT REGULATIONS.

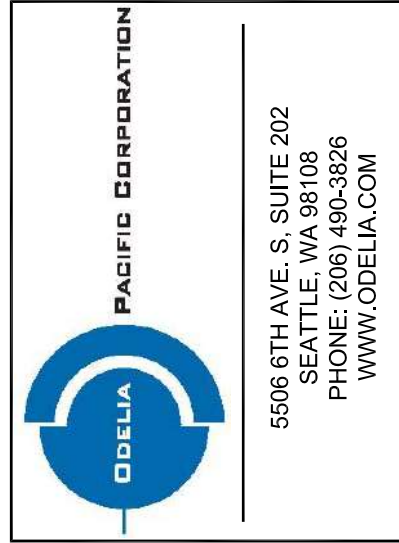
NOTE:
 KING COUNTY PSERN WILL UTILIZE ALL INTERNATIONAL FIRE CODE (IFC) FUEL CONTAINMENT MEASURES SUCH AS ENGINE FLUID CONTAINMENT, ALARMS ON ALL GENERATOR LIQUIDS AND DOUBLE WALL FUEL TANKS

1 ENLARGED PROPOSED SITE PLAN
 SCALE: 1/8" = 1'-0" (22x34), 1/16" = 1'-0" (11x17)

0 8 16 24



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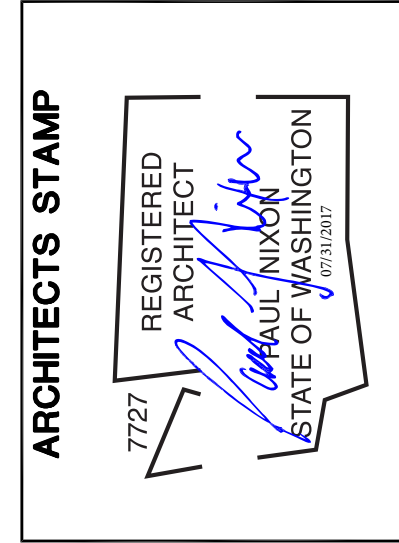
PROJECT MANAGER: EJC

PREPARED BY: AIO/EAT

APPROVED BY: PN

07/31/17	UPDATED SURVEY
07/21/17	PIPER COMMENTS
06/27/17	ELECTRICAL TIE-IN W/ SCL
06/15/17	ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE



SHEET NAME
ANTENNA PLAN

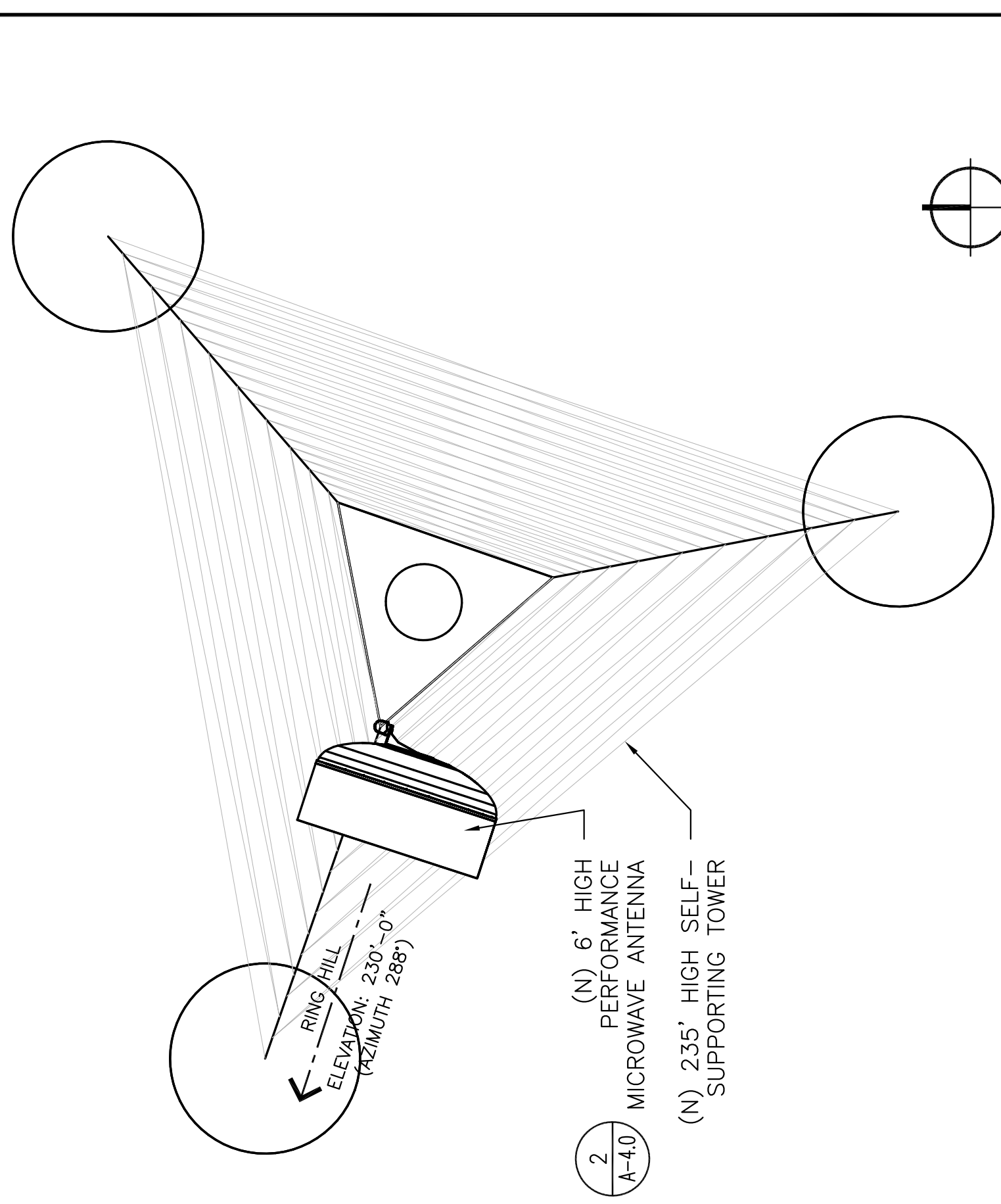
SHEET NUMBER
A-2

ANTENNA / COAX SCHEDULE

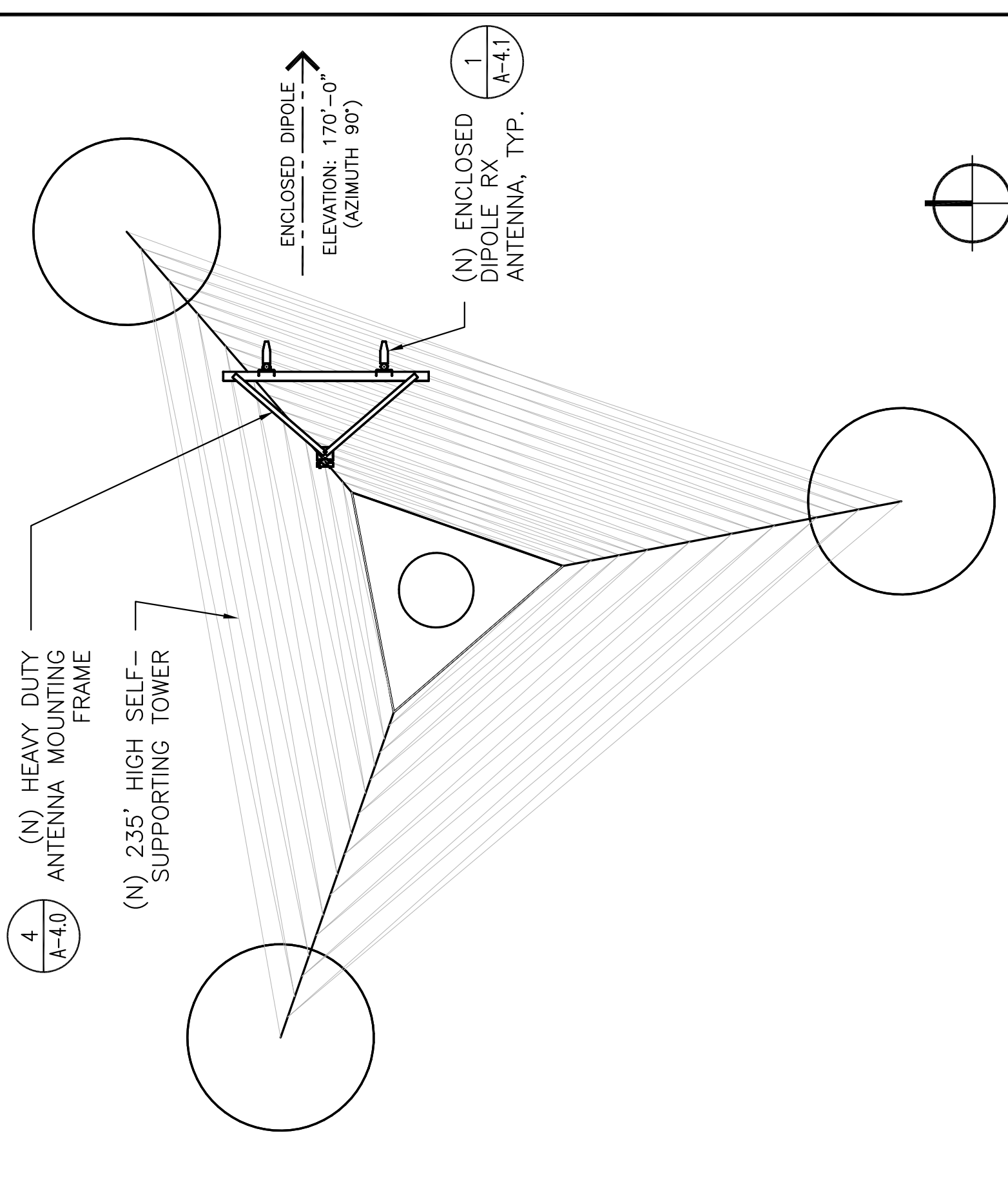
RAD CENTER	PATH	MOUNTING HEIGHT	AZIMUTH	TOWER LEG	QTY.	DESCRIPTION	COAX	COAX LENGTH
230'-0"	RING HILL	-	288°	NW	1	6' HIGH PERFORMANCE MICROWAVE ANTENNA	EW63	±265'
100'-0"	TOLT	-	110°	SE	1	3' HIGH PERFORMANCE MICROWAVE ANTENNA	EW90	±135'
-	-	170'-0"	90°	NE	2	18'-0" ENCLOSED DIPOLE RX ANTENNAS	AVAS-50FX	±205'
-	-	150'-0"	90°	SE	2	4'-5" ENCLOSED DIPOLE TX ANTENNA	AVAS-50FX	±185'

NOTE:
PROVIDE (1) DUAL DIVERSITY TOWER TOP AMPLIFIER SYSTEM.
SYSTEM SHALL INCLUDE: (1) DUAL DIVERSITY TOWER TOP AMPLIFIER (TTA).
(4) 7/8" COAXIAL CABLES (2 LINES ARE JUMPERS FROM THE TTA TO ANTENNAS).
(1) 1/2" COAXIAL CABLE (FSJ4-50B).

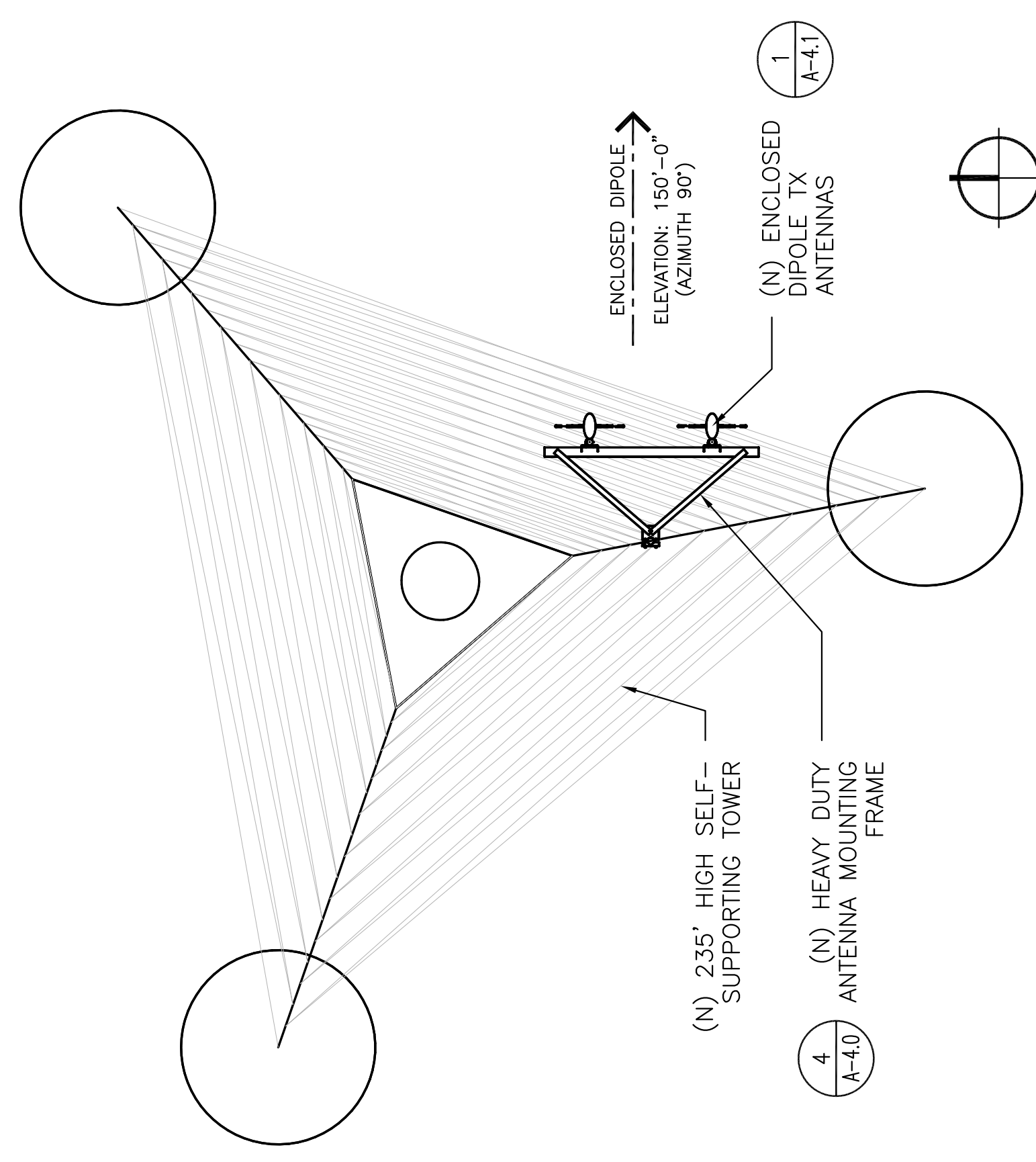
- GENERAL NOTES**
- VERIFY EACH COAXIAL CABLE LENGTH, DIAMETER, ROUTING, AND ALL MOUNTING APPURTENANCES WITH OWNER PRIOR TO ORDER.
 - THE MAXIMUM COAXIAL CABLE LENGTH HAS BEEN ESTIMATED IN THE TABLE ABOVE. THIS CABLE LENGTH IS APPROXIMATE AND IS TO BE USED FOR CONSTRUCTION. ACTUAL ANTENNA CABLE LENGTHS MAY VARY FROM ESTIMATED MAXIMUM LENGTH AND MUST BE VERIFIED.
 - TAG ALL MAIN CABLES AT THREE (3) LOCATIONS:
A - ANTENNAS
B - ANTENNA RING HILL ENTRY PORT
C - EQUIPMENT CABINET
 - EACH COAX SHALL BE GROUNDED AT (3) THREE LOCATIONS; ANTENNA, TOWER BASE AND BUILDING ENTRY PORT.



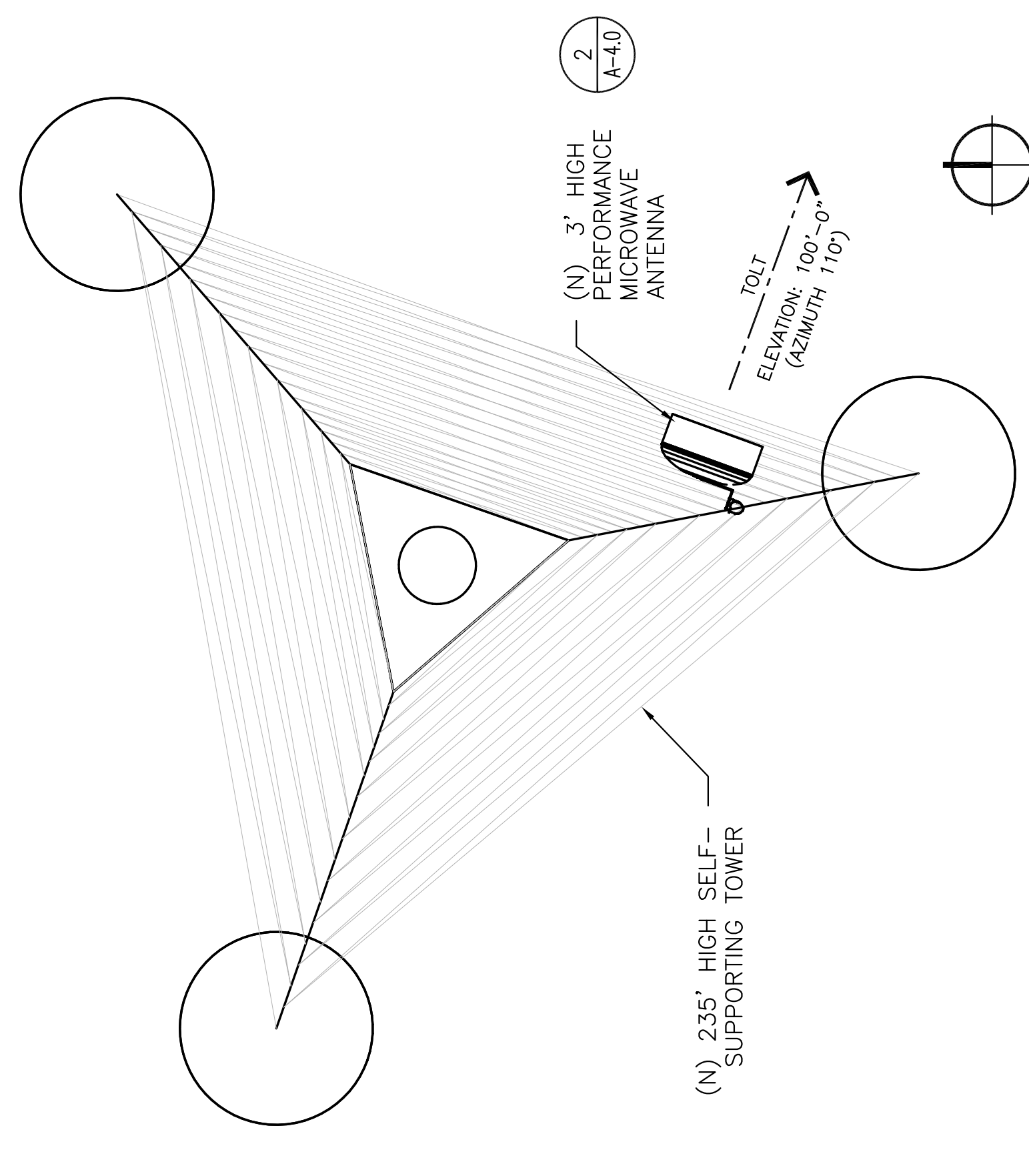
1
ANTENNA PLAN @ 230'-0"
SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)



2
ANTENNA PLAN @ 170'-0"
SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)



3
ANTENNA PLAN @ 150'-0"
SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)

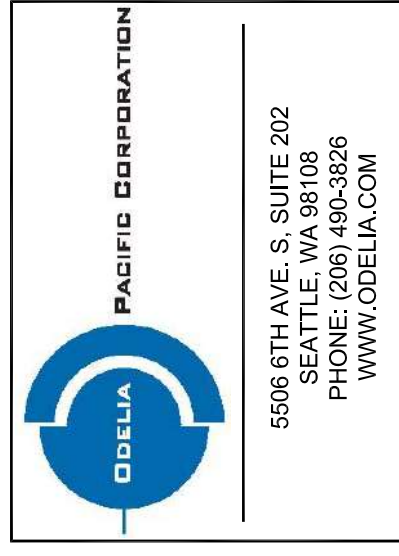


4
ANTENNA PLAN @ 100'-0"
SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)

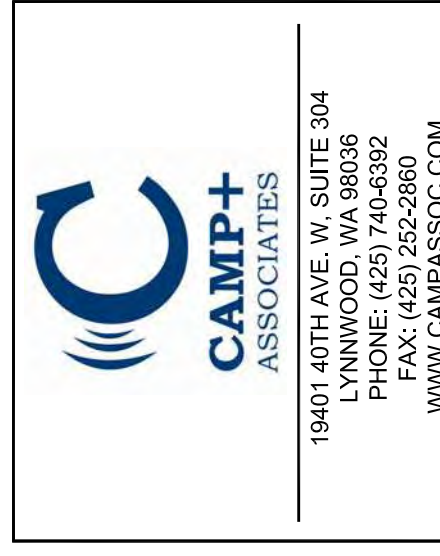


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PROJECT MANAGER: EJC

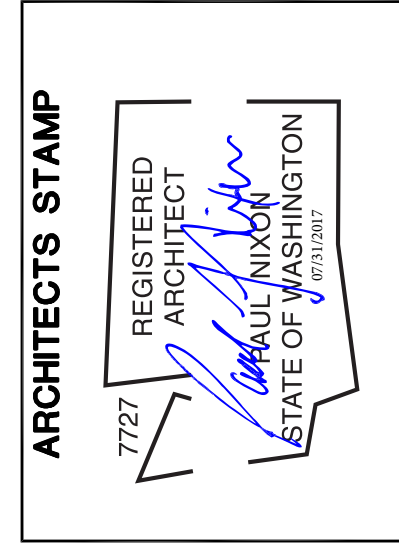
PREPARED BY: AJO/EAT

APPROVED BY: PN

▲	07/31/17	UPDATED SURVEY
▲	07/21/17	PIPER COMMENTS
▲	06/27/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

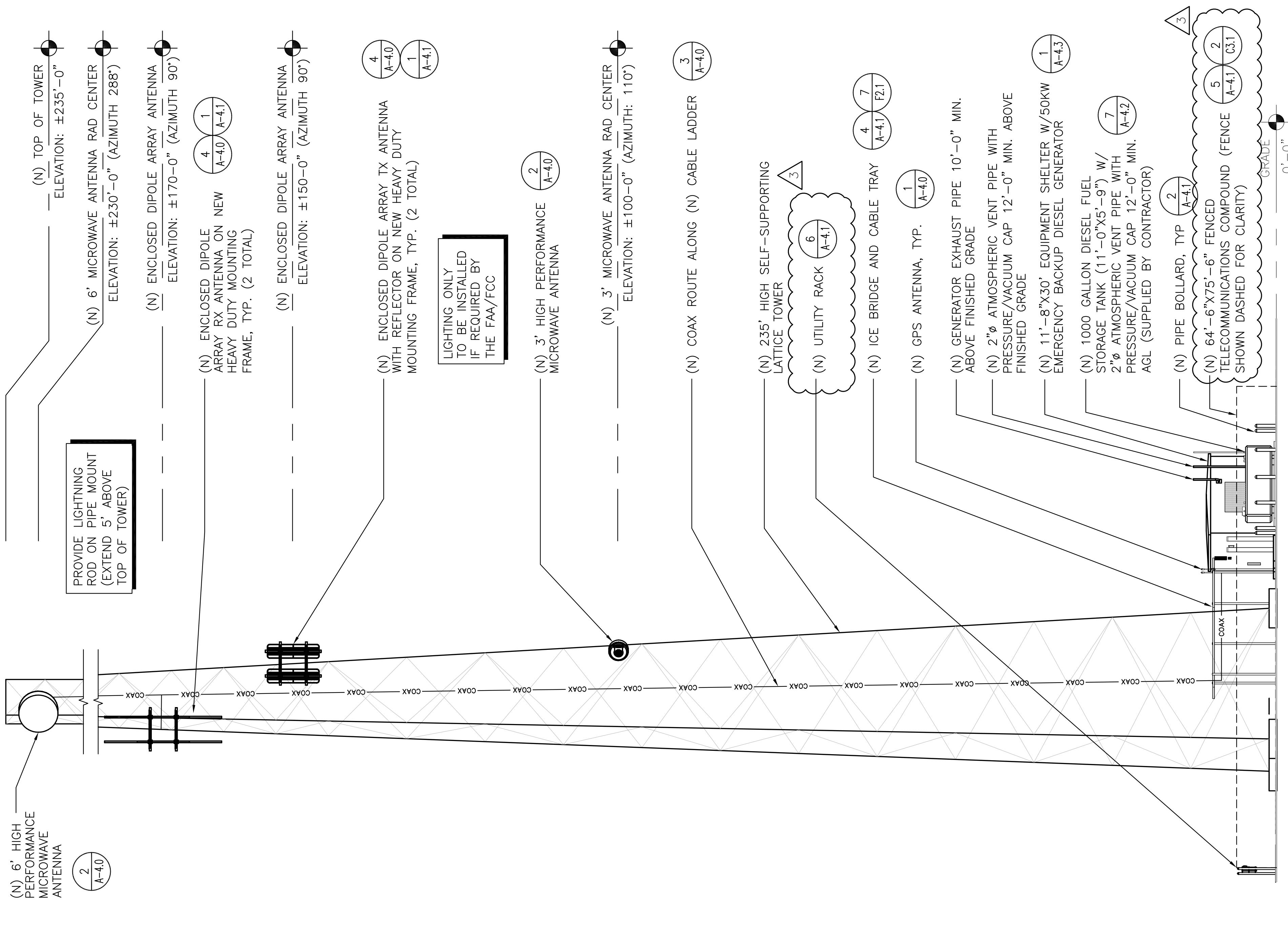
PLAN REVIEWERS SIGNATURE

ARCHITECTS STAMP

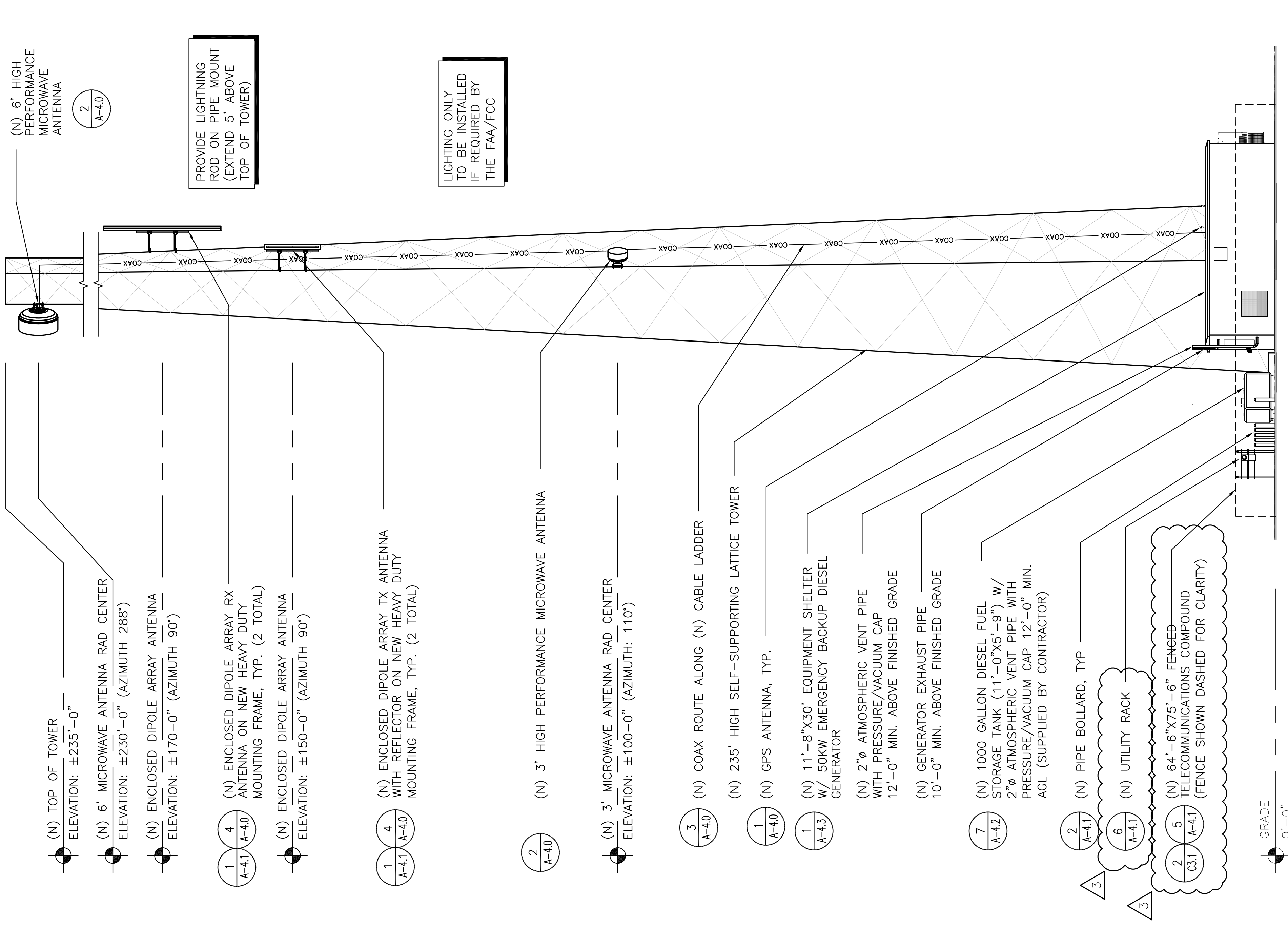


SHEET NAME
 PROPOSED ELEVATIONS

SHEET NUMBER
 A-3



PROPOSED WEST ELEVATION
 SCALE: 1" = 10'-0" (22x34), 1" = 20'-0" (11x17)



PROPOSED SOUTH ELEVATION
 SCALE: 1" = 10'-0" (22x34), 1" = 20'-0" (11x17)

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PROJECT MANAGER: EJC

PREPARED BY: AJO/EAT

APPROVED BY: PN

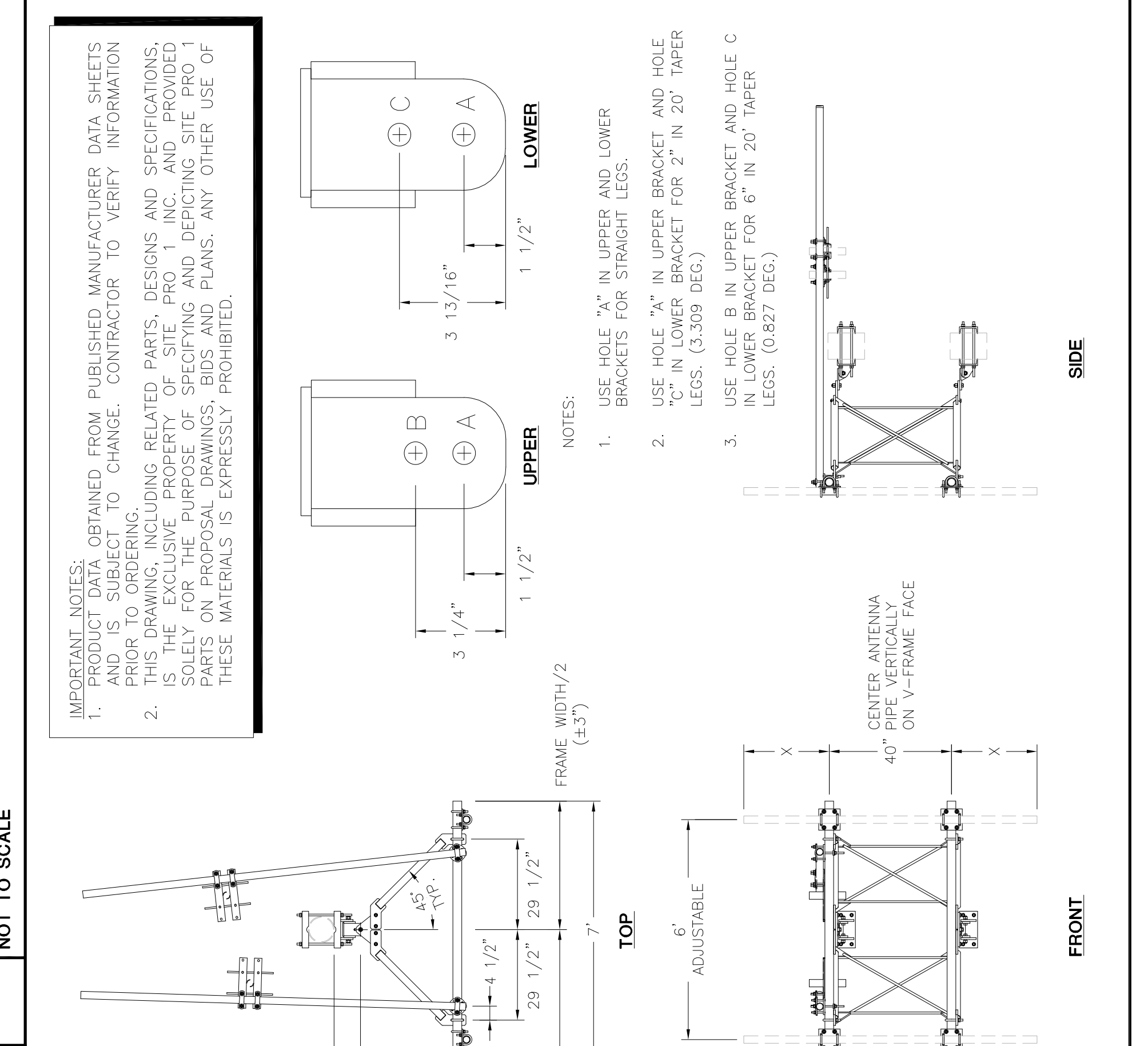
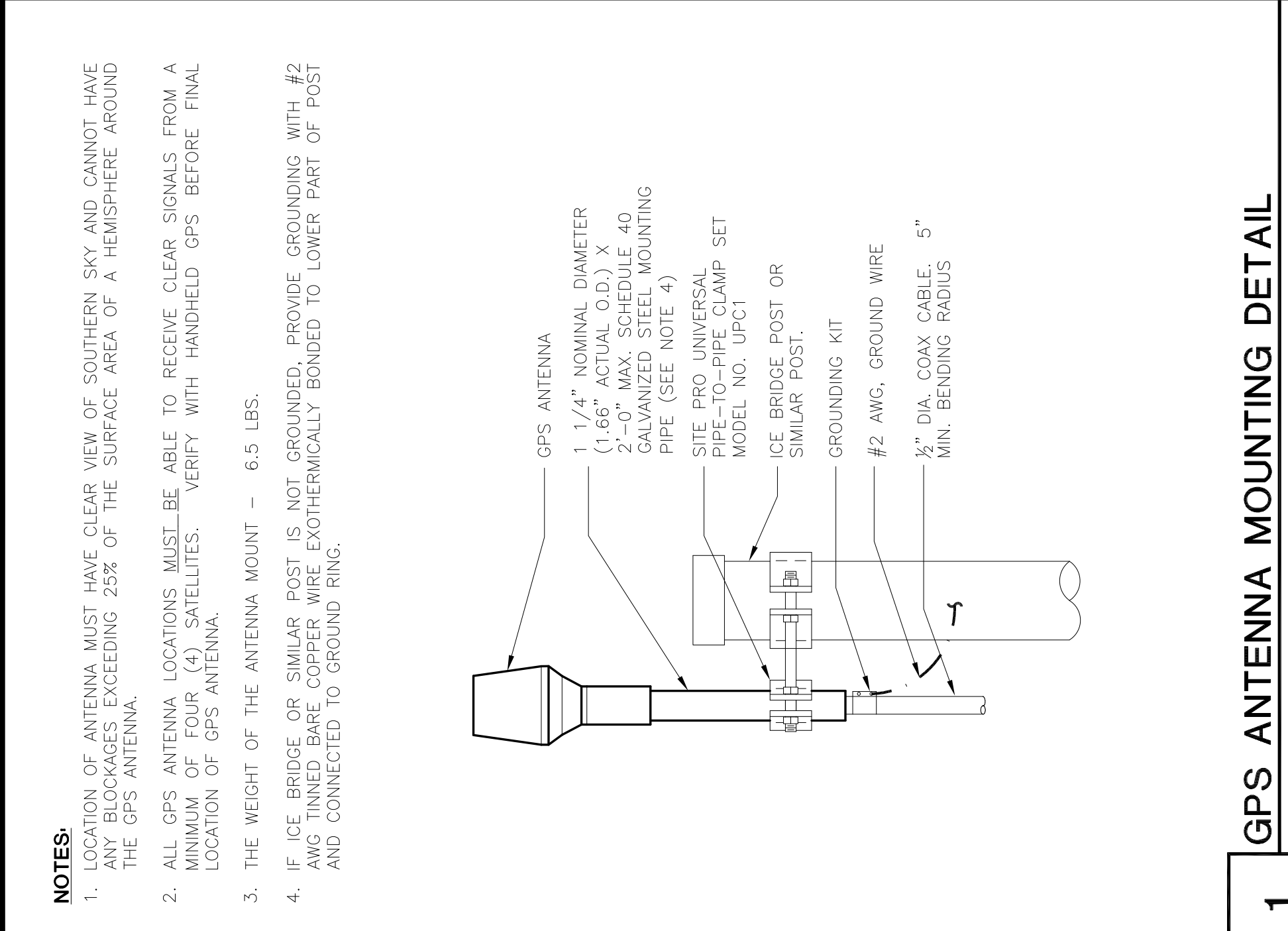
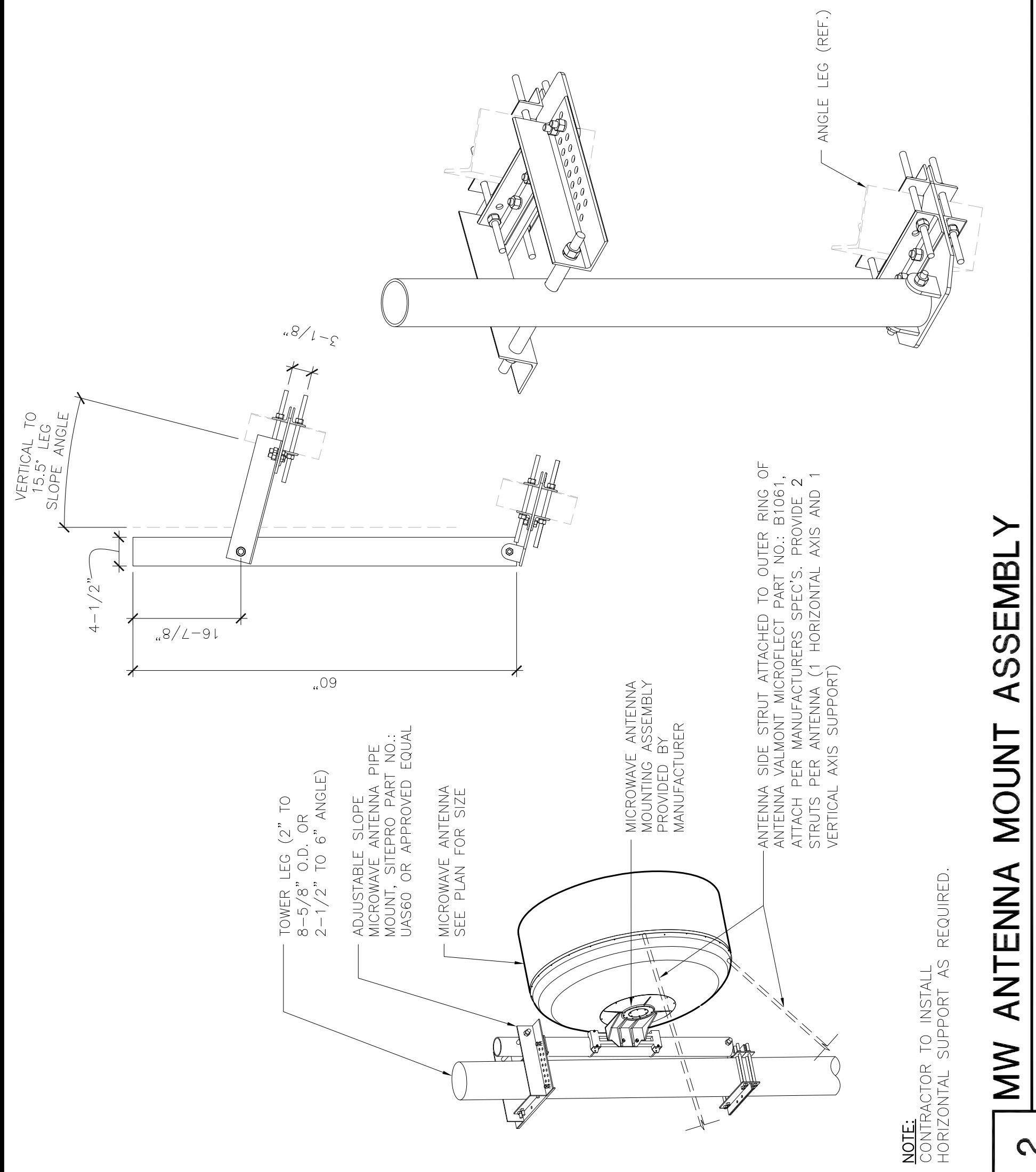
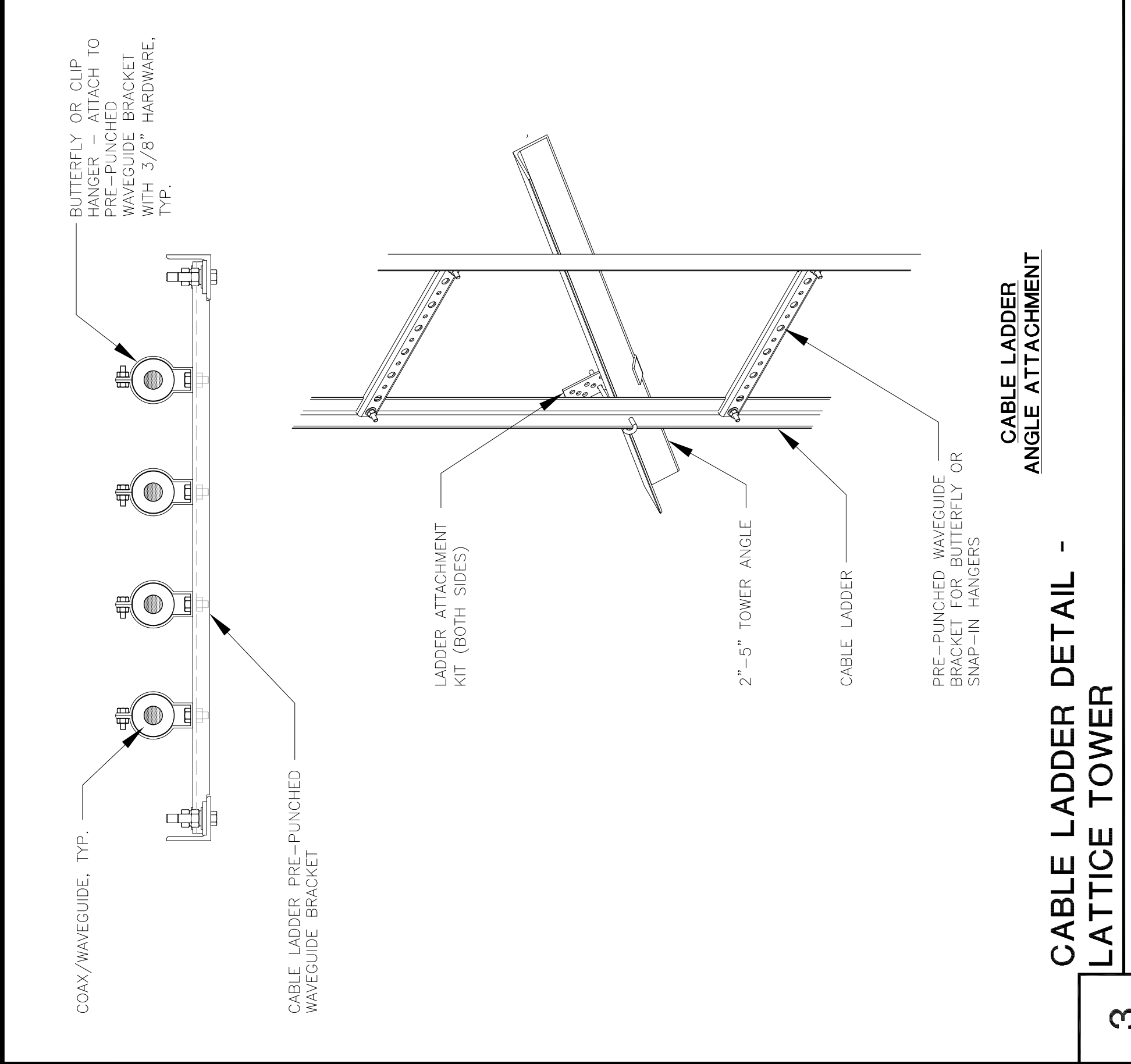
▲	07/31/17	UPDATED SURVEY
▲	07/21/17	PIPER COMMENTS
▲	06/21/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

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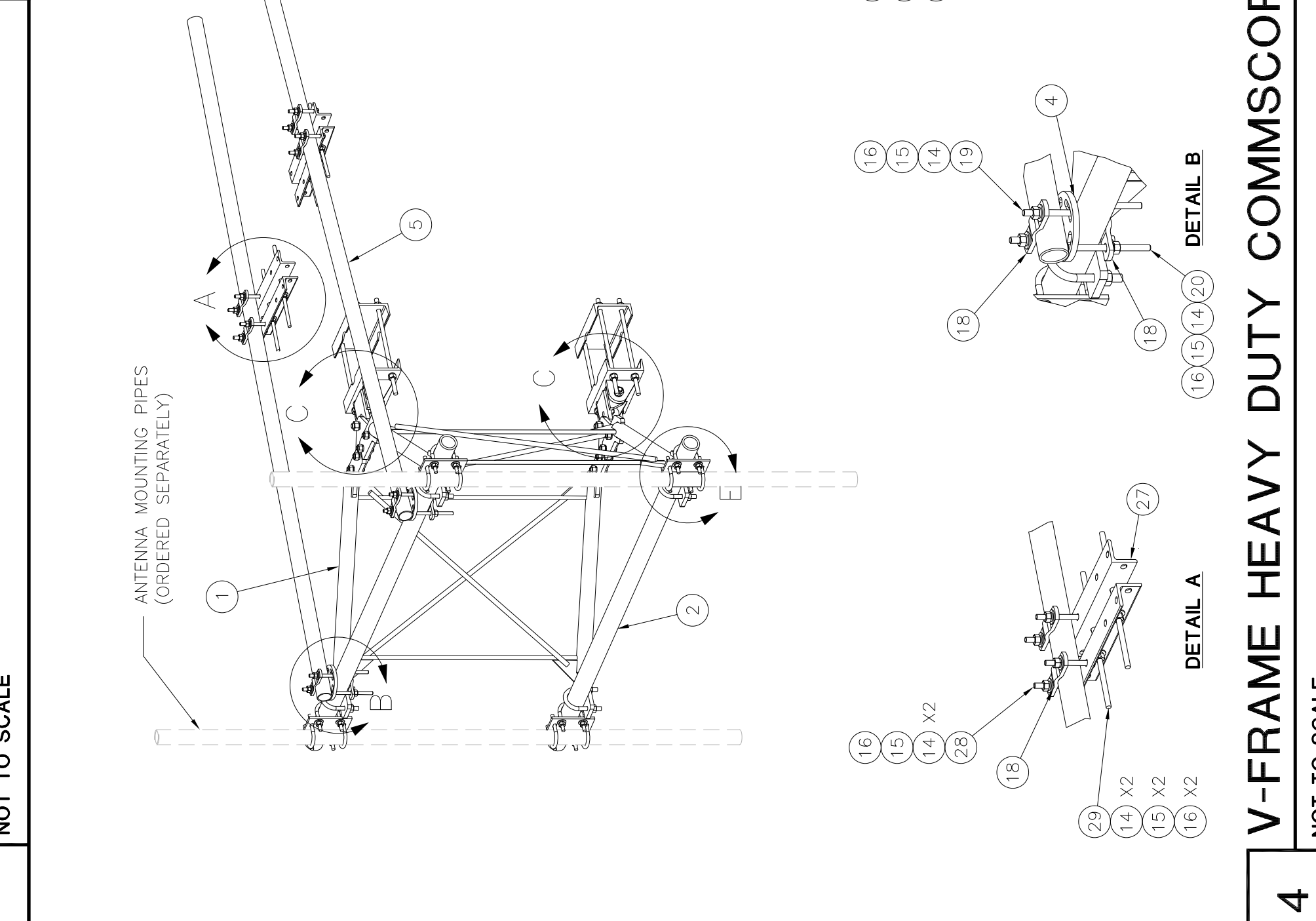
ARCHITECTS STAMP
7727
REGISTERED ARCHITECT
PAUL NYQUIST
STATE OF WASHINGTON

SHEET NAME
DETAILS

SHEET NUMBER
A-4.0



ITEM	QTY	PART NO.	PARTS LIST	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM	2-1/2" SCH. 40 PIPE (2.875" O.D. X 0.203 WALL) 4500	84 IN.	66.80	133.59
2	2	P3084	GR5 FULL THREAD	GR5 FULL THREAD 4" CENTERS (GALV.)	7 IN.	40.65	81.29
3	4	SCV2	FLAT DISK CLAMP PLATE	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)	7 IN.	2.88	11.52
4	2	X-127594	U-BOLTS	5/8" X 3" X 5" U-BOLT (HDG.)	126 IN.	40.75	81.50
5	2	P2126	VFA-HD PIVOT PLATE	VFA-HD PIVOT PLATE	24 IN.	1.15	4.60
6	4	X-UBS300	LOWER PINNACLE BRACKET	LOWER PINNACLE BRACKET	9.69	19.38	77.52
7	2	X-VFAP1.3	HEAVY DUTY PIPE MOUNT W/ CLAMP	HEAVY DUTY PIPE MOUNT W/ CLAMP (HDG.)	18.52	37.04	74.08
8	1	X-LPB	HEAVY DUTY PIPE MOUNT W/ CLAMP	HEAVY DUTY PIPE MOUNT W/ CLAMP (HDG.)	0.03	0.83	0.83
9	2	X-HDPMW	5/8" HDG. HEAVY 2H HEX NUT	5/8" HDG. HEAVY 2H HEX NUT	0.13	4.16	4.16
10	32	G58LU	1/2" X 3" X 5" GALV. U-BOLT	1/2" X 3" X 5" GALV. U-BOLT	0.74	11.82	37.82
11	16	X-UB1300	1/2" HDG. USS FLATWASHER	1/2" HDG. USS FLATWASHER	0.03	2.18	6.96
12	16	G12FW	1/2" HDG. USS FLATWASHER	1/2" HDG. USS FLATWASHER	0.01	0.78	2.50
13	56	G12FW	1/2" HDG. USS FLATWASHER	1/2" HDG. USS FLATWASHER	0.01	0.78	2.50
14	64	G12FW	1/2" HDG. USS FLATWASHER	1/2" HDG. USS FLATWASHER	0.01	0.78	2.50
15	8	X-UB1212	1/2" X 2" X 1/2" X 4" U-BOLT (HDG.)	1/2" X 2" X 1/2" X 4" U-BOLT (HDG.)	0.91	7.30	23.36
16	8	X-100064	CLAMP (S) (4" V-CLAMP) GALV.	CLAMP (S) (4" V-CLAMP) GALV.	0.27	1.08	3.24
17	4	G1204	1/2" X 4" HDG. HEX BOLT GR5 FULL THREAD	1/2" X 4" HDG. HEX BOLT GR5 FULL THREAD	4 IN.	0.27	1.08
18	4	G12065	1/2" X 6-1/2" HDG. HEX BOLT GR5 FULL THREAD	1/2" X 6-1/2" HDG. HEX BOLT GR5 FULL THREAD	6 1/2"	0.41	1.64
19	6	A54211.4	5/8" X 2-1/4" HDG. HEX BOLT	5/8" X 2-1/4" HDG. HEX BOLT	2 1/4"	0.31	1.24
20	6	A54211.2	3/4" X 2-1/2" UNC. HEX BOLT (A325)	3/4" X 2-1/2" UNC. HEX BOLT (A325)	2 1/2"	0.48	1.80
21	6	G41LW	3/4" HDG. HEX BOLT	3/4" HDG. HEX BOLT	0.04	0.26	0.78
22	6	G41LW	3/4" HDG. HEX BOLT	3/4" HDG. HEX BOLT	0.04	0.26	0.78
23	6	G41LW	3/4" HDG. HEX BOLT	3/4" HDG. HEX BOLT	0.04	0.26	0.78
24	6	G41LW	3/4" HDG. HEX BOLT	3/4" HDG. HEX BOLT	0.04	0.26	0.78
25	2	X-HDPMW	HEAVY DUTY PIPE MOUNT BACKING PLATE	HEAVY DUTY PIPE MOUNT BACKING PLATE	12 IN.	13.44	26.88
26	4	X-LLTB	ANGLE BRACKET FOR LLTB	ANGLE BRACKET FOR LLTB	16 1/2" IN.	0.06	2.38
27	8	G12045	1/2" X 4.5" HDG. HEX BOLT GR5 FULL THREAD	1/2" X 4.5" HDG. HEX BOLT GR5 FULL THREAD	4 1/2"	0.30	2.38
28	4	G12R-15	1/2" X 15" THREADED ROD (HDG.)	1/2" X 15" THREADED ROD (HDG.)	0.40	1.60	6.40
29	4	G12R-15	1/2" X 15" THREADED ROD (HDG.)	1/2" X 15" THREADED ROD (HDG.)	0.40	1.60	6.40
TOTAL WEIGHT:							506.76



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A valmont COMPANY

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New York, NY
Los Angeles, CA
Plymouth, IN
Dallas, TX

Engineering Support Team:
1-888-753-7448

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PROJECT MANAGER: EJC
PREPARED BY: AO/EAT
APPROVED BY: PN

07/31/17	UPDATED SURVEY
07/21/17	IPER COMMENTS
06/27/17	ELECTRICAL TIE-IN W/ SCL
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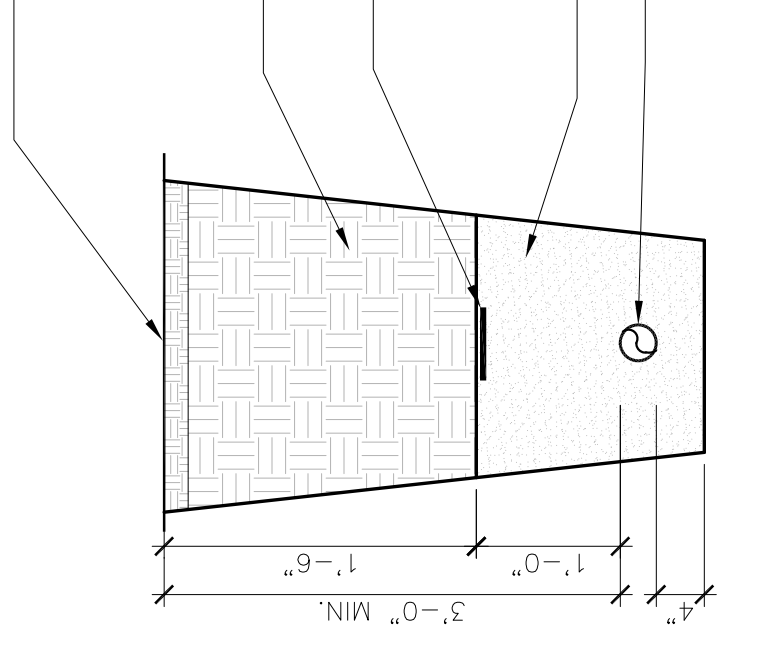
PLAN REVIEWERS SIGNATURE

ARCHITECTS STAMP
 7127
 REGISTERED ARCHITECT
 PAUL NIXON
 STATE OF WASHINGTON
 14000

SHEET NAME
 DETAILS

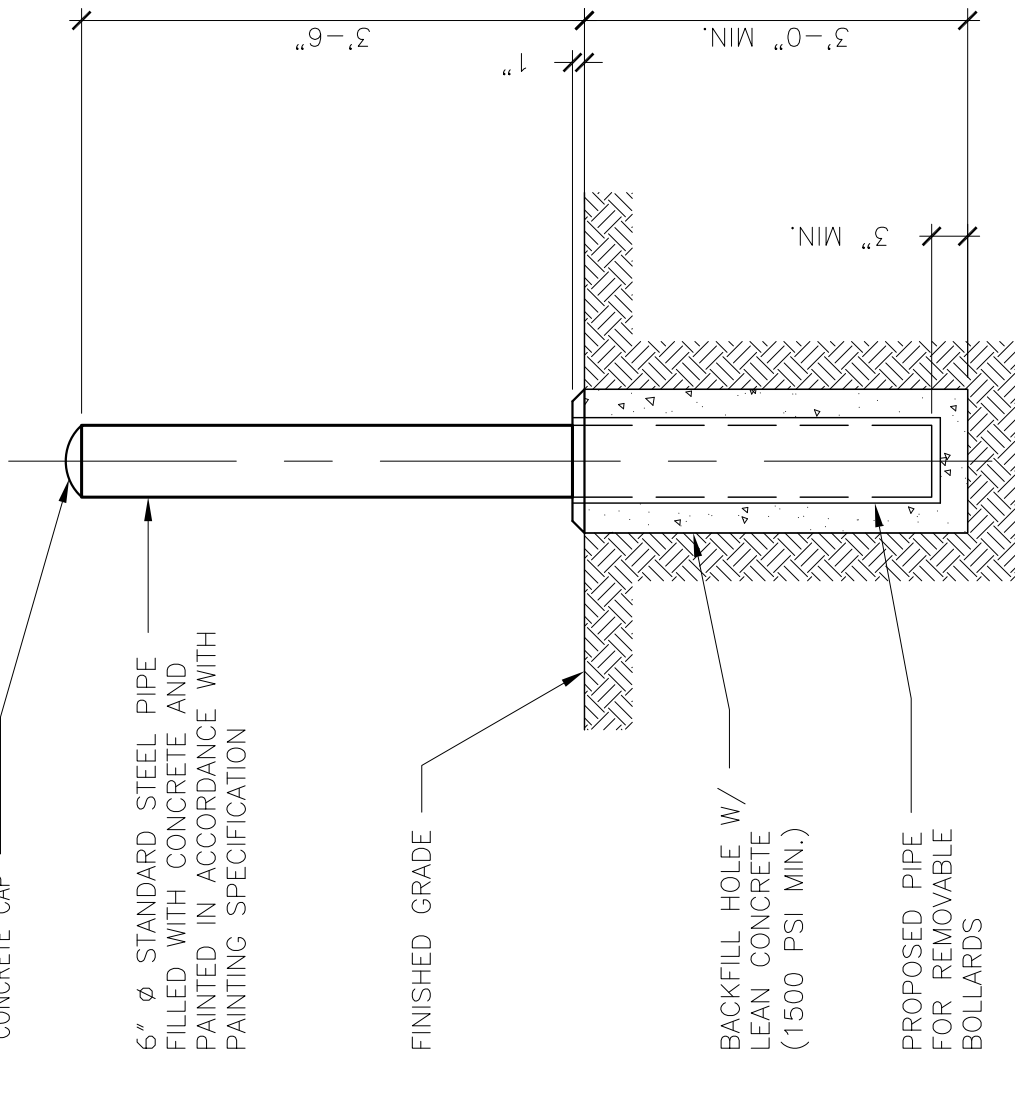
SHEET NUMBER
 A-4.1

RESTORE SURFACE COARSE MATERIAL AND BASE COARSE MATERIAL TO ORIGINAL CONDITION AFTER INSTALLATION OF UTILITIES. GRADE AND COMPACT TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557, SURFACE TO LEVEL.
 RETURN ORIGINAL MATERIAL TO TRENCH, COMPACT TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557
 PROVIDE PANDUIT UNDERGROUND HAZARD TAPE "CAUTION- ELECTRICAL LINE BURIED BELOW" ENTIRE LENGTH OF THE CONDUIT RUN.
 SAND
 CONDUIT FOR NEW ELECTRICAL ROUTE. PROVIDE APPROVED PULL BOXES. COORDINATE INSTALLATION AT TERMINATION POINTS.

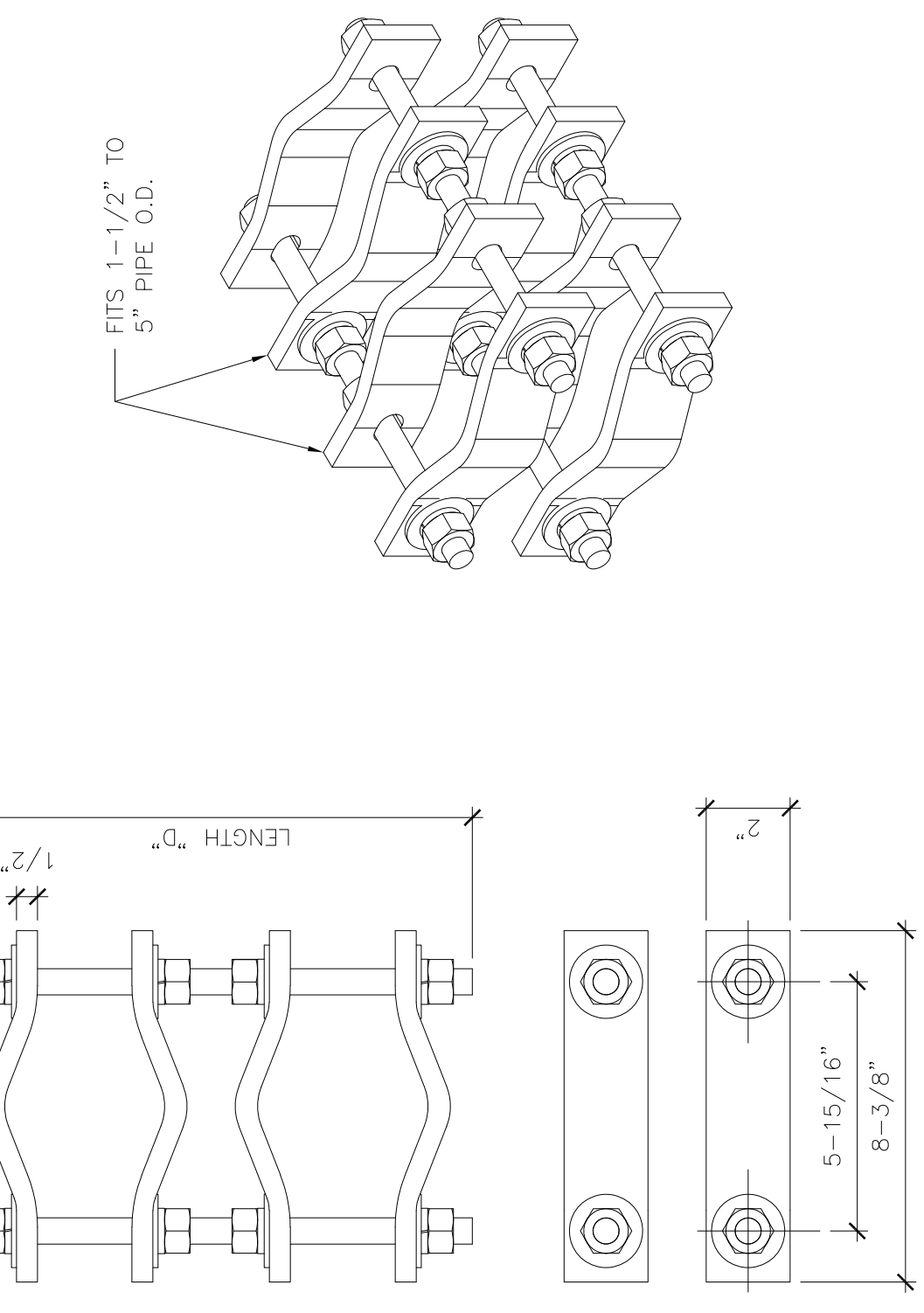


NOTE: BACKFILL MATERIAL SHOULD BE SUITABLE MATERIAL FREE OF ORGANIC MATERIAL WITHOUT ANY ROCK GREATER THAN 4" IN SIZE IN THE GREATEST DIMENSION.

UTILITY TRENCH DETAIL
 3 NOT TO SCALE

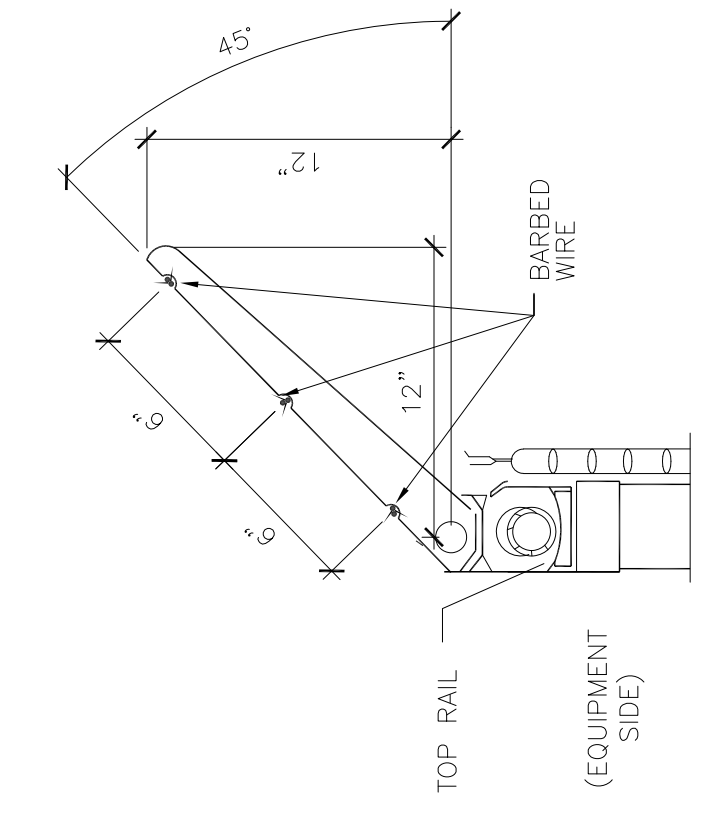


BOLLARD DETAIL
 2 NOT TO SCALE



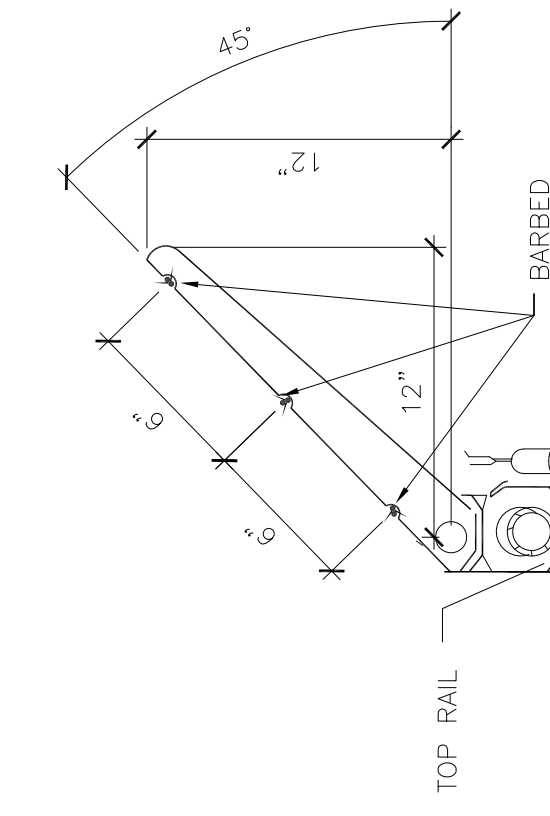
SITE PRO DCP12K PIPE TO PIPE CLAMP SET
 1 NOT TO SCALE

NOTES:
 1. ALL CORNER POSTS SHALL HAVE BARB WIRES/ARMS LEANING OUT.
 2. ALL CENTRAL DROP BAR ASSEMBLIES SHALL HAVE AN ALUMINUM TYPE MUSHROOM HEAD, PART NO. 15912 MANUFACTURED BY MASTER HALCO, INC. OR APPROVED EQUAL. THE MUSHROOM HEAD SHALL BE EMBEDDED INTO FOUNDATION CONCRETE AS SHOWN.
 3. ALL STEEL MATERIAL SHALL BE HOT-DIPPED GALVANIZED AND CONFORM TO FEDERAL SPECIFICATION REL-F 91: FENCING WIRE AND POST METAL (GATES, CHAIN LINK, FENCE FABRIC AND ACCESSORIES).
 4. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.

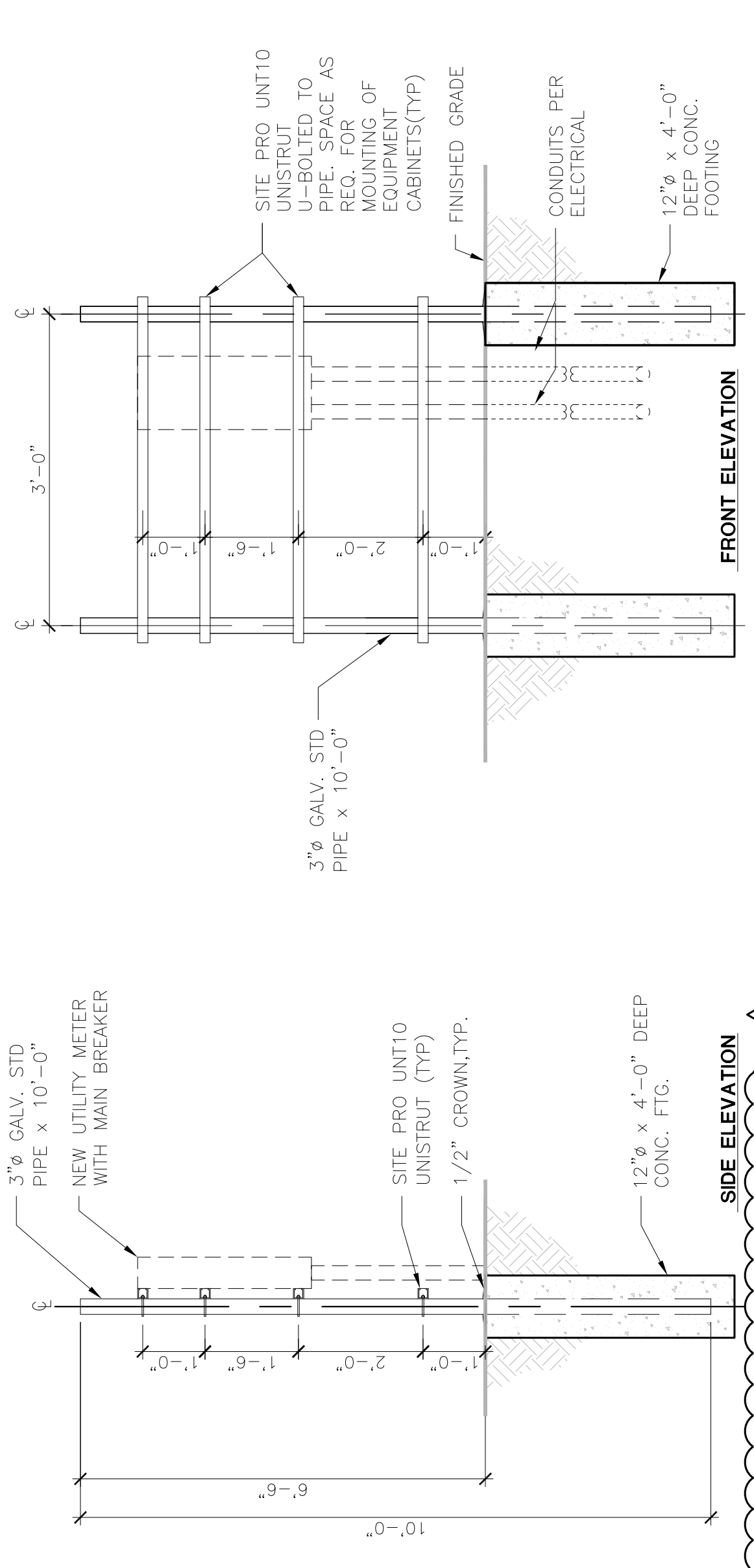


A BARBED WIRE ARM DETAIL
 SCALE: 1 1/2" = 1'-0"

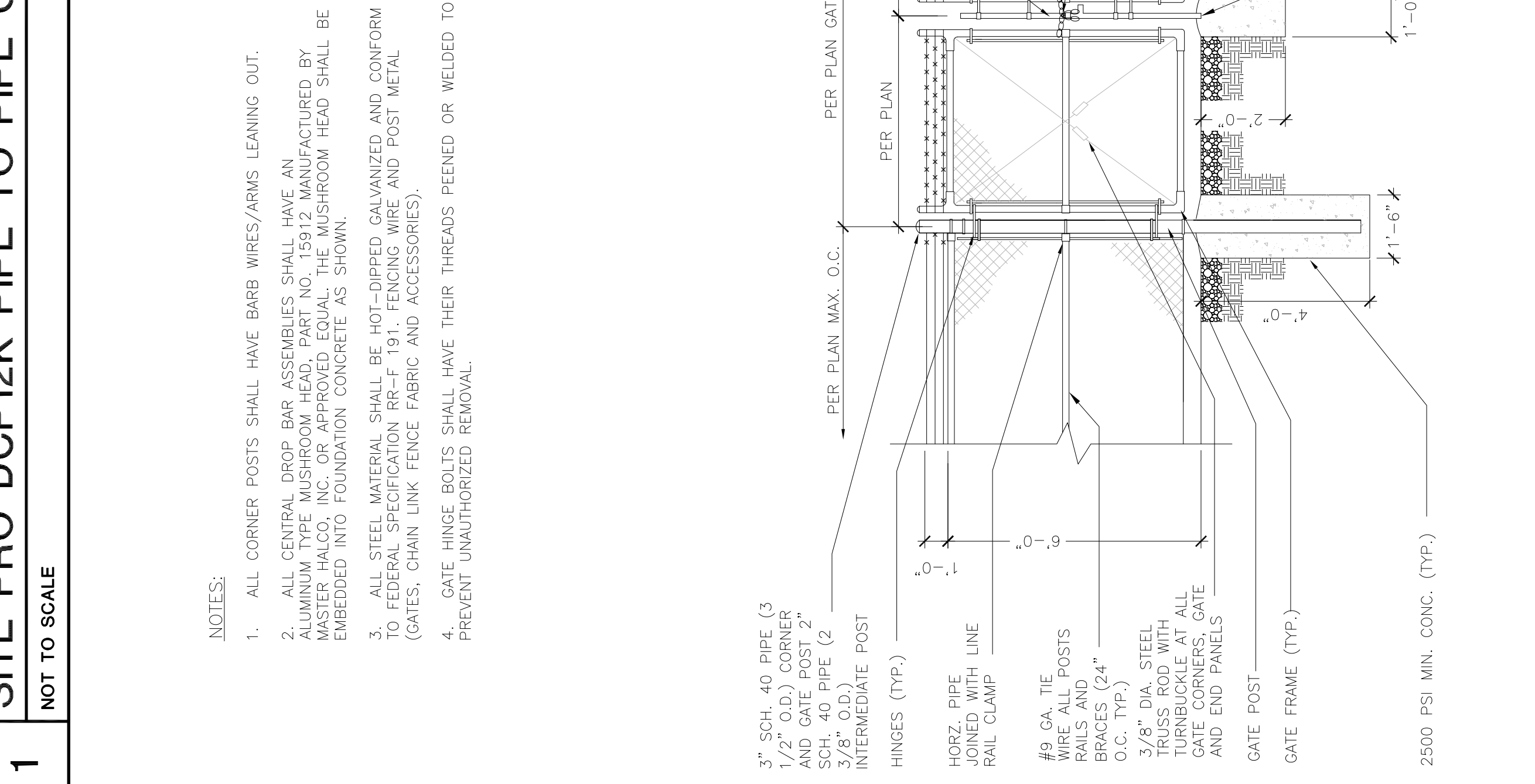
CONNECT EACH SUPPORT LEG TO GROUND RUNS PER GROUNDING DETAILS AND SPECS.
 ALL STEEL PLATES, BOLTS, PIPES OR OTHER COMPONENTS TO BE HOT ROLLED GALVANIZED AND CONFORM W/ THE STANDARD FENCE SPECS.
 CABLE SUPPORT SPACING EVERY 3'-0" O.C.
 WAVEGUIDE BRIDGE TO BE SUPPLIED BY CONTRACTOR.



4 ICE BRIDGE DETAIL
 NOT TO SCALE



6 UTILITY RACK DETAIL
 NOT TO SCALE



5 FENCE AND FENCE POST DETAIL
 NOT TO SCALE




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PROJECT MANAGER: EJC


PREPARED BY: AJO/EAT

APPROVED BY: P/N

▲	07/31/17	UPDATED SURVEY
▲	07/21/17	PIPER COMMENTS
▲	06/27/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE

ARCHITECTS STAMP

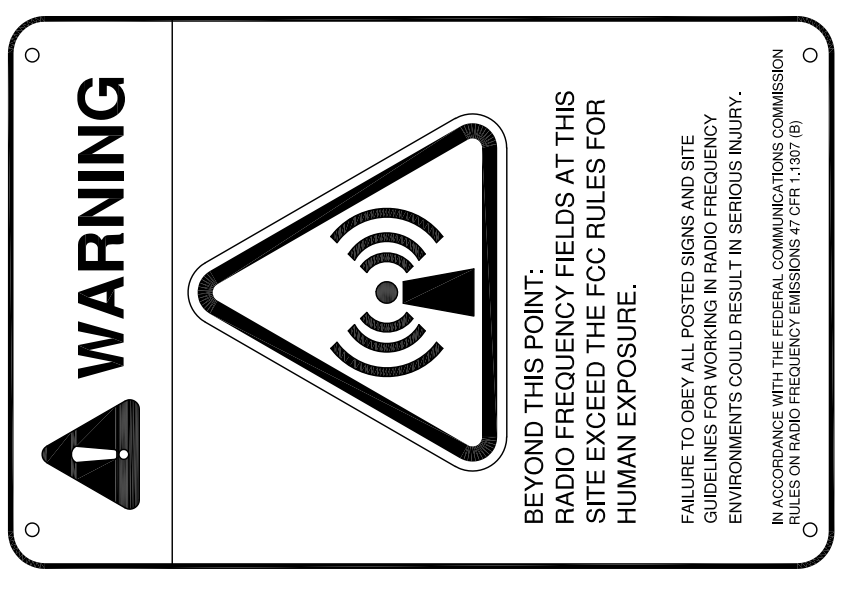


SHEET NAME
DETAILS

SHEET NUMBER
A-4.2

1 NOT USED

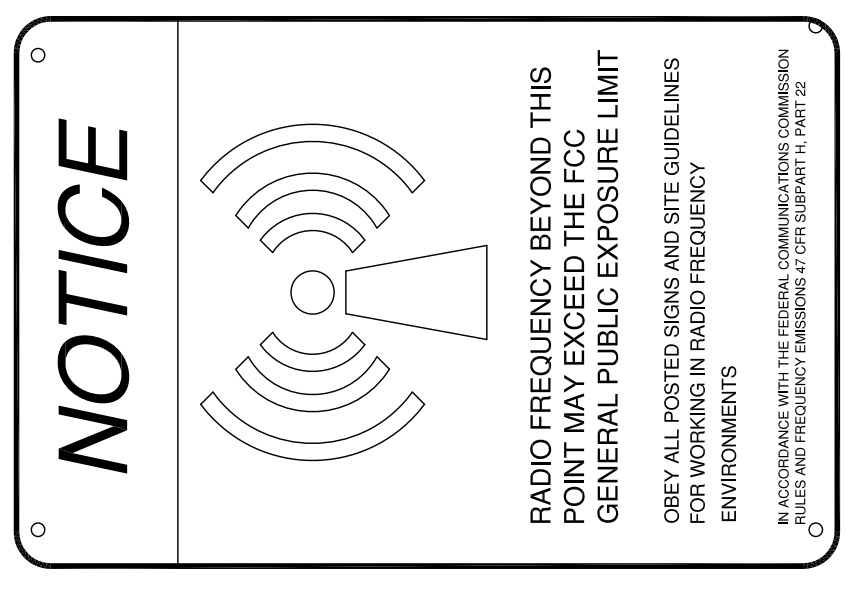
4 RF WARNING SIGN
NOT TO SCALE



NOTE: INSTALL PER MANUFACTURER SPECIFICATIONS AND FCC GUIDELINES

2 NOT USED

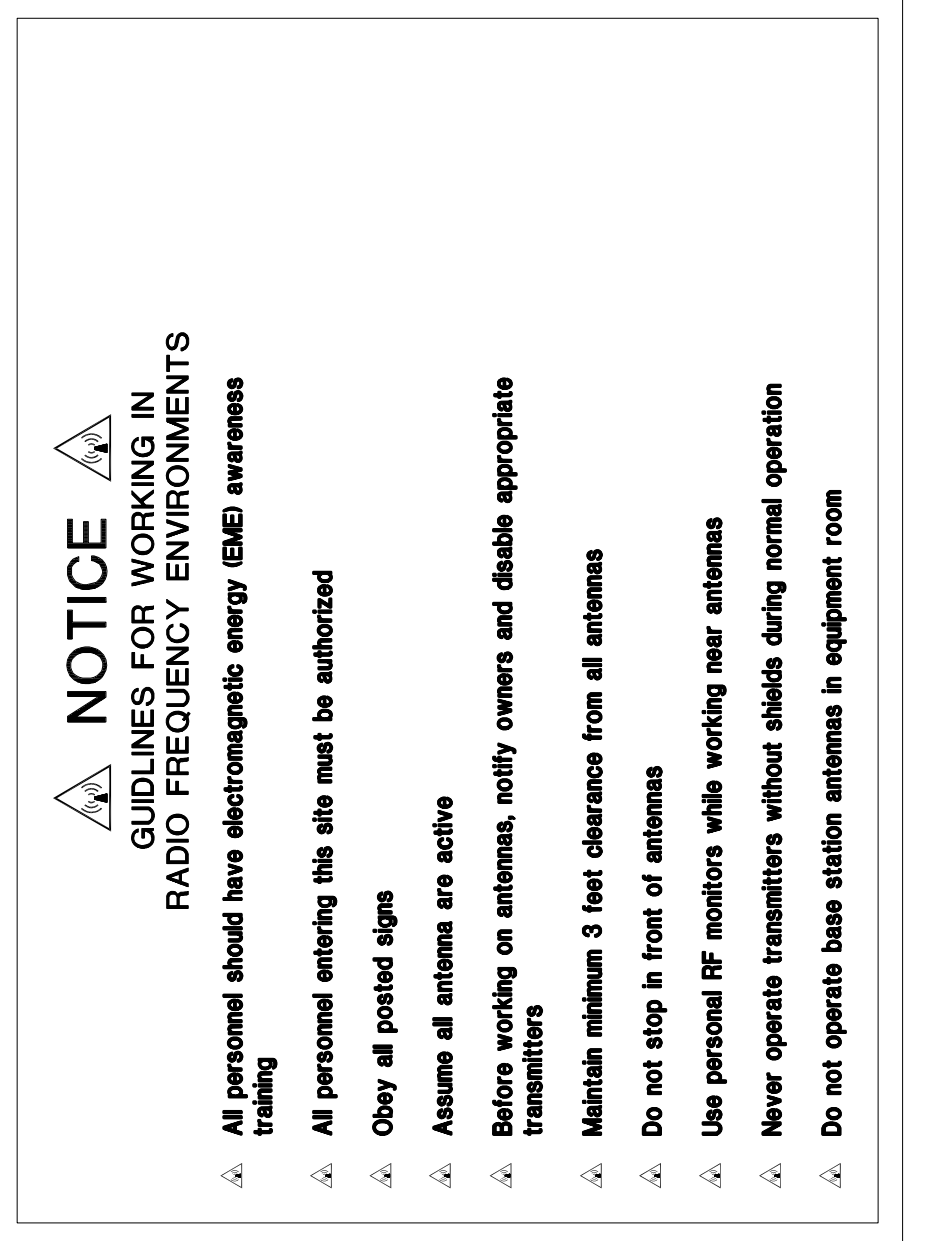
5 RF WARNING SIGN
NOT TO SCALE



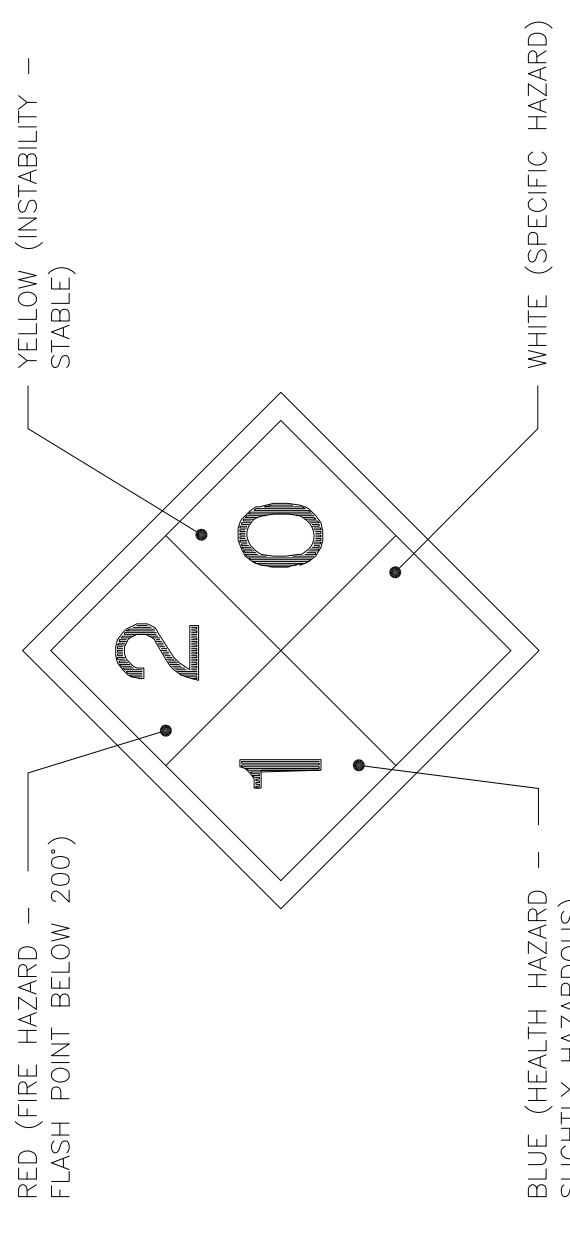
NOTE: INSTALL PER MANUFACTURER SPECIFICATIONS AND FCC GUIDELINES

3 NOT USED


6 RF NOTICE SIGN
NOT TO SCALE



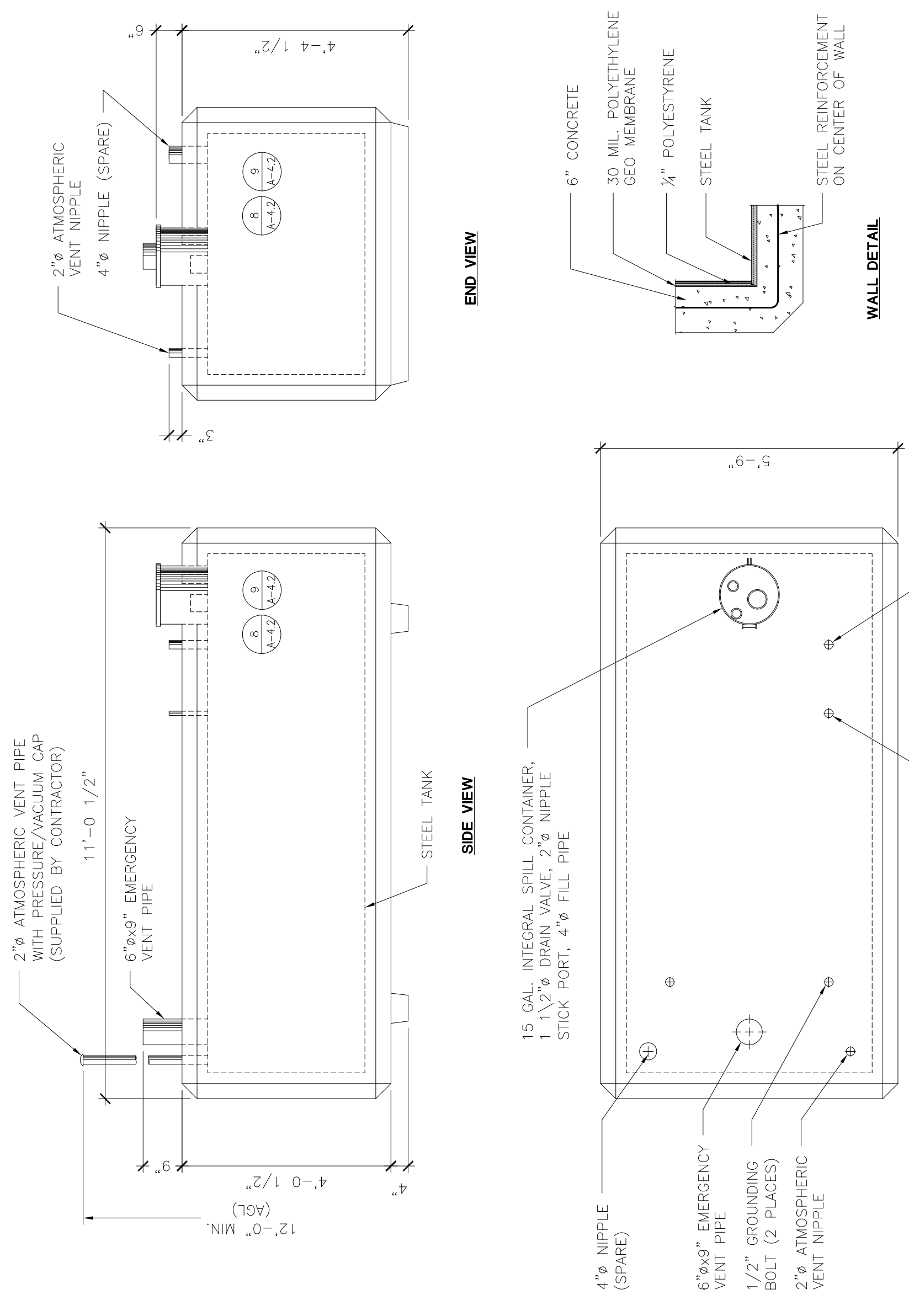
8 HAZARDOUS MATERIAL CLASSIFICATION SIGN (DIESEL)
NOT TO SCALE



9 COMBUSTIBLE LIQUIDS SIGN
NOT TO SCALE



7 CONVAULT FUEL TANK DETAIL (1000 GAL.)
NOT TO SCALE



CONVAULT 1000 GAL. TANK NOTES:

- STEEL TANK SHALL BE U.L. 142 LISTED FOR ABOVE GROUND STORAGE OF FLAMMABLE LIQUIDS.
- STEEL TANK SKIN SHALL BE 1/16" THICK A.S.T.M. A-36 STEEL PLATE.
- STEL EXPOSED METAL WITH THE EXCEPTION OF STAINLESS STEEL MUST BE POWDER COATED TO INHIBIT CORROSION.
- STEEL TANKS SHALL BE PERMANENTLY WELDED TO THE OUTSIDE.
- STEEL TANKS AND SECONDARY CONTAINMENT SHALL BE 50% OVERLAP WITH 2" NICHOLSON 4000 P.S. REINFORCED CONCRETE.
- STEEL TANK SHALL BE PRESSURE TESTED AT 5 P.S.I.G. FOR 24 HOURS WITHOUT PRESSURE DROP.
- TANK WALL SYSTEM SHALL BE LISTED IN ACCORDANCE WITH U.L. STANDARD 2085 AND SHOWN TO HAVE A TWO HOUR FIRE RATING.
- VAULTS SHALL HAVE THE CAPABILITY OF PHYSICAL MONITORING BETWEEN THE PRIMARY AND THE SECONDARY CONTAINMENT.
- THE SECONDARY CONTAINMENT SHALL CONSIST OF A 30 MIL HIGH DENSITY POLYETHYLENE GEO MEMBRANE.
- THE VAULT SHALL BE OF A MONOLITHIC (SEAMLESS AND CONTINUOUS) CONCRETE POUR AND CONTAIN NO COLD JOINTS OR HEATH SINKS (HEAT TRANSFER POINTS) ON THE BOTTOM OR SIDES TO RESIST WEATHER AND REFLECT SUNLIGHT
- VAULT SHALL HAVE COATED CONCRETE EXTERIOR TO RESIST WEATHER AND REFLECT SUNLIGHT



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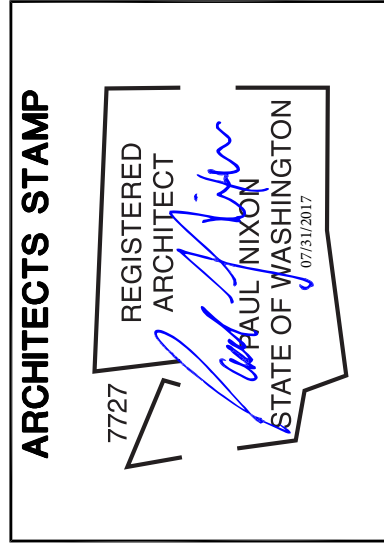
PROJECT MANAGER: EJC

PREPARED BY: AJO/EAT

APPROVED BY: PN

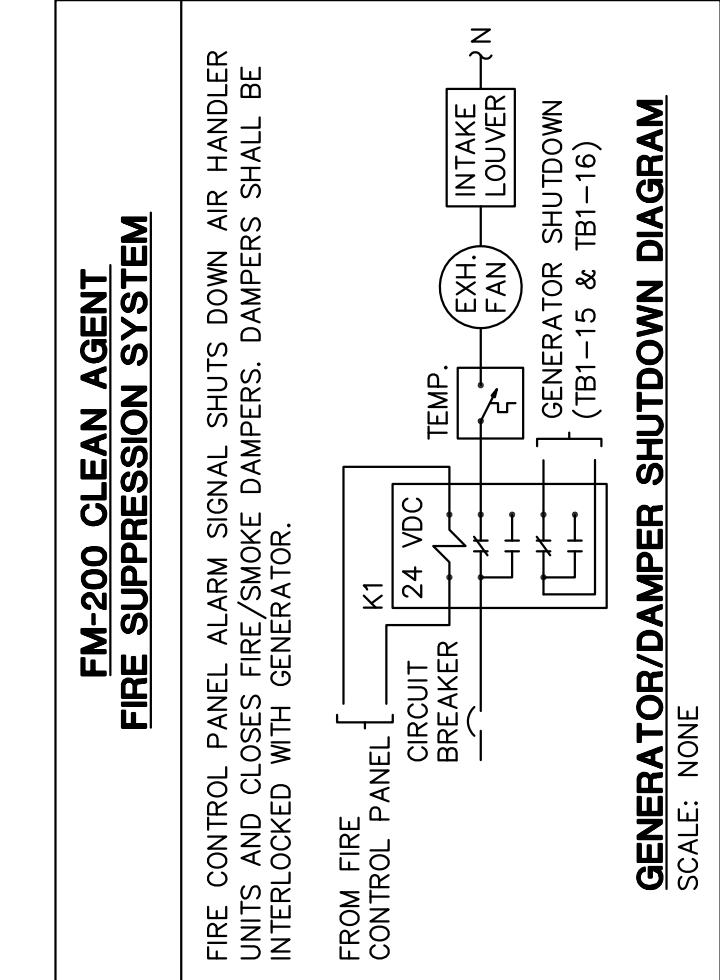
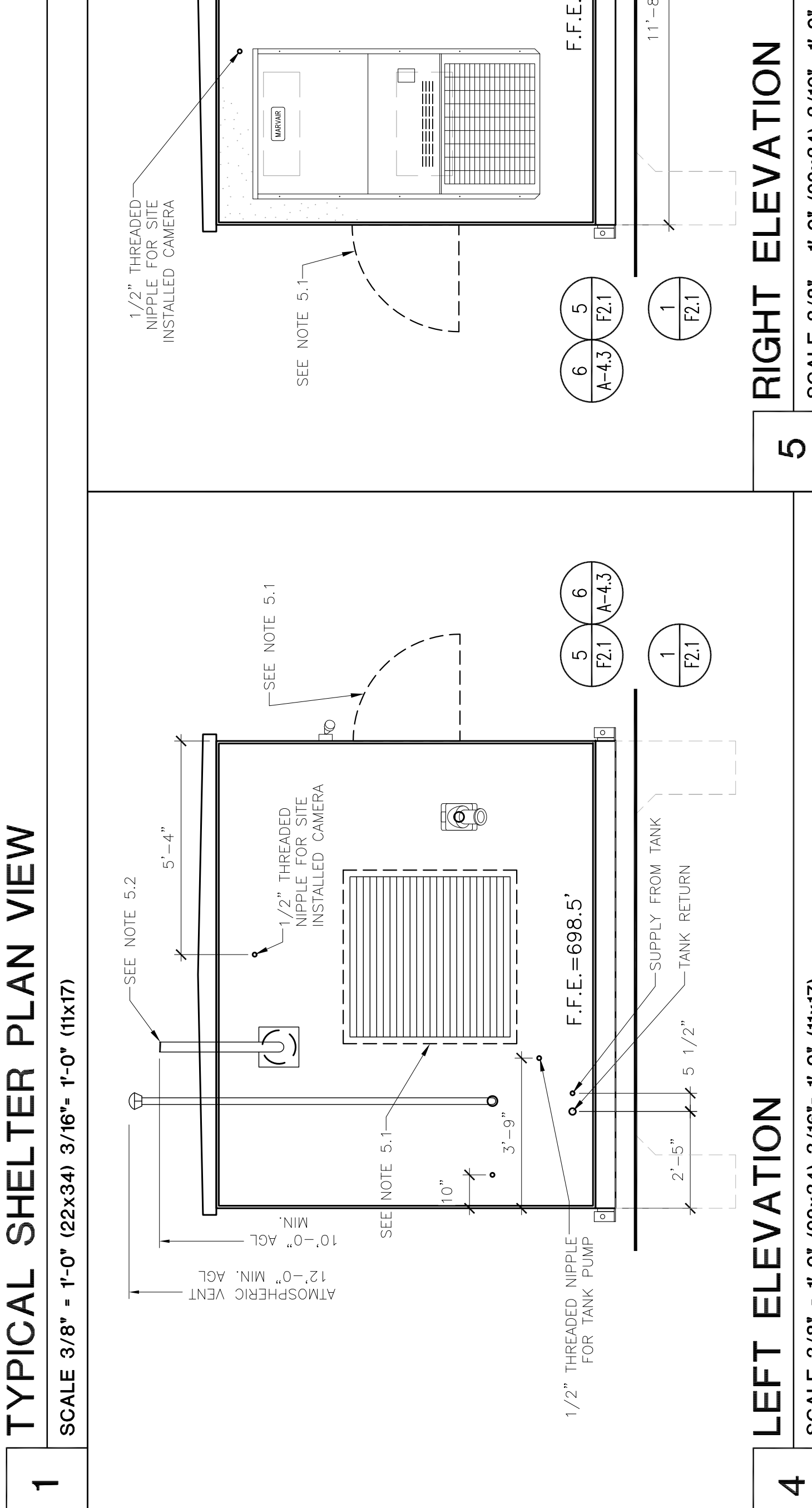
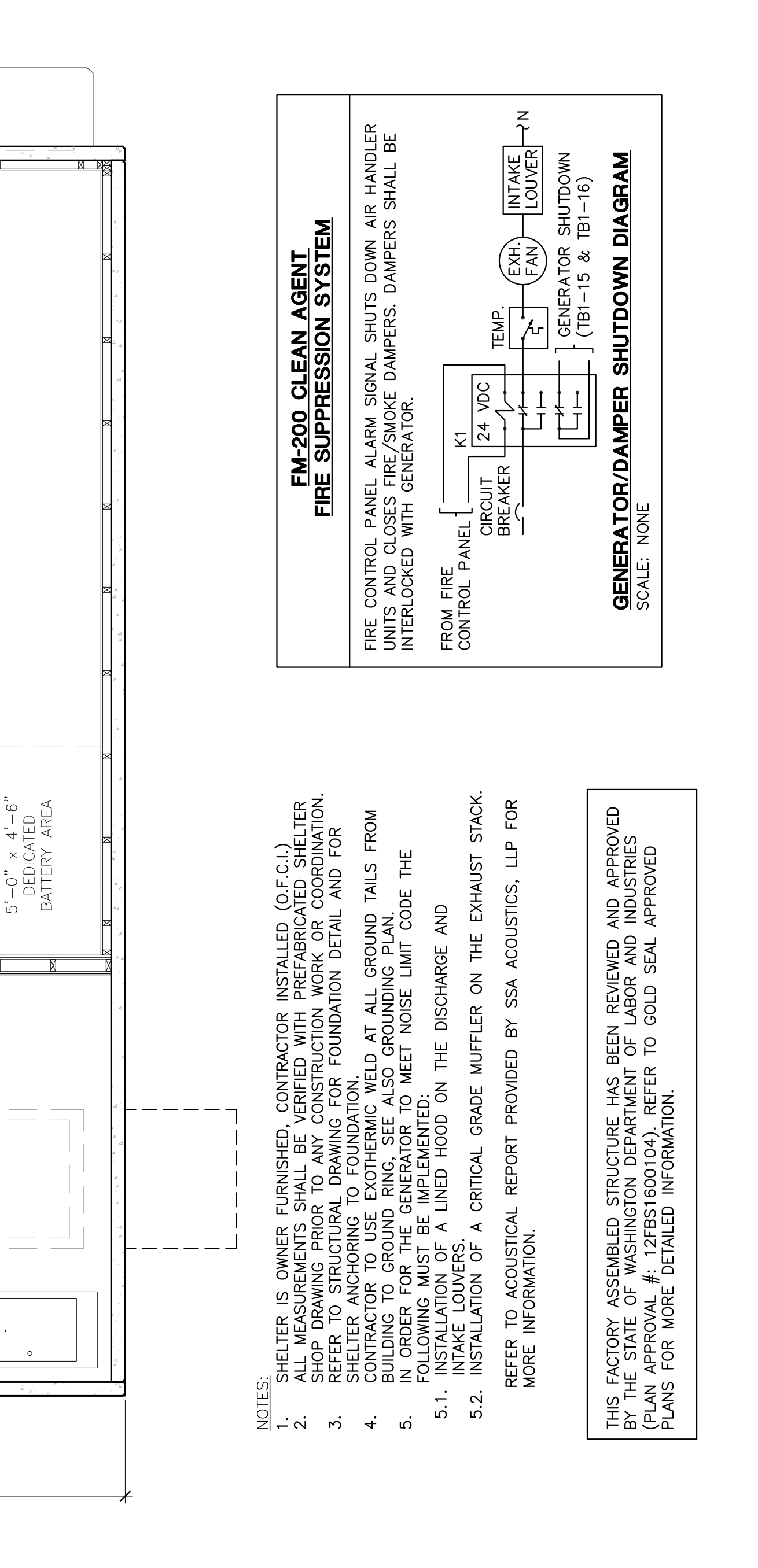
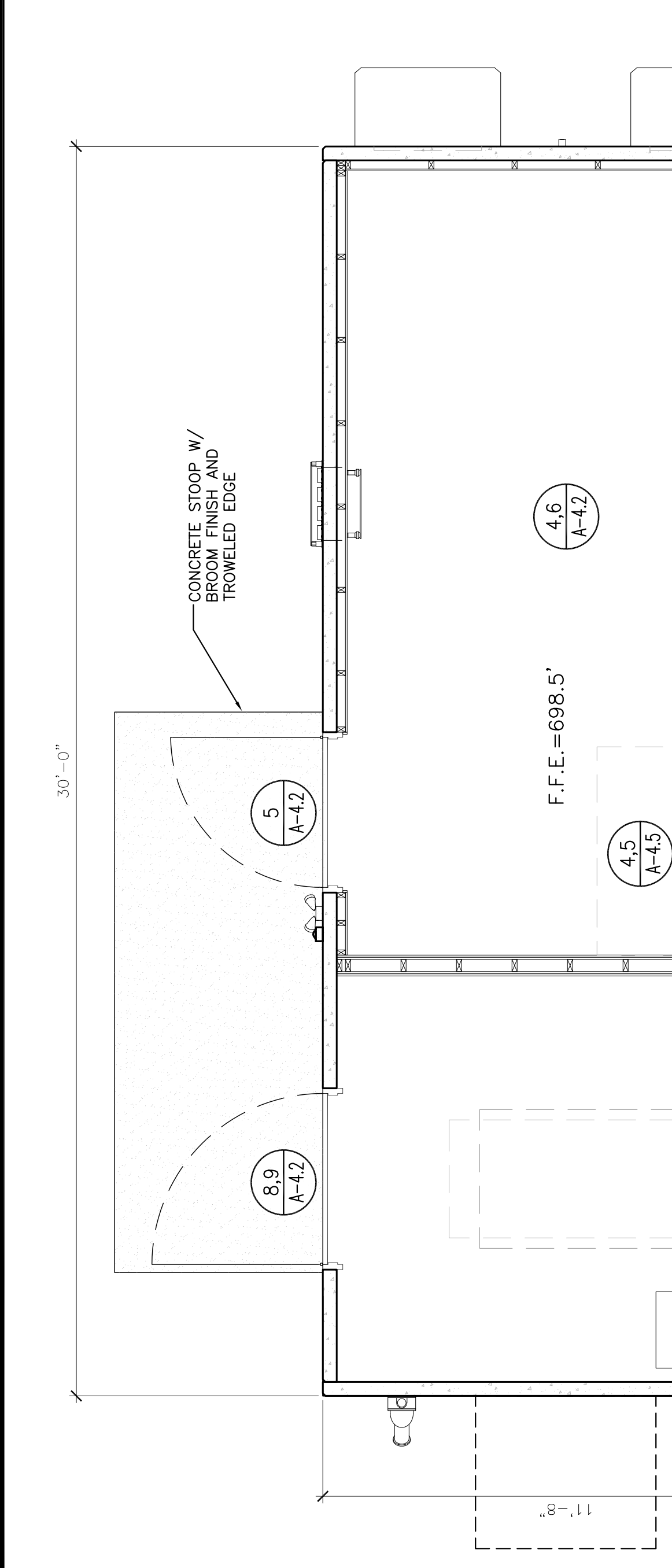
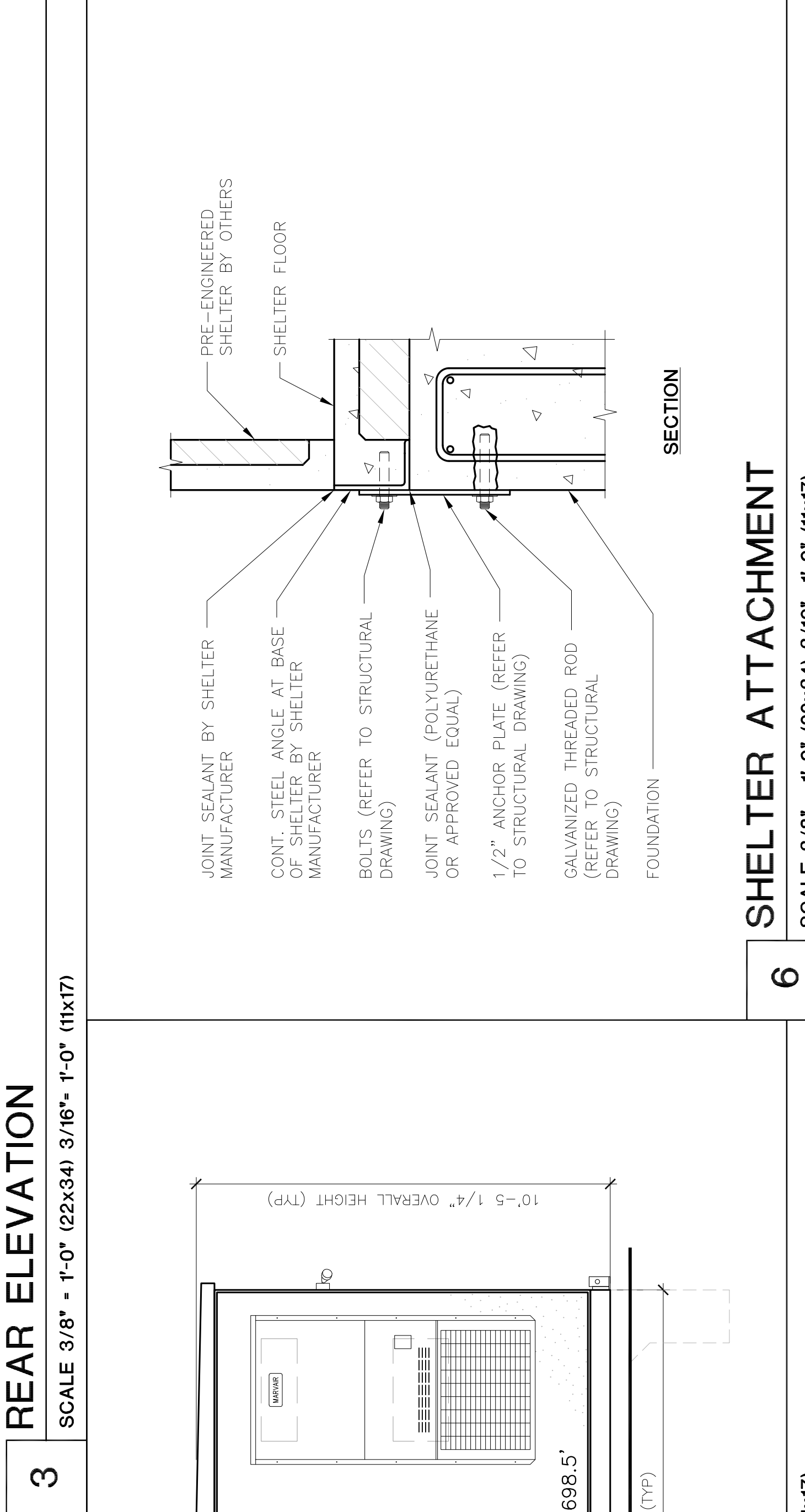
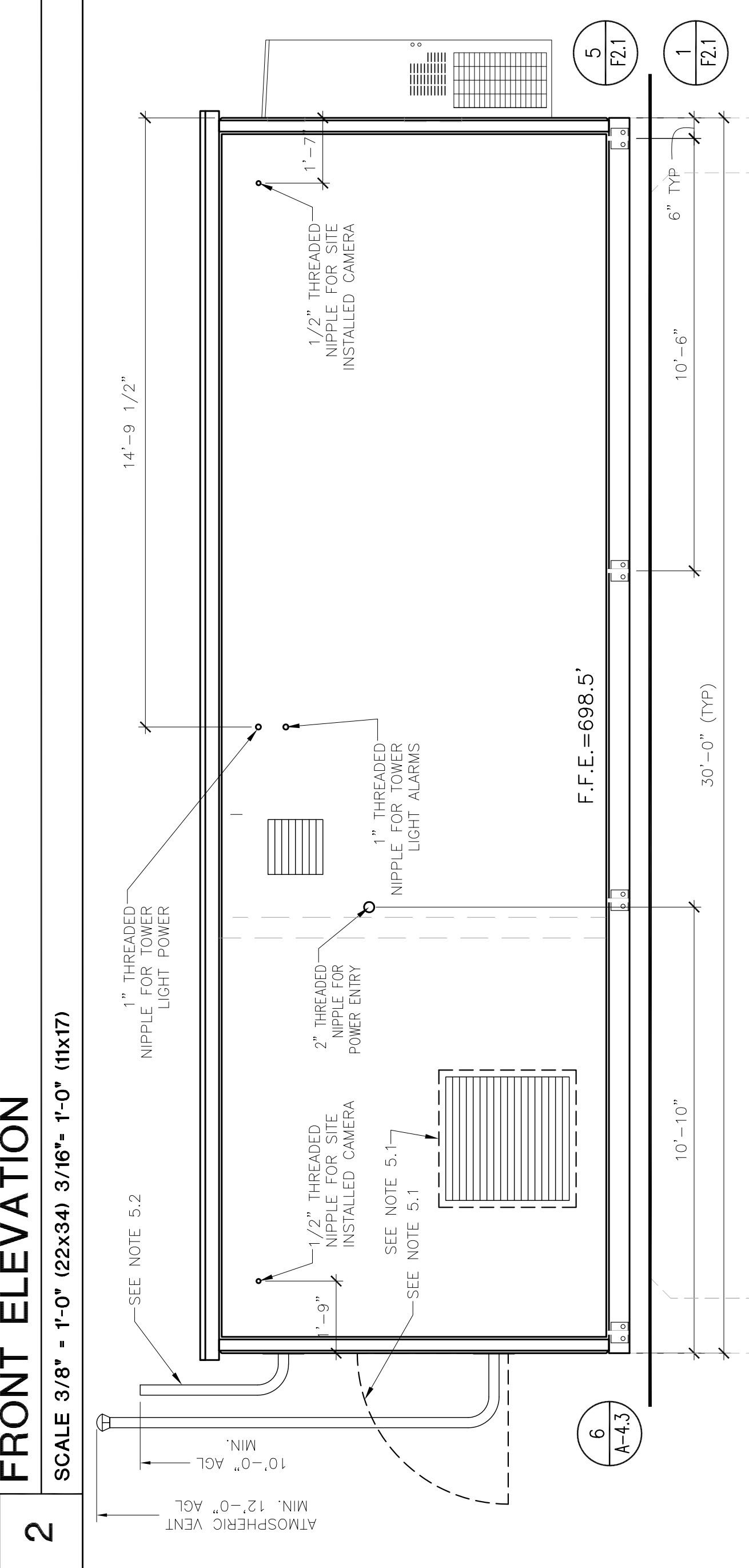
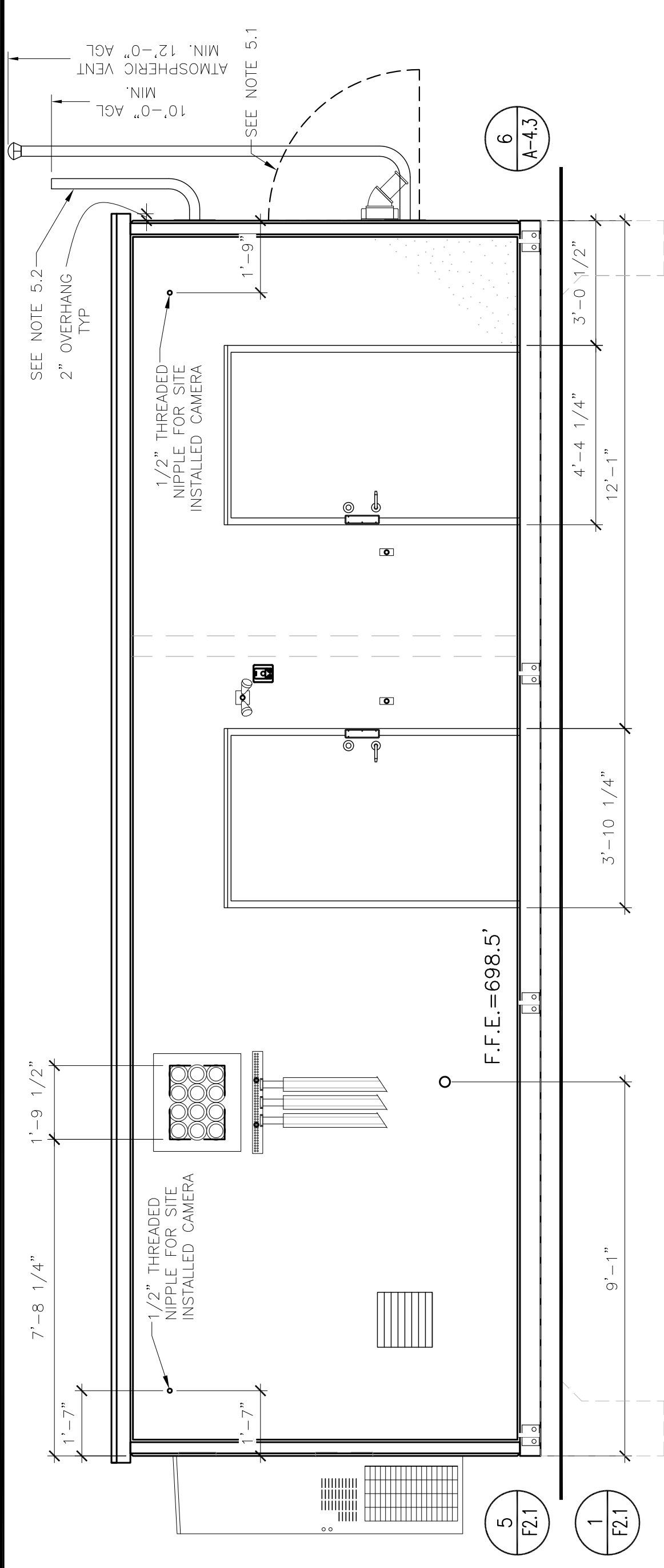
▲	07/31/17	UPDATED SURVEY
▲	07/21/17	DRER COMMENTS
▲	06/27/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE



SHEET NAME
SHELTER PLAN
AND
ELEVATIONS

SHEET NUMBER
A-4.3



- NOTES:**
- SHELTER IS OWNER FURNISHED, CONTRACTOR INSTALLED. (O.F.C.I.)
 - ALL MEASUREMENTS SHALL BE VERIFIED WITH PREFABRICATED SHELTER SHOP DRAWINGS PRIOR TO ANY CONSTRUCTION WORK OR COORDINATION. REFER TO STRUCTURAL DRAWING FOR FOUNDATION DETAIL AND FOR SHELTER ANCHORING TO FOUNDATION.
 - CONTRACTOR TO USE EXOTHERMIC WELD AT ALL GROUND TAILS FROM BUILDING TO GROUND RING. SEE ALSO GROUNDING PLAN.
 - IN ORDER FOR THE GENERATOR TO MEET NOISE LIMIT CODE THE FOLLOWING MUST BE IMPLEMENTED:
 - INSTALLATION OF A LINED HOOD ON THE DISCHARGE AND INSTALLATION OF A CRITICAL GRADE MUFFLER ON THE EXHAUST STACK.
 - REFER TO ACOUSTICAL REPORT PROVIDED BY SSA ACOUSTICS, LLP FOR MORE INFORMATION.

THIS FACTORY ASSEMBLED STRUCTURE HAS BEEN REVIEWED AND APPROVED BY THE STATE OF WASHINGTON DEPARTMENT OF LABOR AND INDUSTRIES (PLAN APPROVAL # 12FBS1600104). REFER TO GOLD SEAL APPROVED PLANS FOR MORE DETAILED INFORMATION.




King County



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RADIO NETWORK
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CAMP+ ASSOCIATES
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WWW.CAMPASSOC.COM

PROJECT MANAGER: EJC


PREPARED BY: AJO/EAT

APPROVED BY: PN

▲	07/31/17	UPDATED SURVEY
▲	07/21/17	DRER COMMENTS
▲	06/21/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE

ARCHITECTS STAMP



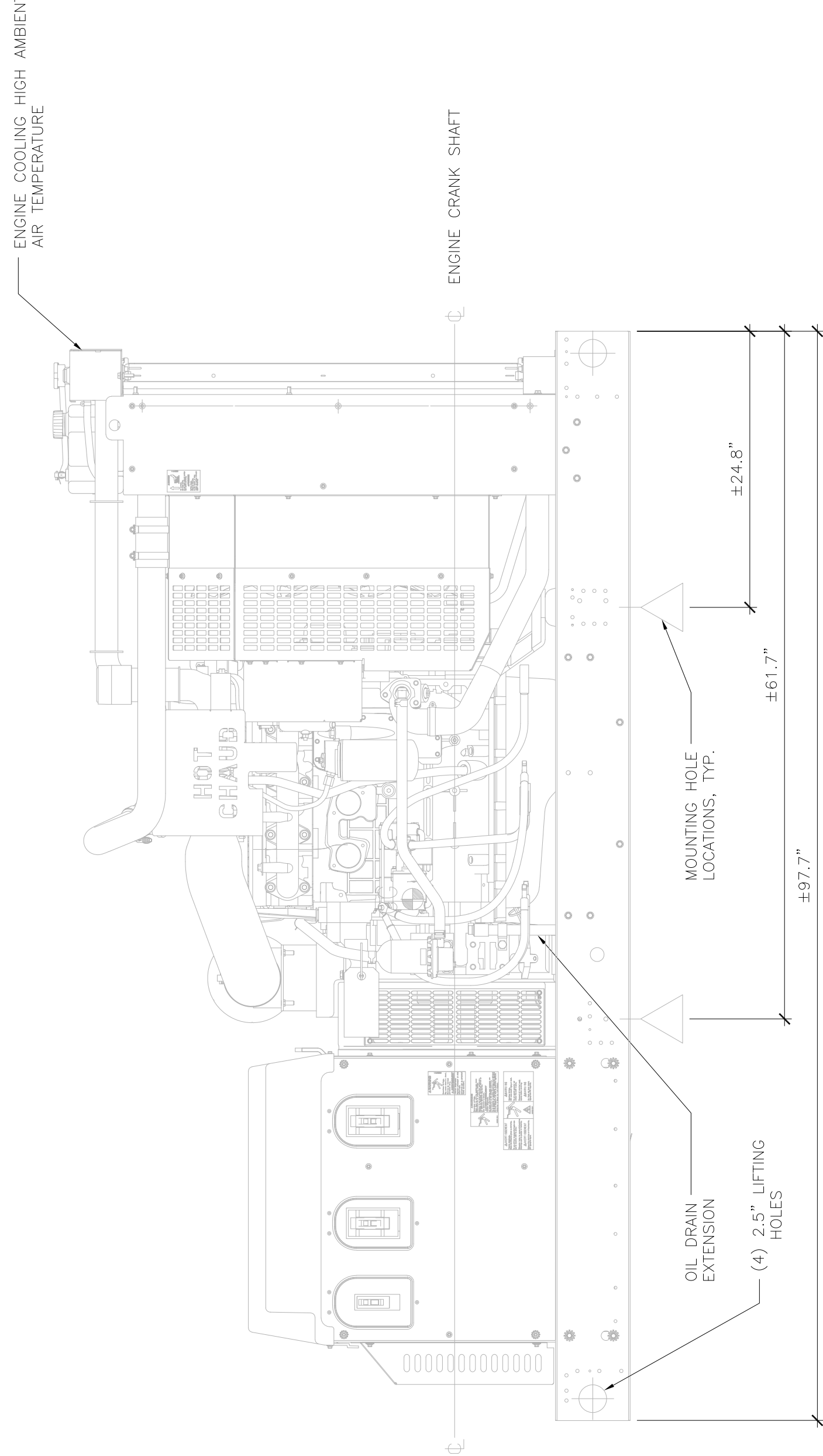
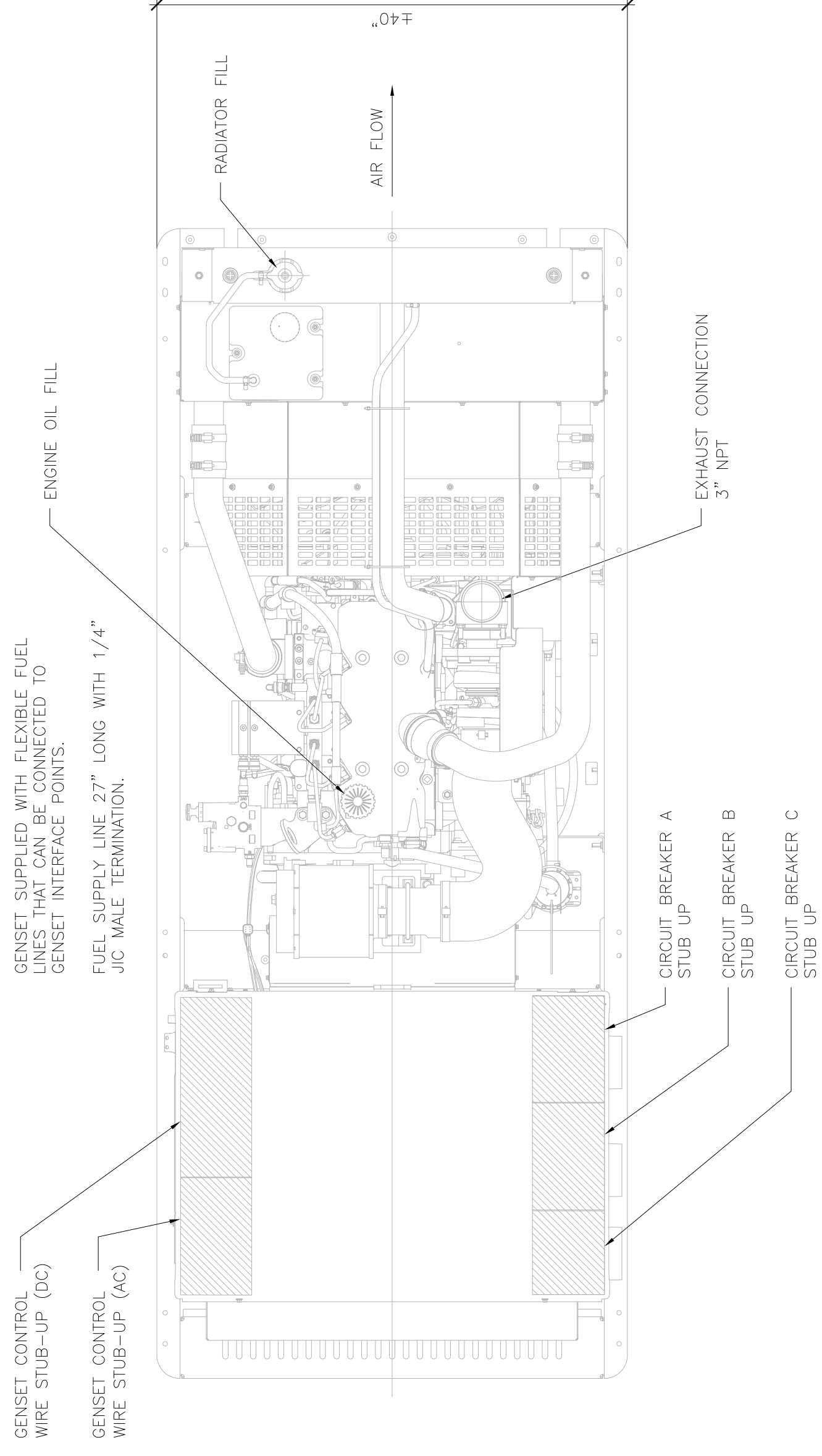
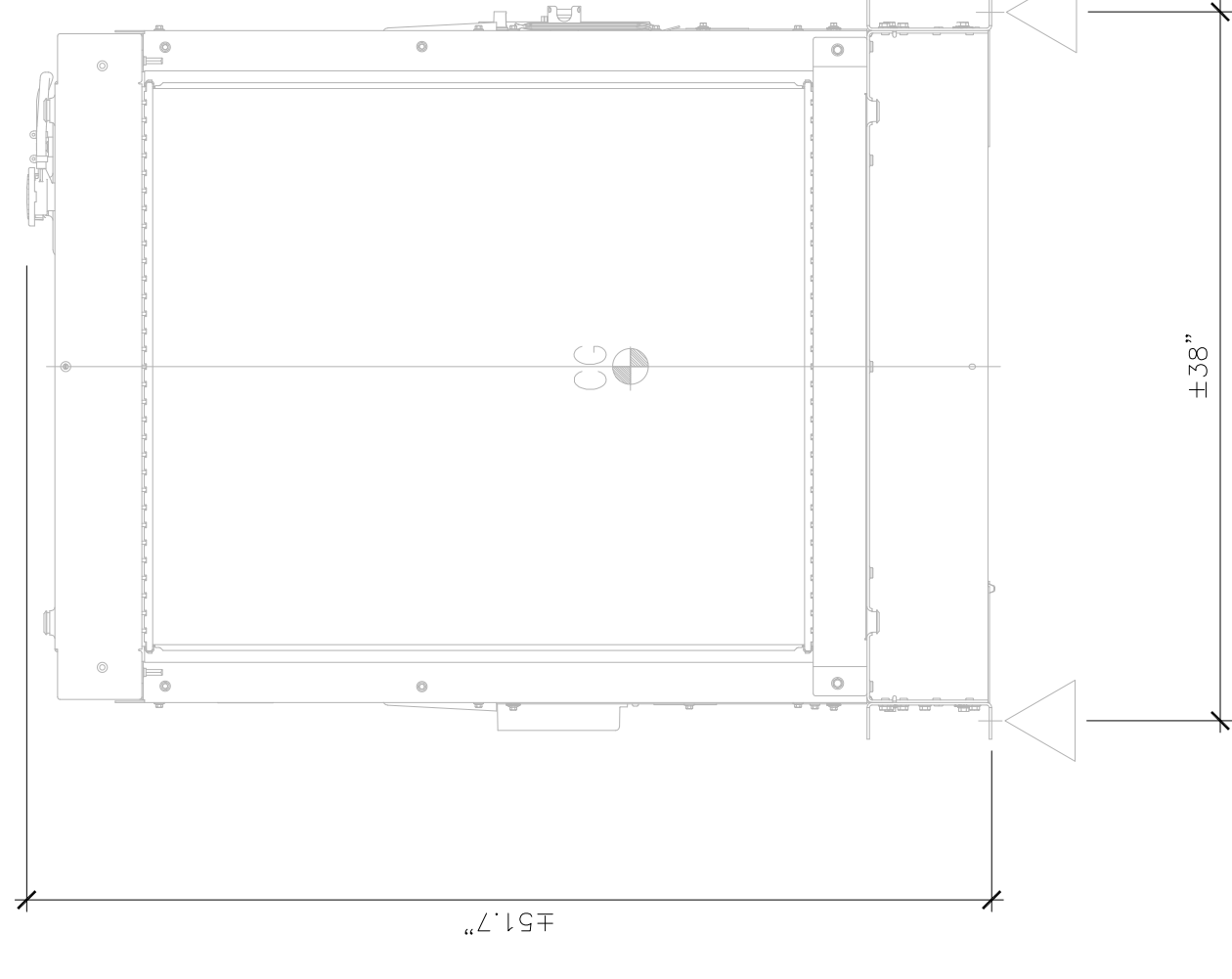
SHEET NAME
GENERATOR
DETAIL

SHEET NUMBER
A-4.4

MANUFACTURERS SPECS:

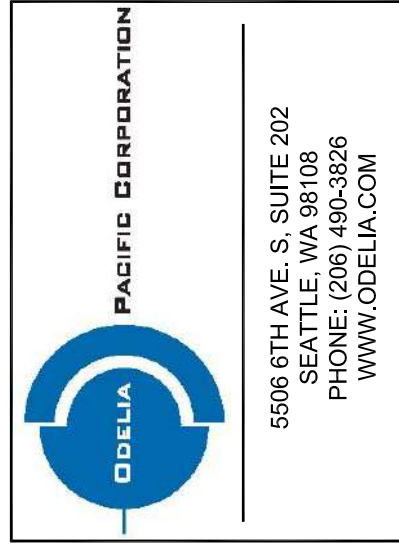
MANUFACTURER	CUMMINS
MODEL	C50 D6
DIMENSION	97.7"(L) x 40"(W) x 51.7"(H)
POWER	STANDBY KW (HZ): 50 (60)
FUEL	DIESEL
WEIGHT DRY	1434 LBS
SPL AT 23 FEET	80.9
dB(A)	

- NOTES:**
- OWNER SHALL UTILIZE ALL INTERNATIONAL FIRE CODE (IFC) FUEL CONTAINMENT MEASURES SUCH AS ENGINE FLUID CONTAINMENT ALARMS ON ALL GENERATOR LIQUIDS, AND DOUBLE WALL FUEL TANKS
 - GENERATOR MUST BE SCHEDULED TO COMPLETE MAINTENANCE OPERATION DURING DAYTIME HOURS.
 - INFORMATION OBTAINED FROM MANUFACTURER PUBLISHED DATA SHEET. CONTRACTOR TO VERIFY BEFORE ORDERING ANY PARTS.





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PROJECT MANAGER: EJC

PREPARED BY: AJO/EAT

APPROVED BY: PN

▲	07/31/17	UPDATED SURVEY
▲	07/21/17	PIPER COMMENTS
▲	06/27/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE



SHEET NAME
BATTERY SYSTEM

SHEET NUMBER
A-4.5

BATTERY REQUIREMENTS

REQUIREMENTS	NON-RECOMBINANT FLOODED LEAD ACID BATTERIES	FLOODED NICK-CAD (Ni-Cd) BATTERIES	VALVE REGULATED LEAD ACID (VRLA) BATTERIES	RECOMBINANT LITHIUM-ION BATTERIES
RELIEF VALVE	N/A	N/A	YES (608.2.2)	N/A
COMMENTS: RELIEF VALVE OPERATES AT 2-3 PSI AND IS COMPLETE WITH INTEGRAL FLAME ARRESTOR.				
THERMAL RUNAWAY MANAGEMENT	N/A	N/A	YES (608.3)	N/A
COMMENTS: BATTERY SYSTEM SHALL BE INSTALLED WITH BATTERY MONITORING SYSTEM (DETAIL 6/A-4.5) FOR THERMAL RUNAWAY PREVENTION AND PROTECTION. (MFR. BY CELLWATCH OR APPROVED EQUAL ACCEPTED BY THE KING COUNTY FIRE MARSHAL.)				
SPILL CONTROL	N/A	N/A	YES (N/A)	N/A
COMMENTS: PROVIDE ENVIROGUARD SPILL CONTAINMENT SYSTEM WITH NEUTRALIZATION AND ABSORBENT PILLOWS (INSTALL PER MANUFACTURER'S INSTRUCTIONS).				
NEUTRALIZATION	N/A	N/A	YES (608.2.2)	N/A
COMMENTS: NEUTRALIZATION AND ABSORBENT PILLOWS SHALL BE PROVIDED WITH ENVIROGUARD SPILL CONTAINMENT SYSTEM (INSTALL PER MANUFACTURER'S INSTRUCTIONS).				
VENTILATION	N/A	N/A	YES (608.6.1, 608.6.2)	N/A
COMMENTS: 1095 CFM EXHAUST FAN IS PROVIDED WITH SHELTER.				
SIGNAGE	N/A	N/A	YES (608.7)	N/A
COMMENTS: CODE SPECIFIED BATTERY ROOM SAFETY SIGNAGE, HAZARDOUS MATERIAL SIGNAGE (4 DIAMOND) AND THERMAL RUNAWAY PROCEDURE SIGNAGE SHALL ALL BE CLEARLY POSTED IN ALL BATTERY AREAS.				
SEISMIC PROTECTION	N/A	N/A	YES (608.8)	N/A
COMMENTS: REFER TO BATTERY SYSTEM DETAIL (3/A-4.5) FOR ANCHORAGE.				
SMOKE DETECTION	N/A	N/A	YES (608.9)	N/A
COMMENTS: AUTOMATIC SMOKE DETECTION AND FIRE SUPPRESSION SYSTEM (FM-200) TO BE INSTALLED.				
NOTE: CODE REFERENCES ARE TO 2015 INTERNATIONAL FIRE CODE FOR STATIONARY STORAGE BATTERY SYSTEMS.				

BATTERY REQUIREMENTS

1

Cell Level Battery Monitoring
Cellwatch Frontier measures voltage and ohmic resistance of each cell as well as temperature and DC current to provide a complete picture of battery health.

Cell Level Alarms
Frontier triggers alarms when any value is beyond acceptable limits, including an increase in a battery's internal resistance. Alarms are sent to device LEDs, site web pages and centralized network management systems.

Flexible and Scalable
With its modular architecture, Cellwatch Frontier is designed to be scaled to accommodate a combination of 2 to 16 volt cells, installed on short or long duration discharge. Installers can customize the setup to reflect the variation from site to site, accommodating deployment deviations as they arise.

Reliable and Economical
The Cellwatch Frontier components were designed to have an extremely long life and the major components of the solution have a mean time between failures (MTBF) of almost 30 years. The Cellwatch Frontier system is highly reliable and provides an extremely high return on investment.

Cellwatch Frontier systems are composed of five major components:
• **DCM (DCM) DCMs** are connected to each cell and measure its voltage and ohmic value. DCMs are networked with the Frontier device via fiber optic cable for electrical isolation and safety. The Frontier unit provides real-time monitoring of the health of all the cells in the battery plant at a site. Cellwatch Frontier integrates with site or network management systems (NMS) to provide a complete view of the battery health across all the distributed sites.

Cellwatch's unique testing method has no impact on the cell's capacity and no impact on the cell's useful life.

BATTERY MONITORING SYSTEM

6

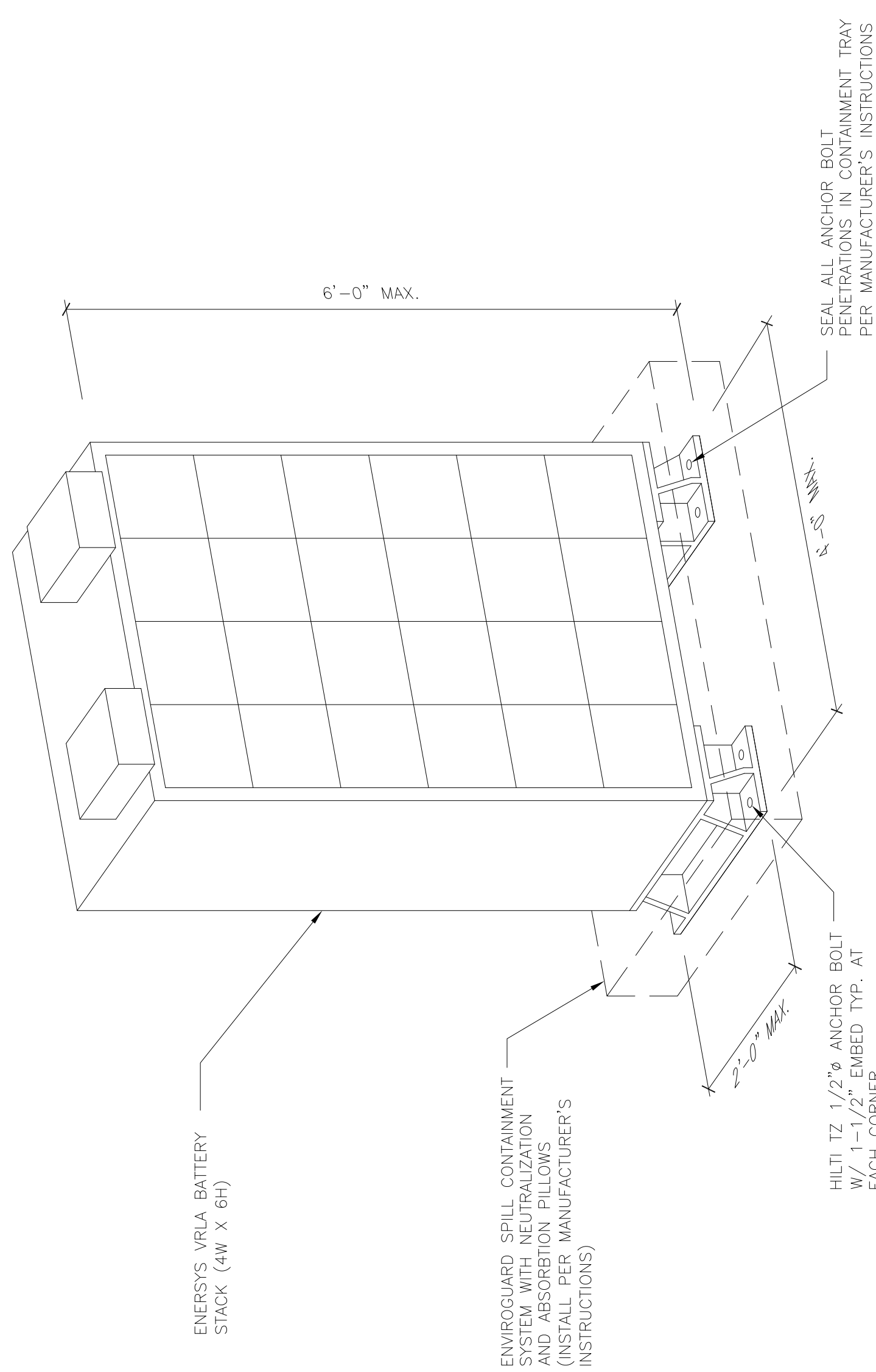
NOT USED

2

BATTERY SYSTEM DATA

BATTERY MFG:	ENERSYS POWERSAFE DDM	NO. OF CELLS PER MODULE:	1
BATTERY TYPE:	VRLA (VALVE REGULATED LEAD ACID)	ELECTROLYTE VOLUME PER CELL (GAL.):	3.70
NO. OF BATTERIES:	24 (4X X 6H)	ELECTROLYTE VOLUME TOTAL (GAL.):	88.8
MODEL NUMBER:	DOMS-27	DIMENSIONS:	48.2" W x 23.5" D x 60.8" H
NOMINAL AH CAPACITY:	1105	TOTAL WEIGHT (CELLS AND PACK):	4,776 LBS.
NON-SPELLABLE CLASSIFICATION: UN2800 RECOGNIZED BY: UL 1989			

NOTE: REFER TO DEPARTMENT OF LABOR AND INDUSTRIES - FACTORY BUILT STRUCTURES PLANS AND CALCULATIONS FOR PROPER ROOM VENTILATION AND 1+ HOUR CONSTRUCTION SPECIFICATIONS.



BATTERY SYSTEM

3

NOT TO SCALE

Thermal Runaway Procedure Posting Attachment A to Thermal Runaway Procedure

Handling Overheating Batteries or Thermal Runaway

(A copy of this page shall be laminated or placed in a plastic sheet protector and posted in all battery areas.)

If you encounter batteries too hot to touch, that make hissing or whistling noises from their vents or:

- There is a fire or smoke
- If the fire alarms are sounding
- If there is a strong rotten egg (hydrogen sulfide) odor

Important: Take no action that could produce a spark and ignite airborne hydrogen.

If you encounter batteries too hot to touch but there is no smoke and it is safe to remain in the facility:

- Call for help
- Increase ventilation in battery area
- Reduce charge current either by turning off enough rectifiers so that the load barely is covered or by lowering the float voltage
- Increase cooling in the battery area if possible
- If there is a spill or other hazardous situation call the Environmental Hotline at 1-800-485-7900

Do not overreact to battery emergencies. Burning batteries release potentially lethal concentrations of toxic gases or other chemicals and should be handled by trained personnel in accordance with Department with appropriate protective clothing and Self-Contained Breathing Apparatus (SCBA)

THERMAL RUNAWAY PROCEDURE

5

NOT TO SCALE

DANGER
CORROSIVE LIQUIDS
WEAR PROTECTIVE EQUIPMENT

DANGER
CORROSIVE LIQUIDS
WEAR PROTECTIVE EQUIPMENT

CORROSIVE LIQUIDS SIGN

4

NOT TO SCALE



STRUCTURAL NOTES FOR BUILDING & FUEL TANK FOUNDATIONS

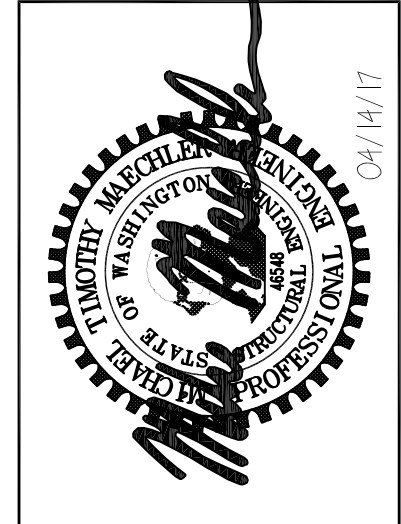
(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS)

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CC PROJECT# 16015.917

PROJECT MANAGER	M/TM	
PREPARED BY	ZOS	
APPROVED BY	JAC	
REV#	DATE	DESCRIPTION
△	04/14/17	PERMIT RESUBMITTAL
△	02/24/17	PERMIT RESUBMITTAL
△	02/17/17	PERMIT SUBMITTAL



CITY APPROVAL

SHEET NAME
BUILDING AND FUEL TANK FOUNDATIONS STRUCTURAL NOTES

SHEET NUMBER
F.1.1

CONCRETE GENERAL NOTES

VERTICAL BARS SHALL START FROM TOP OF FOOTING. HORIZONTAL BARS SHALL START A DISTANCE OF 1/2 THE NORMAL BAR SPACING FROM TOP OF FOOTING AND TOP OF FRAMED SLABS. IN ADDITION, THERE SHALL BE A HORIZONTAL BAR AT A MAXIMUM OF 3" FROM TOP OF WALL AND BOTTOM OF FRAMED SLABS. PROVIDE CORNER BARS TO MATCH THE HORIZONTAL REINFORCING WITH TENSION LAP SPICE AT EACH SIDE PER TABLE, OR BEND ONE SIDE OVER TO PROVIDE TENSION LAP.

PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLABS ON GRADE TO BREAK LAP SLAB INTO RECTANGULAR AREAS OF NOT MORE THAN 400 SQUARE FEET EACH. AREAS TO BE AS SQUARE AS PRACTICAL AND HAVE NO ACUTE ANGLES. JOINT LOCATIONS TO BE APPROVED BY THE ARCHITECT.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND PROPERLY PREPARED IMMEDIATELY PRIOR TO POURING OF CONCRETE. DOWEL STEEL SHALL BE THE SAME SIZE AND SPACING AS MAIN REINFORCING DETAILED BEYOND JOINT.

SEE ARCHITECTURAL DRAWINGS AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF OPENINGS IN CONCRETE WALLS, FLOORS AND ROOF. UNLESS INDICATED OTHERWISE, REINFORCE AROUND OPENINGS GREATER THAN 12" IN EITHER DIRECTION WITH (2) #5 EACH SIDE AND (1) #5 X 4"-Ø DIAGONAL AT EACH CORNER. EXTEND BARS 2'-0" BEYOND EDGE OF OPENING. IF 2'-0" IS UNAVAILABLE, EXTEND AS FAR AS POSSIBLE AND HOOK. HOOK ALL REINFORCING INTERRUPTED BY OPENINGS.

BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURES, STRIPS, COLOR, TEXTURE AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES. PROVIDE 3/4" CHAMFER AT ALL CORNERS EXCEPT AS NOTED.

STRUCTURAL STEEL

STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", LATEST EDITION.

SHAPES SHALL CONFORM TO ASTM A992, Fy = 50 KSI.

PLATES, ANGLES, AND RODS SHALL CONFORM TO ASTM A36, Fy = 36 KSI.

STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B, Fy = 46 KSI.

STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B, Fy = 35 KSI.

BOLTS CONNECTING STEEL MEMBERS SHALL CONFORM TO ASTM A325-N. BOLTS SHALL BE 3/4"-Ø MINIMUM, UNLESS OTHERWISE NOTED. ANCHOR BOLTS SHALL CONFORM TO ASTM A307.

CONTRACTOR SHALL PROVIDE CONNECTION ADJUSTMENT TOLERANCES TO SATISFY THE REQUIREMENTS OF AISC MANUAL OF STEEL CONSTRUCTION.

UNLESS SPECIFIED AS STAINLESS STEEL, ALL STEEL MEMBERS, SHAPES, BOLTS, AND ACCESSORIES EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED.

WELDING

WELDING SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE", LATEST EDITION. ALL WELDING SHALL BE DONE WITH 70 KSI LOW HYDROGEN ELECTRODES, WHERE NOT CALLED OUT, MINIMUM FILLET WELD SIZE SHALL BE PER TABLE 5.8 IN AWS D1.1, LATEST EDITION.

WELDING OF REINFORCING BARS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY CALLED OUT ON DRAWINGS OR APPROVED BY STRUCTURAL ENGINEER. WELDING OF GRADE 60 REINFORCING BARS SHALL BE PERFORMED USING LOW HYDROGEN ELECTRODES. WELDING OF GRADE 60 REINFORCING BARS SHALL BE PERFORMED USING E70XX ELECTRODES. SEE REINFORCING NOTES FOR MATERIAL REQUIREMENTS OF WELDED BARS. WELDING WITHIN 4" OF COLD BENDS IN REINFORCING BARS IS NOT PERMITTED.

ALL WELDING SHALL BE DONE BY WASHINGTON ASSOCIATION OF BUILDING OFFICIALS (WABO) CERTIFIED WELDERS.

EXISTING BUILDING

CONTRACTOR SHALL VERIFY ALL DIMENSIONS, MEMBER SIZES AND CONDITIONS OF THE EXISTING BUILDING DEPICTED IN THE DRAWINGS, AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES FOR POSSIBLE REDESIGN.

CONTRACTOR RESPONSIBLE FOR COMPLETELY SEALING ALL AREAS WHERE EXISTING ROOF MATERIAL IS PENETRATED OR REMOVED. PROVIDE WATER PROOFING AS REQUIRED BY THE ARCH.

GENERAL

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, CIVIL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS FOR COMPATIBILITY BEFORE PROCEEDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING.

CONTRACTOR TO SEE ARCHITECTURAL, CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPE, VENT, DUCT AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THESE DRAWINGS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION STABILITY AND TEMPORARY SHORING AS NECESSARY UNTIL PERMANENT SUPPORT AND STIFFENING ARE INSTALLED.

CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF A SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED. SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER.

CONCRETE

ALL CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH ACI 318 AND THE AMERICAN CONCRETE INSTITUTE'S SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).

ALL CONCRETE SHALL BE STONE-AGGREGATE CONCRETE HAVING A UNIT WEIGHT OF APPROXIMATELY 150 POUNDS PER CUBIC FOOT.

CONCRETE STRENGTHS AT 28 DAYS (F'c) AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	f'c	MAXIMUM WATER/CEMENT RATIO	MINIMUM CEMENT CONTENT PER CUBIC YARD	MAXIMUM SHRINKAGE STRAIN
SLABS ON GRADE	5000 PSI	0.55	5 1/2 SACK	N/A
FOOTINGS	5000 PSI	0.55	5 1/2 SACK	N/A
GRADE BEAMS	5000 PSI	0.55	5 1/2 SACK	N/A
ALL OTHER CONC.	5000 PSI	0.55	5 SACK	N/A

THE MINIMUM AMOUNT OF CEMENT LISTED ABOVE MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER, AND AD MIXTURES AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD, AND SUBSTITUTING STRENGTH DATA IN ACCORDANCE WITH ACI 318.

ALL CONCRETE EXPOSED TO WEATHER OR TO FREEZING TEMPERATURES SHALL BE AIR-ENTRAINED AND MEET THE REQUIREMENTS IN ACCORDANCE WITH ACI 318 TABLE 19.3.2.1 FOR EXPOSURE CATEGORIES F2, S2, W10, & C2.

REINFORCING STEEL

REINFORCING STEEL SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, AND SHALL BE GRADE 60 (Fy = 60,000 PSI), UNLESS NOTED OTHERWISE. GRADE 60 REINFORCING BARS INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING COMPLYING WITH ASTM A615 MAY BE WELDED IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN AWS D1.4 ARE SUBMITTED.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. PROVIDE WELDED WIRE FABRIC IN SHEETS NOT ROLLS. LAP WELDED WIRE FABRIC 12" AT SIZES AND ENDS.

REINFORCING STEEL SHALL BE DETAILED INCLUDING HOOKS AND BENDS IN ACCORDANCE WITH SP-66 AND ACI 318R, LATEST EDITIONS, UNLESS OTHERWISE NOTED. REINFORCING SPICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE PER SCHEDULE.

MECHANICAL SPICING OF REINFORCING BARS, WHERE INDICATED ON THE DRAWINGS, SHALL BE BY AN IBCD APPROVED SYSTEM. SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

REINFORCING SHALL BE PLACED AND ADEQUATELY SUPPORTED PRIOR TO PLACING CONCRETE. WET-SETTING EMBEDDED ITEMS IS NOT ALLOWED WITHOUT PRIOR ENGINEER APPROVAL. BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. REFER TO CHAPTER 7 OF ACI 318 FOR OTHER REINFORCING STEEL REQUIREMENTS.

MINIMUM LAPS AND EMBEDMENT

UNLESS OTHERWISE NOTED, REINFORCING SPICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE AS TABULATED BELOW:

BAR SIZE	f'c = 5000 PSI					
	DEVELOPMENT LENGTH			LAP SPICE		
	TENSION TOP BARS	COMPRESSION ALL BARS	TENSION OTHER BARS	COMPRESSION TOP BARS	TENSION OTHER BARS	COMPRESSION ALL BARS
#3	17	13	7	22	17	12
#4	23	17	9	29	23	15
#5	28	22	11	36	28	19
#6	34	26	13	43	34	23
#7	49	38	15	63	49	27
#8	56	43	17	72	56	30

- NOTE:
- ALL LENGTHS ARE IN INCHES.
 - ALL LAP SPICES ARE CLASS B.
 - TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

CONCRETE COVER ON REINFORCING

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
- CONCRETE EXPOSED TO EARTH AND WEATHER: #6 BARS AND LARGER 2" #5 BARS AND SMALLER 1 1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER: SLABS, WALLS AND JOISTS 3/4" COLUMN TIES OR SPIRALS AND BEAM STIRRUPS 1 1/2"

CODE

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION, SPECIFICATIONS AND STANDARDS WHERE REFERENCED ON THE DRAWINGS ARE TO BE THE LATEST EDITION.

DESIGN LOADS

- DEAD LOADS: 100.5 KIPS (80 KIPS SELF WT + 20.5 KIPS EQUIPMENT)
- BUILDING WEIGHT
- FUEL TANK
- ROOF (SNOW LOAD)
- ROOF WIND (PER MFR)
- ROOF PSF (PER MFR)

(LIVE LOADS ARE REDUCED WHERE PERMISSIBLE PER IBC SECTION 1607.10).

EARTHQUAKE LOADS:

- SITE CLASS (ASSUMED) D
- SHORT PERIOD SPECTRAL RESPONSE ACCEL (S) 1.124
- ONE SECOND SPECTRAL RESPONSE ACCEL (S) 0.426
- SHORT PERIOD DESIGN SPECTRAL RESPONSE ACCEL (S_{0.2}) 0.787
- ONE SECOND DESIGN SPECTRAL RESPONSE ACCEL (S_{0.1}) 0.447
- RISK CATEGORY IV
- SEISMIC IMPORTANCE FACTOR (I) 1.5
- SEISMIC DESIGN CATEGORY D

WIND LOADS: BASIC WIND SPEED (3 SECOND GUST) EXPOSURE 115 MPH B KZ 1.0

SEE PLANS FOR ADDITIONAL DESIGN LOADS.

STATEMENT OF SPECIAL INSPECTIONS

SPECIAL INSPECTIONS ARE REQUIRED AS INDICATED IN THE FOLLOWING TABLE. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK IN ACCORDANCE WITH CHAPTER 17.04.4 OF THE IBC.

FREQUENCY AND DISTRIBUTION OF REPORTS - INSPECTION REPORTS SHALL BE PROVIDED FOR EACH DAY ON SITE BY SPECIAL INSPECTOR. STRUCTURAL OBSERVATION REPORTS SHALL BE PROVIDED AFTER EACH OBSERVATION. REPORTS SHALL BE DISTRIBUTED TO THE CONTRACTOR, ARCHITECT, ENGINEER AND BUILDING OFFICIAL.

SPECIAL INSPECTION

OPERATION	CONT	PERIODIC	REMARKS
EXCAVATION & FILL		X	GEOTECH ENGINEER
FOUNDATION BEARING CAPACITY VERIFICATION		X	
CONCRETE		X	
REINFORCING PLACEMENT ANCHOR BOLTS		X	
CONCRETE PLACEMENT	X		
EXPANSION ANCHORS		X	IF RECID
TESTING FOR Fc, AIR CONTENT, SLUMP	X		

NOTES:

- ALL ITEMS MARKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17. SPECIAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING AND PROVIDING ACCESS TO ALL TESTS. RESULTS MAY INSPECTION FINDINGS TO MEET THE PROJECT SPECIFICATIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN TEAM.

FOUNDATIONS:

SOILS REPORT: NO: 1144-5710384A BY: TETRA TECH DATED: APRIL 15, 2016

ALLOWABLE SOIL PRESSURE: 4000 PSF

PASSIVE EARTH PRESSURE: 350 PSF
COEFFICIENT OF FRICTION: 0.45
ACTIVE PRESSURE: 55 PCF

FOOTINGS SHALL BEAR ON FIRM UNDISTURBED EARTH OR ENGINEERED GRAVEL FILL AS REQUIRED AND AT LEAST 18" BELOW ADJACENT EXTERIOR GRADE. ANY FOOTING ELEVATIONS SHOWN IN THE DRAWINGS REPRESENT MINIMUM DEPTHS AND ARE FOR BIDDING ONLY. ACTUAL FOOTING ELEVATIONS ARE SUBJECT TO SITE CONDITIONS AND MUST THEREFORE BE ESTABLISHED BY THE CONTRACTOR. FOOTINGS SHALL BE CENTERED BELOW COLUMNS OR WALLS ABOVE, UNLESS NOTED OTHERWISE.

IMPORTED STRUCTURAL FILL AND BACKFILL MATERIAL SHOULD CONSIST OF CLEAN, WELL GRADED GRANULAR MATERIAL FREE OF DEBRIS OR ORGANICS WITH A MAXIMUM PARTICLE DIAMETER OF THREE INCHES AND NO MORE THAN 10% FINES (PASSING THE #200 SIEVE).

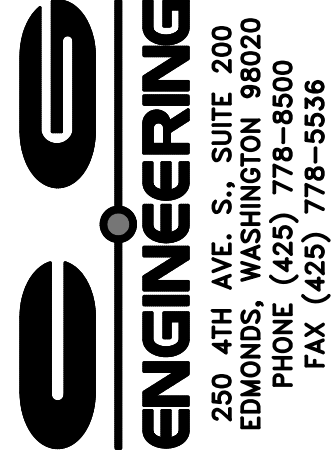
FILL AND BACKFILL MATERIAL SHOULD BE PLACED IN LEVEL LIFTS NOT EXCEEDING TWELVE (12) INCHES IN LOOSE THICKNESS AND COMPACTED TO A MINIMUM OF 98% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM TEST METHOD D1557-00.

EXCAVATIONS AND DRAINAGE INSTALLATION SHALL BE OBSERVED BY A SOILS ENGINEER RETAINED BY THE OWNER. IF EXCAVATION SHOWS SOIL CONDITIONS TO BE OTHER THAN THOSE ASSUMED ABOVE NOTIFY THE STRUCTURAL ENGINEER FOR POSSIBLE FOUNDATION REDESIGN.



SWAN
(NEW BUILD)

39025 NE NORTH FORK RD.
DUWALL WA 98019



C.C. PROJECT # 16015.917

PROJECT MANAGER M/TM

PREPARED BY ZOS

APPROVED BY JAC

REV	DATE	DESCRIPTION
△	04/14/17	PERMIT RESUBMITTAL
△	02/24/17	PERMIT RESUBMITTAL
△	02/17/17	PERMIT SUBMITTAL



CITY APPROVAL

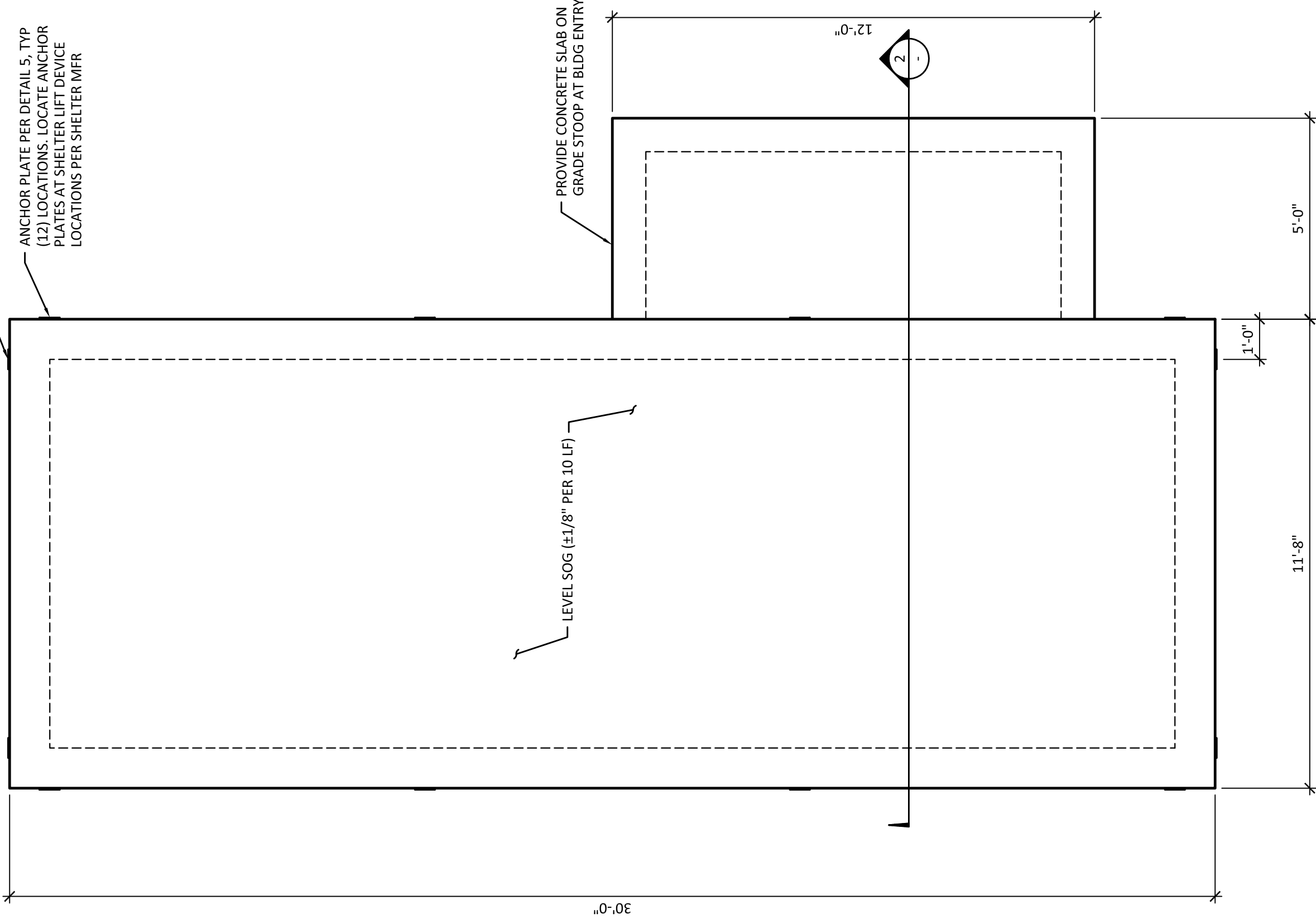
SHEET NAME
BUILDING AND TANK
FOUNDATION PLANS
AND DETAILS

SHEET NUMBER

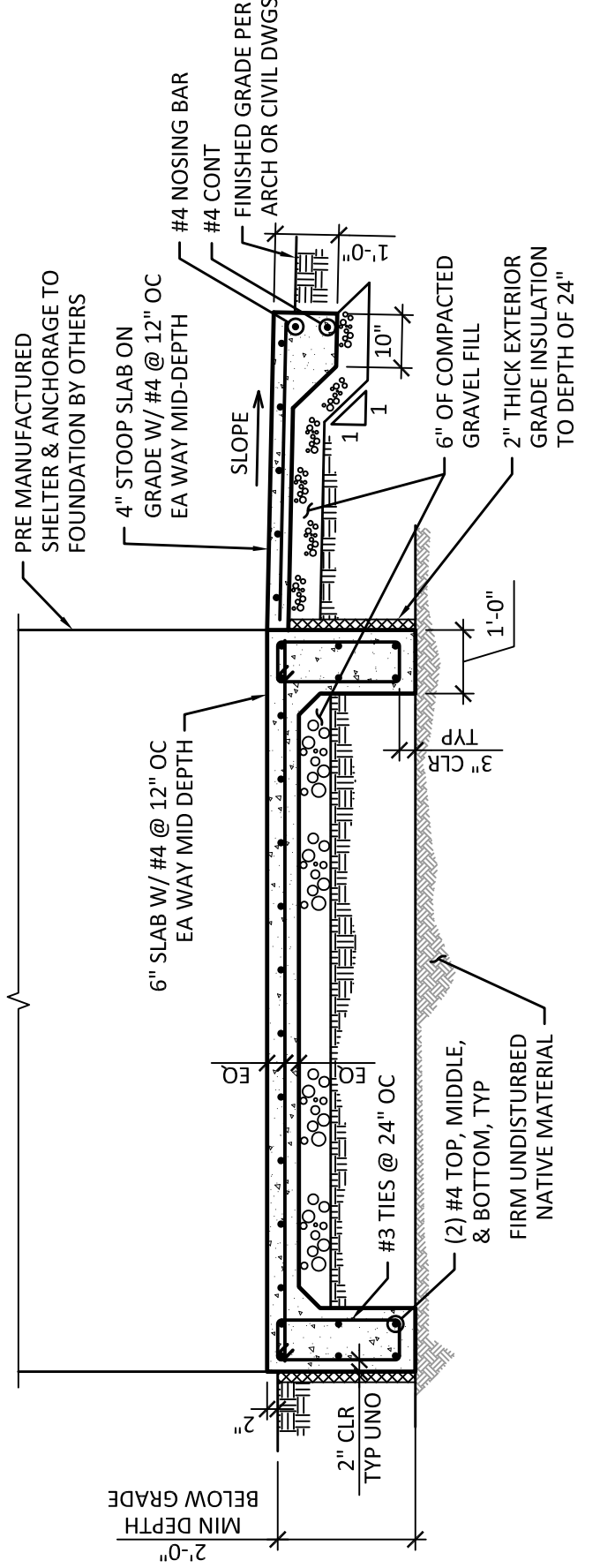
F2.1

ANCHOR PLATES ALONG THE SHORT SIDES OF THE SHELTER SHALL BE FIELD WELDED PER NOTE IN DETAIL 5

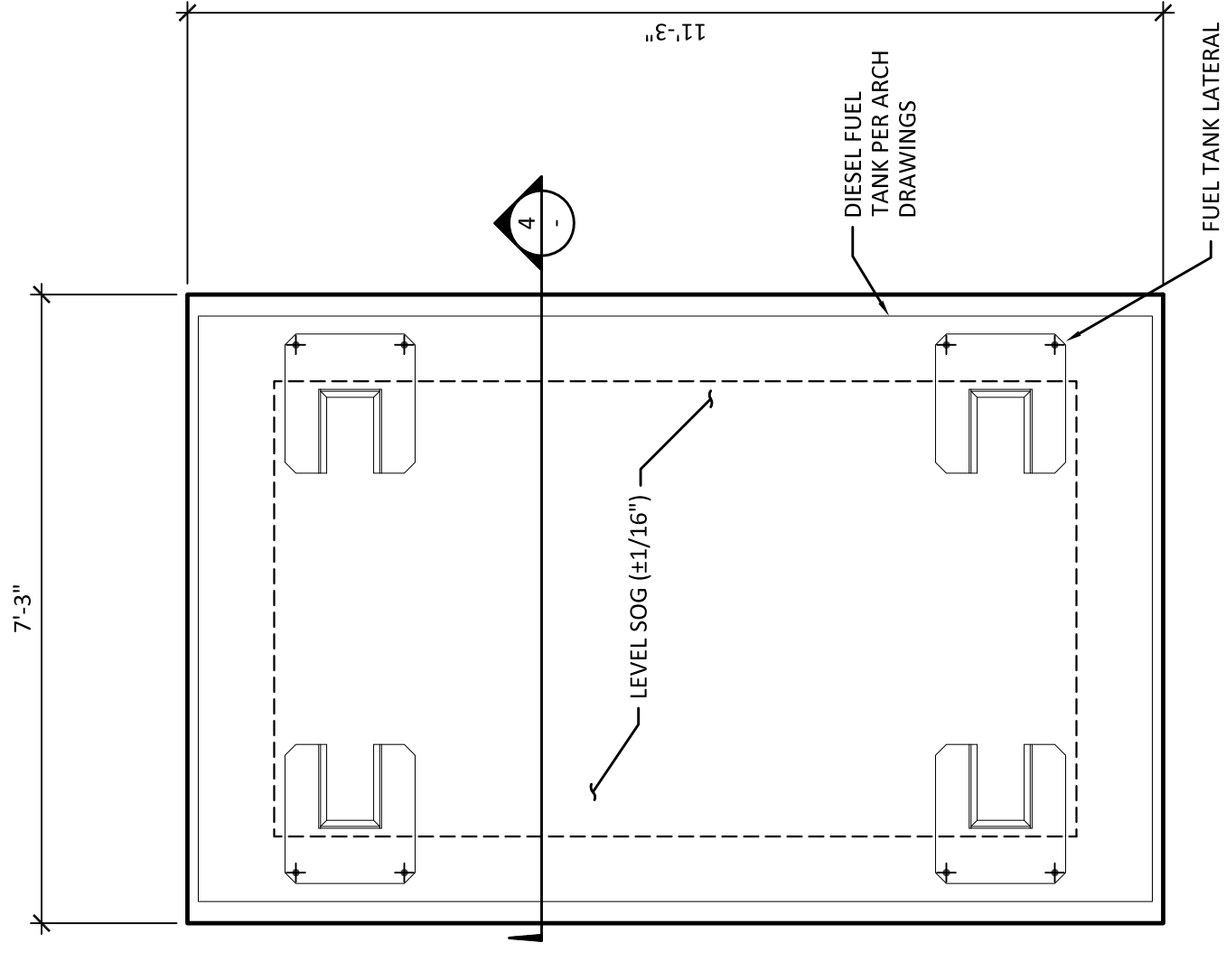
ANCHOR PLATE PER DETAIL 5, TYP (12) LOCATIONS. LOCATE ANCHOR PLATES AT SHELTER LIFT DEVICE LOCATIONS PER SHELTER MFR



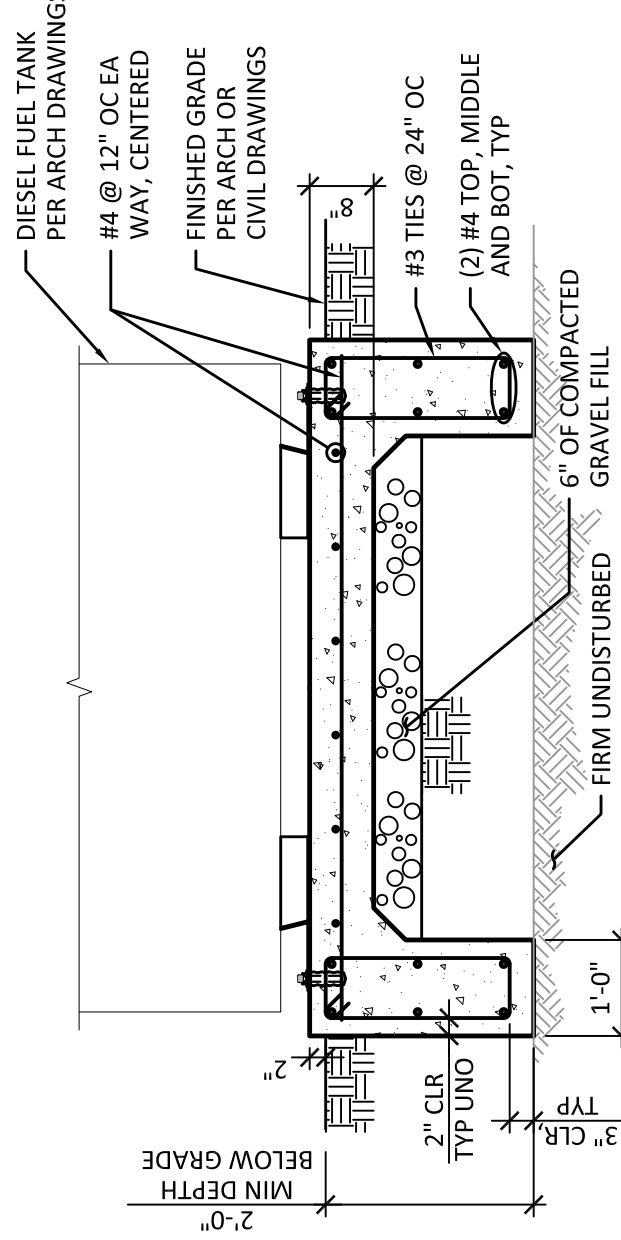
1 SHELTER FOUNDATION PLAN
SCALE: 3/8" = 1'-0"



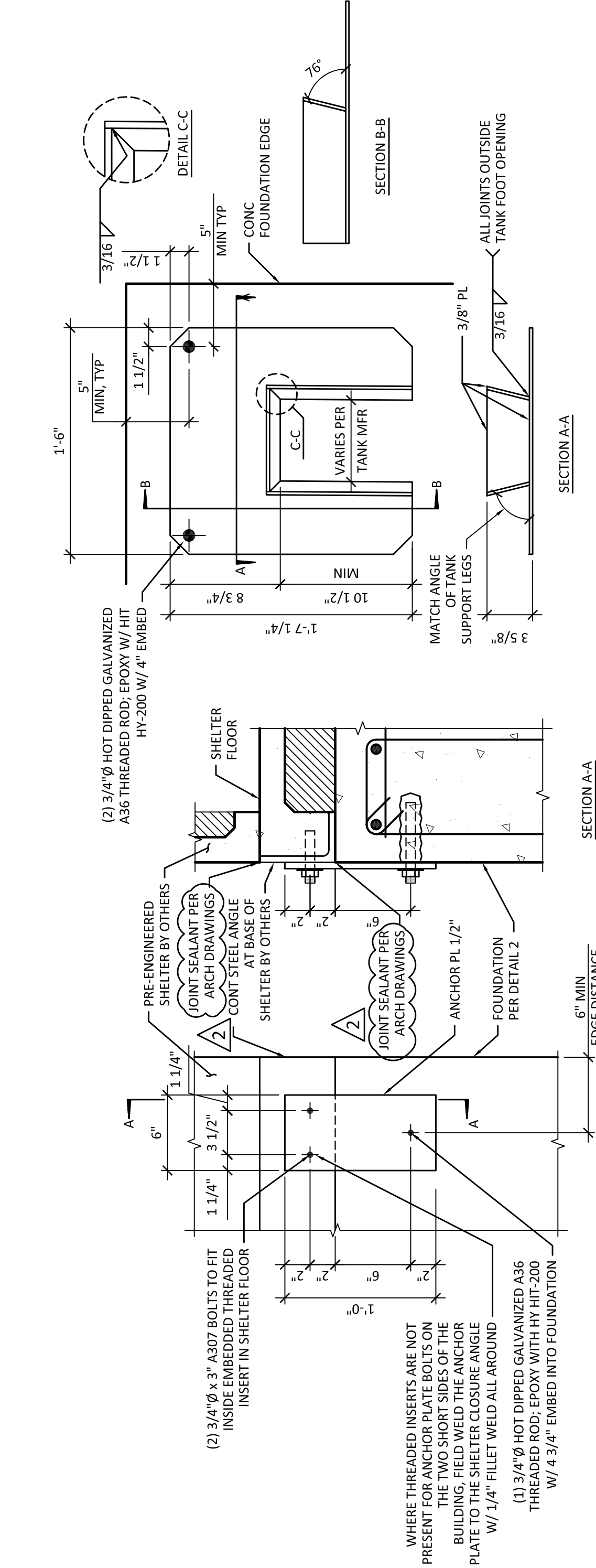
2 SHELTER FOUNDATION SECTION
SCALE: 3/8" = 1'-0"



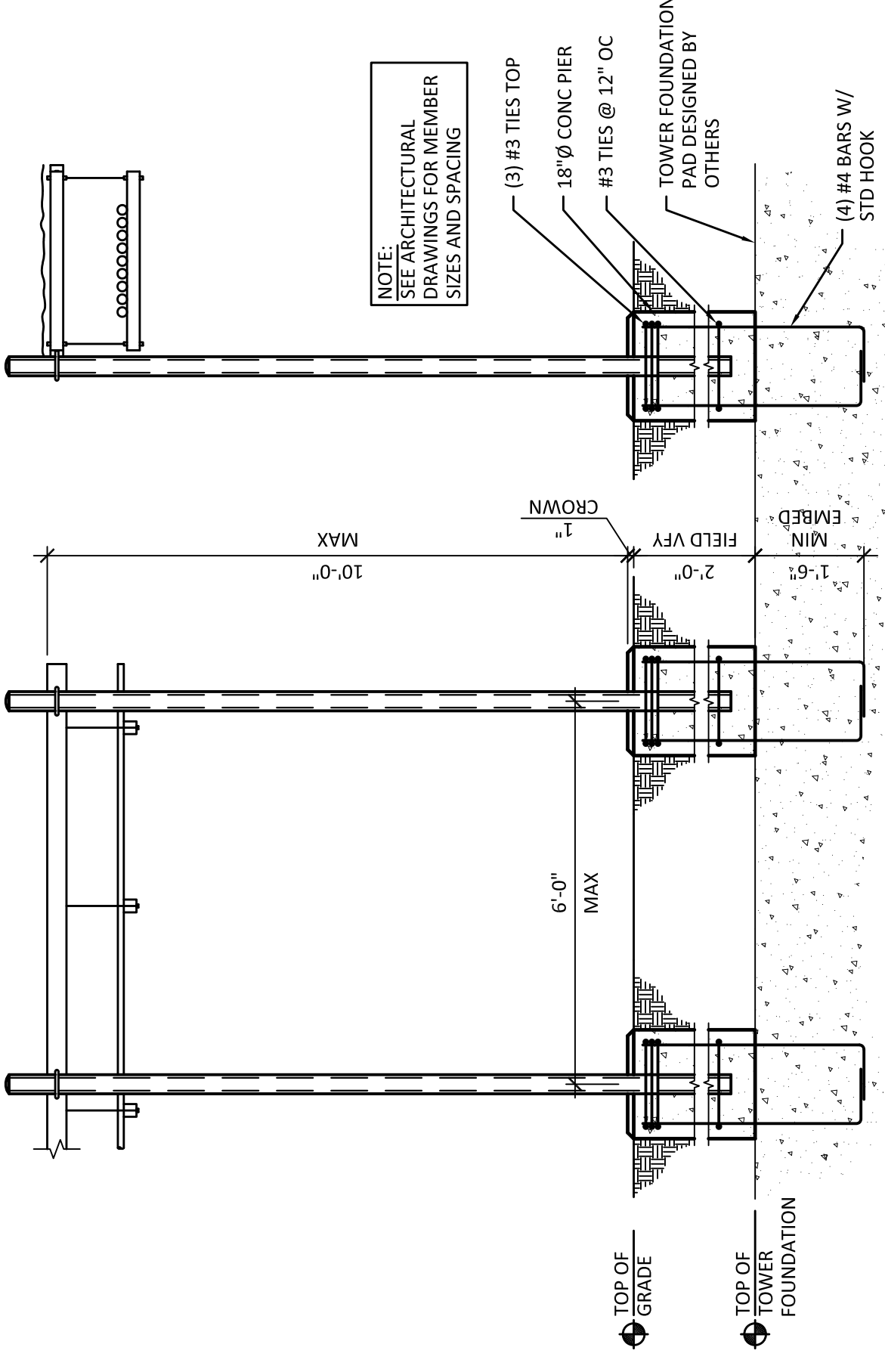
3 DIESEL TANK PLAN
SCALE: 1/2" = 1'-0"



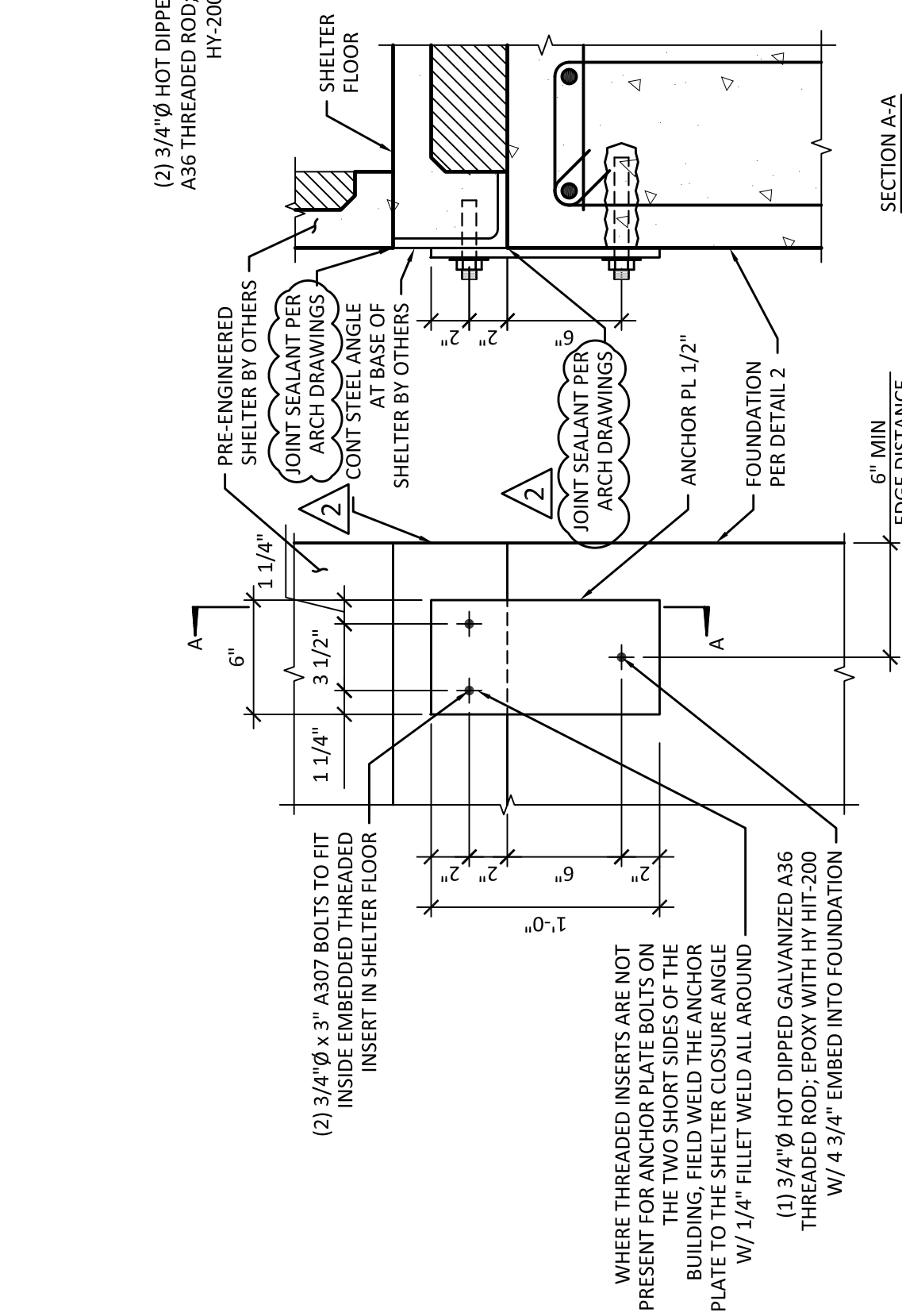
4 DIESEL TANK SECTION
SCALE: 1/2" = 1'-0"



6 FUEL TANK LATERAL RESTRAINTS
SCALE: 1 1/2" = 1'-0"



7 ICE BRIDGE PIER FOUNDATIONS
SCALE: 1/2" = 1'-0"

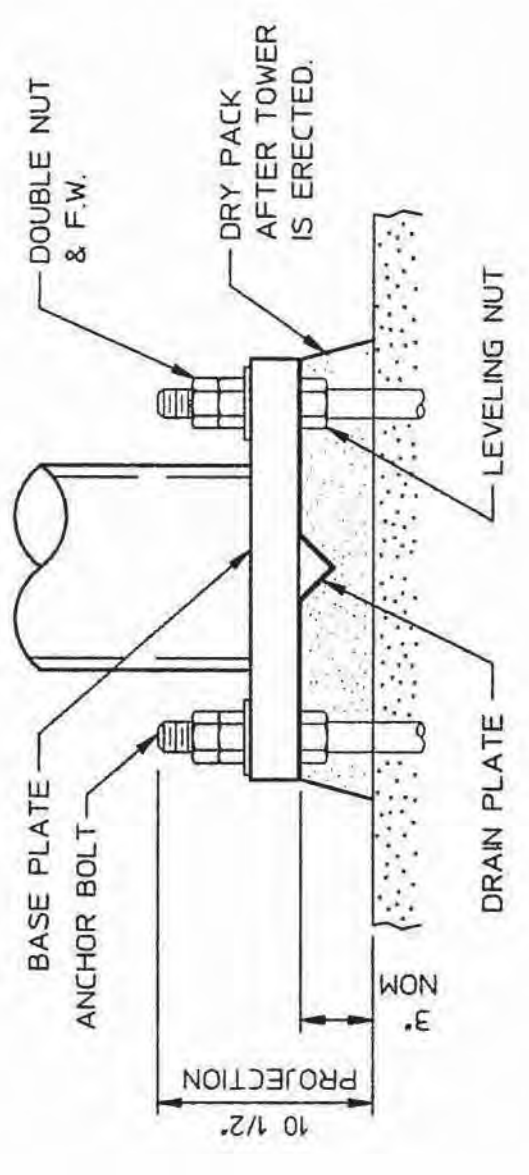


8 SHELTER ANCHORAGE DETAIL
SCALE: 1 1/2" = 1'-0"

ZONE	REV	DESCRIPTION	DATE	APPROVED

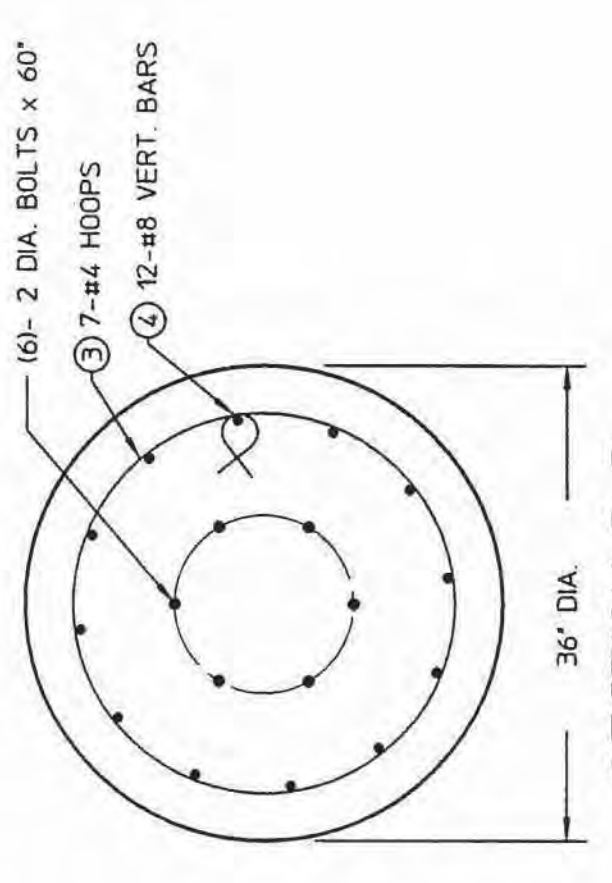
GENERAL NOTES: SLAB

- Prior to excavation, check the area for underground facilities.
- All reinforcing shall be deformed bars conforming to ASTM A615 Grade 60 (60,000 psi min. yield) and shall be provided by the foundation contractor.
- All concrete shall have a minimum compressive strength of 4,000 psi @ 28 days. The requirement for the concrete shall be as given in the ACI Building Code Requirements for Reinforced Concrete, ACI 318, the latest edition.
- Concrete shall be placed against undisturbed soil to the depth indicated on the foundation drawing. The portion above grade shall be formed. If an area is excavated beyond the limits shown, this volume shall be filled with concrete or formed. After the forms are removed, the excess excavation shall be replaced and compacted.
- The tops of pedestals at the same elevation shall be level with each other within 1/4 inch. Trowel tops of pedestals smooth.
- Compact structural fill above buried slab to a minimum of 100 pcf density.
- Dry Packing Procedures: Mix 2 parts sand, one part cement, and add just enough water to allow molding a shape by hand. Restrict the water content to a minimum. (This minimizes the possibility of shrinkage when the mortar, dry-mixed for maximum density and strength, is packed in place.) The packing shall be done by hand, ramming with bars or caulking loads, or a combination thereof.
- Estimated concrete volume = 136.2 cu. yards.
- Design based on the following factored loads (Per TIA-G):
 Overturning Moment = 14,164 k-ft. (Overturning Safety Factor = 1.05)
 Total Shear = 927 kips Max. Toe Bearing Pressure = 3.01 ksf
 Total Weight = 64.2 kips
- Soil information and design parameters are per the Geotechnical Report by Tetra Tech, Project No. 114-571034A, Dated April 15, 2016. Recommendations in this report shall be followed by the foundation contractor.

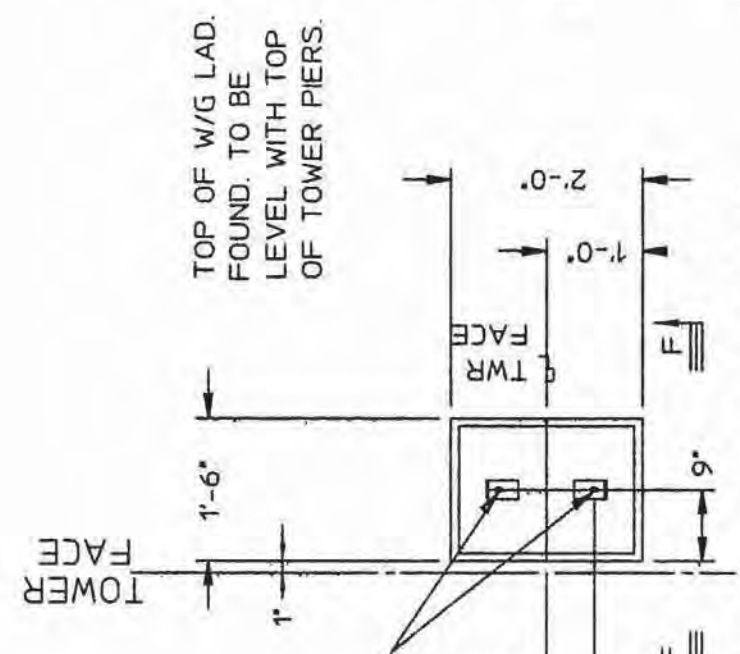


DRAIN PLATE INSTALLATION
NO SCALE

EXTREME CARE SHOULD BE TAKEN TO ASSURE THAT ALL LEVELING NUTS ARE LEVEL WITH RESPECT TO EACH OTHER PRIOR TO ERECTION OF THE TOWER.

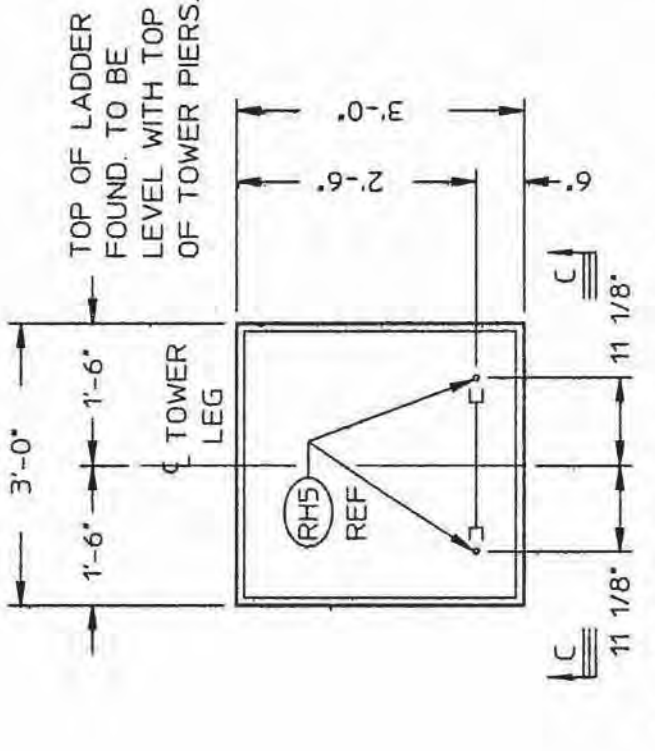


SECTION B-B
NO SCALE

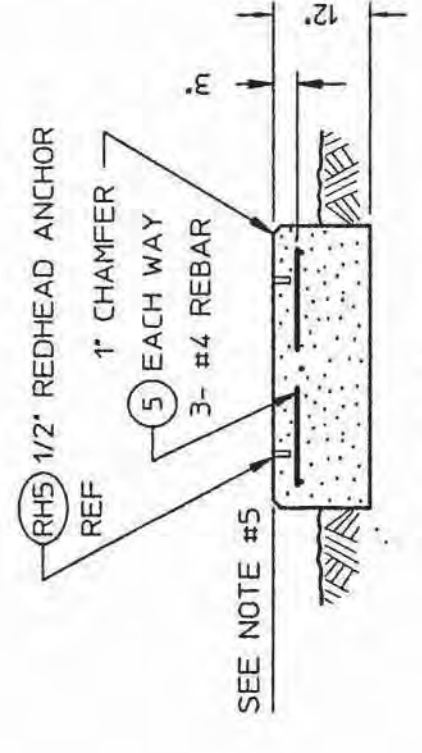


WAVEGUIDE LADDER FOUNDATION PLAN
NO SCALE

NOTE: W/G LADDER CAN BE INSTALLED ON OUTSIDE OF ANY TOWER FACE

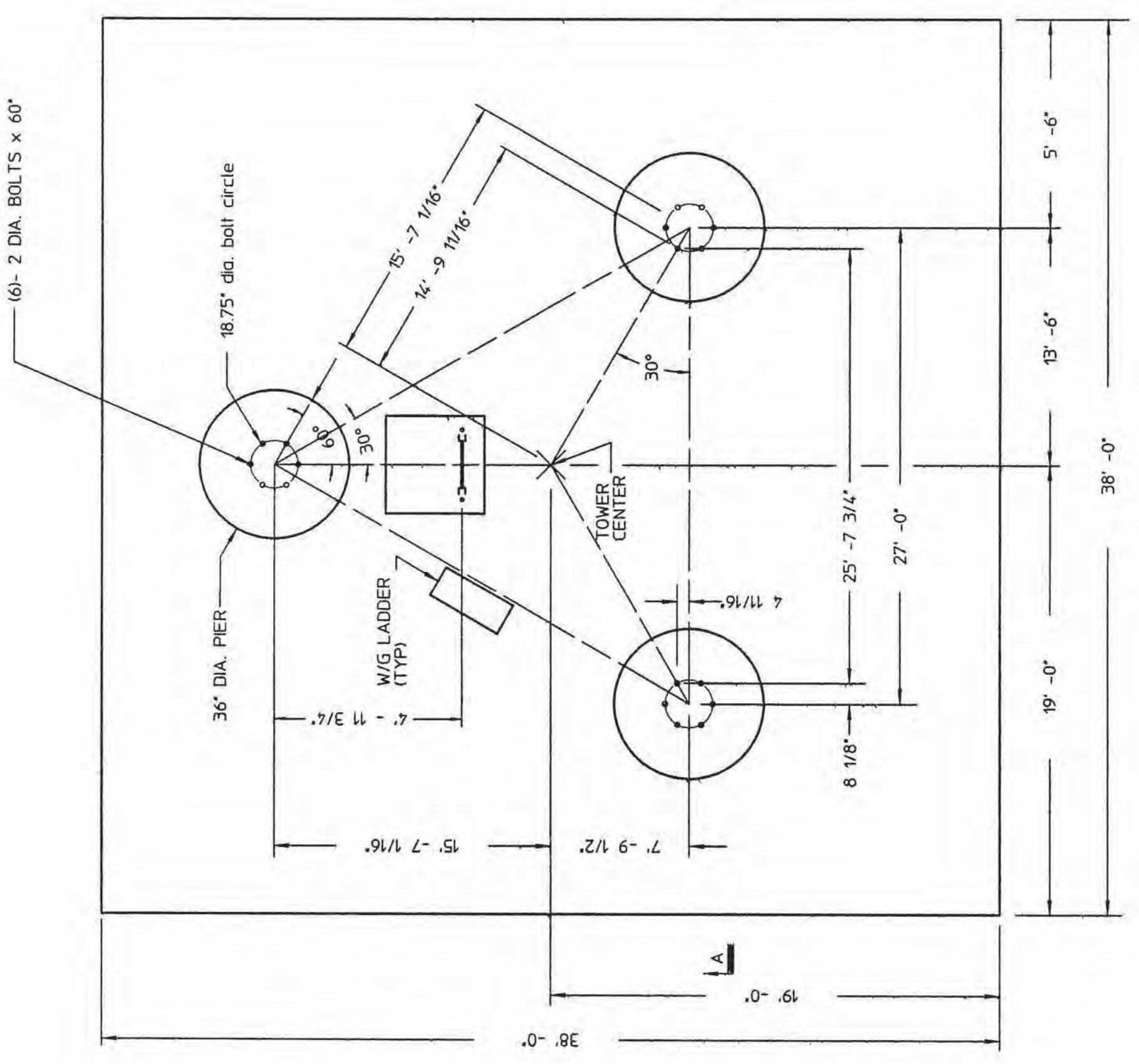


CLIMBING LADDER FOUNDATION PLAN
NO SCALE

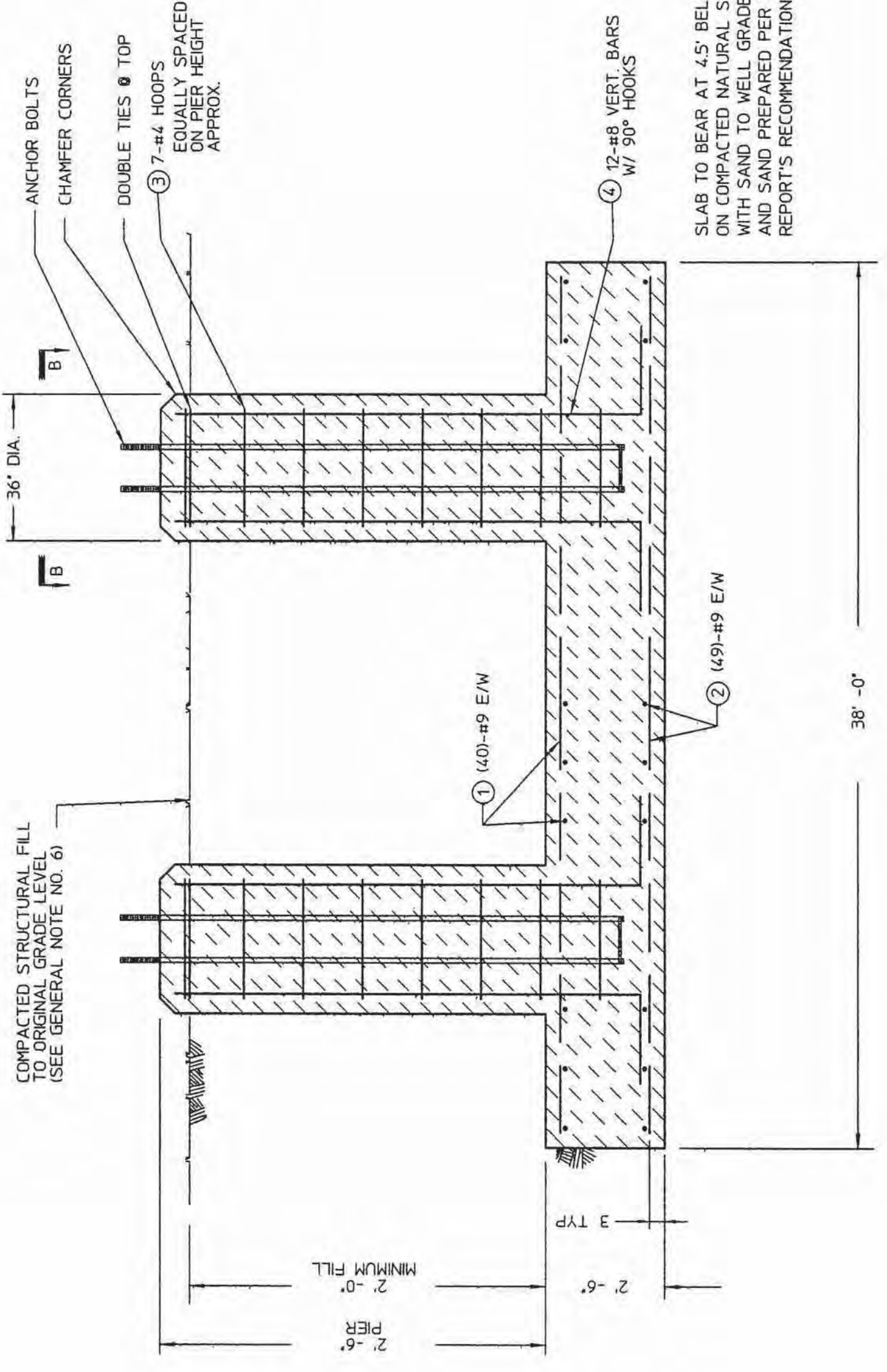


SECTION C-C
NO SCALE

SLAB TO BEAR AT 4.5\"/>



FOUNDATION PLAN
NO SCALE

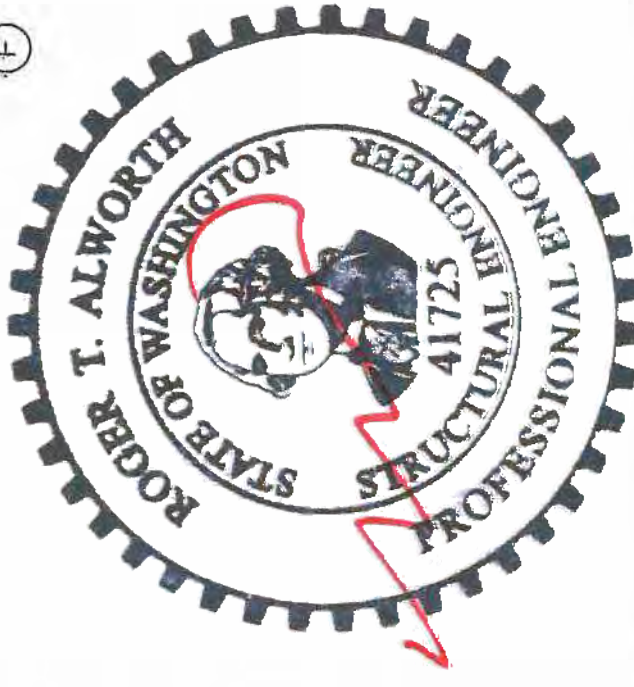
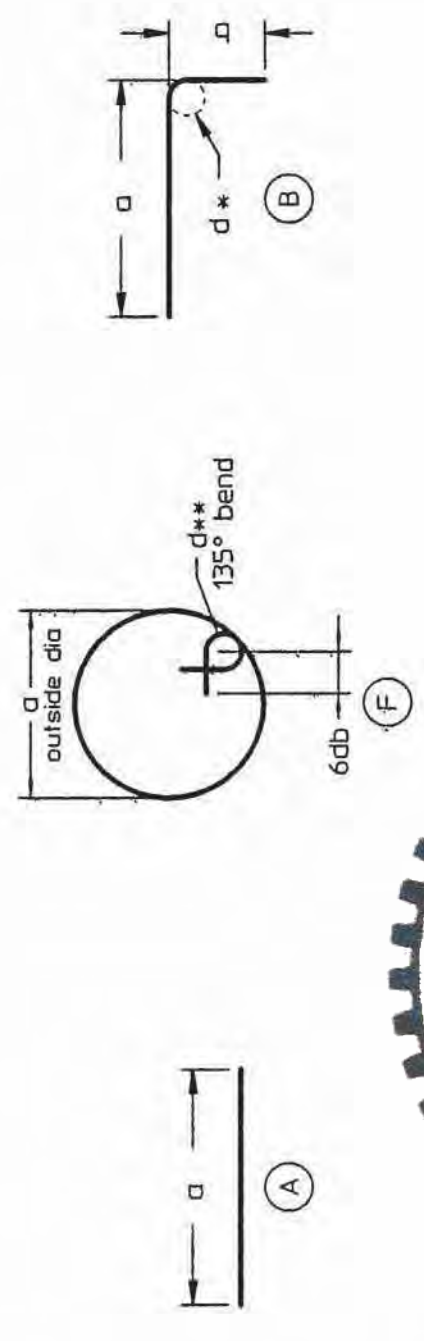


SECTION A-A
NO SCALE

REINFORCEMENT STEEL SCHEDULE

Sym	Type	Rebar Size	Spacing	Dimensions	a	b	c	d	d (6db)	Weight (lbs)	Qty
1	A	#9	11 1/2"	37'-6"						10200	80
2	A	#9	9 3/8"	37'-6"						12495	98
3	F	#4	EQUAL	2'-6"				2'	3"	122	21
4	B	#8	EQUAL	4'-4"				1'-4"		545	36
5	A	#4	1'-3"	2'-6"						10	6
6	A	#4	6"	1'-0"						3	4
7	A	#4	6"	1'-6"						3	3

TOTAL STEEL WEIGHT FOR COMPLETE FOUNDATION INSTALLATION = 23378



6-23-2016



CONTRACT NO.	33371-1	SLAB FOUNDATION INSTALLATION
SALES ORDER	JG	ODELIA PACIFIC/KING COUNTY
DRAWN BY	JG	SITE: SWAN, WA
CHECKED BY	ME	SIZE (PLOT NO.)
DATE	16/JUN/16	DWG NO.
DATE	16/JUN/16	REV
		D-143905
		SCALE
		1 OF 1

UNLESS OTHERWISE STATED DIMENSIONS ARE IN INCHES
 TOLERANCES ON ANGLES
 SALES ORDER * 0°-30'
 DEFLECTIONS .XX
 FRACTIONS * 1/16
 DECIMALS .XXXX

REVISIONS	REV	DESCRIPTION	DATE	BY/CK

Valmont
MICROFECT

1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

BY	JG
CK	MF
DATE	16JUN16
S.O.	333171-1

STRESS ANALYSIS
ODELIA PACIFIC/KING COUNTY
SITE: SWAN, WA

SHEET 1 OF 6
DWG. NO. B-143904

DESIGN CRITERIA :

BASIC WIND SPEED: 85 mph
ICE WIND SPEED: 30 mph
ICE THICKNESS: 0.5 " Radial
STRUCTURE CLASS III
EXPOSURE CATEGORY C
TOPOGRAPHIC CATEGORY 1
SEISMIC: SITE CLASS C, $S_s = 1.124$, $S_1 = 0.426$

ANTENNAS

SEE SHEET 6 FOR ANTENNA LIST

MATERIALS & CODES

STRUCTURAL STEEL: ASTM A36, A572 & A53 GR.B (50 ksi minimum)
ERECTION BOLTS: ASTM A325X & SAE GR.5
ANCHOR BOLTS: ASTM F1554 GR.55
STEEL: AISC LRFD
CONCRETE: ACI 318
INDUSTRY: ANSII/TIA 222-G

TOWER MODEL: 108-L855-235

9138 S. STATE STREET, SUITE 101
SANDY, UT 84070
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U1316-126-161
ROGER T. ALMORTH, S.E.: 41725
WA FIRM LICENSE: 2202

6-23-2016

BAY	TOWER	ELEV.	DEAD LOAD	WIND LOAD	MAXIMUM BAY
DV05	235	0.32	0.63	0.90	1.42
DV10	225	0.69	1.09	1.42	1.42
DV20	215	0.72	1.36	1.43	1.42
DV20	210	0.62	1.36	1.43	1.42
DV20	205	0.72	1.36	1.43	1.42
DV20	200	0.65	1.35	1.43	1.42
DV20	195	0.78	1.34	1.43	1.42
DV20	190	0.68	1.33	1.43	1.42
DV20	185	0.78	1.33	1.43	1.42
DV20	180	0.70	1.31	1.43	1.42
ET	175	0.80	1.36	1.43	1.42
ET	170	0.77	1.43	1.44	1.42
ET	165	0.77	1.44	1.44	1.42
ET	160	1.14	1.99	1.99	1.42
FT	151	1.88	2.79	2.79	1.42
FT	140	1.96	2.80	2.80	1.42
GT	131	2.40	2.77	2.77	1.42
GT	120	2.16	2.81	2.81	1.42
HT	110	2.39	2.85	2.85	1.42
HT	100	2.14	2.83	2.83	1.42
IT	90	2.54	2.81	2.81	1.42
IT	80	2.17	2.77	2.77	1.42
JT	70	2.61	2.71	2.71	1.42
JT	60	2.31	2.70	2.70	1.42
KT	50	3.06	2.68	2.68	1.42
KT	40	2.47	2.59	2.59	1.42
LT	30	3.15	2.44	2.44	1.42
LT	20	2.57	2.29	2.29	1.42
MT	10	3.40	2.20	2.20	1.42
MT	0	1.38	1.23	1.23	1.42

PLAN

ELEVATION

NOTES:

- Bay wind loads and dead loads include effects of tower members, access ladder, W/G ladders, and transmission lines.
- Worst case antenna wind shear has been applied in multiple wind directions to obtain maximum tower member stresses.
- An '*' indicates that girts are internally braced at this level.
- Maximum twist/sway at 60 MPH wind loading is 0.39° > 0.47° allowable for a 6' diameter antenna (Worst case elevation) operating at an assumed frequency of 11 GHz.
- Max Stress Ratio <= 85%.

ANT.	DEAD LOAD	WIND LOAD	MAXIMUM TWIST OR SWAY (DEGREES)
DV05	2.08	6.07	1.42
DV10	2.43	4.25	1.42
DV20	1.11	4.19	1.43
DV20	0.40	2.81	1.42
DV20	0.00	1.50	1.37
ET	0.27	1.77	1.08
ET	0.05	0.31	1.00
ET	0.02	0.04	0.99
ET	0.00	0.01	0.93
ET	0.07	0.18	0.85
FT	0.19	0.50	0.76
GT	0.01	0.01	0.61
GT	0.14	0.22	0.54
HT	0.01	0.01	0.20
HT	0.01	0.02	0.15



SWAN
(NEW BUILD)
39025 NE NORTH FORK RD.
DUVALL, WA 98019

DEBELIA PACIFIC CORPORATION
5506 6TH AVE S, SUITE 202
SEATTLE, WA 98108
PHONE: (206) 490-3826
WWW.OBELIA.COM

CAMP+ ASSOCIATES
19401 40TH AVE W, SUITE 304
LYNNWOOD, WA 98036
PHONE: (425) 740-8392
FAX: (425) 252-2860
WWW.CAMPASSOC.COM

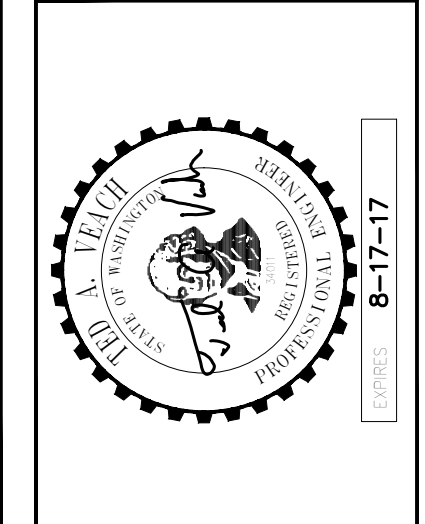
PROJECT MANAGER:

PREPARED BY: SJC

APPROVED BY: TAV

11/02/16	PERMIT REVISIONS
09/30/16	FINAL DRAWING
05/06/16	ISSUED FOR PRELIM. REVIEW

PLAN REVIEWERS SIGNATURE



SHEET NAME
FUEL SYSTEM PIPING PLAN

SHEET NUMBER
M1.0

DRAWING NOTES:

- FUEL PIPING INSTALLATION SHALL CONFORM TO 2015 NFPA 30.
- SEAL ALL CONDUIT AND CONTAINMENTS TO BE WATER TIGHT.
- CONTRACTOR SHALL LAY OUT CONTAINMENT CONDUITS AND PIPING SO THAT ANY POINT OF LEAKAGE IS CAUGHT BY SECONDARY CONTAINMENT AND ALARMS WITH THE LEAK DETECTION SYSTEM.
- COORDINATE CONNECTION OF LEAK DETECTION SYSTEM TO REMOTE MONITORING.
- PRESSURE TEST PRIMARY AND SECONDARY CONTAINMENT PIPING PER UFC REQUIREMENTS.

KEYED NOTES:

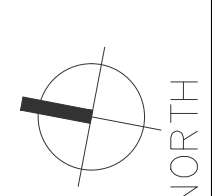
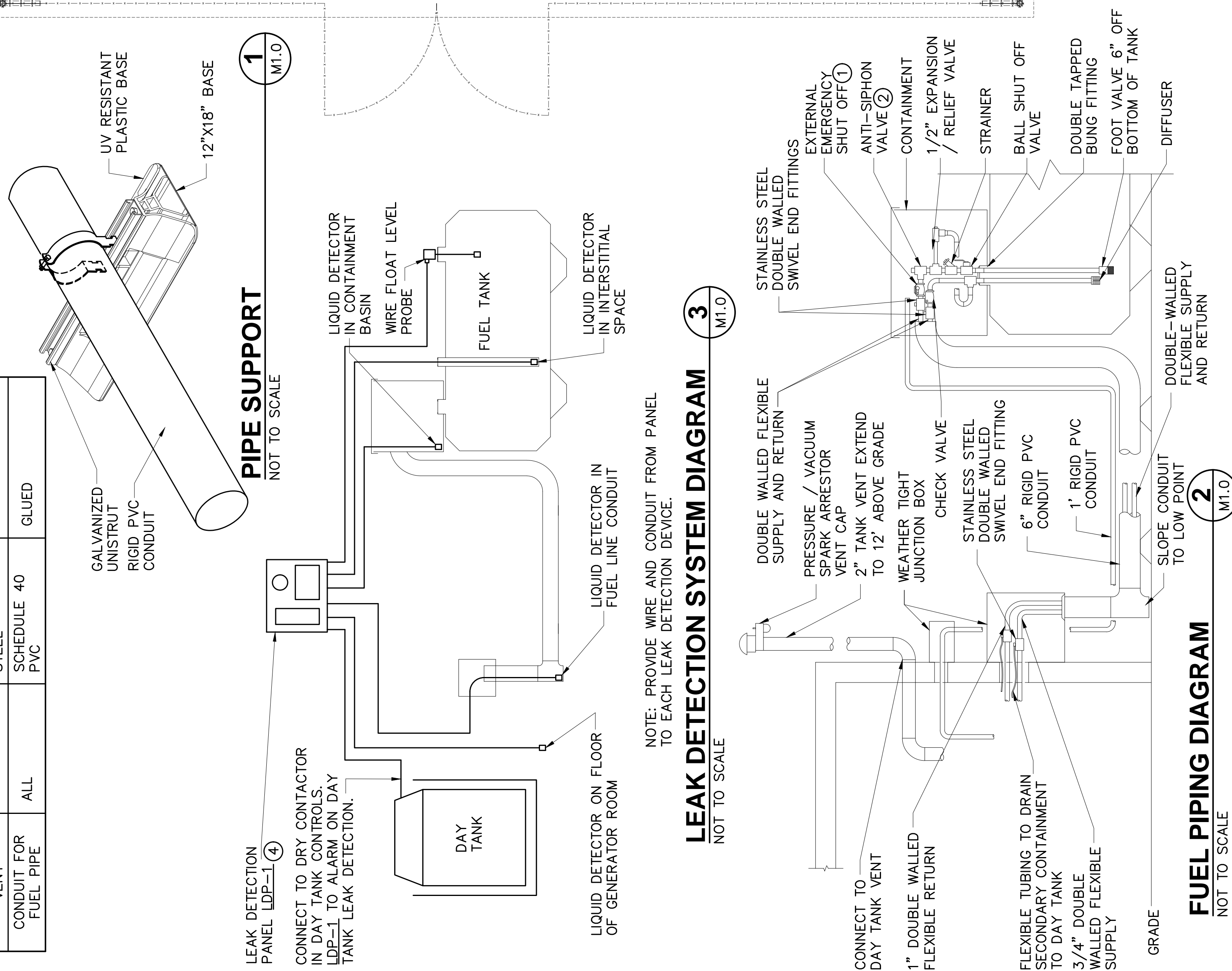
- FULL LINE SIZE FUSEABLE LINK SHUT-OFF VALVE.
- COMPATIBLE IN A SUCTION SYSTEM.
- VERIFY DAY TANK'S SUPPLY AND RETURN PUMPS ARE OPERATING CORRECTLY TO MOVE FUEL WITHOUT SPILL OR OVERFLOW.
- COORDINATE CONNECTION OF ALARM OUTPUTS TO KING COUNTY COMMUNICATIONS SYSTEM.

MISCELLANEOUS EQUIPMENT SCHEDULE

SYMBOL	ITEM DESCRIPTION	SPECIFIED MFR & MODEL NO.	AREA SERVED	EQUIPMENT CAPACITY	ELECTRICAL AMPS	VOLTS/PH	REMARKS
LDP-1	TANK GAUGE AND LEAK DETECTION PANEL	FUEL SENTRY TG-EL-D4A	TANK, DAY TANK	6 INPUT	4-2	120/1	PROVIDE NEMA 3 ENCLOSURE

PIPING MATERIAL SCHEDULE

PIPING	LOCATION	MATERIAL	JOINT
DIESEL FUEL SUPPLY/RETURN	ALL	PVED DOUBLE WALLED FLEXIBLE END FITTINGS	STAINLESS STEEL
DIESEL FUEL VENT	ABOVE GROUND	SCHEDULE 40 STEEL	THREADED
CONDUIT FOR FUEL PIPE	ALL	SCHEDULE 40 PVC	GLUED



1 FUEL SYSTEM PIPING PLAN
SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)

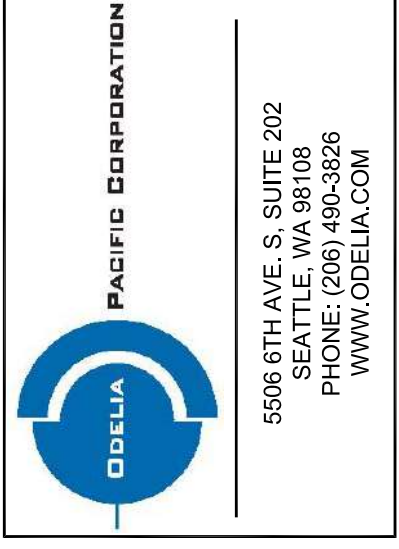


12202 Pacific Ave S, Suite B Tacoma, WA 98444
Ph: 252-274-5701 Page 1532



King County
PSERN
PUGET SOUND EMERGENCY RADIO NETWORK
Coverage • Capacity • Connectivity

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 (NEW BUILD)
 39025 NE NORTH FORK RD.
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ODELIA
 PACIFIC CORPORATION
 5506 6TH AVE. S. SUITE 202
 SEATTLE, WA 98108
 PHONE: (206) 461-1120
 WWW.ODELIA.COM



CAMP+
 ASSOCIATES
 19041 40TH AVE. W. SUITE 304
 LYNNWOOD, WA 98036
 PHONE: (425) 740-6332
 FAX: (425) 252-2860
 WWW.CAMPASSOC.COM

PROJECT MANAGER: EJC

PREPARED BY: AIO/EAT

APPROVED BY: PN

- ▲ 07/31/17 UPDATED SURVEY
- ▲ 07/31/17 DPER COMMENTS
- ▲ 06/27/17 ELECTRICAL TIE-IN W/ SCL
- ▲ 06/15/17 ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE

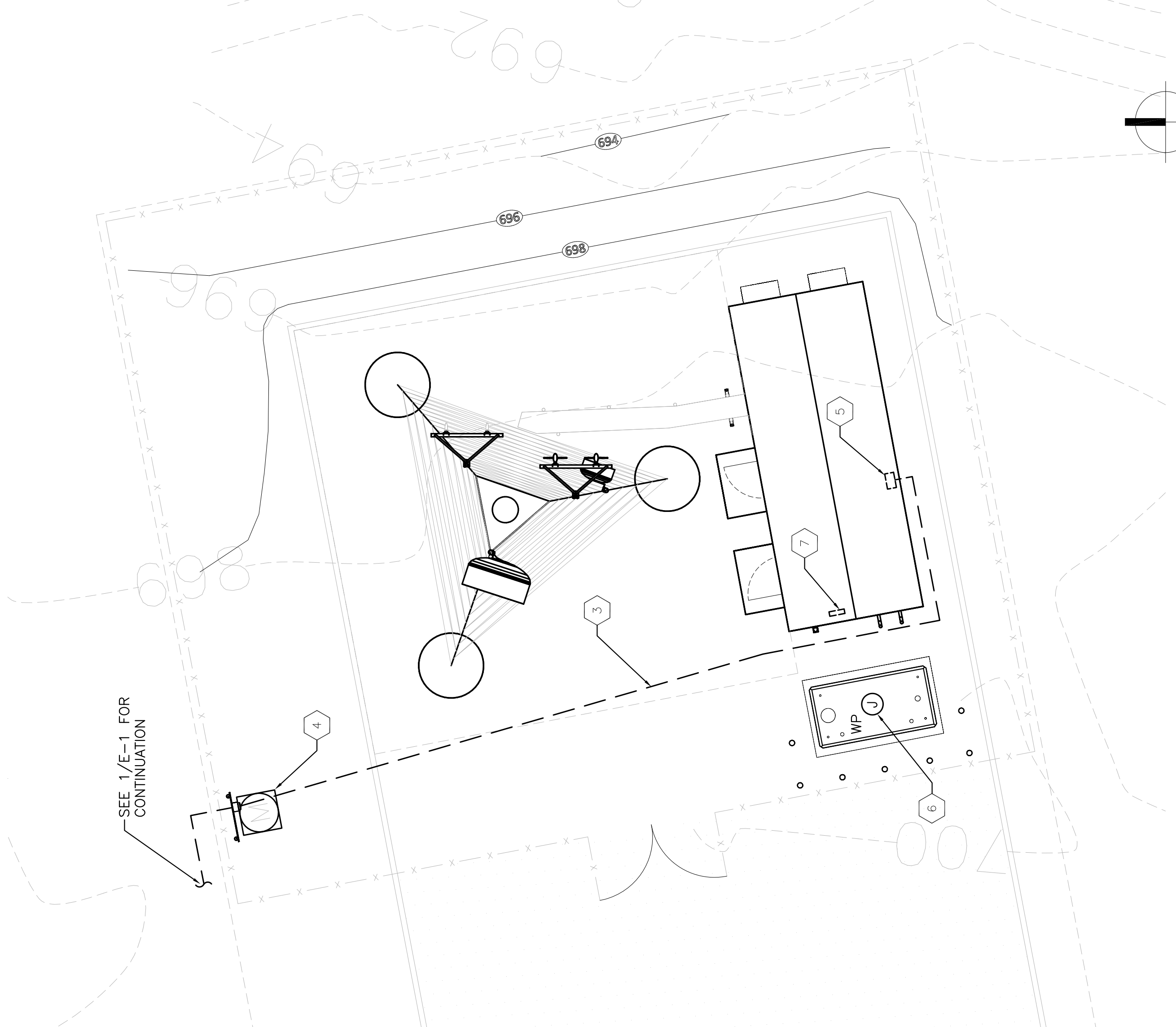
ARCHITECTS STAMP



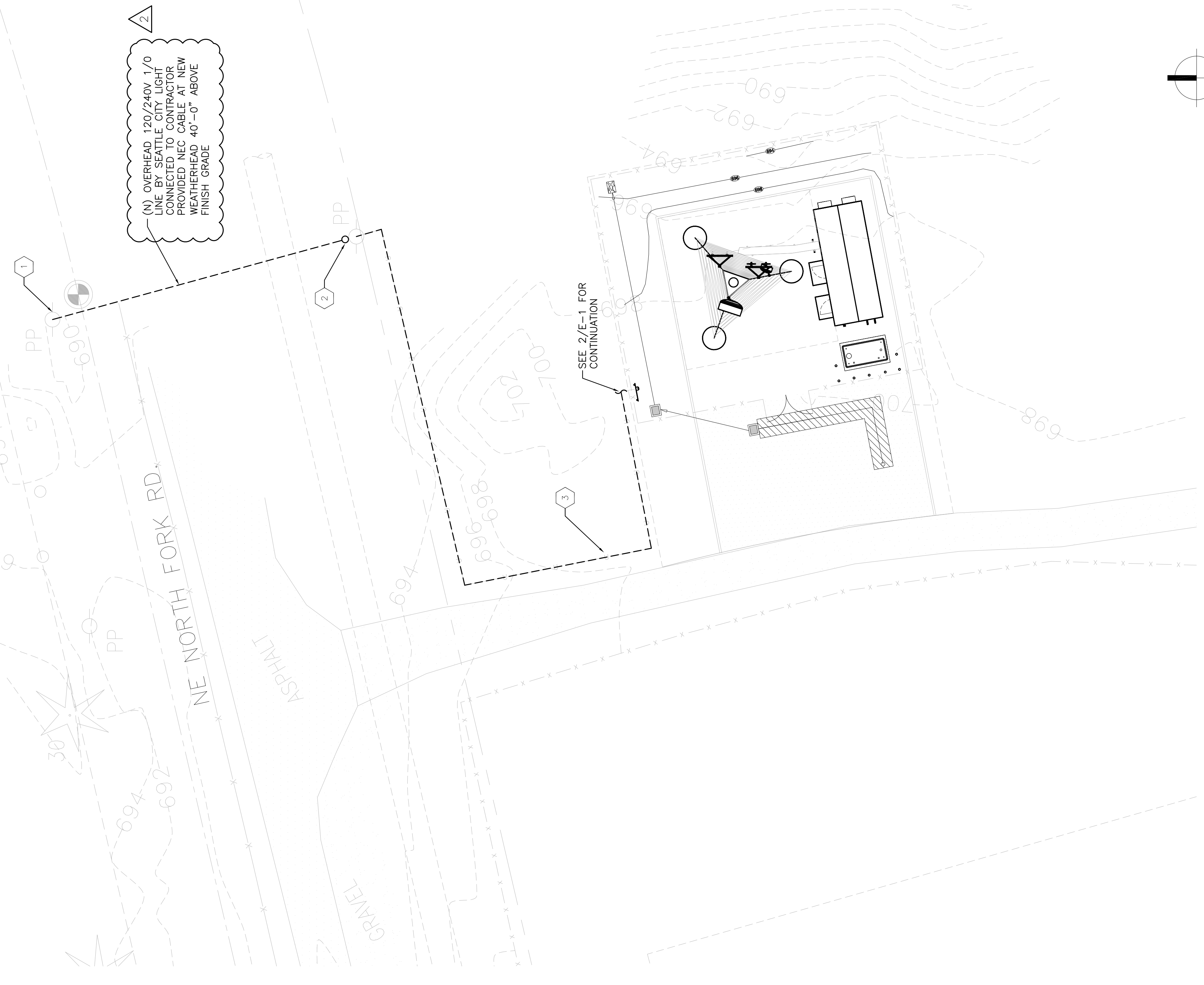
SHEET NAME
 ELECTRICAL
 SITE PLAN

SHEET NUMBER
E-1

- KEY NOTES:**
- 1 EXISTING UTILITY POLE WITH POLE MOUNTED TRANSFORMER PROVIDED AND INSTALLED BY SEATTLE CITY LIGHT.
 - 2 CONTRACTOR SHALL TERMINATE NEW RACEWAY 40'-0" ABOVE FINISH GRADE AT NEW WEATHER HEAD. CONDUIT AND CONDUCTORS SHALL BE INSTALLED ON FACE OF POLE (NORTH SIDE). COORDINATE INSTALLATION WITH SEATTLE CITY LIGHT.
 - 3 NEW 120/240V 1/0 3W UNDERGROUND SERVICE MINIMUM 36" BELOW FINISH GRADE.
 - 4 NEW UTILITY METER WITH MAIN BREAKER MOUNTED TO NEW UNISTRUT FRAME.
 - 5 CONTRACTOR SHALL TERMINATE AT AUTOMATIC TRANSFER SWITCH PROVIDED WITH NEW PRE-MANUFACTURED EQUIPMENT SHELTER.
 - 6 CONTRACTOR SHALL PROVIDE ALARM CONNECTIONS TO FUEL TANK AND LEAK DETECTION ALARM CONDUCTORS. PROVIDE (12 #16) 3/4"C TO LEAK DETECTION CONTROL PANEL. VERIFY EXACT QUANTITY OF CONDUCTORS WITH LEAK DETECTION PANEL PROVIDED.
 - 7 CONTRACTOR TO PROVIDE 120V CONNECTION TO LEAK DETECTION PANEL FROM PANELBOARD PROVIDED WITH EQUIPMENT SHELTER.



2 PARTIAL ELECTRICAL SITE PLAN
 SCALE: 1/8" = 1'-0" (22x34), 1/16" = 1'-0" (11x17)



1 ELECTRICAL SITE PLAN
 SCALE: 1/16" = 1'-0" (22x34), 1/32" = 1'-0" (11x17)



SWAN
(NEW BUILD)
39025 NE NORTH FORK RD.
DUVALL, WA 98019



PROJECT MANAGER: EJC

PREPARED BY: AJO/EAT

APPROVED BY: PN

07/31/17	UPDATED SURVEY
07/31/17	DPER COMMENTS
06/27/17	ELECTRICAL TIE-IN W/ SCL
06/15/17	ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE



SHEET NAME
ONE LINE
DIAGRAM &
PANEL SCHEDULE

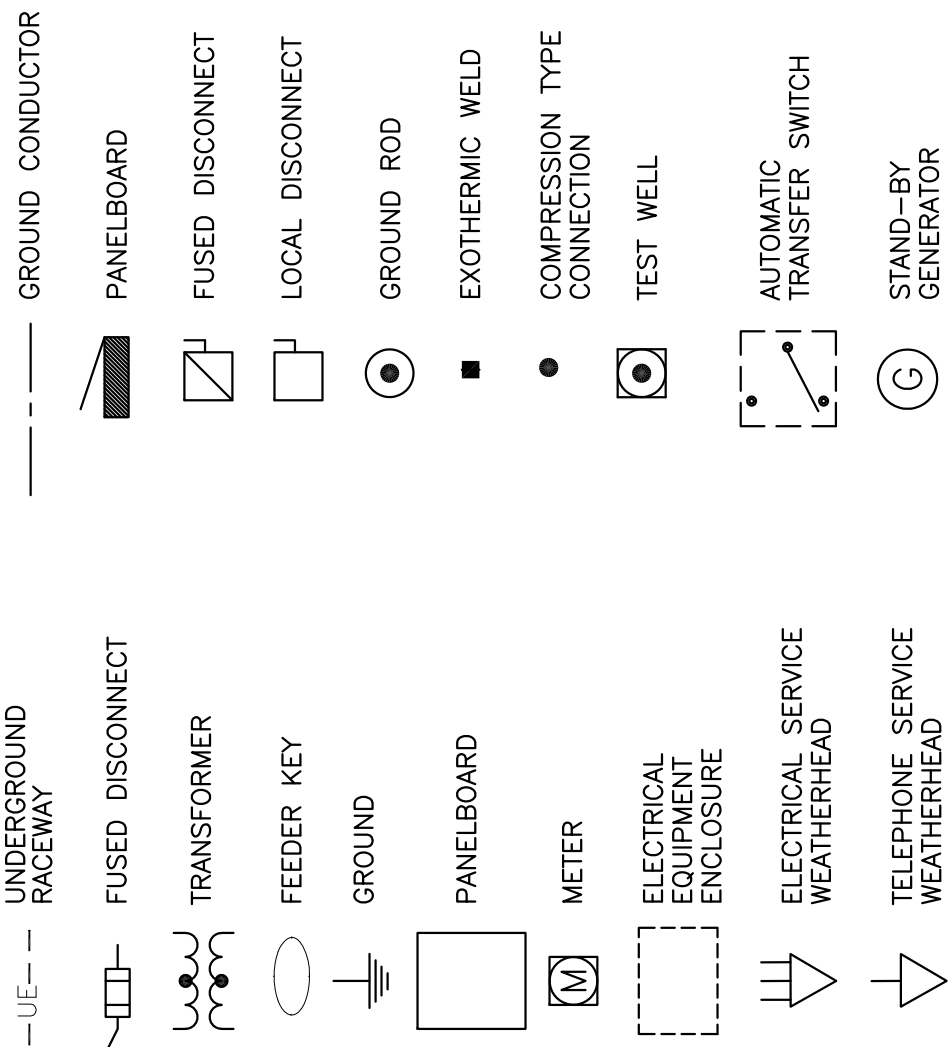
SHEET NUMBER
E-2

- INSTALLATION OF SECONDARY POWER AND CONNECTION TO METER SHALL BE COMPLETED IN COMPLIANCE WITH NATIONAL ELECTRIC CODE, NFPA 70, AND THE STATE OF WASHINGTON LAWS, RULES, REGULATIONS FOR INSTALLING ELECTRICAL WIRES & EQUIPMENT, ALL LATEST EDITIONS AND WITH SPECIFICATIONS PER A.S.I.M. B 231, B 400, I.C.E.A. S651-401, I.C.E.A. P81-570, & LOCAL P.U.D.
- PROVIDE A METER BASE PER LOCAL UTILITY STANDARDS. MOUNT ON SIDE OF OWNER FURNISHED BACK BOARD.
- UNDERGROUND CONDUIT SHALL BE RIGID POLYVINYL CHLORIDE CONDUIT: SCHEDULE 40, TYPE 1, CONFORMING TO UL ARTICLE 651: WESTERN PLASTICS OR CARLON MANUFACTURER. COUPLINGS SHALL BE SLIP-ON, SOLVENT SEALED "I" PIPE: SOLVENT, WESTERN TYPE COMPATIBLE WITH PVC DUCT. ALL BENDS SHALL BE "WIDE SWEEP" TYPE WITH A 24" MINIMUM RADIUS. ALL CONDUIT UNDER ROADS SHALL BE RGS, (OR PVC ENCASED IN 8"x18" RED CONCRETE DUCTBANK).
- CONDUIT USED INDOORS SHALL BE E.M.T. AND RIGID GALVANIZED STEEL FOR OUTDOORS. COUPLINGS SHALL BE RIGID STEEL AND COMPRESSION TYPE FOR E.M.T. SET SCREW FITTINGS ARE NOT PERMITTED. FOR ALL STUBS-UPS, USE RIGID GALVANIZED STEEL CONDUIT.
- WIRE AND CABLE SHALL BE OF THE TYPE AND SIZE AS REQUIRED BY NEC. THERE WILL BE NO SPLICES ALLOWED.
PROVIDE HDPE PULLING HAND HOLES AS NEEDED.
- CONTRACTOR SHALL PROVIDE TEST OF THE GROUNDING SYSTEM BY CERTIFIED TESTING AGENT. PROVIDE INDEPENDENT TEST RESULTS TO THE PROJECT MANAGER FOR REVIEW. GROUNDING SYSTEM RESISTANCE TO GROUND SHALL NOT EXCEED 5 OHMS. ALL ABOVE GRADE INTERIOR GROUNDING CONNECTORS SHALL BE DOUBLE-LUG COMPRESSION TYPE. ALL BELOW GRADE AND EXPOSED EXTERIOR GROUNDING CONNECTIONS TO PERMANENT EQUIPMENT AND FIXED BUILDING ELEMENTS SHALL BE CADWELD TYPE. CARE SHALL BE TAKEN TO REVIEW CONNECTION LOCATIONS AND MATERIAL TYPES TO AVOID POSSIBLE GALVANIC CORROSION. ALL EXPOSED GROUNDING CONNECTIONS TO BE COATED WITH ANTI-CORROSIVE AGENT SUCH AS "NO-OXY", "NOAOLX" OR "PENETROX". VERIFY PRODUCT WITH PROJECT MANAGER. ALL BOLTS, WASHERS AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
- ALL EXTERIOR GROUND BARS SHALL BE COATED WITH ANTI-CORROSIVE AGENT SUCH AS LPS-3 OR AS PER NOTE 6 ABOVE.
- ALL JUNCTION AND OUTLET BOXES TO BE LABELED WITH KROY TAPE, OR EQUAL, DESIGNATING ALL CIRCUIT NUMBERS CONTAINED IN EACH BOX.
- CONTRACTOR TO ENSURE ILC PROVIDED WITH (2) INTERNAL TVSS.
- CONTRACTOR SHALL COORDINATE WITH SITE SURVEY TO LOCATE EXISTING UNDERGROUND LINES. WHEREVER POTENTIAL CONFLICTS/ INTERFERENCES EXIST, HAD EXCAVATE TO AVOID DAMAGE. CONTACT ALL UTILITIES TO LOCATE UNDERGROUND PIPING IN PUBLIC ROW.
- VERIFY THAT A.I.C. OF THE UTILITY DOES NOT EXCEED THE A.I.C. RATING OF THE PROVIDED EQUIPMENT SHELTER PACKAGE. IF OVER 10KAIC, PROVIDE FUSIBLE SERVICE ENTRANCE SWITCH AND CONFIRM LOWERING OF AIC TO ACCEPTABLE LEVELS.
- UTILITY POINTS OF SERVICE AND WORK / MATERIALS SHOWN ARE BASED UPON PRELIMINARY INFORMATION PROVIDED BY THE UTILITY COMPANIES AND ARE FOR BID PURPOSES ONLY.
- CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND EXACT WORK / MATERIALS REQUIREMENTS AND CONSTRUCT TO UTILITY COMPANY ENGINEERING PLANS AND SPECIFICATIONS ONLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, PULL ROPES, CABLES, PULL BOXES, CONCRETE ENCASEMENT OF CONDUIT (IF REQUIRED), TRANSFORMER PAD, BARRIERS, POLE RISERS, TRENCHING, BACKFILL, PAY ALL UTILITY COMPANY FEES AND INCLUDE ALL REQUIREMENTS IN SCOPE OF WORK.

GENERAL NOTES

ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE	IMC	INTERMEDIATE METALLIC CONDUIT
BCW	BARE COPPER WIRE	MGB	MASTER GROUND BAR
DWG	DRAWING	PCS	PERSONAL COMMUNICATION SYSTEM
EMT	ELECTRICAL METALLIC TUBING	RGS	RIGID GALVANIZED STEEL RACEWAY
GEN	GENERATOR	RWY	RACEWAY
IGR	INTERIOR GROUND RING (HALO)	TYP	TYPICAL



LEGEND / ABBREVIATIONS

PP2
225 A. BUS / 120 VOLT, 1 PHASE, 3 WIRE
10000 AMPERE PANEL SHORT CIRCUIT RATING
PANEL TYPE: PROVIDED WITH EQUIPMENT SHELTER
PANEL MOUNTING: SURFACE
NOTE: PROVIDED WITH EQUIPMENT SHELTER

DESCRIPTION	TOTAL BREAKER (VA)	A	P	CCT	PH	CCT	PH	CCT	PH	BREAKER A	P	TOTAL (VA)	DESCRIPTION
RECTIFIER #1	1500	25	2	1	A	2	B	2	A	25	2	1500	RECTIFIER #2
RECTIFIER #3	1500	25	2	3	B	4	A	6	B	25	2	1500	RECTIFIER #4
RECTIFIER #5	1500	25	2	7	A	8	B	10	A	25	2	1500	RECTIFIER #6
RECTIFIER #7	1500	25	2	9	A	10	B	12	A	25	2	1500	RECTIFIER #8
RECTIFIER #9	1500	25	2	13	A	14	B	16	A	25	2	1500	RECTIFIER #9
SPACE	1500	25	2	17	A	18	B	20	A	25	2	1500	ROW 2 TWIST LOCK 1
ROW 1 TWIST LOCK #1	180	20	1	21	A	22	B	24	A	20	1	180	ROW 2 TWIST LOCK 2
ROW 1 TWIST LOCK #2	180	20	1	25	A	26	B	28	A	20	1	180	ROW 2 TWIST LOCK 3
ROW 1 TWIST LOCK #3	180	20	1	27	B	28	A	30	B	20	1	180	ROW 2 TWIST LOCK 4
ROW 1 TWIST LOCK #4	180	20	1	29	A	30	B	32	A	20	1	180	ROW 2 TWIST LOCK 5
ROW 1 TWIST LOCK #5	180	20	1	31	B	32	A	34	B	20	1	180	
TELCO RECEIPT #1	0	0	0	35	B	36	A	38	B	20	1	0	TELCO RECEIPT #2
TELCO RECEIPT #3	180	20	1	39	A	40	B	42	A	20	1	180	TELCO RECEIPT #4
	180	20	1	41	B	42	A			20	1	180	

LOAD TYPE	CONNECTED LOAD	POWER FACTOR	LOAD FACTOR	LOAD KVA	LOAD FACTOR	NEG. CALCULATED LOAD
LIGHTING	0.0 KW	100%	100%	0.0 @ 100%	100%	0.0 KVA
INCANDESCENT FLUORESCENT RECEPTACLES	0.0 KW	95%	95%	0.0 @ 100%	100%	0.0 KVA
FIRST 10 KW REMAINDER	2.5 KW	100%	100%	2.5 @ 100%	100%	2.5 KVA
MOTORS	0.0 KW	80%	80%	0.0 @ 125%	100%	0.0 KVA
LARGEST REMAINDER	0.0 KW	80%	80%	0.0 @ 100%	100%	0.0 KVA
OTHER	24.0 KW	100%	100%	24.0 @ 100%	100%	24.0 KVA
TOTAL	26.5 KW			26.5 KVA		26.5 KVA
PHASE "A"	13.4 KW	MINIMUM PANEL AMPACITY =		A-B	97%	97% PHASE BALANCE
PHASE "B"	13.1 KW	POWER FACTOR		100%		

PP1
225 A. BUS / 200 A. MAIN CIRCUIT BREAKER
240 / 120 VOLT, 1 PHASE, 3 WIRE
10000 AMPERE PANEL SHORT CIRCUIT RATING
PANEL TYPE: PROVIDED WITH EQUIPMENT SHELTER
PANEL MOUNTING: SURFACE
NOTE: PROVIDED WITH EQUIPMENT SHELTER

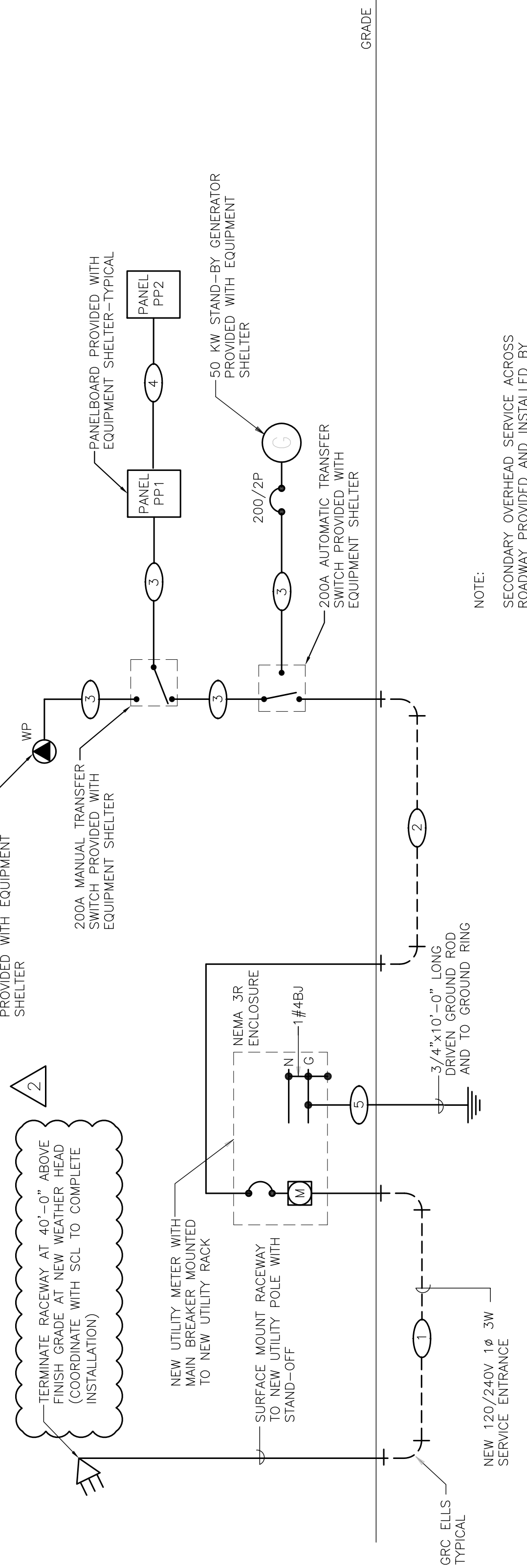
DESCRIPTION	TOTAL BREAKER (VA)	A	P	CCT	PH	CCT	PH	CCT	PH	BREAKER A	P	TOTAL (VA)	DESCRIPTION
HVAC #1	2800	50	2	1	A	2	B	50	A	50	2	2800	HVAC #2
PANEL PP2	14940	125	2	3	B	4	A	6	B	60	2	14940	REUNDANT UNIT
EXTERIOR LTC	14580	20	1	7	A	8	B	10	A	20	1	14580	SURGE ARRESTOR
EQ ROOM LTG	1011	20	1	9	A	10	B	12	A	20	1	1011	EXT GFI RECEPITS
FIRE SUPPRESSION	126	20	1	13	A	14	B	16	A	20	1	126	EQUIP RM RECEPITS
				15	B	16	A	18	B	20	1	500	FUEL PUMP
				17	A	18	B	20	A	20	1	500	LEAK CONTROL PANEL
				19	B	20	A	22	B	20	1		
				21	A	22	B	24	A	22	1		
				23	B	24	A	26	B	24	1		
				25	A	26	B	28	A	26	1		
				27	B	28	A	30	B	28	1		
				29	A	30	B	32	A	30	1		
				31	B	32	A	34	B	32	1		
				33	A	34	B	36	A	34	1		
				35	B	36	A	38	B	36	1		
				37	A	38	B	40	A	38	1		
				39	B	40	A	42	B	40	1		
				41	A	42	B			42	1		

LOAD TYPE	CONNECTED LOAD	POWER FACTOR	LOAD FACTOR	LOAD KVA	LOAD FACTOR	NEG. CALCULATED LOAD
LIGHTING	0.0 KW	100%	100%	0.0 @ 100%	100%	0.0 KVA
INCANDESCENT FLUORESCENT RECEPTACLES	1.3 KW	95%	95%	1.3 @ 100%	100%	1.7 KVA
FIRST 10 KW REMAINDER	0.0 KW	100%	100%	0.0 @ 50%	100%	0.0 KVA
MOTORS	23.3 KW	80%	80%	29.2 @ 125%	100%	36.5 KVA
LARGEST REMAINDER	5.1 KW	80%	80%	6.3 @ 100%	100%	6.3 KVA
OTHER	0.5 KW	100%	100%	0.5 @ 100%	100%	0.5 KVA
TOTAL	31.2 KW			38.4 KVA		46.0 KVA
PHASE "A"	15.0 KW	MINIMUM PANEL AMPACITY =		A-B	92%	92% PHASE BALANCE
PHASE "B"	16.3 KW	POWER FACTOR		81%		

FEEDER SCHEDULE

- (3 #3/0) 2°C
- (3 #3/0 & 1#6G) 2°C
- (3 #3/0 & 1#6G) 2°C
- PROVIDED WITH EQUIPMENT SHELTER
- (3 #1 & 1#4G) 1 1/2°C
- PROVIDED WITH EQUIPMENT SHELTER
- 1 #4 CU

ALL CONDUCTORS SHALL BE COPPER 600V. RATED WITH THHN INSULATION



ELECTRICAL ONE LINE DIAGRAM

NO SCALE



SWAN
(NEW BUILD)
39025 NE NORTH FORK RD.
DUVALL, WA 98019

PACIFIC CORPORATION
5506 6TH AVE. S. SUITE 202
SEATTLE, WA 98108
PHONE: (206) 460-3626
WWW.OBELIA.COM

CAMP+ ASSOCIATES
19401 40TH AVE. W. SUITE 304
LYNNWOOD, WA 98037
PHONE: (425) 740-8392
FAX: (425) 252-2880
WWW.CAMPASSOC.COM

PROJECT MANAGER: EJC

PREPARED BY: AJO/EAT

APPROVED BY: PN

- 07/31/17 UPDATED SURVEY
- 07/31/17 DPER COMMENTS
- 06/27/17 ELECTRICAL TIE-IN W/ SCL
- 06/15/17 ISSUED FOR PERMIT

PLAN REVIEWERS SIGNATURE



SHEET NAME
GROUNDING PLANS & NOTES

SHEET NUMBER
E-3.0

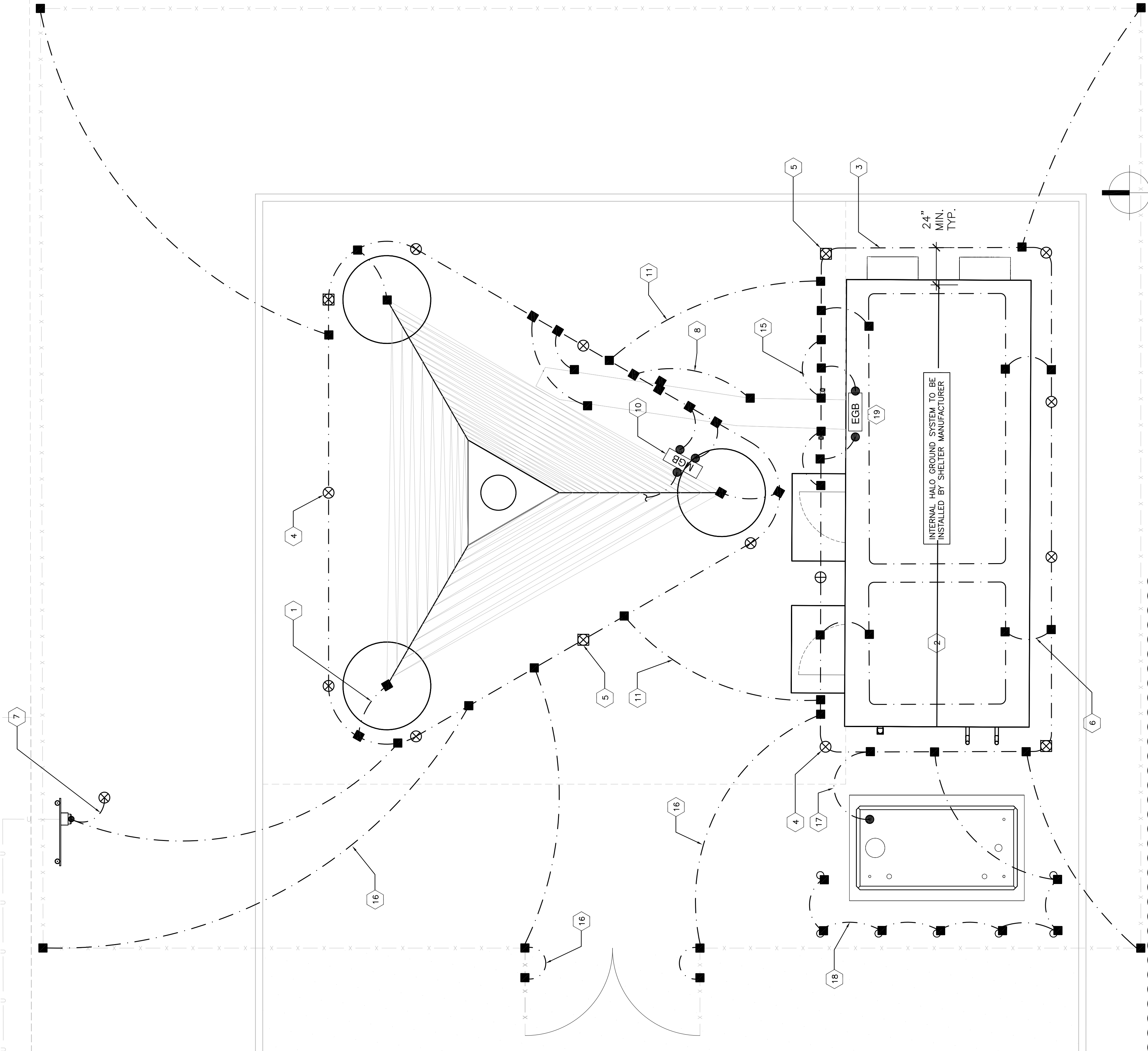
GENERAL NOTES:

1. ALL CADWELD CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COVERED WITH TWO (2) COATS OF SHERWIN WILLIAMS GALVANITE B350W3 OR EQUAL.
2. ALL ELECTRICAL CADWELD AND MECHANICAL GROUND CONNECTIONS WILL HAVE NON-OXIDATION COMPOUND APPLIED TO CONNECTION.
3. ANY METAL OBJECTS WITHIN 6 FEET OF THE EXTERNAL GROUND RING SHALL BE GROUNDED.
4. ALL GROUNDING MATERIALS AND CADWELD MOLDS, SHOTS, ETC. SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED.
5. THE ELECTRICAL CONTRACTOR SHALL FOLLOW GROUNDING SYSTEM INSTALLED AND TESTING PROCEDURES AS DESCRIBED IN THE GENERAL ELECTRICAL PROVISIONS.
6. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
7. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
8. OBSERVE NEC AND LOCAL UTILITY REQUIREMENTS FOR ELECTRICAL SERVICE GROUNDING.
9. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS.
10. SITE TO COMPLY WITH R56 STANDARDS FOR GROUNDING.

ITEM	LEGEND DESCRIPTION
⊗	3/4" DIAMETER x 10'-0" LONG COPPER CLAD GROUND ROD, MINIMUM 30" BELOW GRADE, AT MINIMUM 10'-0" O.C. (HARGER #5810).
⊠	CADWELD INSPECTION WELL.
—	#2 AWG TINNED SOLID BARE COPPER WIRE, MINIMUM 30" BELOW GRADE, OR 6" BELOW LOCAL FROST LINE.
■	CADWELD/EXOTHERMIC WELD CONNECTION.
●	MECHANICAL CONNECTION.

KEYED NOTES:

- 1 NEW 235' HIGH SELF-SUPPORTING LATTICE TOWER. PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO EXOTHERMIC WELD CONNECTION AT BASE OF TOWER, TYP.
- 2 NEW 12'-0" X 30'-0" EQUIPMENT SHELTER.
- 3 PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR LOCATED 30" BELOW FINISH GRADE FOR EXTERIOR GROUND RING AT TOWER AND EQUIPMENT SHELTER.
- 4 PROVIDE 3/4" DIAMETER x 10'-0" LONG COPPER CLAD GROUND ROD, MINIMUM 30" BELOW GRADE, AT MINIMUM 10'-0" O.C.
- 5 GROUND INSPECTION AND TEST WELL. SEE DETAIL FOR CONSTRUCTION REQUIREMENTS. MIN (1) ONE PER GROUND RING.
- 6 PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO INTERIOR HALO GROUND RING.
- 7 NEW UTILITY METER W/ MAIN BREAKER GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO MECHANICAL CONNECTION AT ELECTRICAL ENCLOSURE. PROVIDE EXOTHERMIC WELD CONNECTION TO NEW GROUND ROD.
- 8 PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR FOR GROUND CONNECTION TO WAVEGUIDE BRIDGE PIPE SUPPORT. PROVIDE GROUND CONNECTION AT EACH PIPE SUPPORT.
- 9 NEW COLLECTION GROUND BAR MOUNTED AT ANTENNA LEVEL OF TOWER. PROVIDE #2 INSULATED SHAWED COPPER CONDUCTOR TO MECHANICAL CONNECTION AT MASTER GROUND BAR AT BASE OF TOWER.
- 10 NEW MASTER GROUND BAR MOUNTED AT BASE OF TOWER. PROVIDE (2) #2 BARE SOLID TINNED COPPER CONDUCTORS TO EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING.
- 11 PROVIDE (2) #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT TOWER GROUND RING TO EXOTHERMIC WELD CONNECTION AT EQUIPMENT SHELTER GROUND RING. SEPARATE AS MUCH AS FEASIBLE.
- 12 MICROWAVE ANTENNA GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM MECHANICAL CONNECTION AT COLLECTION GROUND BAR TO EXOTHERMIC WELD CONNECTION AT MICROWAVE ANTENNAS, TYP.
- 13 ENCLOSED DIPOLE ANTENNA WITH REFLECTOR GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM MECHANICAL CONNECTION AT COLLECTION GROUND BAR TO MECHANICAL CONNECTION AT ENCLOSED DIPOLE ANTENNAS, TYP.
- 14 ENCLOSED DIPOLE ARRAY ANTENNA GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM MECHANICAL CONNECTION AT COLLECTION GROUND BAR TO MECHANICAL CONNECTION AT ENCLOSED DIPOLE ANTENNAS, TYP.
- 15 GPS GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT GROUND RING TO MECHANICAL CONNECTION AT GPS ANTENNA, TYP.
- 16 FENCE POST AND GATE GROUNDING. #2 AWG TINNED SOLID BARE COPPER CONDUCTORS FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO EXOTHERMIC WELD CONNECTION AT NEW FENCE POST AND GATE. PROVIDE CONNECTION AT EACH FENCE CORNER POST. PROVIDE FLEXIBLE MECHANICAL CONNECTION AT FENCE GATE AND POST.
- 17 FUEL TANK GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT GROUND RING TO MECHANICAL CONNECTION AT FUEL TANK GROUNDING LUG.
- 18 SAFETY BOLLARD GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT GROUND RING TO EXOTHERMIC WELD CONNECTION AT BOLLARD, TYP.
- 19 EXTERNAL GROUND BAR MOUNTED BELOW ENTRY PORT AT EQUIPMENT SHELTER. PROVIDE (2) #2 BARE SOLID TINNED COPPER CONDUCTORS TO EXOTHERMIC WELD CONNECTION AT NEW EXTERIOR GROUND RING.

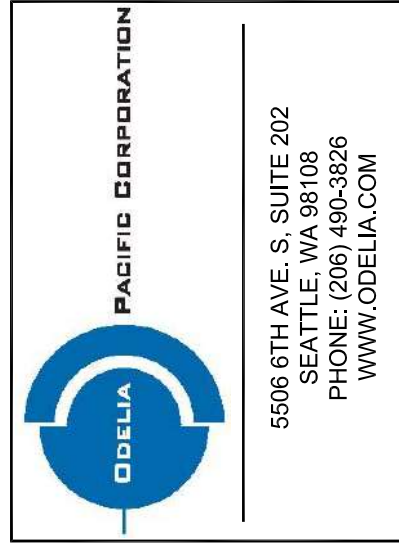


1 ELECTRICAL GROUNDING PLAN @ GRADE

SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)



SWAN
(NEW BUILD)
39025 NE NORTH FORK RD.
DUVALL, WA 98019



PROJECT MANAGER: E/C

PREPARED BY: A/O/EAT

APPROVED BY: PN

▲	07/31/17	UPDATED SURVEY
▲	07/21/17	DRER COMMENTS
▲	06/27/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

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SHEET NAME
GROUNDING PLANS & NOTES

SHEET NUMBER
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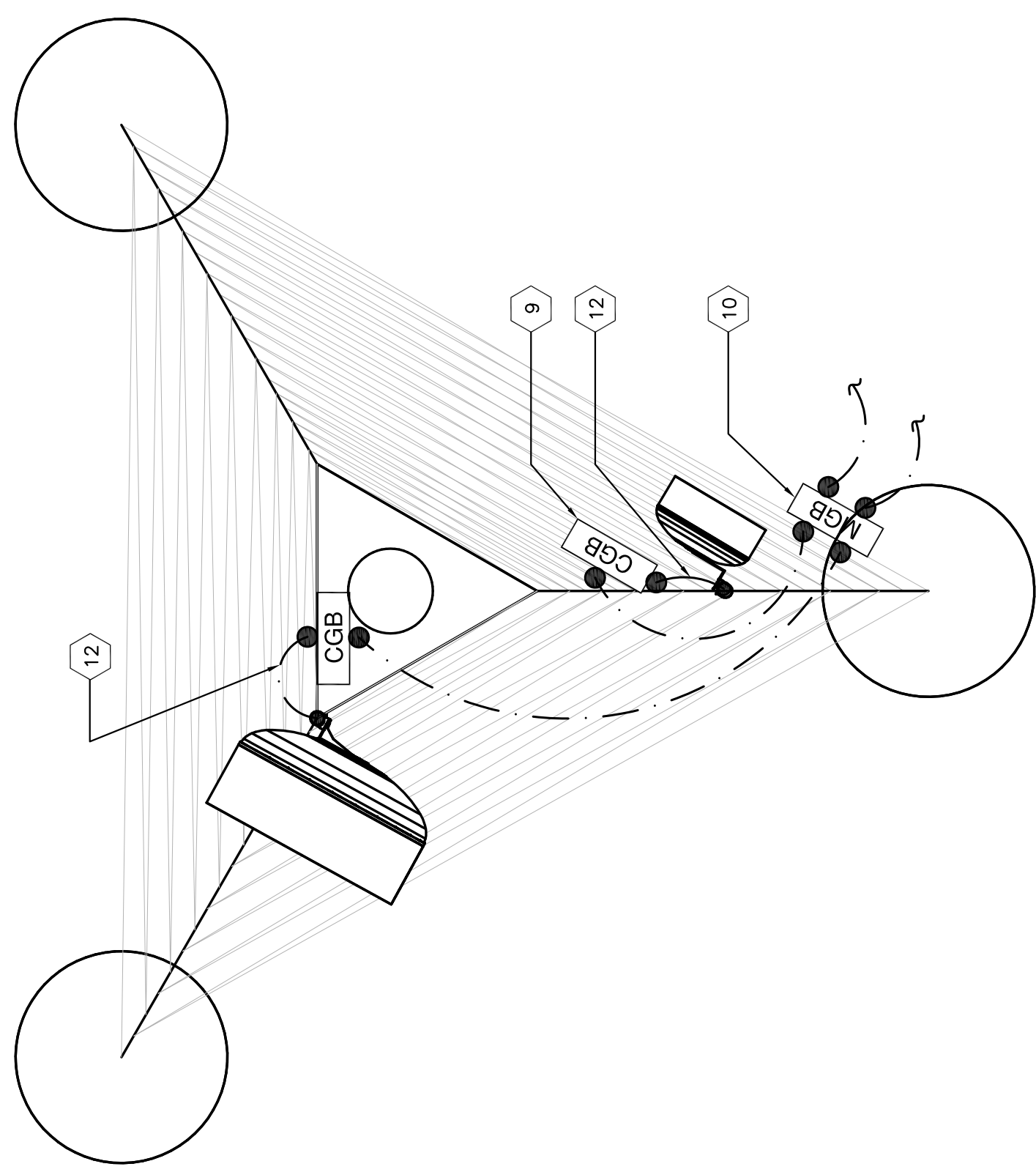
GENERAL NOTES.

- ALL CADWELD CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COVERED WITH TWO (2) COATS OF SHERWIN WILLIAMS GALVANITE B550W3 OR EQUAL.
- ALL ELECTRICAL CADWELD AND MECHANICAL GROUND CONNECTIONS WILL HAVE NON-OXIDATION COMPOUND APPLIED TO CONNECTION.
- ANY METAL OBJECTS WITHIN 6 FEET OF THE EXTERNAL GROUND RING SHALL BE GROUNDING.
- ALL GROUNDING MATERIALS AND CADWELD MOLDS, SHOTS, ETC. SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED.
- THE ELECTRICAL CONTRACTOR SHALL FOLLOW GROUNDING SYSTEM INSTALLED AND TESTING PROCEDURES AS DESCRIBED IN THE GENERAL ELECTRICAL PROVISIONS.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- OBSERVE NEC AND LOCAL UTILITY REQUIREMENTS FOR ELECTRICAL SERVICE GROUNDING.
- MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS.
- SITE TO COMPLY WITH R66 STANDARDS FOR GROUNDING.

ITEM	LEGEND	DESCRIPTION
⊗		3/4" DIAMETER x 10'-0" LONG COPPER CLAD GROUND ROD, MINIMUM 30" BELOW GRADE, AT MINIMUM 10'-0" O.C. (LARGER #5619).
⊠		CADWELD INSPECTION WELL.
—		#2 AWG TINNED SOLID BARE COPPER WIRE, MINIMUM 30" BELOW GRADE, OR 6" BELOW LOCAL FROST LINE.
■		CADWELD/EXOTHERMIC WELD CONNECTION.
●		MECHANICAL CONNECTION.

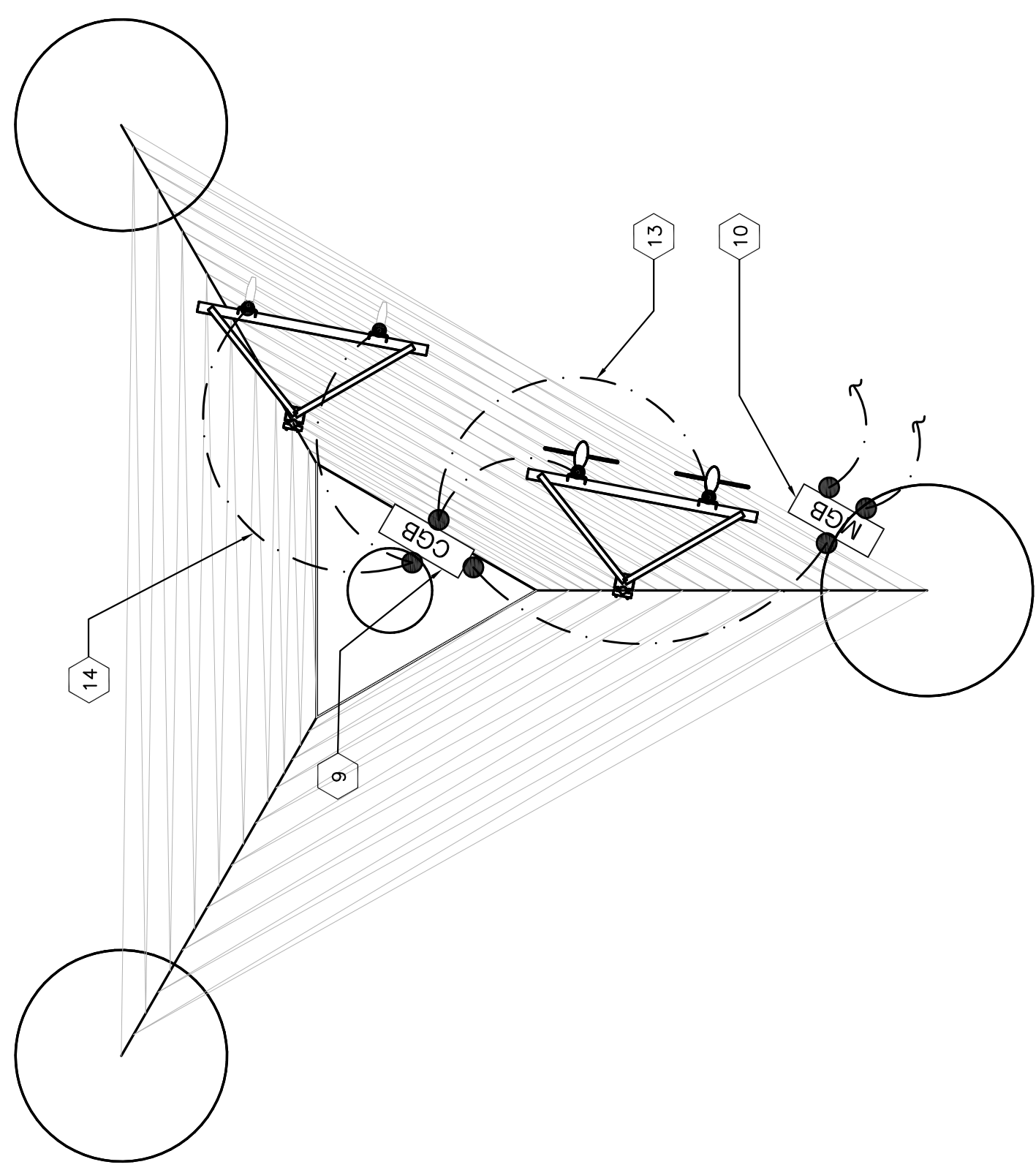
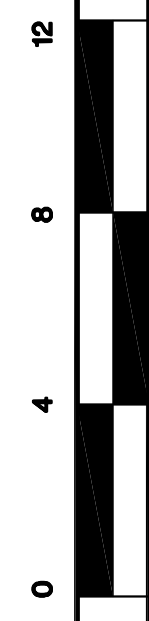
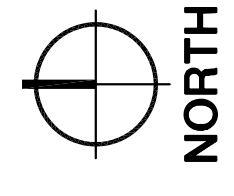
KEYED NOTES.

- NEW 235' HIGH SELF-SUPPORTING LATTICE TOWER. PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO EXOTHERMIC WELD CONNECTION AT BASE OF TOWER, TYP.
- NEW 12'-0" x 30'-0" EQUIPMENT SHELTER.
- PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR LOCATED 30" BELOW FINISH GRADE FOR EXTERIOR GROUND RING AT TOWER AND EQUIPMENT SHELTER.
- PROVIDE 3/4" DIAMETER x 10'-0" LONG COPPER CLAD GROUND ROD, MINIMUM 30" BELOW GRADE, AT MINIMUM 10'-0" O.C.
- GROUND INSPECTION AND TEST WELL. SEE DETAIL FOR CONSTRUCTION REQUIREMENTS. MIN (1) ONE PER GROUND RING.
- PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO INTERIOR HALO GROUND RING.
- NEW UTILITY METER W/ MAIN BREAKER GROUNDING, #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO MECHANICAL CONNECTION AT ELECTRICAL ENCLOSURE. PROVIDE EXOTHERMIC WELD CONNECTION TO NEW GROUND ROD.
- PROVIDE #2 BARE SOLID TINNED COPPER CONDUCTOR FOR GROUND CONNECTION TO WATGUIDE BRIDGE PIPE SUPPORT. PROVIDE GROUND CONNECTION AT EACH PIPE SUPPORT.
- NEW COLLECTION GROUND BAR MOUNTED AT ANTENNA LEVEL OF TOWER. PROVIDE #2 INSULATED STRANDED COPPER CONDUCTOR TO MECHANICAL CONNECTION AT MASTER GROUND BAR AT BASE OF TOWER.
- NEW MASTER GROUND BAR MOUNTED AT BASE OF TOWER. PROVIDE (2) #2 BARE SOLID TINNED COPPER CONDUCTORS TO EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING.
- PROVIDE (2) #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT TOWER GROUND RING TO EXOTHERMIC WELD CONNECTION AT EQUIPMENT SHELTER GROUND RING. SEPARATE AS MUCH AS FEASIBLE.
- MICROWAVE ANTENNA GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM MECHANICAL CONNECTION AT COLLECTION GROUND BAR TO EXOTHERMIC WELD CONNECTION AT MICROWAVE ANTENNAS, TYP.
- ENCLOSED DIPOLE ANTENNA WITH REFLECTOR GROUNDING, #2 BARE SOLID TINNED COPPER CONDUCTOR FROM MECHANICAL CONNECTION AT COLLECTION GROUND BAR TO MECHANICAL CONNECTION AT ENCLOSED DIPOLE ANTENNAS, TYP.
- ENCLOSED DIPOLE ARRAY ANTENNA GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM MECHANICAL CONNECTION AT COLLECTION GROUND BAR TO MECHANICAL CONNECTION AT ENCLOSED DIPOLE ANTENNAS, TYP.
- GPS GROUNDING, #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT GROUND RING TO MECHANICAL CONNECTION AT GPS ANTENNA, TYP.
- FENCE POST AND GATE GROUNDING. #2 AWG TINNED SOLID BARE COPPER CONDUCTORS FROM EXOTHERMIC WELD CONNECTION AT EXTERIOR GROUND RING TO EXOTHERMIC WELD CONNECTION AT NEW FENCE POST AND GATE. PROVIDE CONNECTION AT EACH FENCE CORNER POST. PROVIDE FLEXIBLE MECHANICAL CONNECTION AT FENCE GATE AND POST.
- FUEL TANK GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT GROUND RING TO MECHANICAL CONNECTION AT FUEL TANK GROUNDING LUG.
- SAFETY BOLLARD GROUNDING. #2 BARE SOLID TINNED COPPER CONDUCTOR FROM EXOTHERMIC WELD CONNECTION AT GROUND RING TO EXOTHERMIC WELD CONNECTION AT BOLLARD, TYP.
- EXTERNAL GROUND BAR MOUNTED BELOW ENTRY PORT AT EQUIPMENT SHELTER. PROVIDE (2) #2 BARE SOLID TINNED COPPER CONDUCTORS TO EXOTHERMIC WELD CONNECTION AT NEW EXTERIOR GROUND RING.



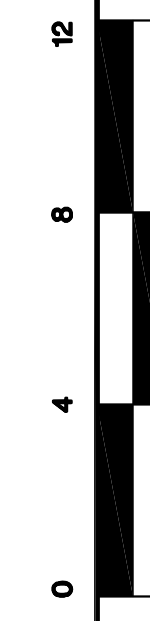
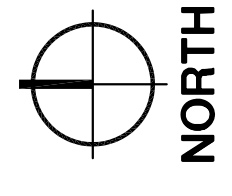
1 ANTENNA GROUNDING PLAN @ 230'-0"

SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)



2 ANTENNA GROUNDING PLAN @ 170'-0"

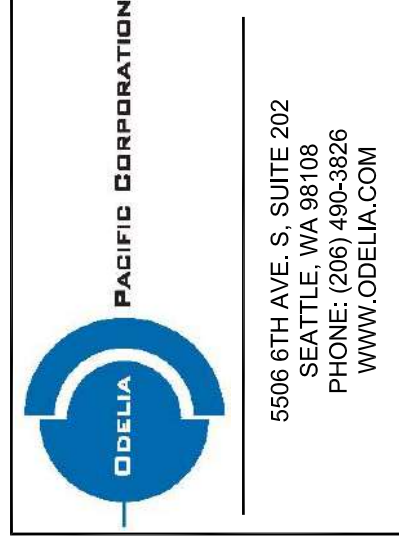
SCALE: 1/4" = 1'-0" (22x34), 1/8" = 1'-0" (11x17)



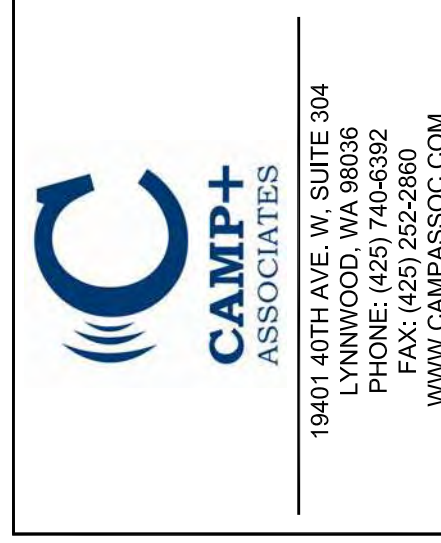


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WWW.CAMPASSOC.COM

PROJECT MANAGER: EJC
PREPARED BY: AJO/EAT
APPROVED BY: PN

▲	07/31/17	UPDATED SURVEY
▲	07/21/17	DPER COMMENTS
▲	06/27/17	ELECTRICAL TIE-IN W/ SCL
▲	06/15/17	ISSUED FOR PERMIT

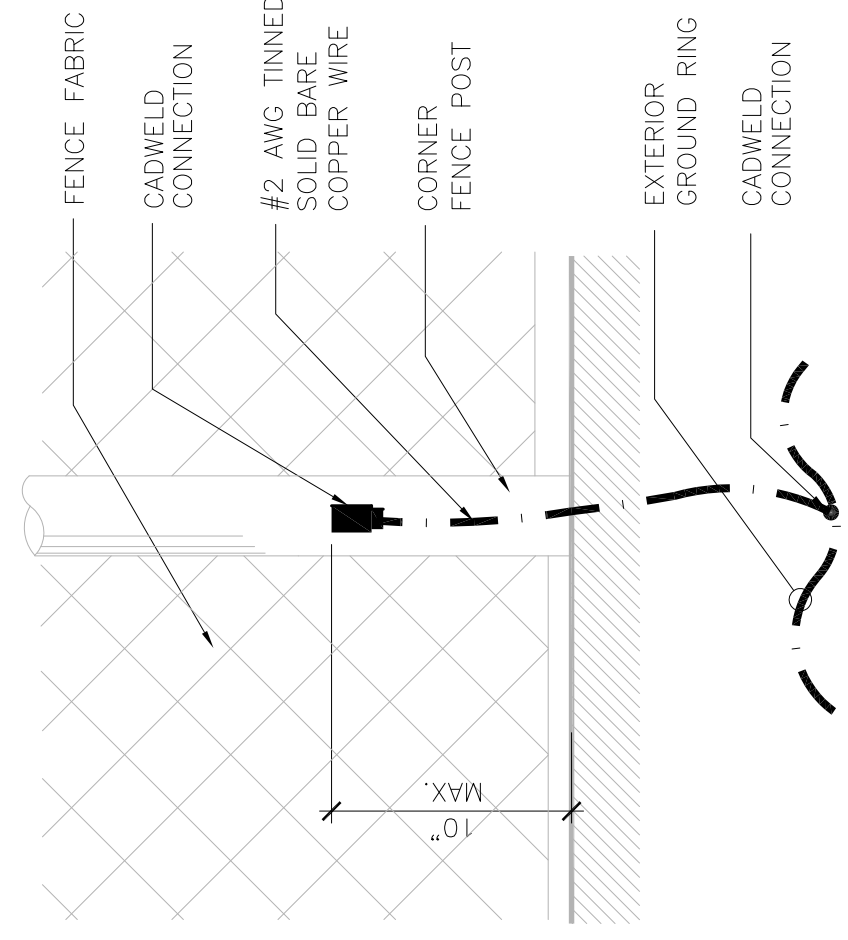
PLAN REVIEWERS SIGNATURE



ARCHITECTS STAMP
RICHARD ALLEN PROFESSIONAL ARCHITECTS
CLAUDE ALLEN
WASHINGTON STATE ARCHITECT
NO. 10000

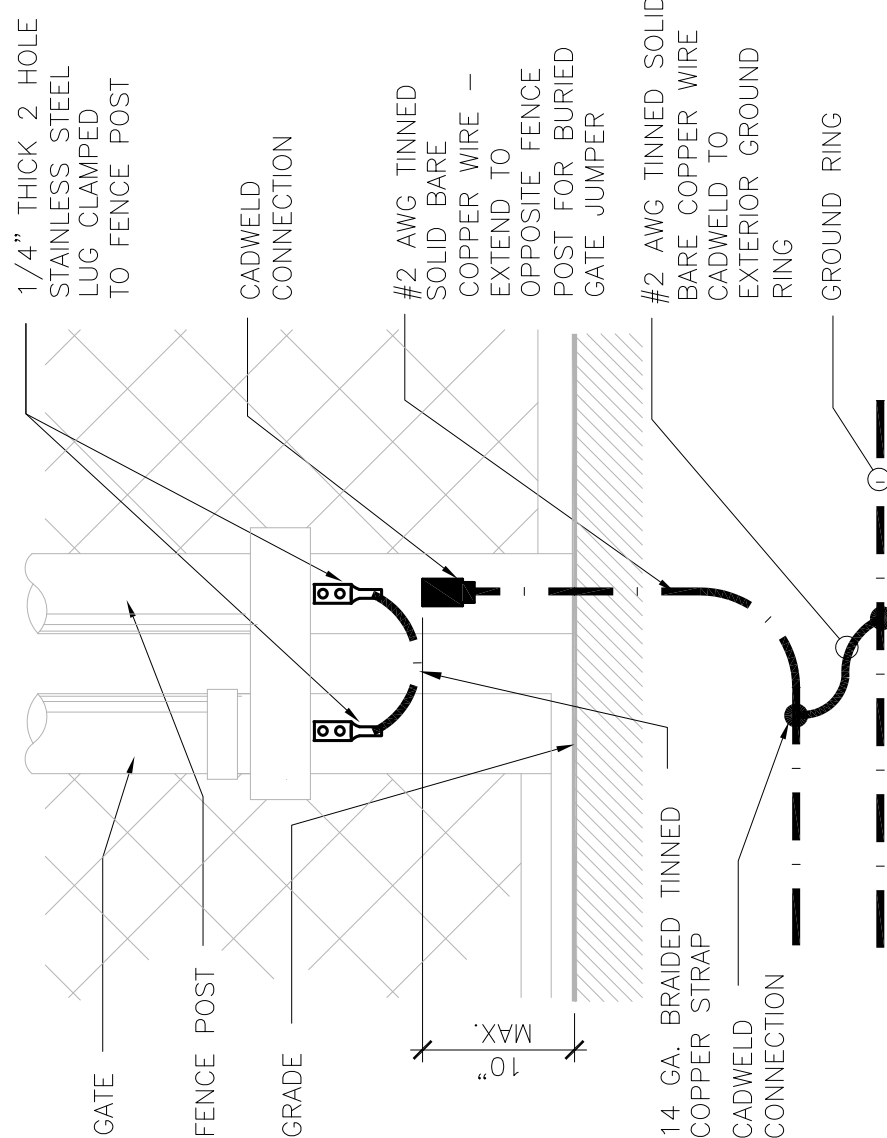
SHEET NAME
GROUNDING
DETAILS & NOTES

SHEET NUMBER
E-4



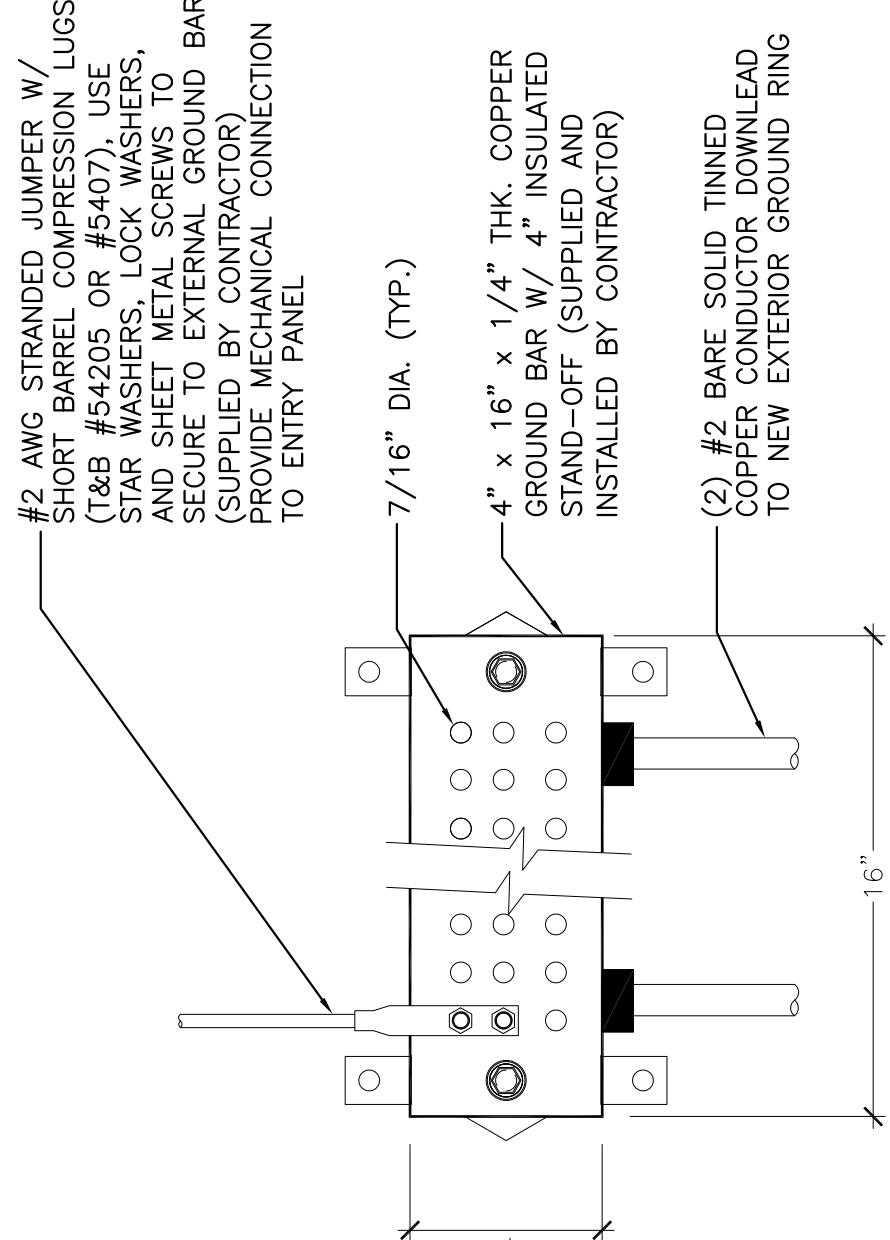
FENCE GROUNDING DETAIL

6 NOT TO SCALE



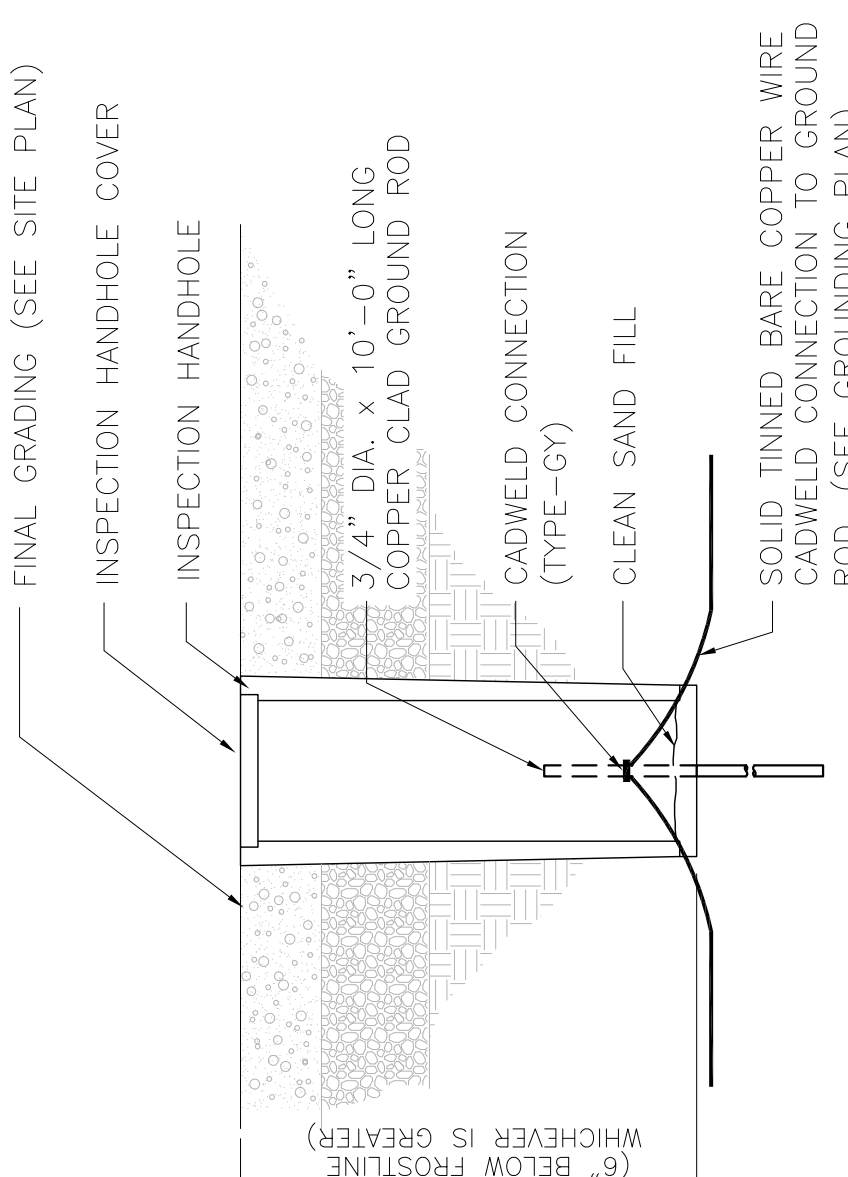
FENCE AND GATE GROUNDING

7 NOT TO SCALE



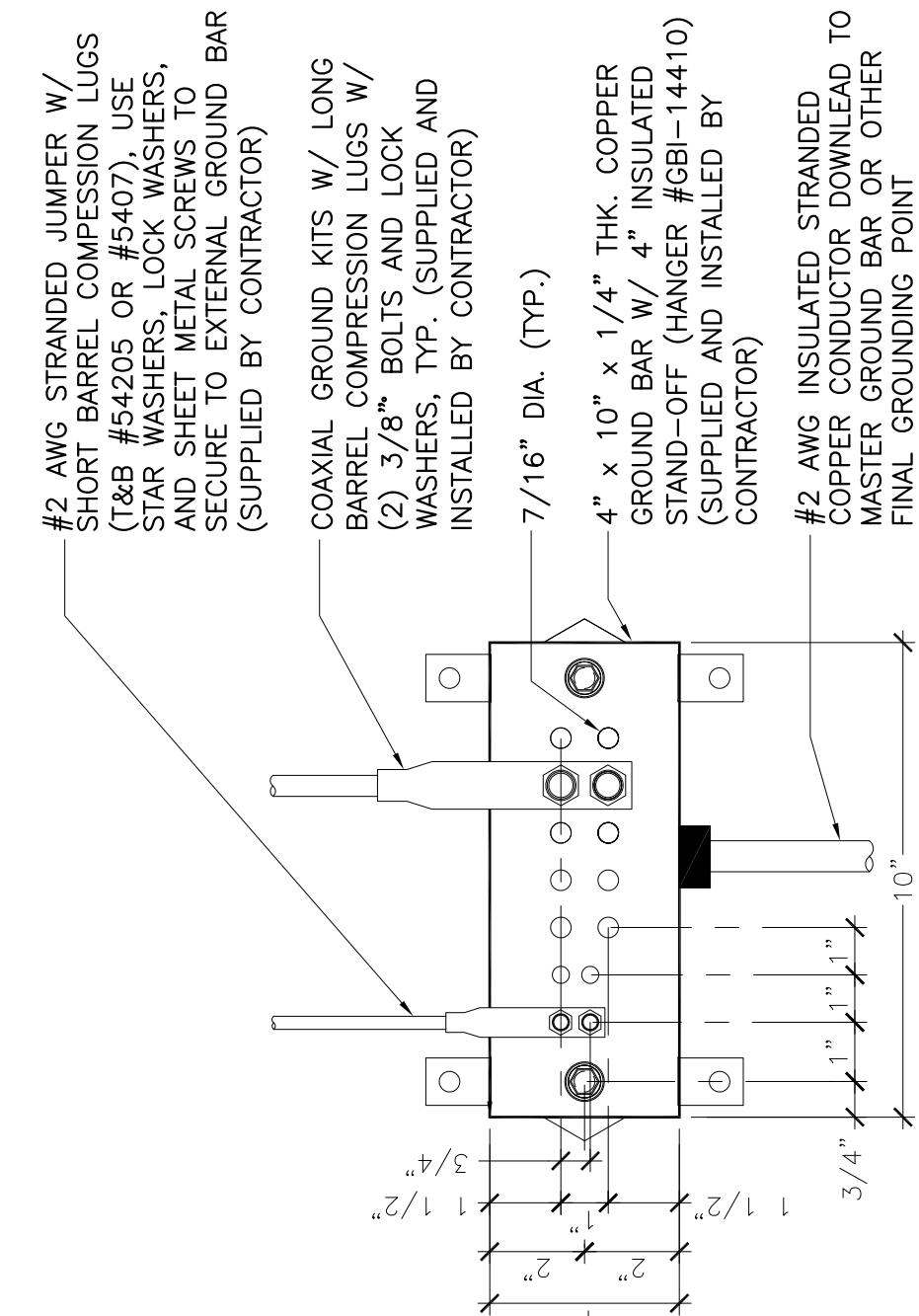
EXTERNAL GROUND BAR

8 NOT TO SCALE



CADWELD INSPECTION WELL

3 NOT TO SCALE

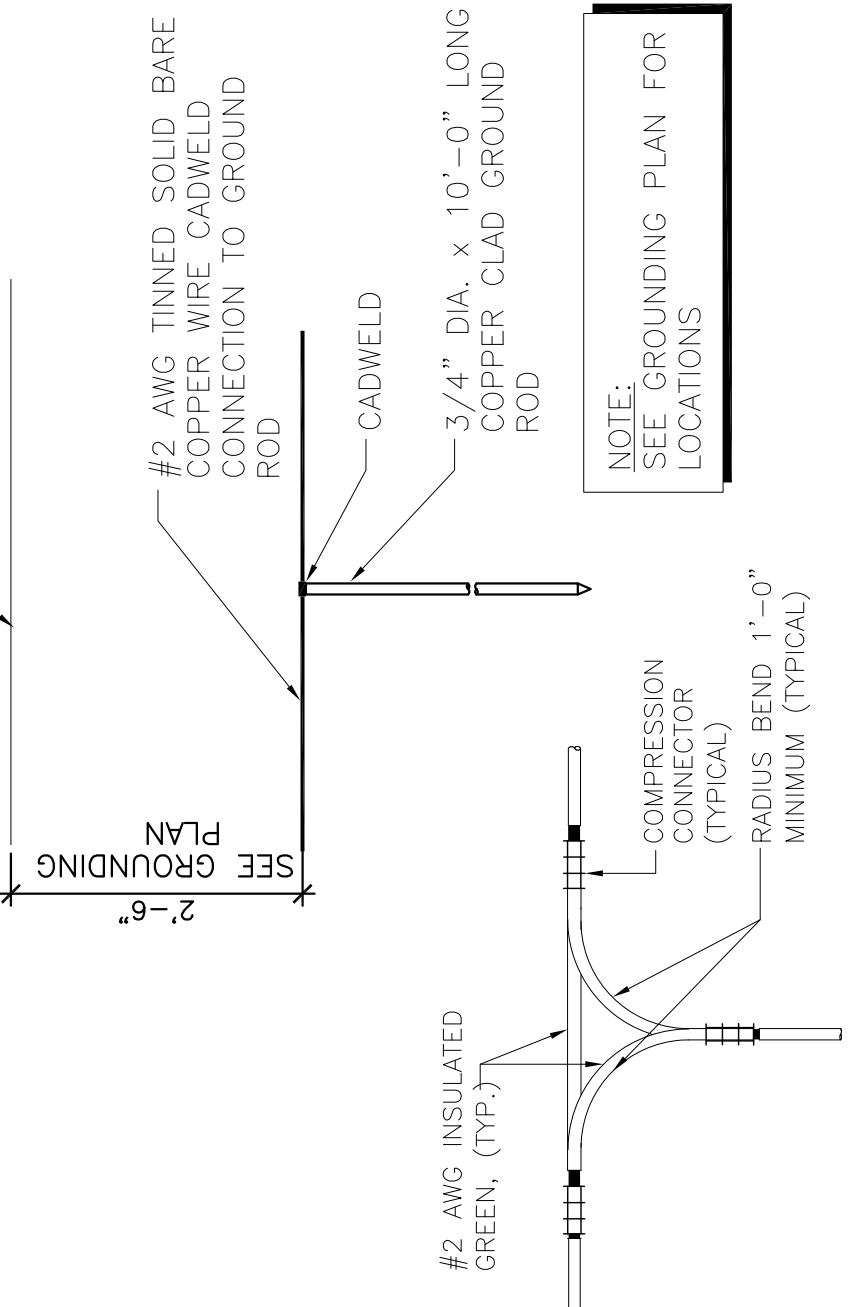


DETAIL "A-A"

PANI SCHEME SPECIFICATIONS:

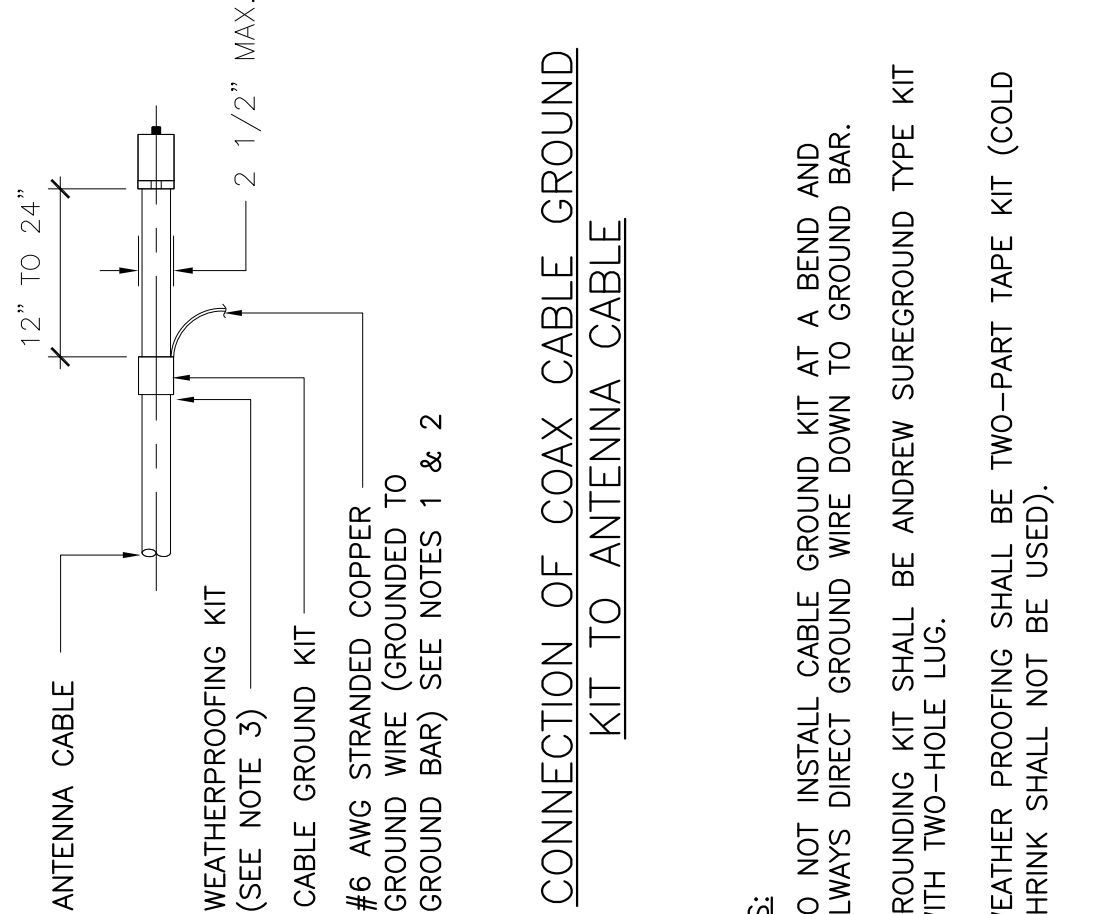
- PRODUCER (P)
CONNECTS TO WIRELESS EQUIPMENT CABINETS, CABLE ENTRANCE GROUND BAR (CEGB), MAIN DISTRIBUTION FRAME GROUND BAR (MDFB), AND STANDBY ENGINE-GENERATOR SET FRAME AND OTHER NOISE PRODUCING EQUIPMENT
- ABSORBER (A)
CONNECTS TO THE EARTH ELECTRODE SYSTEM INCLUDING CENTRAL OFFICE GROUND GRID, BUILDING STRUCTURAL GROUND, METALLIC WATER PIPE SYSTEM, ANTENNA SUPPORTING STRUCTURE GROUND SYSTEM, AND ELECTRICAL SERVICE ENTRANCE GROUND
- NON-ISOLATED (N)
CONNECTS TO EQUIPMENT NOT IN AN ISOLATED GROUND ZONE (IGZ) SUCH AS CBN EQUIPMENT FRAME GROUNDS AND DC GROUND CONDUCTORS FOR DC POWER SYSTEMS THAT SERVE CBN OR BOTH CBN AND IBN EQUIPMENT
- ISOLATED (I)
CONNECTS TO THE SINGLE POINT CONNECTION BAR (SPCB), FOR IBN EQUIPMENT

- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR
 - WEATHER PROOFING SHALL BE ANDREWS. (TYPE & PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER)



GROUND RING DETAIL

2 NOT TO SCALE

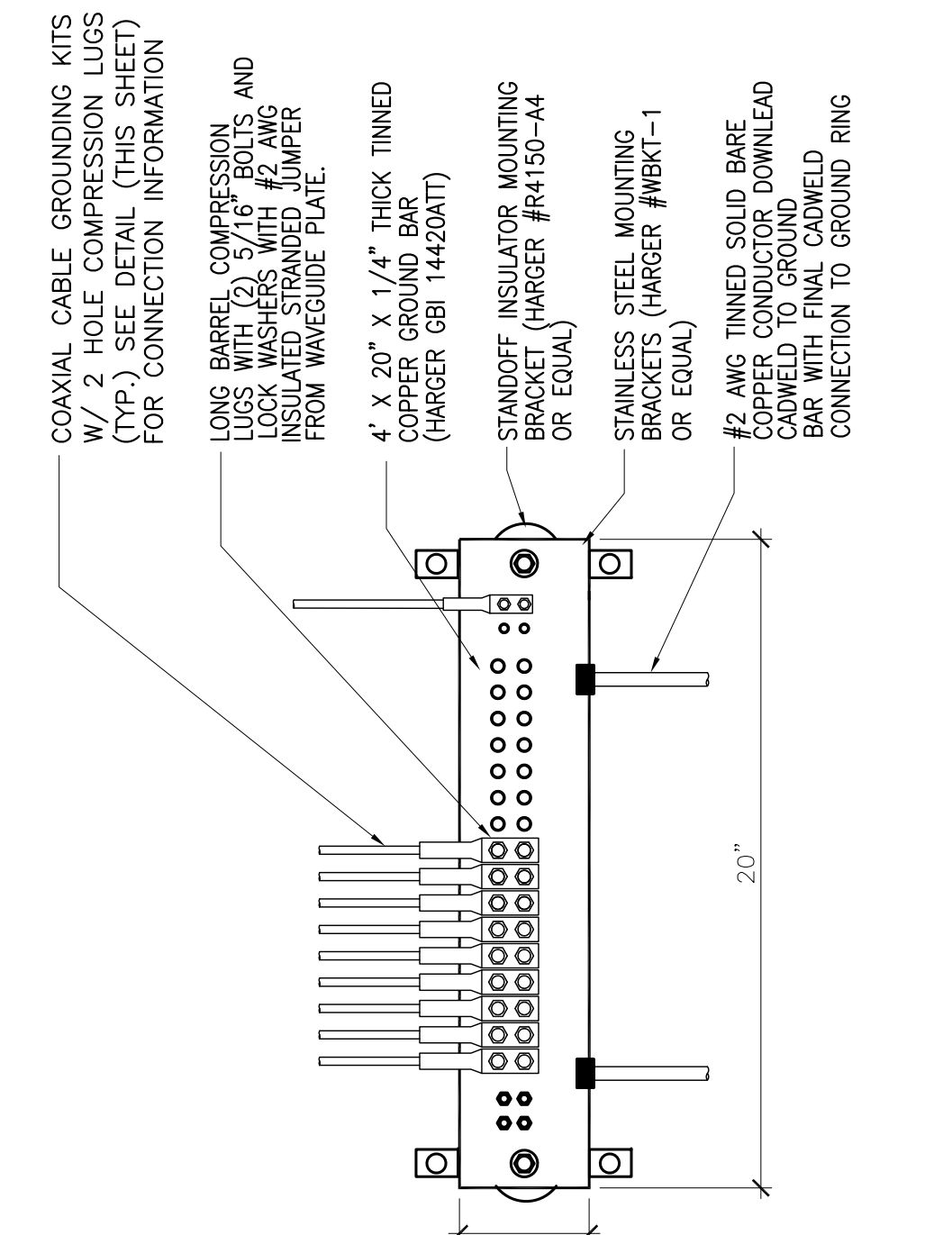


NOTES:

- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
- GROUNDING KIT SHALL BE ANDREW SUREGROUND TYPE KIT WITH TWO-HOLE LUG.
- WEATHER PROOFING SHALL BE TWO-PART TAPE KIT (GOLD) SHRINK SHALL NOT BE USED.

COAXIAL CABLE GROUND WIRE TO COLLECTION GROUND BAR CONNECTION

4 NOT TO SCALE

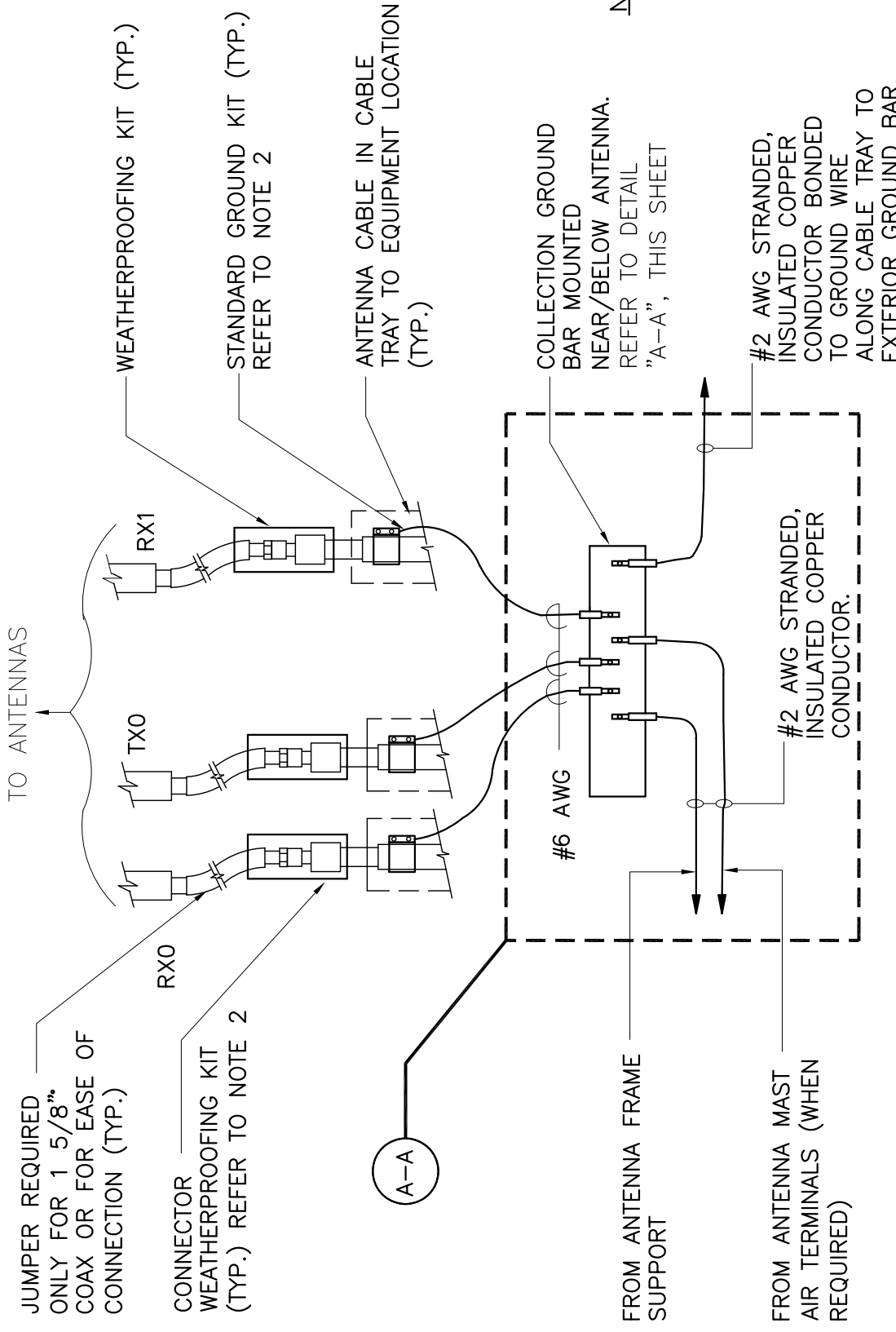


* GROUND BARS AT BOTTOM OF TOWERS OR MONOPOLES SHALL USE EXOTHERMIC CONNECTION.

- GENERAL NOTES**
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
 - ALL GROUNDING SHALL CONFORM TO R56 STANDARDS.
 - CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
 - THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
 - PRE-FABRICATED SHELTER WILL BE PROVIDED WITH INTERNAL WIRING, CABLE TRAYS, ETC. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY SHELTER MANUFACTURER.
 - ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP & HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
 - GROUND RODS SHALL BE STAINLESS STEEL OR COPPER CLAD STEEL, 3/4"Ø 10-FT. LONG, AND SHALL BE DRIVEN VERTICALLY WITH THEIR TOPS 30" BELOW FINAL GRADE OR 6" BELOW FROST LINE FOR MAXIMUM DEPTH.
 - OBSERVE N.E.C. AND LOCAL UTILITY REQUIREMENTS FOR ELECTRICAL SERVICE GROUNDING.
 - GROUNDING ATTACHMENT TO TOWER SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS OR AT GROUNDING POINTS PROVIDED (2 MINIMUM).
 - MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS.
 - ENSURE ALL MECHANICAL CONNECTORS ARE TORQUED TO THE MANUFACTURER'S SPECIFIED VALUES.
 - GROUND BARS SHALL NOT BE FIELD MODIFIED.
 - USE PANI SCHEME FOR LOADING ON MASTER GROUND BAR AS DISCUSSED IN NSTD 119, 33 & 36.

GENERAL NOTES

1 NOT TO SCALE



MASTER GROUND BAR DETAILS

5 NOT TO SCALE

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