



June 13, 2018

Ms. Cindy Mulkey
Office of Siting Coordination
Department of Environmental Protection
3900 Commonwealth Blvd., MS #48
Tallahassee, FL 32399-2400

RE: Florida Power & Light Company
West County Energy Center
Power Plant Site Certification No. PA 05-47B
Post – Certification Modification
Addition of Security Wall, Septic, Paving and Backup Water Supply Line

Dear Ms. Mulkey:

Florida Power & Light Company (FPL) is requesting a post-certification modification to the Site Certification Application for FPL's West County Energy Center (WCEC), pursuant to S. 403.5113, Florida Statutes, and Rule 62-17.205 (1) Florida Administrative Code. The purpose of this modification request is to obtain approval for the construction of a security wall around the Sugar Transmission Substation, installation of a septic system and associated drain field, additional paving to improve access to WCEC's injection wells and the extension of piping to provide additional potable water to the plant during reclaimed water upset conditions.

Sugar Transmission Substation Security Wall, Septic & Drain Field

The purpose of this request is to obtain approval for FPL to install a new perimeter security wall around the Sugar Transmission Substation at the WCEC to meet physical security standards directed by Federal Energy Regulatory Commission (FERC) and North American Electric Reliability Corporation (NERC) and to install a septic system and drain field to replace the existing holding tank which services the bathroom in the Relay Vault within the substation.

The new security walls will replace the existing chain-link fences which surrounds the existing substation. The security walls will be placed in approximately the same location as the fences and will not require extension or alterations to the substation. The new security walls will enclose the substation and will be 12 feet above exiting grades and 2 feet below grade. The wall will be constructed using pre-cast 6" thick concrete panels (approximately 14 feet high by 20 feet wide), columns, and caps.

The substation was constructed with a restroom included in the Relay Vault and it utilizes a holding tank to contain the waste and requires pumping out when full. The restroom was intended to be connected to the plant sewage batch plant but to date has not been connected. With the construction of the substation and the additional population working on site, the frequency of pumping the holding tank has increased. It was determined that the most cost effective means to handle the increased use of the restroom would be to install a septic and drain field to service the restroom.

Enclosed (Attachment A) for this request FPL is providing the plan set for the West County Energy Center Sugar Transmission Substation Security Wall, Septic and Drain Field and the following State of Florida Department of Health Onsite Sewage Treatment and Disposal System forms: 1) Site Evaluation and System Specifications, 2) Application for Construction Permit, and 3) Construction Permit. Example photographs of a similar security wall previously installed at FPL's Andytown substation in Broward County (installed during the fall of 2014) are included.

Paving Improvements

Paving improvements are being requested to facilitate access to the injection wells and to reduce/prevent erosion along existing areas of pavement. The first area is on the south side of the injection wells location. This area is currently shell rock and has degraded due to travel and weather. The next two areas are adjacent to existing paved areas. The first is a curved area on the northeast corner of the access road to the injection wells and the second is an area along the west side of the access road from the injection wells south for approximately 510 linear feet.

The additional pavement will increase the impervious area by 0.33 acres and the existing stormwater system will provide the required treatment and volumetric requirements for the improvements. Enclosed (Attachment B) for this request is the drainage statement for the miscellaneous paving improvements and a site drawing indicating the locations.

Extension of Water Piping

The WCEC is provided with reclaimed water from the East Central Regional Water Reclamation Facility (ECRWRF) for use as cooling water and process water. The delivery system is designed to provide an average of 22 mgd, and a peak of 27 mgd, of reclaimed water to the WCEC. The contract agreement with Palm Beach County Water Utilities Department states that up to 3.2 mgd of potable water will be provided to FPL at no cost if the delivery of reclaimed water is insufficient.

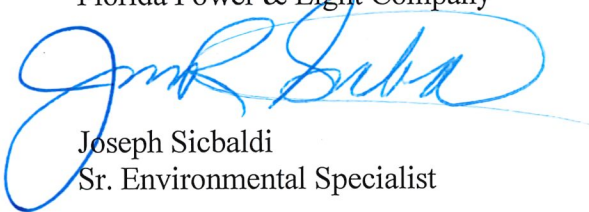
The purpose of this request is to increase the capacity of the existing potable water supply system to provide for the full 3.2 mgd of contractually obligated potable water in emergencies for use as cooling water at the WCEC. The back-up potable water supply system would be used if the reclaimed water from the ECRWRF is unavailable or insufficient in flow and/or quality to supplement the water from the authorized Upper Floridian Aquifer wells located at the WCEC.

Cindy Mulkey
June 13, 2018
Page 3 of 3

Alternatives to increase the capacity of the existing potable water supply system were developed and evaluated. The selected option will connect and extend the existing 30" HDPE pipe with a new line to the surge tank. There are two diameter options for the pipe, either a 12" line or a 16" line. The size of the pipe will be determined when final design and cost evaluations are complete and provided as a post-certification submittal. Included for this request is an engineering evaluation of alternatives to increase the potable water supply capacity and a site map.

Thank you for your attention and consideration of FPL's request to modify the Site Certification for the West County Energy Center. If you have any questions regarding this submittal, please contact me at (561) 694-6388.

Sincerely,
Florida Power & Light Company



Joseph Sicbaldi
Sr. Environmental Specialist

CC: Timothy Panoff, FPL – West County Plant Manager
Susan Mazur, FPL – West County Environmental
Daryl B. Kilpatrick, PE – Florida Power & Light
Peter Cocotos, FPL - Legal

Attachment A

Sugar Transmission Substation Security Wall,
Septic, Drain Field

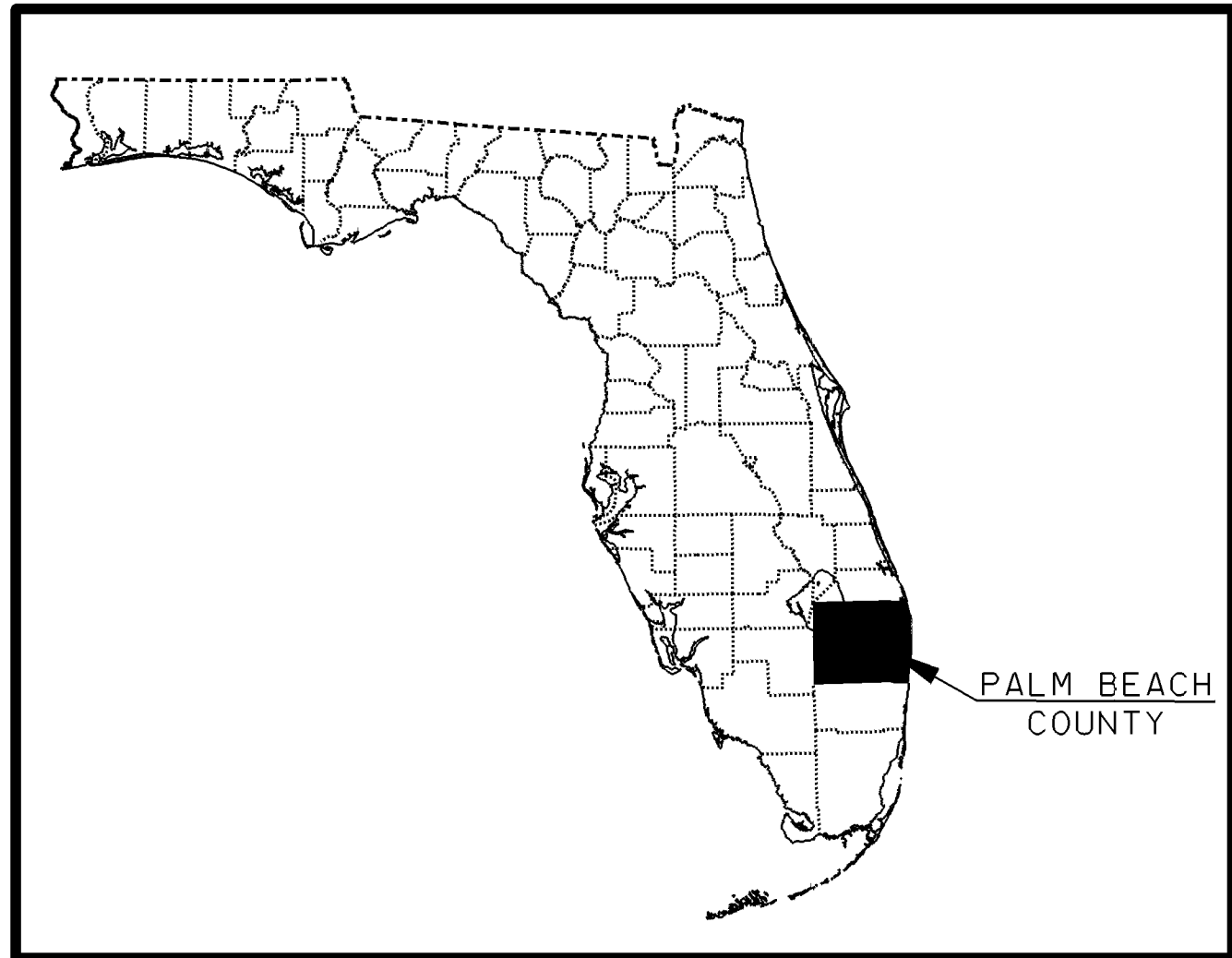
SUGAR TRANSMISSION SUBSTATION

SECURITY WALL, SEPTIC & DRAINFIELD

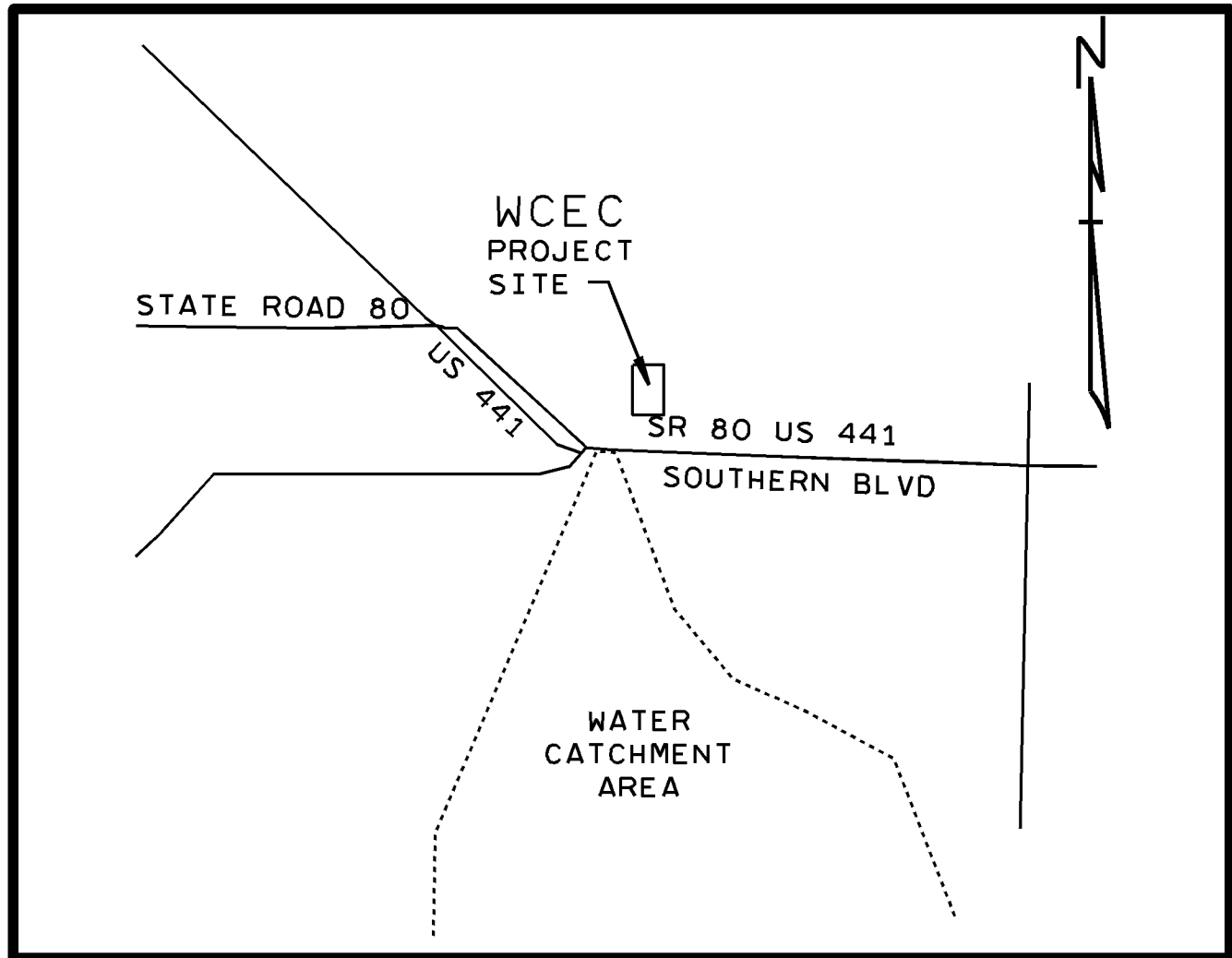
DEVELOPMENT PLAN



PALM BEACH, FLORIDA
SECTION 32, TOWNSHIP 43S, RANGE 40E



LOCATION MAP



INDEX OF DRAWINGS

SKETCH NO.	DESCRIPTION
SUG00 (1 SHEET)	COVER SHEET
SUG01 (2 SHEET)	OVERALL SITE PLAN, SITE PLAN
SUG06 (2 SHEETS)	SEPTIC, DRAINFIELD, LIFT STATION DETAILS
E-246315 (1 SHEET)	TRANSMISSION SUBSTATION 12' PRECAST CONCRETE SECURITY WALL DETAILS
E-247798 (SHT.1-3)	TRANSMISSION SUBSTATION STANDARD MOTORIZED 30' ROLLING GATE RIGHT HANDED
E-247798 (SHT.13)	TRANSMISSION SUBSTATION STANDARD MOTORIZED 30' ROLLING GATE RIGHT HANDED GROUNDING DETAILS PLAN
E-247798 (SHT.16-17)	TRANSMISSION SUBSTATION STANDARD MOTORIZED 20' ROLLING GATE RIGHT HANDED
E-247798 (SHT.22)	TRANSMISSION SUBSTATION STANDARD MOTORIZED 20' ROLLING GATE GROUNDING DETAILS PLAN

PLANS PREPARED BY FPL:

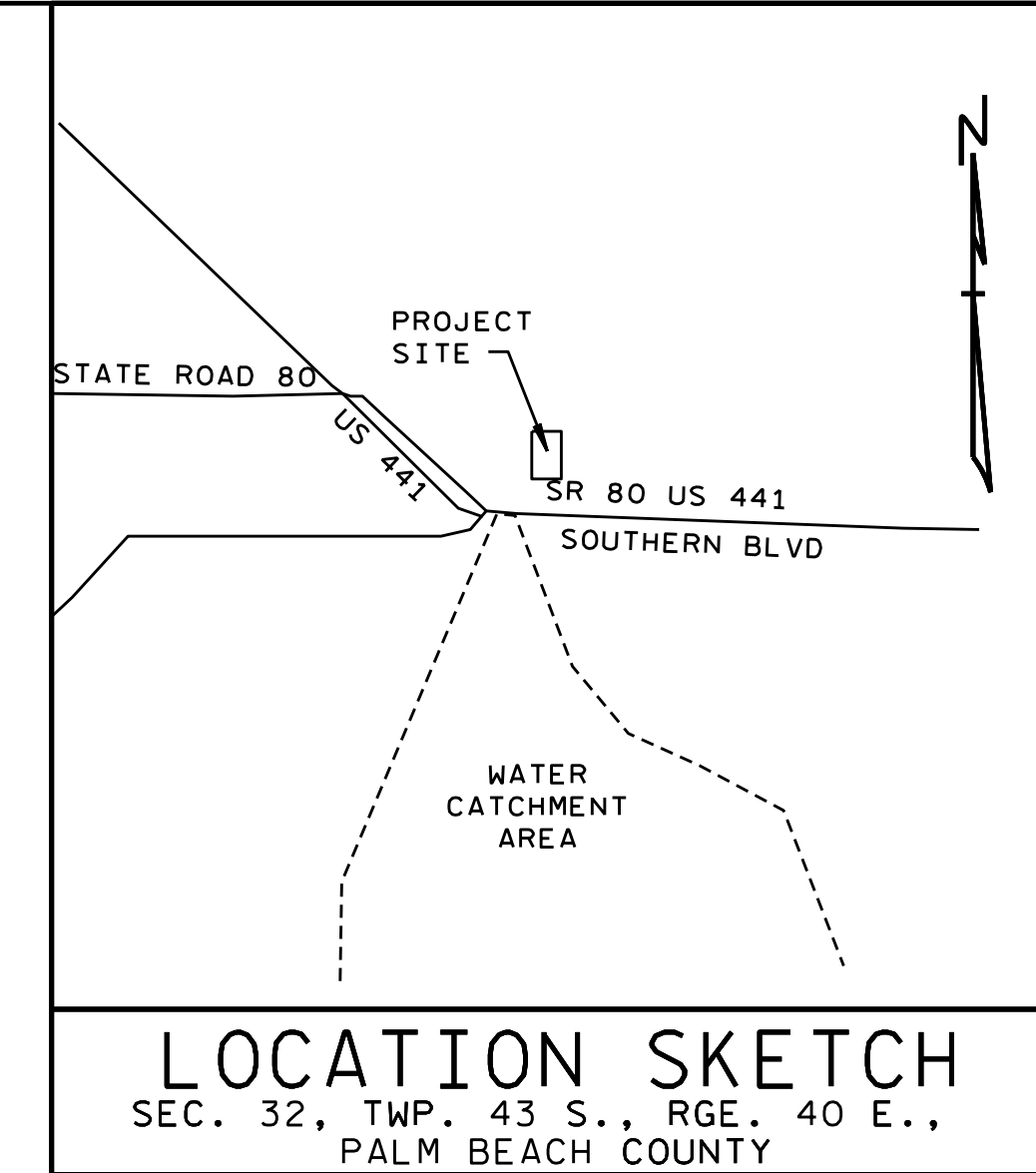


FLORIDA POWER AND LIGHT COMPANY
TRANSMISSION AND SUBSTATION SITING SECTION
700 UNIVERSE BLVD. (TS4-JW)
JUNO BEACH, FLORIDA 33408

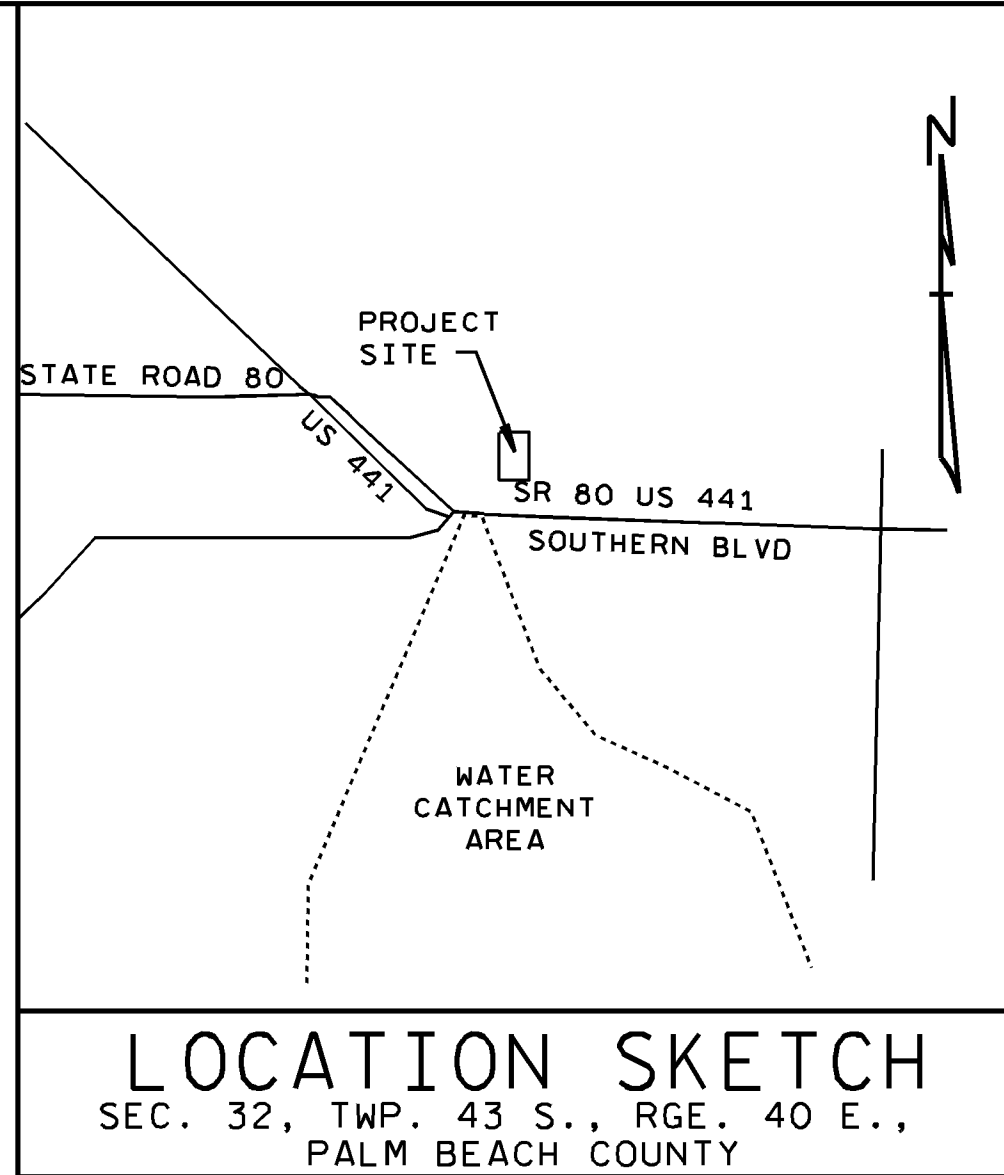
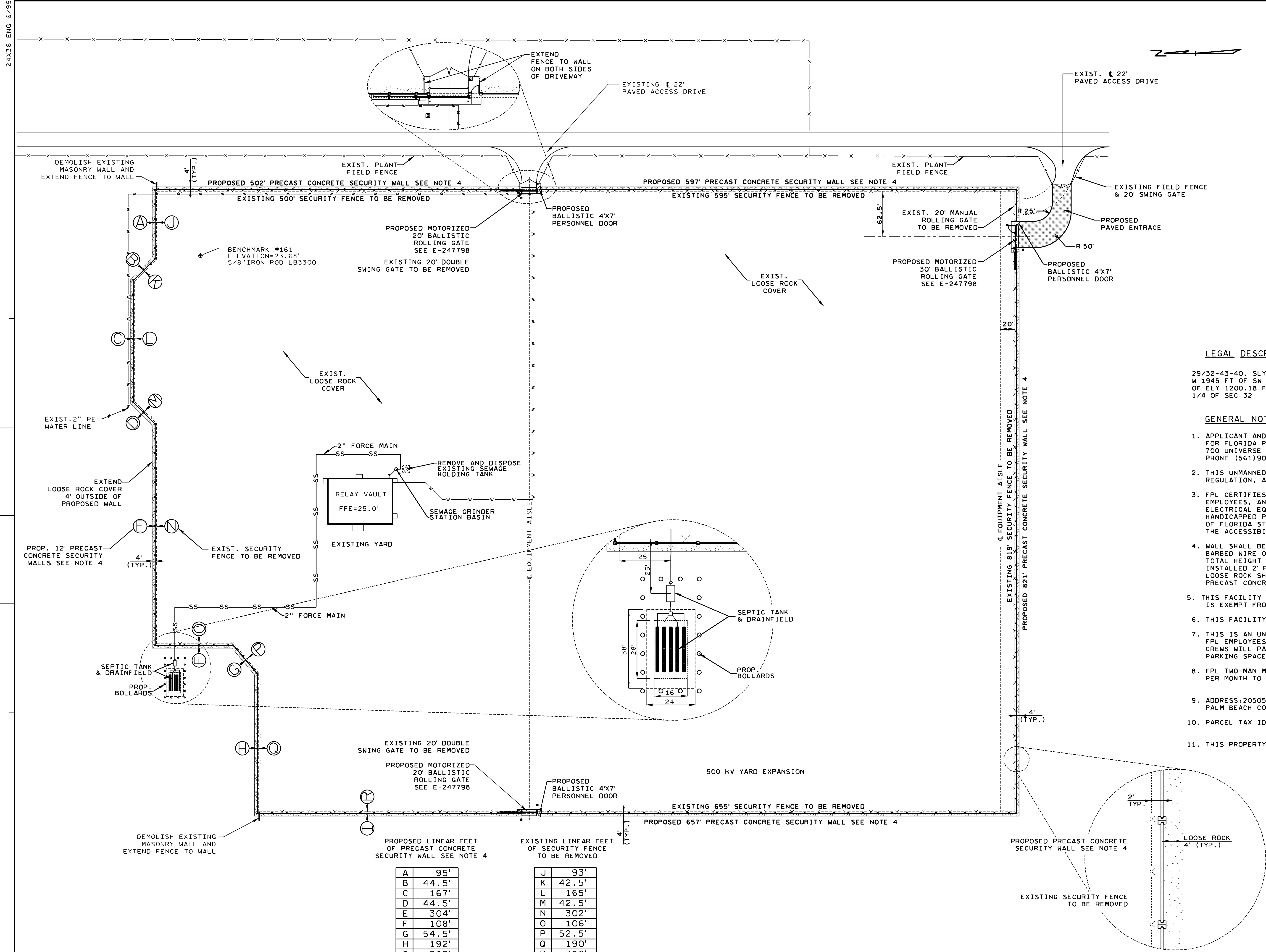
FOR REVIEW
PURPOSES ONLY

SUGAR SUBSTATION FPL PROJECT NO.	
SUG00 SKETCH NO.	
C	A D E

ENGINEER'S SEAL



ENGINEER'S SEAL



LEGAL DESCRIPTION:

29/32-43-40, SLY 1028.81 FT OF E 1200 FT OF
W 1945 FT OF SW 1/4 OF SEC 29 & N 1517.24 FT
OF ELY 1200.18 FT OF WLY 1945.18 FT OF NW
1/4 OF SEC 32

GENERAL NOTES:

1. APPLICANT AND AGENT: DARYL KILPATRICK FOR FLORIDA POWER AND LIGHT, OWNER & DEVELOPER, 700 UNIVERSE BLVD., JW/TS4, JUNO BEACH, FLORIDA 33408. PHONE (561)904-3641.
2. THIS UNMANNED FACILITY WILL BE USED FOR TRANSFORMATION, REGULATION, AND DISTRIBUTION OF ELECTRICITY.
3. FPL CERTIFIES THAT THIS FACILITY WILL BE USED ONLY BY EMPLOYEES, AND THE WORK ASSOCIATED WITH HIGH VOLTAGE ELECTRICAL EQUIPMENT CANNOT REASONABLY BE PERFORMED BY HANDICAPPED PERSONS. PURSUANT TO CHAPTER 553.504(1), OF FLORIDA STATUTES, THIS FACILITY IS NOT SUBJECT TO THE ACCESSIBILITY REQUIREMENTS OF THE ADA.
4. WALL SHALL BE 12'-0" WITH 3 STRANDS OF BARBED WIRE ON EXTENSION ARMS TO MAKE AN OVERALL TOTAL HEIGHT OF 14'-0", SEE E-246315. WALL SHALL BE INSTALLED 2' FEET OUTSIDE OF EXISTING SECURITY FENCE. LOOSE ROCK SHALL BE COMPLETED UP TO 4' OUTSIDE OF PROPOSED PRECAST CONCRETE WALL LOCATION.
5. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY AND IS EXEMPT FROM THE FLORIDA ENERGY REVIEW CODE.
6. THIS FACILITY WILL GENERATE NO SOLID WASTE.
7. THIS IS AN UNMANNED RESTRICTED ACCESS FACILITY. NO FPL EMPLOYEES REPORT TO THIS LOCATION AND MAINTENANCE CREWS WILL PARK INSIDE THE FENCED AREA. THEREFORE, NO PARKING SPACES WILL BE PROVIDED.
8. FPL TWO-MAN MAINTENANCE CREWS WILL AVERAGE TWO TRIPS PER MONTH TO THIS FACILITY.
9. ADDRESS: 20505 SOUTHERN BLVD. LOXAHATCHEE, FL, 33470, PALM BEACH COUNTY
10. PARCEL TAX ID NUMBER: 00404332000003010 & 00404329000007010
11. THIS PROPERTY LIES IN FLOOD ZONE AD

A	95'
B	44.5'
C	167'
D	44.5'
E	304'
F	108'
G	54.5'
H	192'
I	362'

J	93'
K	42.5'
L	165'
M	42.5'
N	302'
O	106'
P	52.5'
Q	190'
R	360'

SURVEY INFO PROVIDED BY:
AVIROM & ASSOCIATES, INC.
50 SW 2ND AVE. SUITE 102
BOCA RATON, FLORIDA 33432
561-392-2594 2/22/10

ER	NO	DATE	REVISION	BY	CH	COR	APP
	2	02-28-18	DIMENSION ADDED	AV			
	1	01-25-18	FOR REVIEW PURPOSES ONLY	AV			

DATE 02-03-17 SCALE 0 60 90 120 180

POWER DELIVERY

DR VALENTIN ER
CH COR
APPROVED

FPL

SUGAR SUBSTATION
ENLARGED SITE PLAN

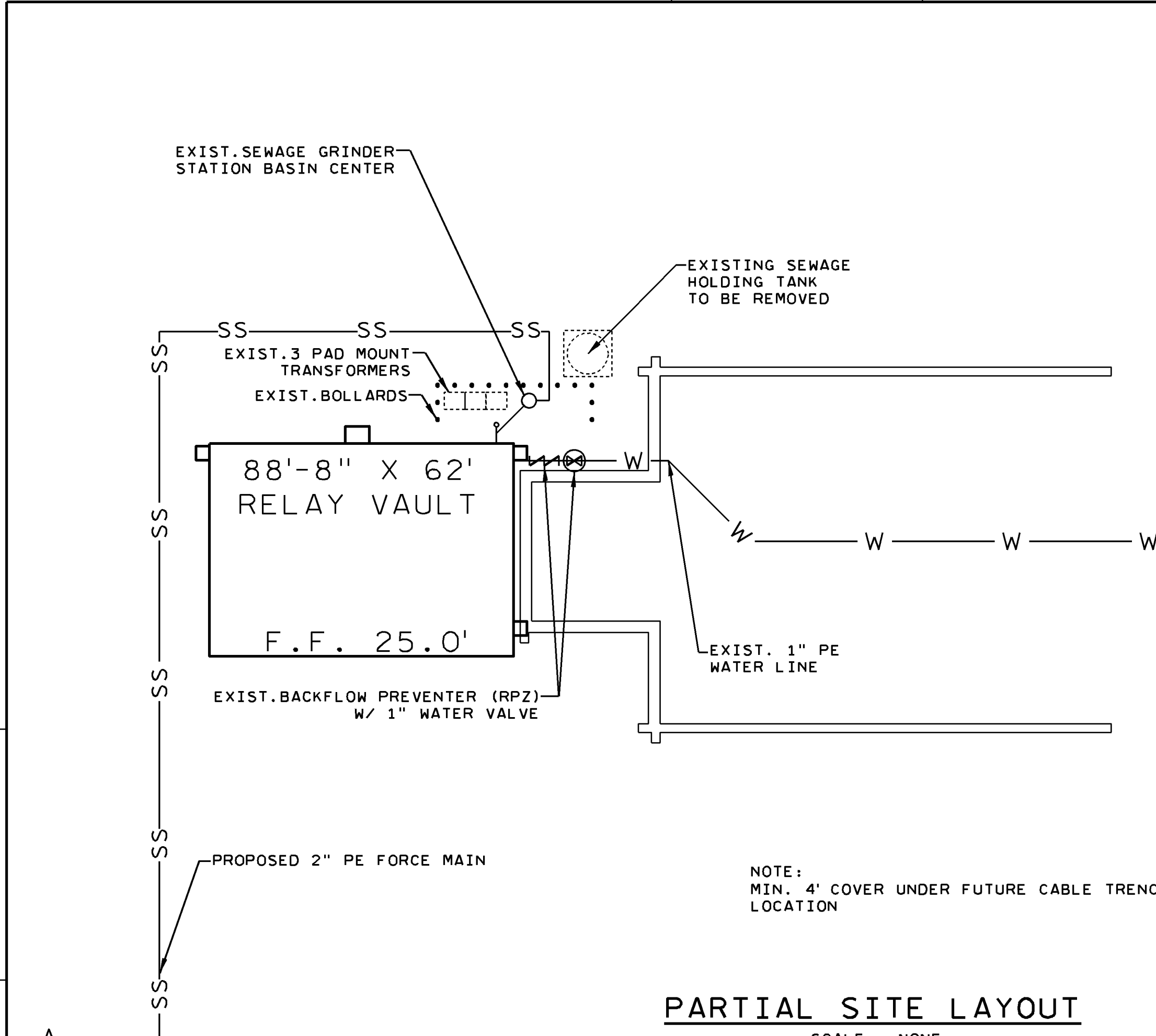
(SU, G, PP)

SHEET 2 OF 2
E-SUG01
C A D E

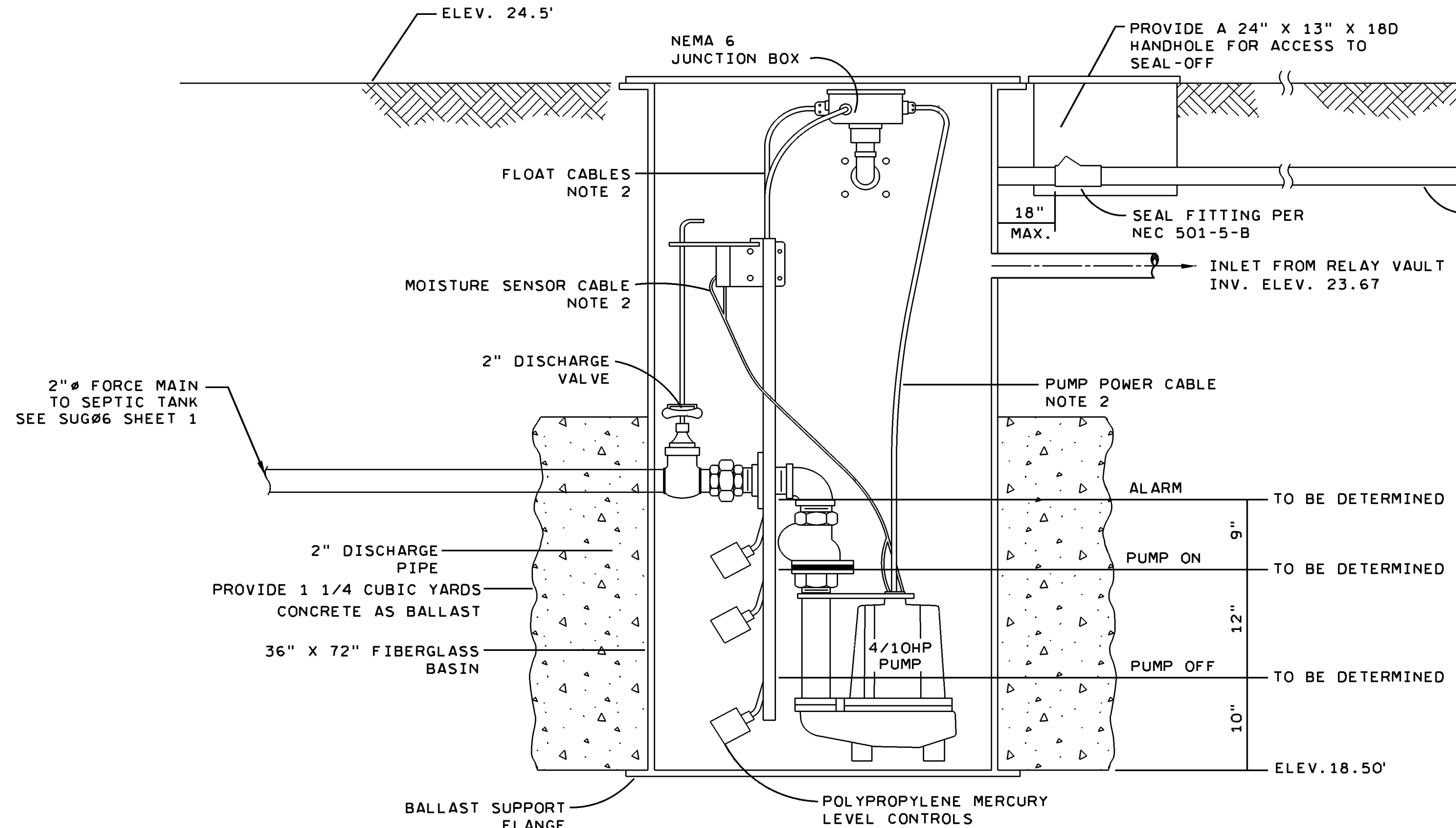
REV NO
2

FOR REVIEW
PURPOSES ONLY

ENGINEER'S SEAL



THIS PUMP STATION IS A HAZARDOUS (CLASSIFIED) LOCATION CLASS 1, DIVISION 2 PER NEC ARTICLE 500



SECTION

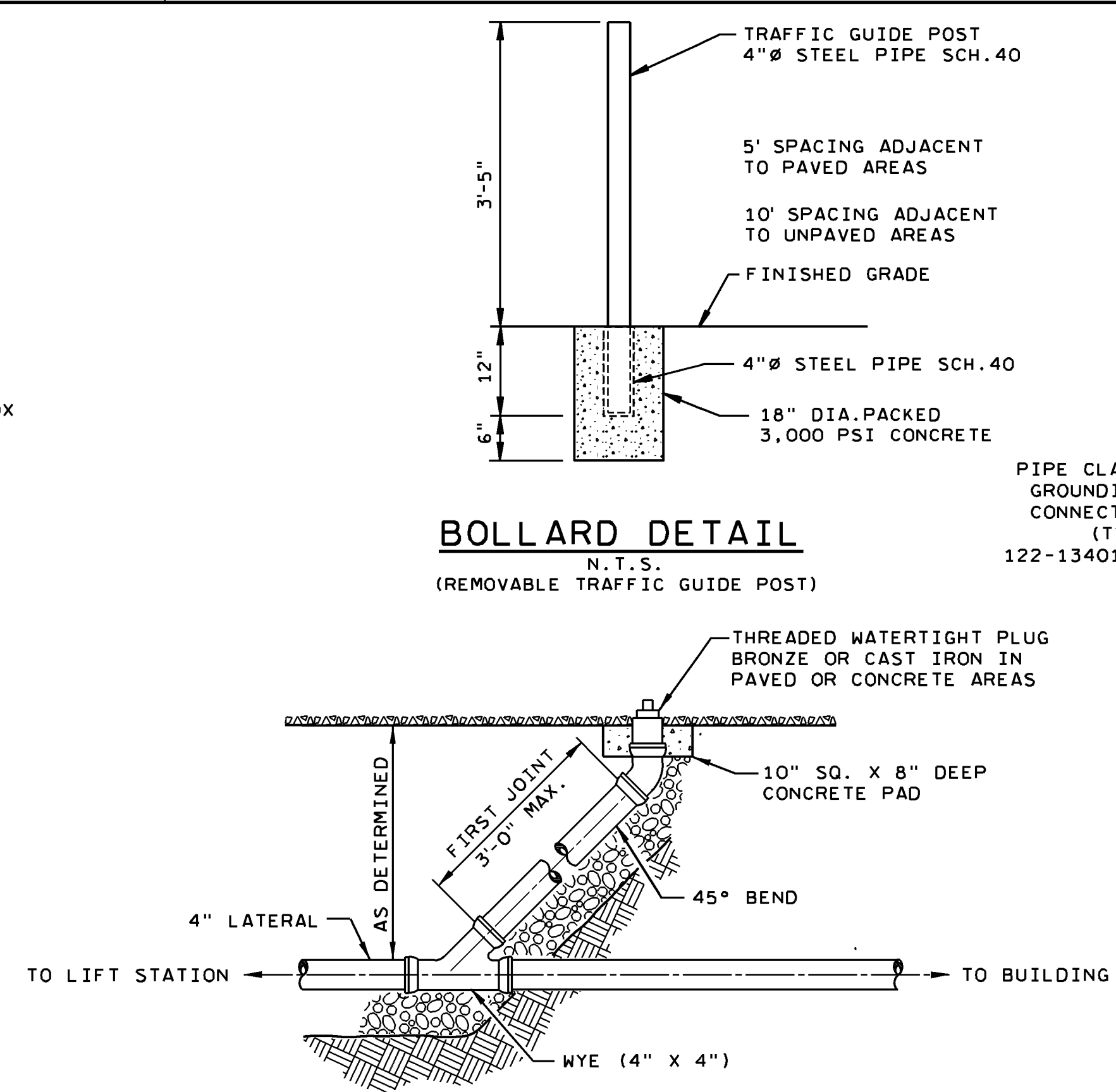
DATE	01-23-18	SCALE	0	NTS
DR	VALENTIN	ER		
CH		COR		
APPROVED				

**SECTION A-A
PRECAST FOUNDATION
PC-2**

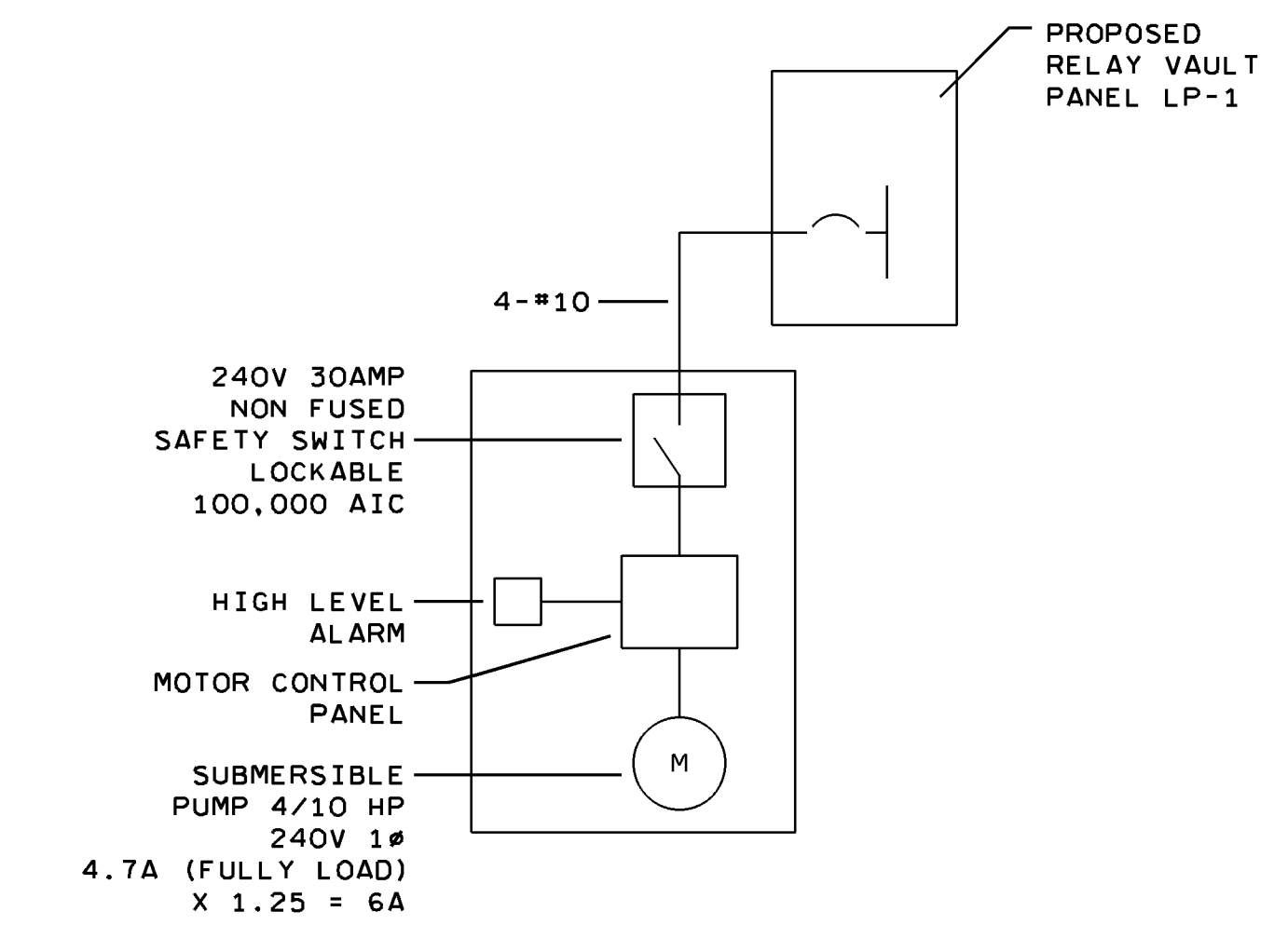
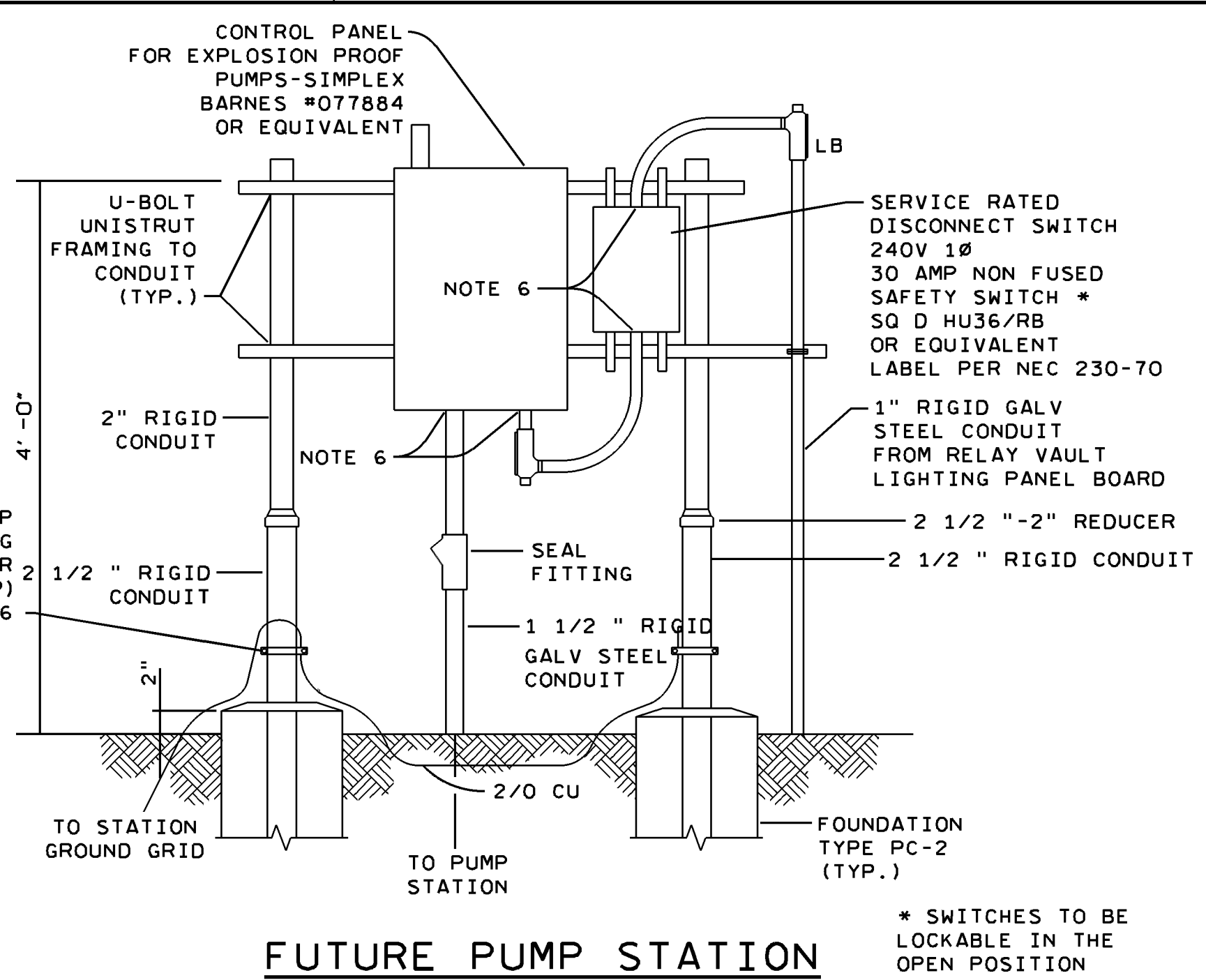
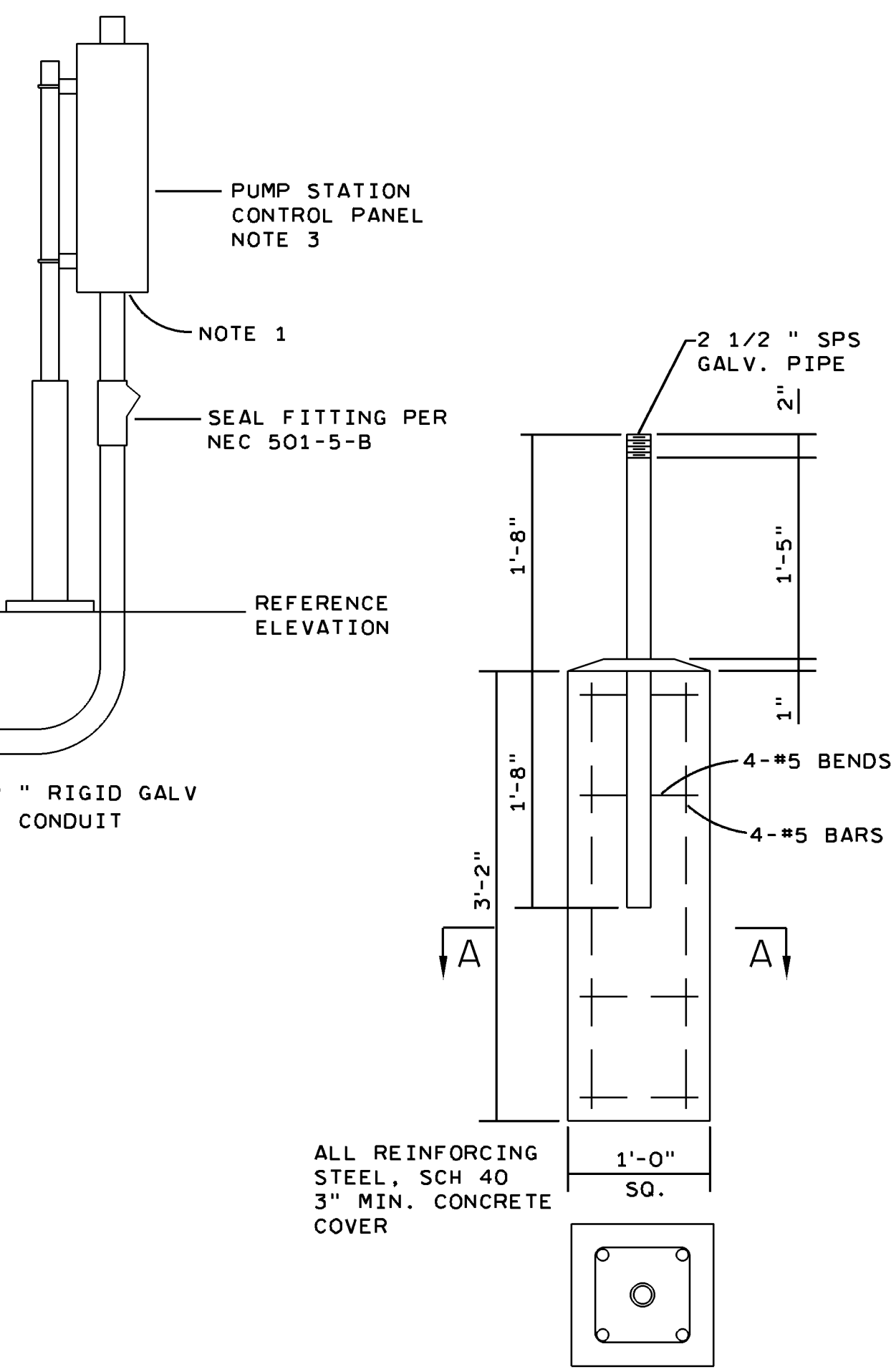
FOR SERVICE SUPPORTS
M&S #534-11900-1
SCALE: NTS

BOLLARD DETAIL

N.T.S.
(REMOVABLE TRAFFIC GUIDE POST)



SEWER CLEANOUT



PLUMBING NOTES

- ALL MATERIALS, INSTALLATION AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD PLUMBING CODE OR FLORIDA BUILDING CODE AS APPLICABLE AS WELL AS OTHER REFERENCED CODES AND SPECIFICATIONS. ALL REFERENCED CODES AND SPECIFICATIONS SHALL BE LATEST EDITION AT TIME OF PERMIT.
- COPPER PIPE FOR USE INSIDE BUILDING SHALL CONFORM TO ASTM B 88. UNDERGROUND PIPING SHALL BE TYPE K ANNEALED. ABOVE GROUND PIPING SHALL BE TYPE K DRAWN. COPPER FITTINGS SHALL CONFORM TO ANSI B16.22.
- BUILDING DRAIN PIPING SHALL BE 3 IN. PVC. BUILDING SEWER PIPING SHALL BE 4 IN. PVC. MINIMUM SLOPE 1/8 IN. PER FOOT.
- SUBMERSIBLE PUMP TO BE HYDROMATIC SP40A2 SUBMERSIBLE SEWAGE EJECTOR PUMP OR FPL APPROVED EQUAL. 240V / 1PHS
- FIBERGLASS BASIN W/ BALLAST SUPPORT FLANGE TO BE BARNES 094697 36" BY 72" WITH A TOTAL CAPACITY OF 317 GALLONS OR FPL APPROVED EQUAL.

PUMP STATION NOTES

- ALL PUMP STATION CONDUIT CONNECTIONS AT PANELS, CABINETS AND JUNCTION BOXES SHALL HAVE BONDED GROUNDING CONNECTORS. THESE ARE REQUIRED FOR ALL CONDUIT CONNECTIONS FROM THE PUMP STATION BACK INTO THE LIGHTING PANEL IN THE RELAY VAULT.
- ALL CABLES/CORDS SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY FOR USE AND APPLICATION. SUBMERSIBLE PUMP MOTOR CABLES SHALL BE SUPPLIED INTEGRAL WITH THE MOTOR BY THE PUMP MANUFACTURER. THE 5 CABLES FROM THE PUMP STATION MOTOR AND FLOATS SHALL BE CONTINUOUS (WITHOUT SPLICES) TO THE CONTROL PANEL.
- CONTROL PANEL SHALL BE UL LISTED.

**FOR BIDDING
PURPOSES ONLY**

ER	NO	DATE	REVISION
	1	02-28-18	FOR REVIEW PURPOSES ONLY

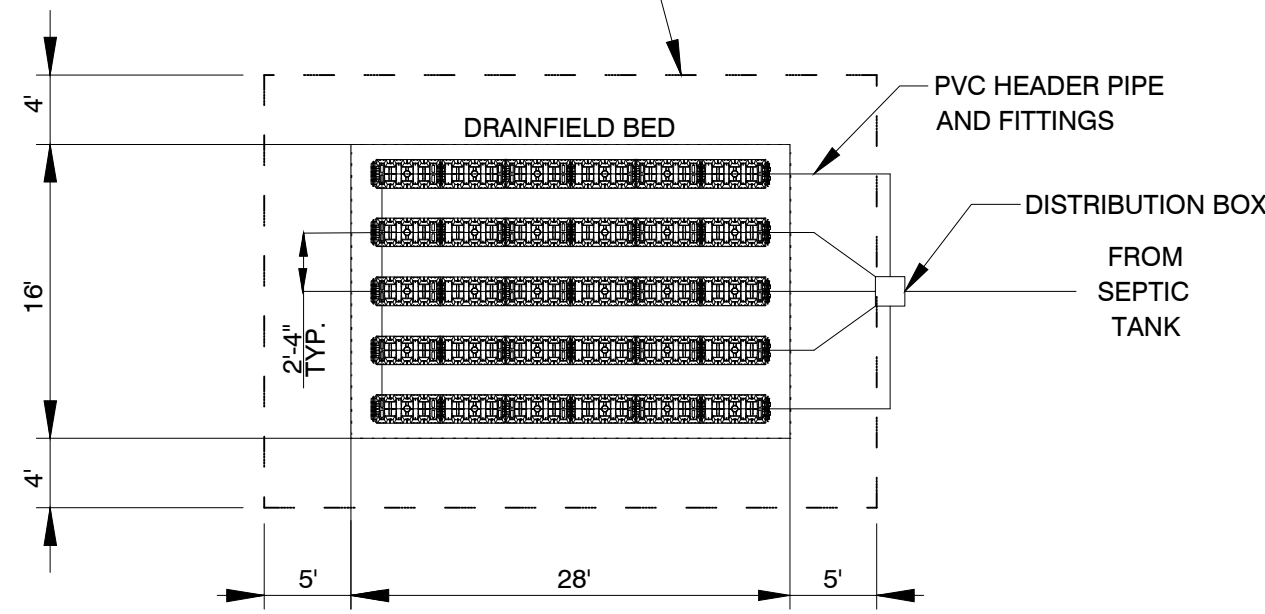
AV	BY	CH	COR	APP

SUGAR TRANSMISSION SUBSTATION
RELAY VAULT
LIFT STATION DETAIL PLAN

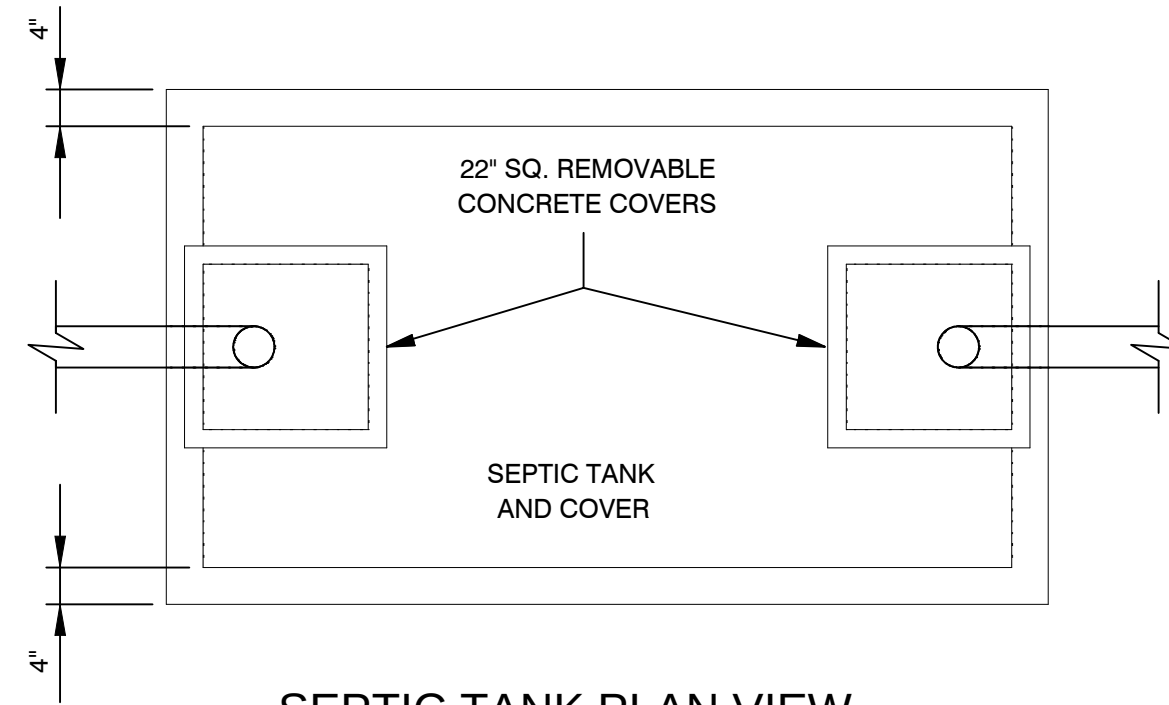
(SS, ST, -)	
SHEET 1 OF 2	REV NO
E - SUG#6	1
I C A D	

ENGINEER'S SEAL

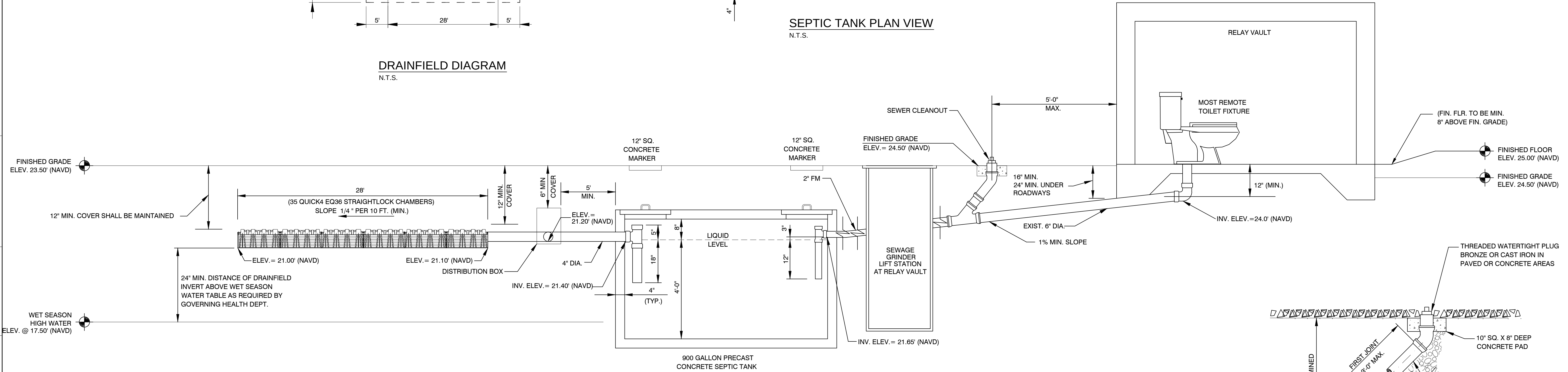
MAINTAIN AN UNOBSTRUCTED AREA ONE & HALF TIMES THE SIZE OF THE DRAINFIELD, CONTIGUOUS WITH IT AND COMPLY WITH ALL APPLICABLE SET-BACK REQUIREMENTS.



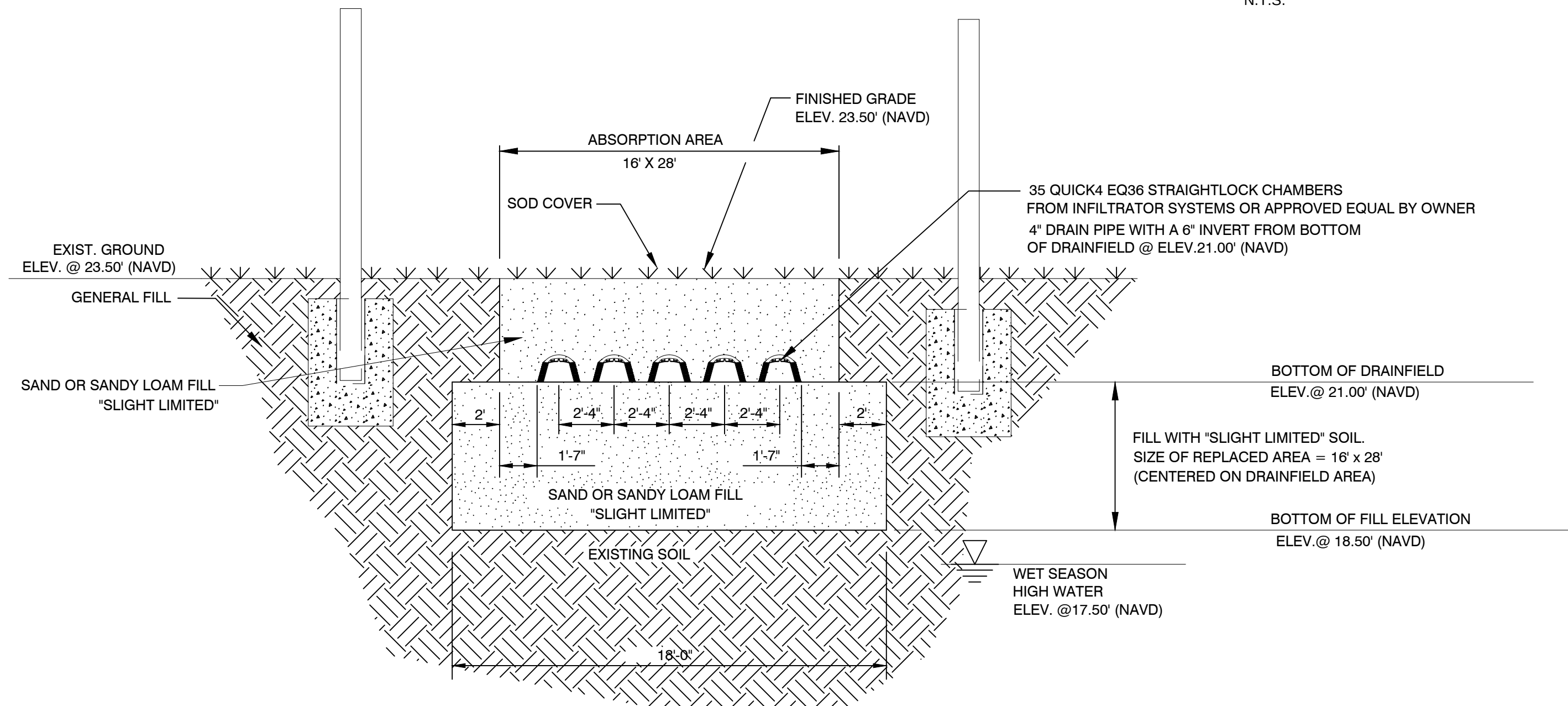
DRAINFIELD DIAGRAM
N.T.S.



SEPTIC TANK PLAN VIEW
N.T.S.



SECTION THRU SEPTIC TANK SYSTEM
N.T.S.



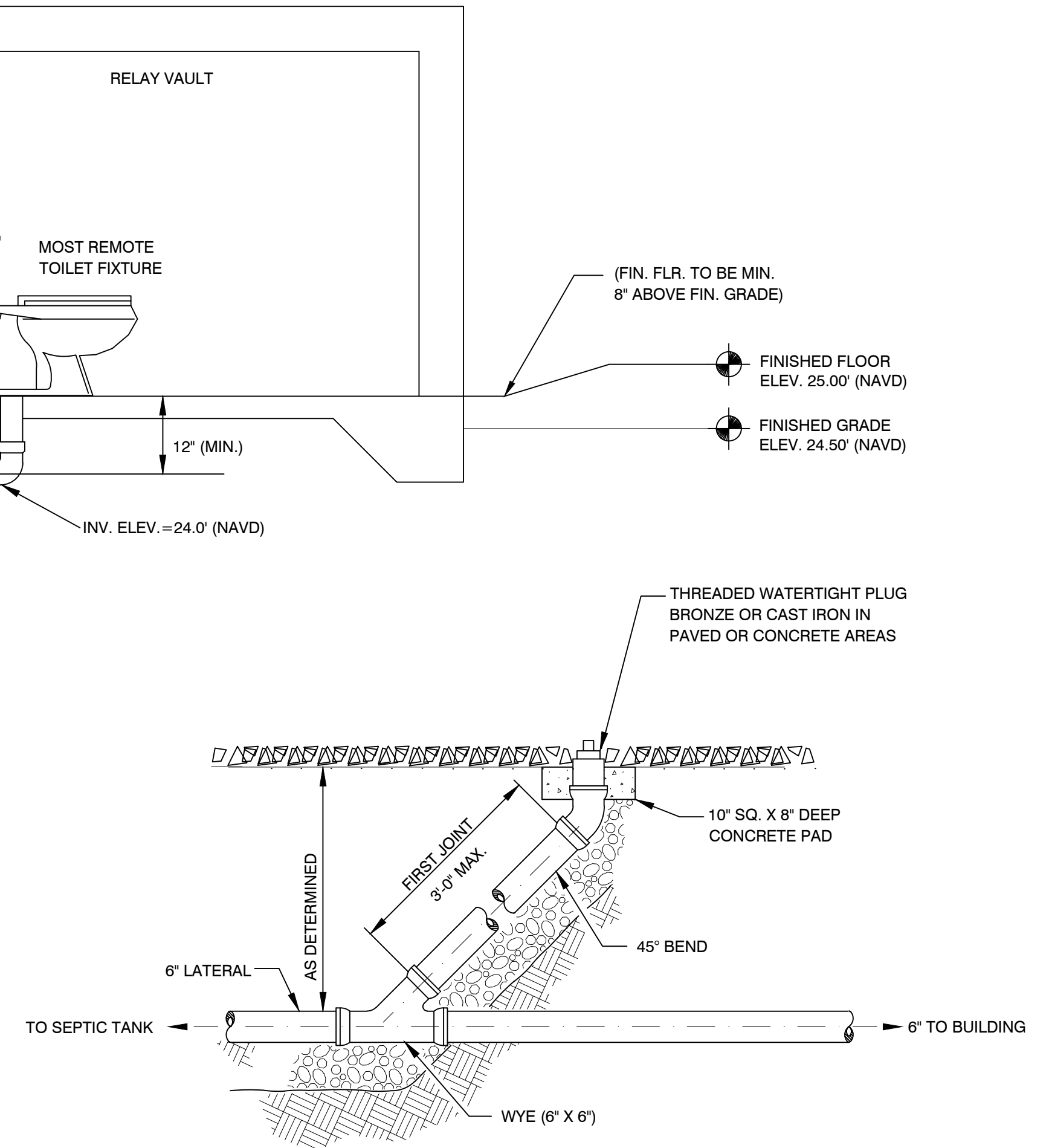
SECTION AT DRAINFIELD
N.T.S.

NOTE:
ELEVATIONS SHOWN REFER TO THE NORTH AMERICAN VERTICAL DATUM,
1988 (NAVD 88).

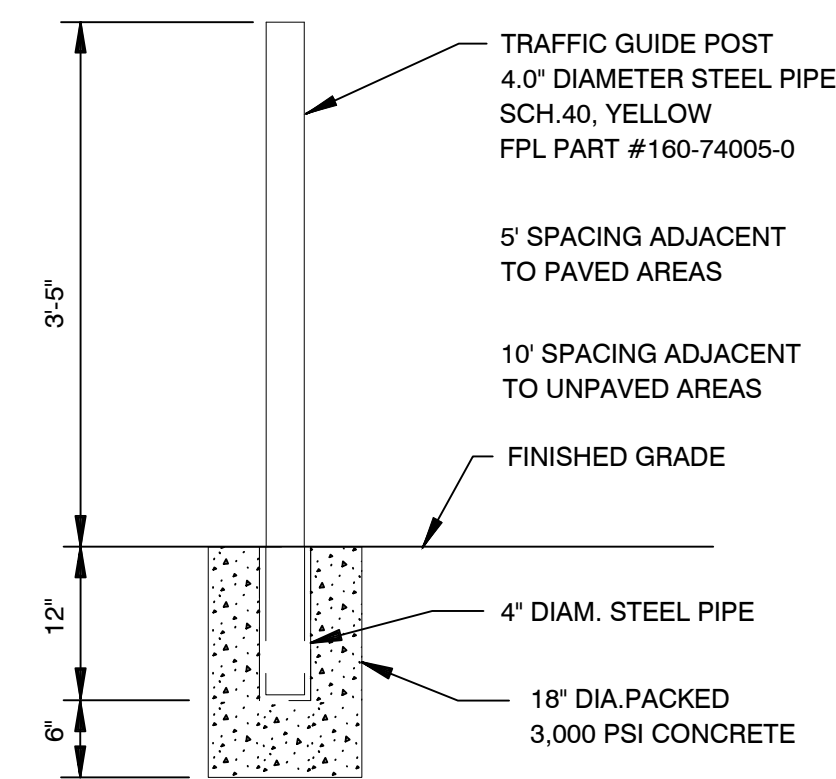
NOTES

- SUBSURFACE SEWAGE DISPOSAL SYSTEM SHALL COMPLY WITH CHAPTER 64E-6 OF THE RULES OF THE DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES 'STANDARDS FOR ON-SITE SEWAGE DISPOSAL SYSTEMS'
- THE SEWAGE DISPOSAL SYSTEM IS CONFIGURED TO PROVIDE THE FOLLOWING MINIMUM CLEARANCES TO EXISTING/PROPOSED STRUCTURES:

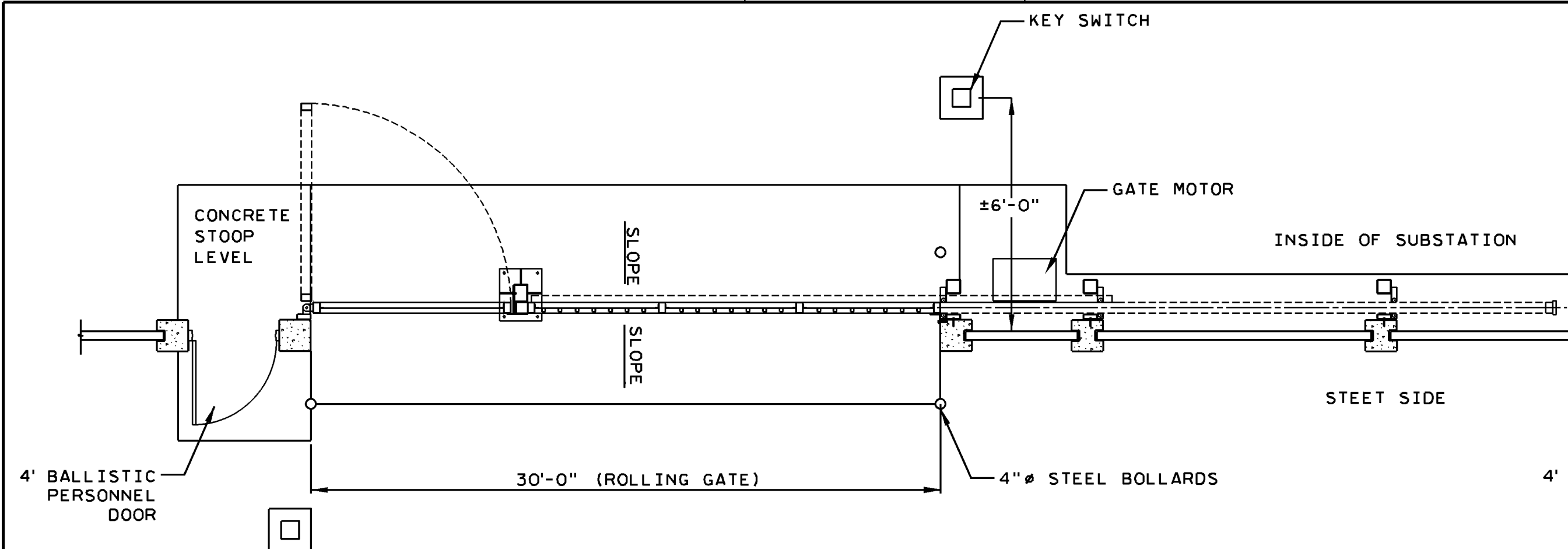
DISTANCE TO PRIVATE POTABLE WELL
(AS MEASURED FROM NEAREST CORNER OF DRAINFIELD.....EXCEEDS 100'
DISTANCE TO LIMITED USE
NONCOMMUNITY OR OTHER PUBLIC POTABLE WATER WELL.....EXCEEDS 100'
DISTANCE TO PUBLIC POTABLE WELL SYSTEM.....EXCEEDS 200'
DISTANCE TO NON-POTABLE WELLEXCEEDS 50'
DISTANCE TO POTABLE WELL LINE.....EXCEEDS 10'
DISTANCE TO STRUCTURE FOUNDATIONS.....EXCEEDS 5'
DISTANCE TO MEAN HIGH WATER LINE OF
TIDAL WATERS, STREAMS, CANALS AND DRAINAGE STRUCTURES.....N/A
DISTANCE TO DESIGN HIGH WATER LINE OF
INDIVIDUAL STORM WATER DRY RETENTION AREAS.....EXCEEDS 15'
DISTANCE TO PROPERTY LINE.....EXCEEDS 5'
- SEPTIC TANK EFFECTIVE CAPACITY OF 900 GALLONS, BASED ON ESTIMATED SEWAGE FLOW OF 200 GALLONS PER DAY (GPD).
- DRAINFIELD AREA OF 375 SQ.FT. (MINIMUM) BASED ON SEWAGE LOADING RATE TO BED BOTTOM OF 0.80 GALLONS PER SQUARE FOOT PER DAY.
- ALL SOD SHALL BE ARGENTINE BAHIA.
- SEPTIC TANK CONCRETE SHALL BE A MINIMUM OF 4,000 PSI, 28 DAY STRENGTH.
- MINIMUM FREE BOARD OR AIR SPACE SHALL BE 15% OF AFFECTIVE TANK CAPACITY.
- SEPTIC TANK SHALL BE MANUFACTURED BY A HEALTH DEPARTMENT APPROVED MANUFACTURER AND MARKED AS REQUIRED BY FLORIDA ADMINISTRATIVE CODE 64E-6.
- ALL ELEVATIONS PRESENTED ARE IN FEET AND ARE REFERENCED TO NAVD 88 UNLESS OTHERWISE NOTED.
- THERE ARE NO PERTINENT FEATURES ON ADJACENT PROPERTIES AND ACROSS THE STREET THAT MAY AFFECT THE SYSTEM INSTALLATION.



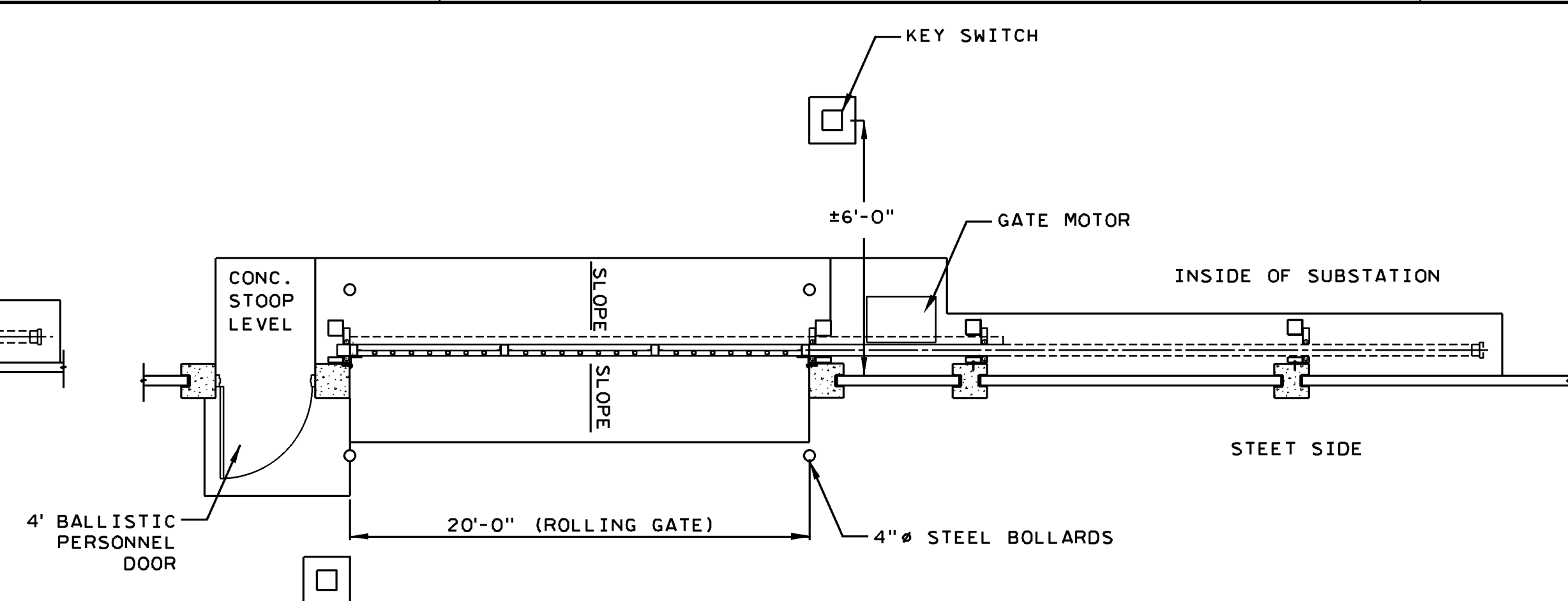
SEWER CLEANOUT
N.T.S.



BOLLARD DETAIL
N.T.S.
(REMOVABLE TRAFFIC GUIDE POST)



30' WIDE GATE & 4' PERSONNEL DOOR

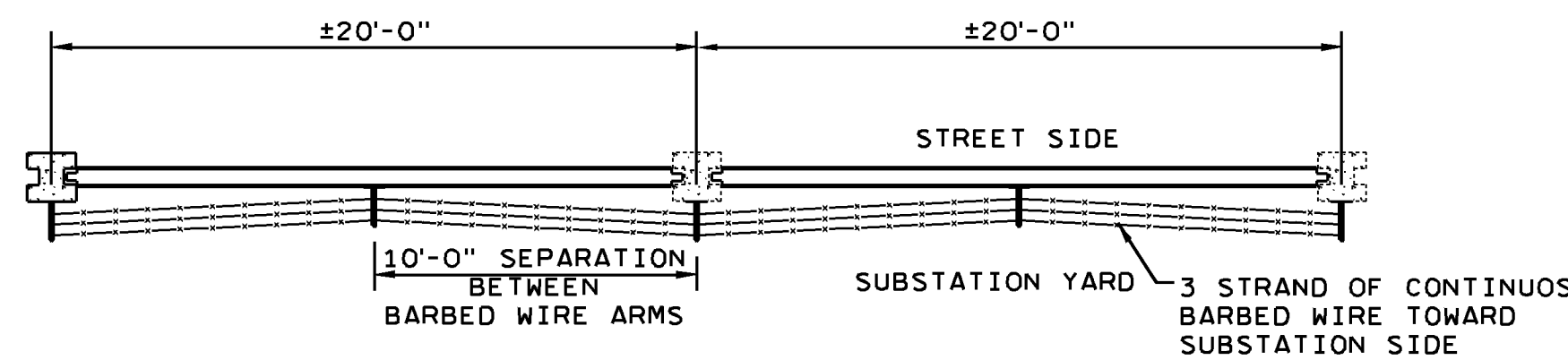
SCALE: $\frac{3}{16}$ "=1'-0"

20' WIDE GATE & 4' PERSONNEL DOOR

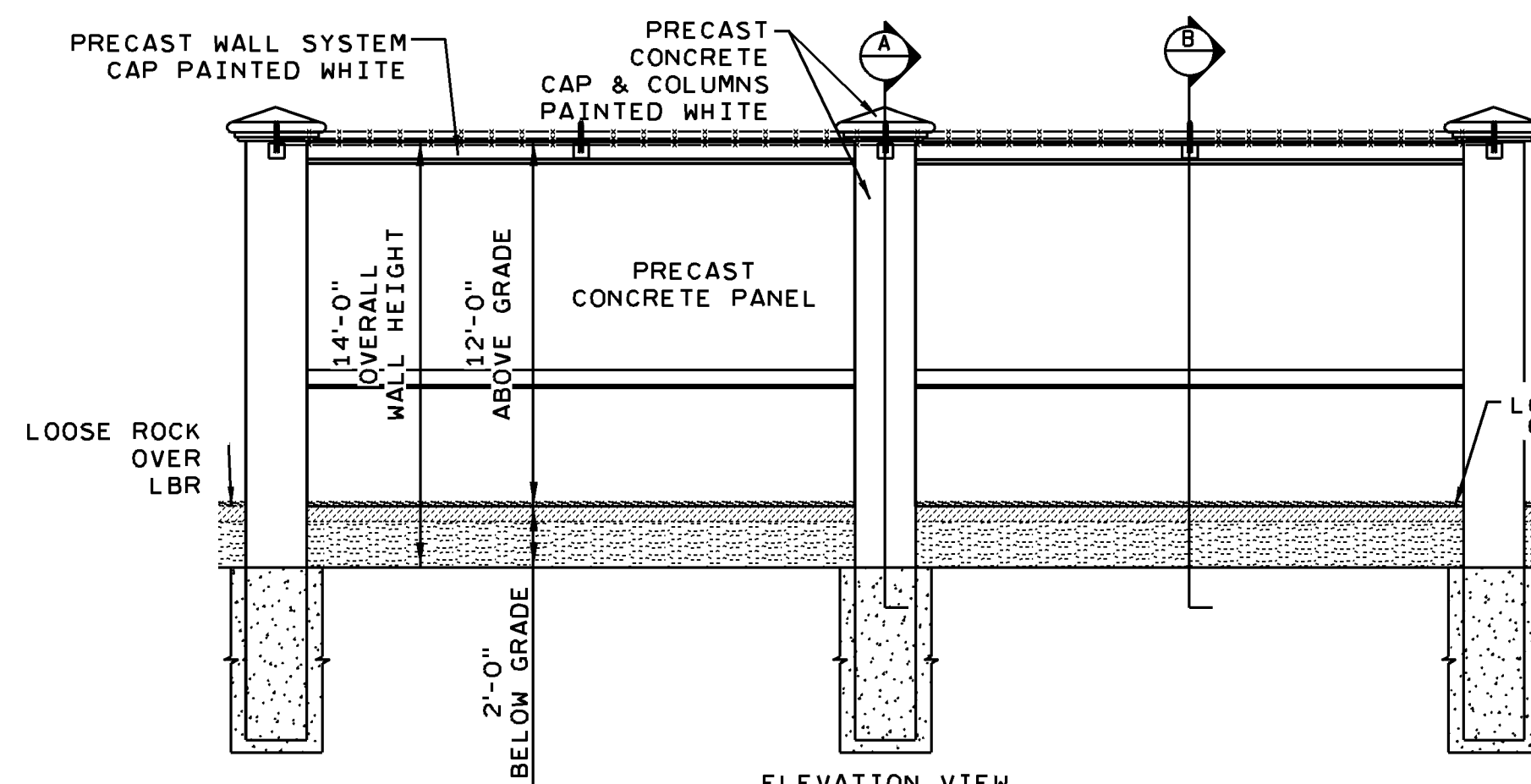
SCALE: $\frac{3}{16}$ "=1'-0"

NOTES:

- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND SPECIFICATIONS OF PRE CAST CONCRETE WALL, PANELS AND COLUMNS.
- WALLS AND DOORS SHALL BE DESIGNED TO WITHSTAND 194 MPH ULT. WIND VELOCITY IN ACCORDANCE WITH ASCE 7-10 AND FBCB 2017, FOR A CATEGORY IV STRUCTURE, EXPOSURE 'D'. DESIGN SHALL INCORPORATE ALL DOOR AND GATE OPENINGS.
- DETAILED ENGINEERING DRAWINGS AND CALCULATIONS SHALL BE PROVIDED BY BUILDING CONTRACTOR FOR APPROVAL BY FPL PRIOR TO CONSTRUCTION. DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY REGISTERED FLORIDA STRUCTURAL ENGINEER. FINAL WALL DESIGN SHALL BE IN SUBSTANTIAL COMPLIANCE WITH THIS CONCEPTUAL DESIGN.
- EXTERIOR OF WALL PANEL SHALL BE TEXTURED USING TEXTCOTE LX 70W COLOR TO MATCH BENJAMIN MORE MONROE BISQUE. INSIDE OF WALL MAY BE PAINTED WITH TWO COATS OF FRESH KOTE LATEX COLOR TO MATCH BENJAMIN MORE MONROE BISQUE. WALL COLUMN, CAP AND TRIM SHALL BE MANUFACTURERS SMOOTH FINISH COLOR SHALL BE MONTGOMERY WHITE.
- ALL WORK SHALL BE IN ACCORDANCE WITH FPL SPECIFICATIONS D-4 AS APPLICABLE.
- ALL WORK SHALL COMPLY TO FLORIDA BUILDING CODE 2017 EDITION.
- CONCRETE:
 - CONCRETE CONFORMING TO ASTM C94 TO ACHIEVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI. PLANT CONTROL IS REQUIRED. NO WATER SHALL BE ADDED AFTER MIXING TRUCK LEAVES PLANT WITHOUT THE APPROVAL OF PLANT ENGINEER. MAXIMUM MIX TIME AT POINT OF DEPOSIT IS 90 MINUTES.
 - REINFORCING STEEL: CONFORMING TO ASTM A-615-GRADE 60, FREE FROM OIL, LOOSE SCALE & RUST.
 - WELDED WIRE FABRIC: CONFORMING TO ASTM A-185, FREE FROM OIL, LOOSE SCALE & RUST.
- FOR SIGNS INTALLATION AND LOCATION REFERENCE SUBSTATION STANDARD DRAWING E-216798 "CHAIN LINK FENCE/WALL SIGN PLACEMENT INSTALLATION DETAILS".
- FOR GROUNDING DETAILS REFERENCE SUBSTATION STANDARD DRAWING E-16131.

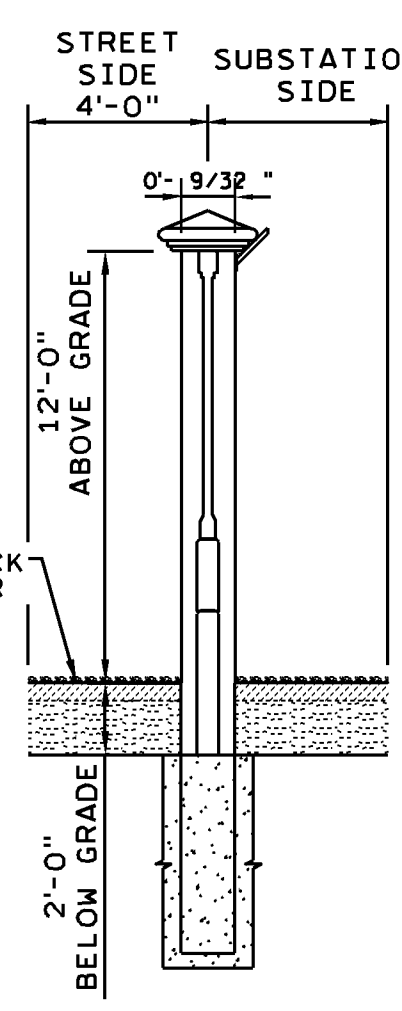


PLAN VIEW

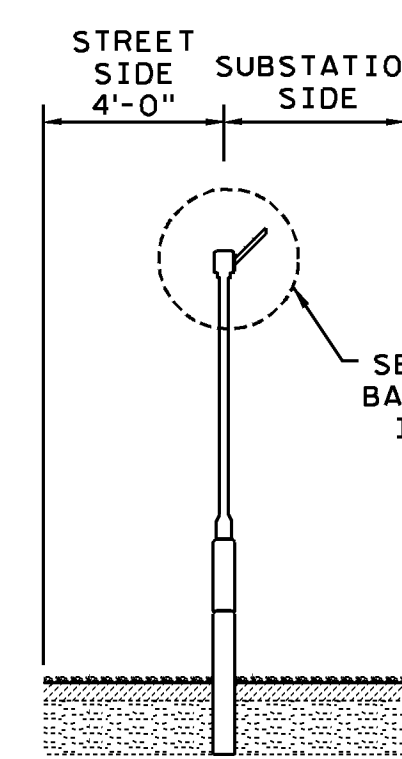


ELEVATION VIEW

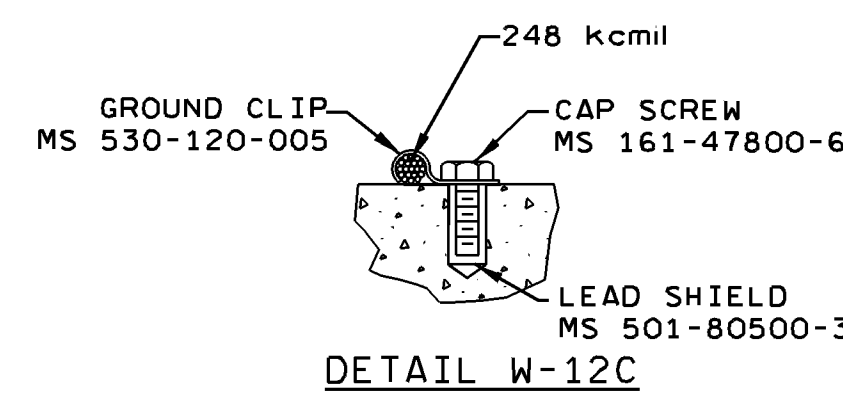
BARBED WIRE INSTALLATION

SCALE: $\frac{3}{16}$ "=1'-0"

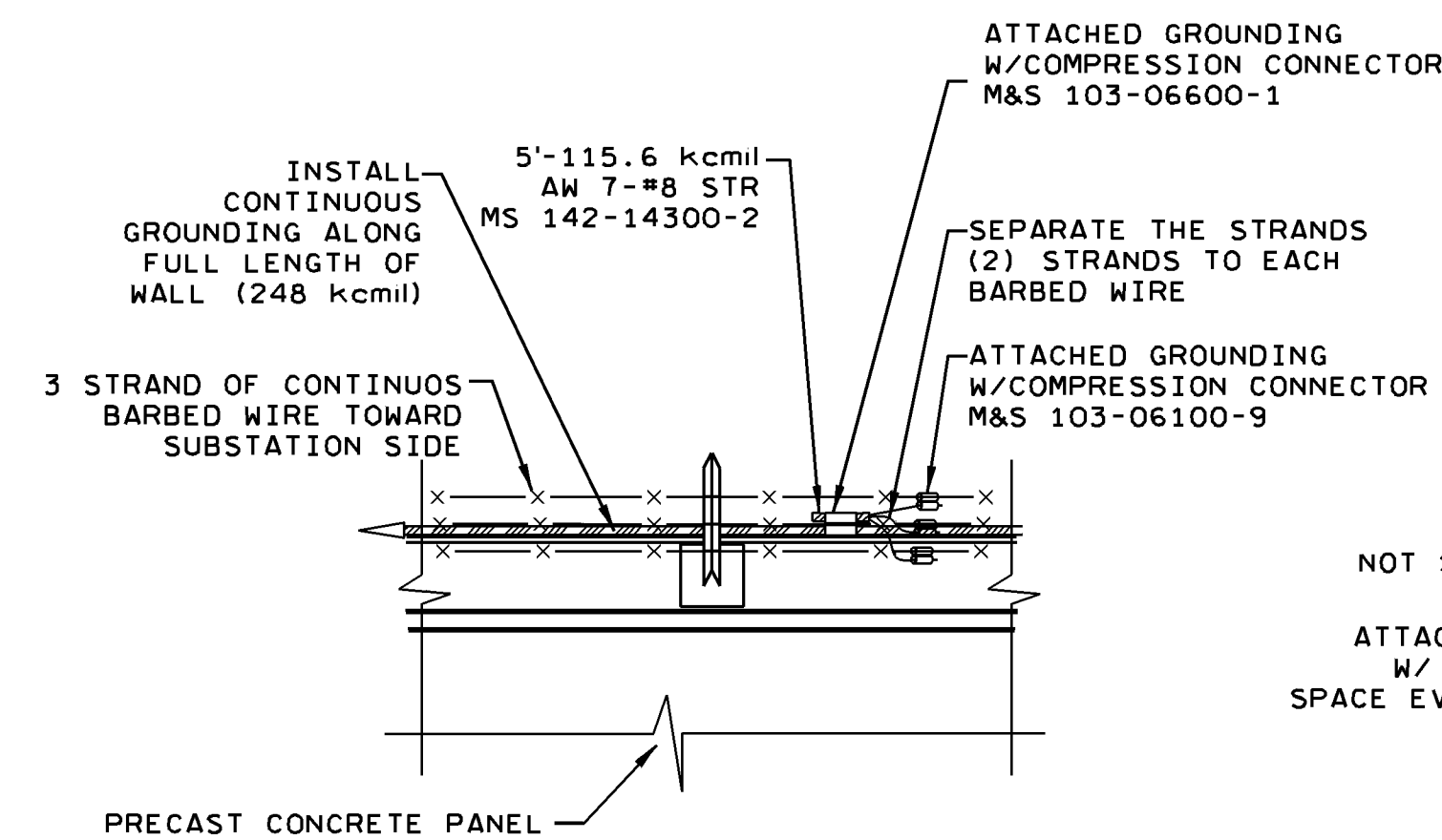
SECTION A



SECTION B

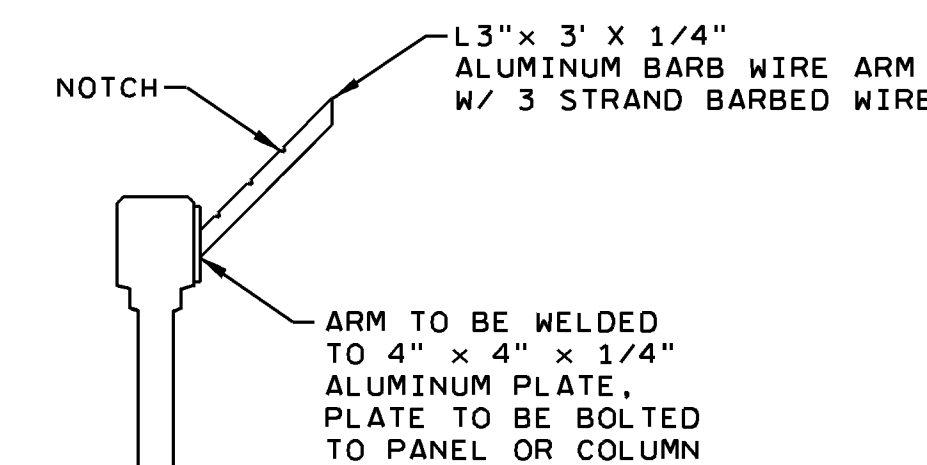


DETAIL W-12C



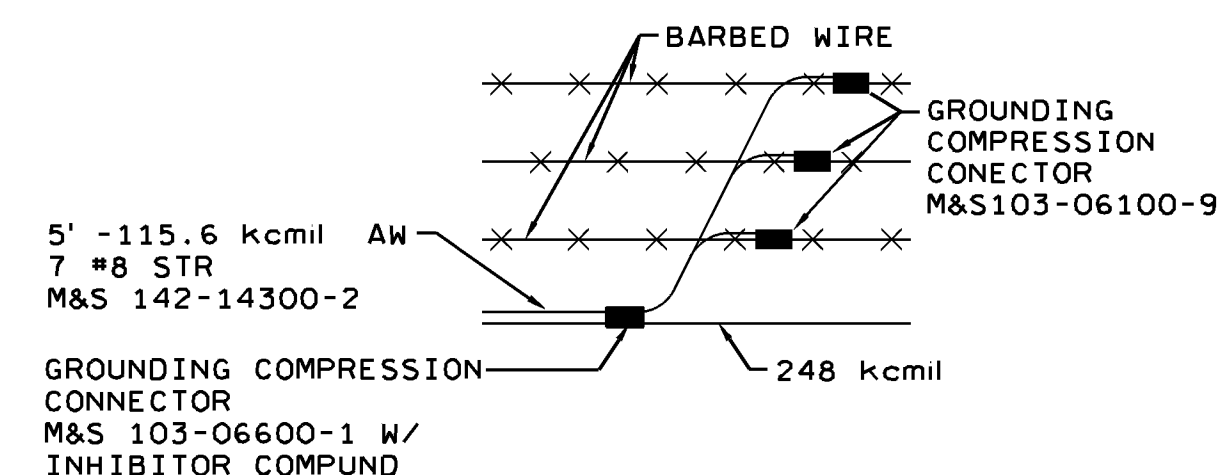
BARBED WIRE GROUNDING DETAIL

NTS



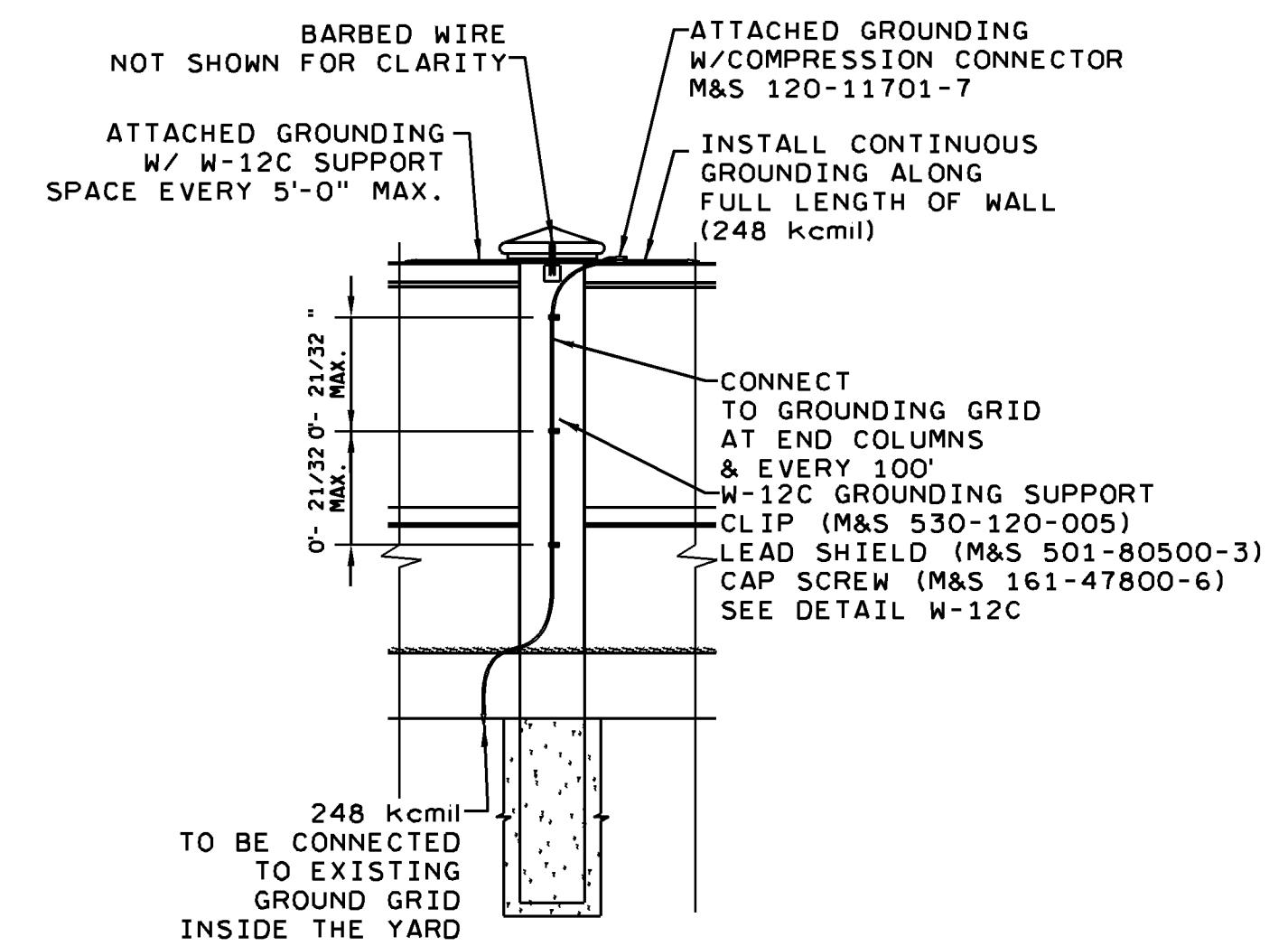
DETAIL B-1

NTS



BARBED WIRE GROUNDING DETAIL

NTS



CONNECTION TO GROUNDING GRID DETAIL

SCALE: $\frac{3}{16}$ "=1'-0"

1	03-14-18	BALLISTIC PERSONNEL DOOR ADDED, WALL OPENINGS REMOVED.	AV		
ER	NO	DATE	BY	CH	COR/APP
		REVISION			

DATE 10-18-17	SCALE 0
POWER DELIVERY	DR VALENTIN ER
	CH COR
	APPROVED

TRANSMISSION SUBSTATION
12' PRECAST CONCRETE
SECURITY WALL DETAILS

(SU, G, PP)

SHEET 1 OF 1

E-246315

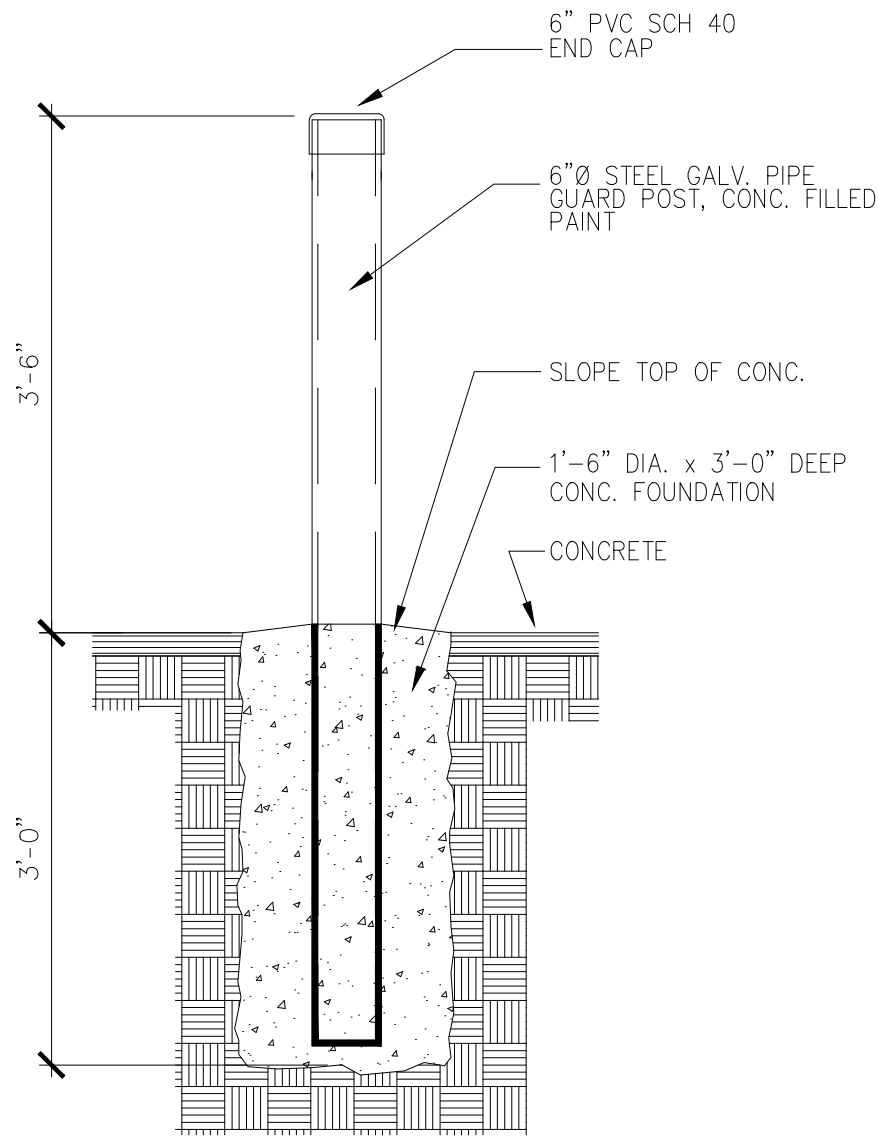
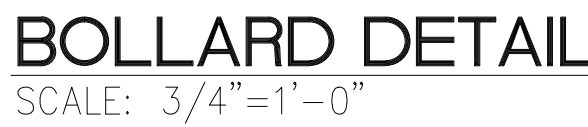
C A D E

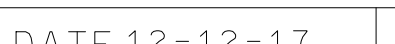
REV NO

1

ENGINEER'S SEAL

- DETAIL**
SCALE: 1 1/2"=1'-0"



DATE 12-12-17	SCALE 0 AS SHOWN		
	POWER DELIVERY		
	DR VALENTIN	ER	
	CH	COR	
APPROVED			

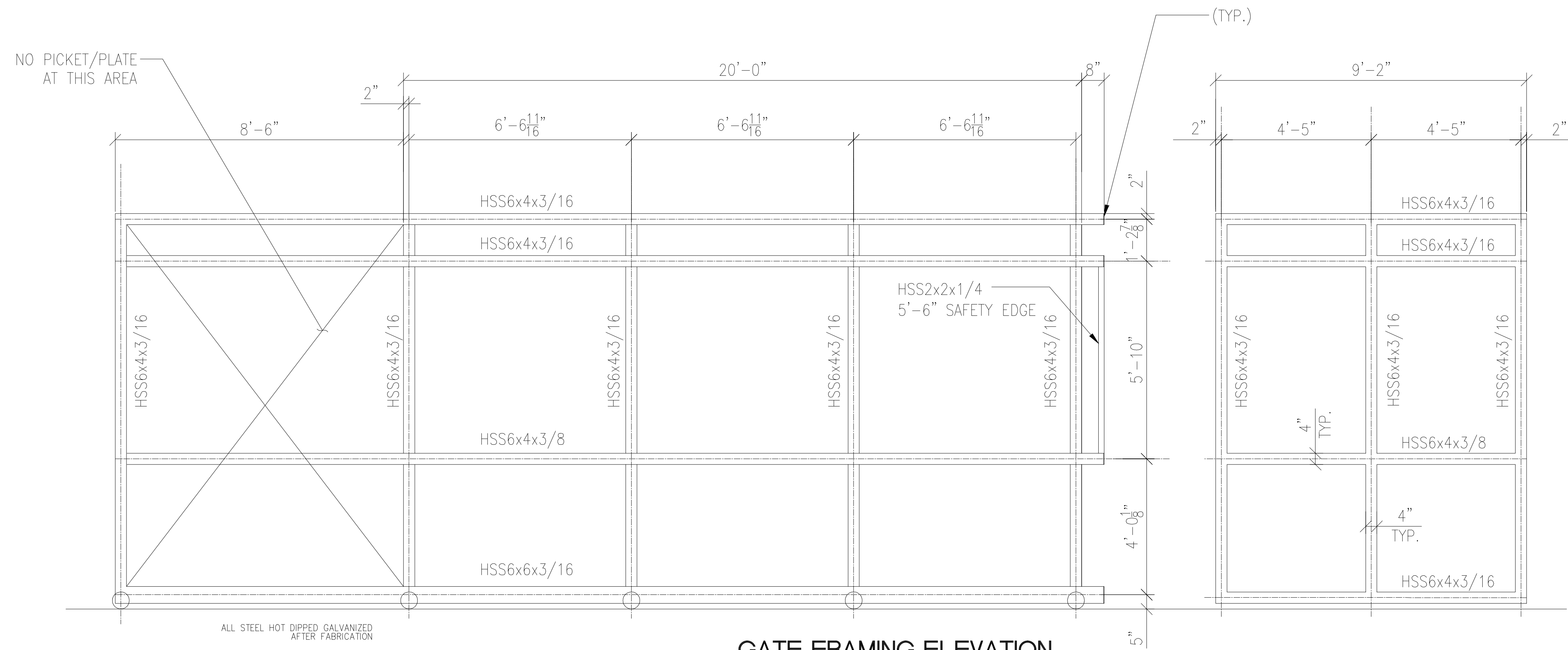
TRANSMISSION SUBSTATION STANDARD
MOTORIZED 30' BALLISTIC
ROLLING GATE LEFT HAND OPERATOR
PLAN VIEW & DETAILS

17694951_R0

SHEET 1 OF 27
E-247798

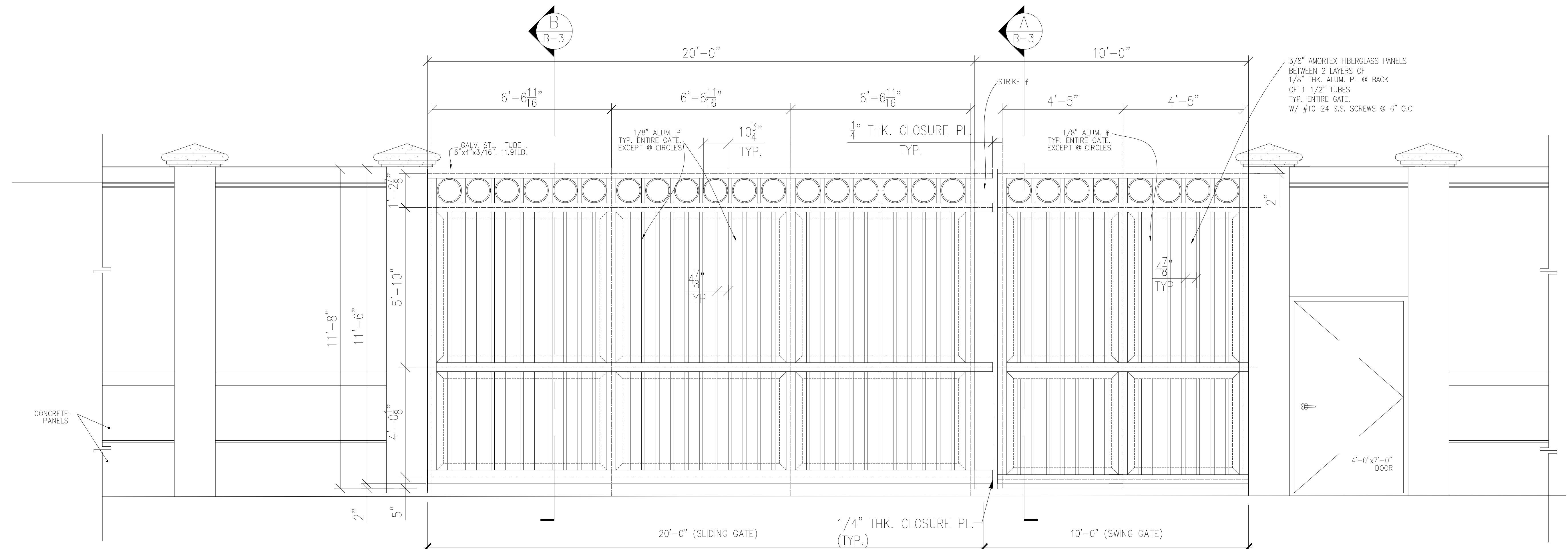
REV
NO

ENGINEER'S SEAL



GATE FRAMING ELEVATION

SCALE: $1/2"=1'-0"$



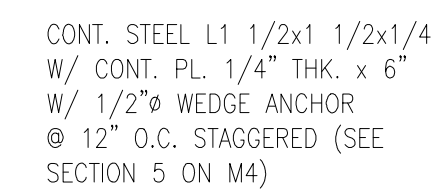
GATE ELEVATION

SCALE: 1/2"=1'-0"

[illegible]

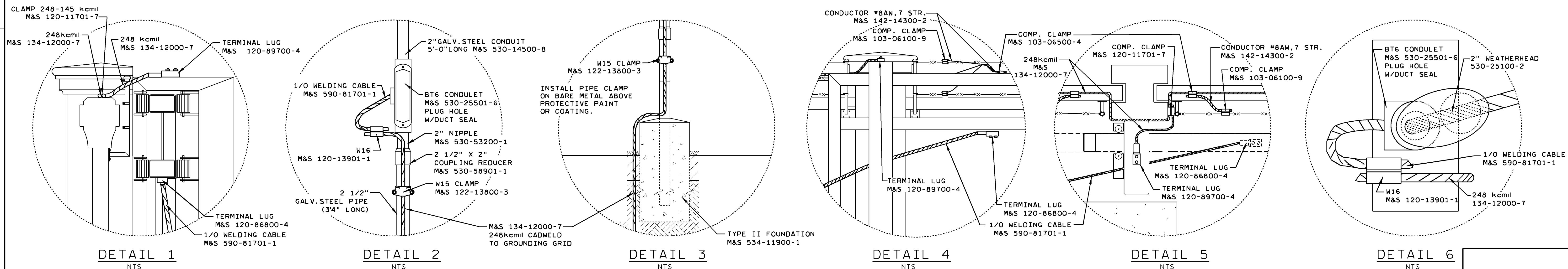
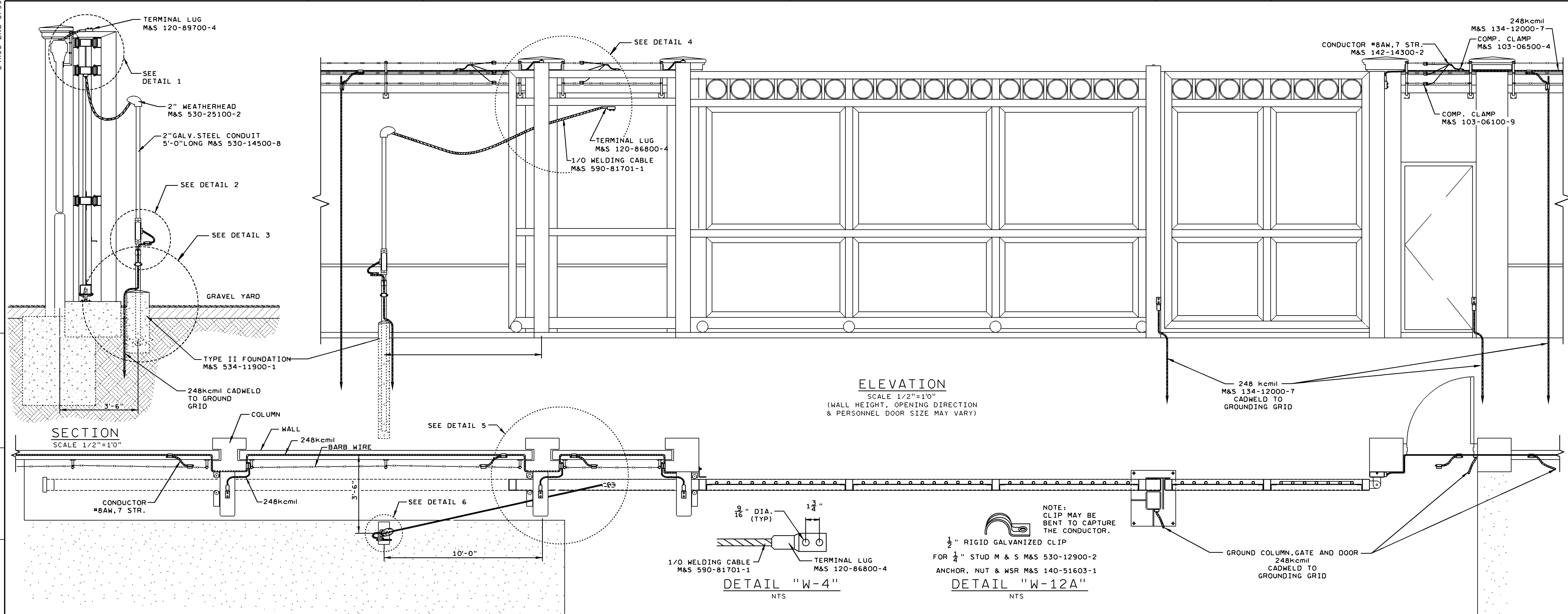


SECTION @ GATE
SCALE: 3/4"=1'-0"



SECTION @ GATE
SCALE: 3/4"=1'-0"

[illegible]



REV	NO	DATE	REVISION
2	03-14-18		POST GROUNDING REVISED
1	12-11-17		REVISED TYPE II FOUNDATION

BY	CH	COR	APP
AV			
AV			
BY	CH	COR	APP

DATE 11-09-16 SCALE 0

DR VALENTIN ER
CH COR
APPROVED

SUBSTATION STANDARD
TYPICAL 30' ROLLING GATE
GROUNDING DETAILS PLAN

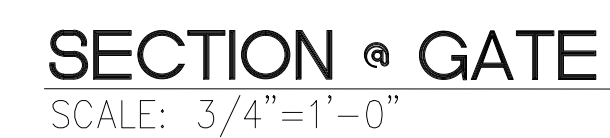
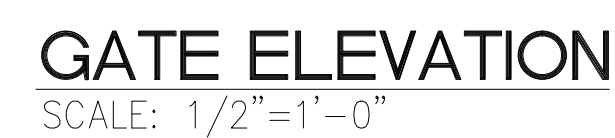
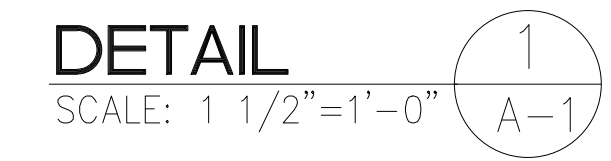
30RGG

(SU,G,PP)

SHEET 27 OF 27
E-16131
CADE

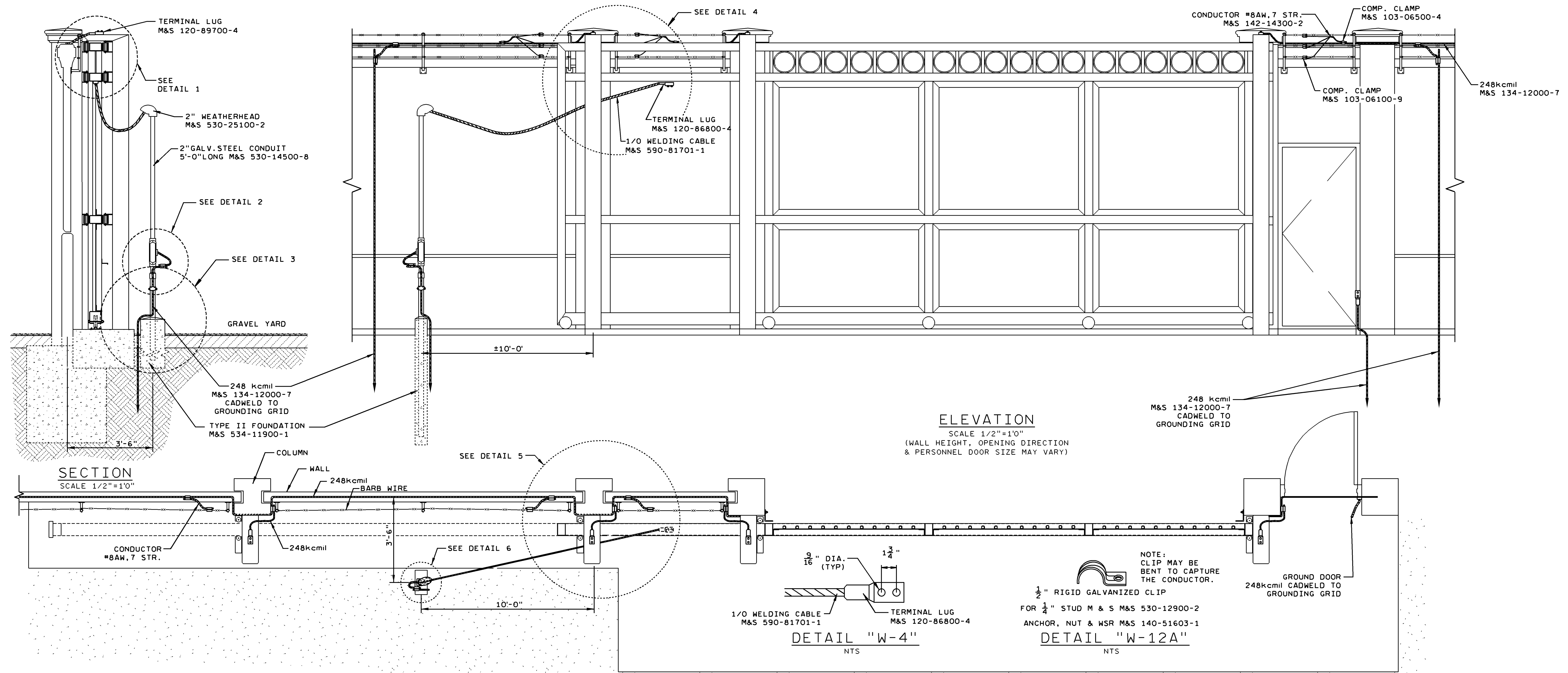
REV NO
1

ENGINEER'S SEAL



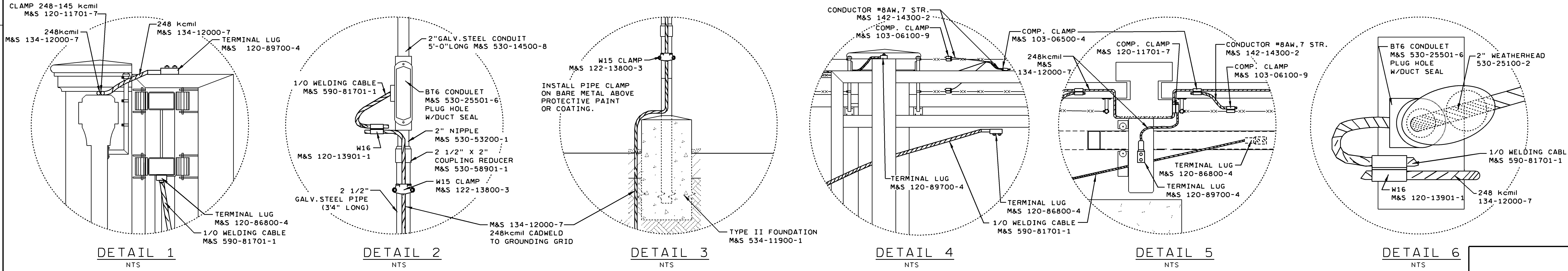
NOTE: ALL ALUM. - 6063-T6

GATES: 1. PROVIDE SHOP DRAWINGS OF GATES FOR APPROVAL



SUBSTATION AVAILABLE FAULT CURRENT (If)	DOWNLEAD SIZE (kcmil)	MAIN GRID SIZE (kcmil)
If < or = 22kA	145.7	145.7
22kA < or = 38kA	248.8	145.7
If > 38kA	248.8	248.8

*DEFINED AS AVAILABLE SYMMETRICAL.
PHASE- GROUND SYSTEM FAULT CURRENT.



NO	DATE	REVISION	BY	CH	COR	APP
2	01-16-18	POST GROUNDING REVISED	AV			
1	12-11-17	REVISED TYPE II FOUNDATION	AV			

DATE 11-09-16 SCALE 0

POWER DELIVERY

DR VALENTIN ER
CH COR
APPROVED

FPL

TRANSMISSION SUBSTATION STANDARD
MOTORIZED 20' ROLLING GATE
GROUNDING DETAILS PLAN

176949S22 R0 (SU,G,PP)

SHEET 22 OF 27
E-247798
C A D E

REV NO 2

ENGINEER'S SEAL



STATE OF FLORIDA
DEPARTMENT OF HEALTH
ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM
SITE EVALUATION AND SYSTEM SPECIFICATIONS

PERMIT #. _____

APPLICANT: Florida Power & Light (FPL) AGENT: Ardaman & Associates, Inc.

LOT: _____ BLOCK: _____ SUBDIVISION: 500 kV Sugar Substation (SR 80 at West County Energy Center)

PROPERTY ID #: 00404329000007010 [Section/Township/Parcel No. or Tax ID Number _____]

TO BE COMPLETED BY ENGINEER, HEALTH DEPARTMENT EMPLOYEE, OR OTHER QUALIFIED PERSON. ENGINEERS MUST PROVIDE REGISTRATION NUMBER AND SIGN AND SEAL EACH PAGE OF SUBMITTAL. COMPLETE ALL ITEMS.

PROPERTY SIZE CONFORMS TO SITE PLAN: ☒ YES ☐ NO NET USABLE AREA AVAILABLE: 2+ ACRES
TOTAL ESTIMATED SEWAGE FLOW: 200 GALLONS PER DAY [OTHER-TABLE 2 _____]
AUTHORIZED SEWAGE FLOW: 5,000+ GALLONS PER DAY [2500 GPD/ACRE _____]
UNOBSTRUCTED AREA AVAILABLE: 465+ SQFT UNOBSTRUCTED AREA REQUIRED: 465 SQFT

BENCHMARK/REFERENCE POINT LOCATION: NE Area of site (BM #161 @ Elev 23.68' - 5/8" iron rod LB3300)
ELEVATION OF PROPOSED SYSTEM SITE IS +/- 0.18 [FT] [BELOW] BENCHMARK/REFERENCE POINT

THE MINIMUM SETBACK WHICH CAN BE MAINTAINED FROM THE PROPOSED SYSTEM TO THE FOLLOWING FEATURES
SURFACE WATER: 100+ FT DITCHES/SWALES: 0 FT NORMALLY WET? ☐ YES ☒ NO
WELLS: PUBLIC: 200+ FT LIMITED USE: 150+ FT PRIVATE: 75+ FT NON-POTABLE: 50+ FT
BUILDING FOUNDATIONS: 5+ FT PROPERTY LINES: 5+ FT POTABLE WATER LINES: 10+ FT

SITE SUBJECT TO FREQUENT FLOODING: ☐ YES ☒ NO 10 YEAR FLOODING? ☐ YES ☒ NO
10 YEAR FLOOD ELEVATION FOR SITE: NA FT MSL/NGVD SITE ELEVATION: See Below FT MSL/NGVD

SOIL PROFILE INFORMATION SITE 1 23.80 NAVD 88

MUNSELL #/COLOR	TEXTURE	DEPTH
10YR 3/1	Topsoil (Organic FS)	0 TO 2"
10YR 5/2	FSL with LR (fill)	2 TO 72+
		TO
		TO
		TO
		TO
		TO
		TO
		TO
USDA SOIL SERIES: <u>Okeechobee muck (site filled)</u>		

SOIL PROFILE INFORMATION SITE 2 Elev 23.39 NAVD 88

MUNSELL #/COLOR	TEXTURE	DEPTH
10YR 3/1	Topsoil (Organic FS)	0 TO 3"
10YR 5/2	FSL with LR (fill)	3" TO 72+
		TO
		TO
		TO
		TO
		TO
		TO
		TO
USDA SOIL SERIES: <u>Okeechobee muck (site filled)</u>		

OBSERVED WATER TABLE: +72 INCHES [BELOW] EXISTING GRADE. TYPE: [APPARENT]
ESTIMATED WET SEASON WATER TABLE ELEVATION: +72 INCHES [BELOW] EXISTING GRADE
HIGH WATER TABLE VEGETATION: ☐ YES ☒ NO MOTTLING: ☐ YES ☒ NO DEPTH: _____ INCHES

SOIL TEXTURE/LOADING RATE FOR SYSTEM SIZING: 0.65 DEPTH OF EXCAVATION: 54 INCHES

DRAINFIELD CONFIGURATION: ☐ TRENCH ☒ BED ☐ OTHER (SPECIFY) _____

REMARKS/ADDITIONAL CRITERIA: Site is for an approximate 6' x 8' bathroom in a new equipment room building. Site is +/- 17 feet above original grade (filled with a loamy limerock fill). Geotechnical report attached to provide added soil profile and water table data.

Nearby L-8 Canal fluctuated between elevation 9 and 11 feet NGVD (Approx. 7.5 to 9.5 feet NAVD). LR = Limerock

SITE EVALUATED BY: Kerf DATE: 2-1-18



STATE OF FLORIDA
DEPARTMENT OF HEALTH
ONSITE SEWAGE TREATMENT AND DISPOSAL
SYSTEM
APPLICATION FOR CONSTRUCTION PERMIT

PERMIT NO. _____
DATE PAID: _____
FEE PAID: _____
RECEIPT #: _____

APPLICATION FOR:

☒ New System ☐ Existing System ☐ Holding Tank ☐ Innovative
☐ Repair ☐ Abandonment ☐ Temporary ☐ _____

APPLICANT: FLORIDA POWER & LIGHT COMPANY

AGENT: DARYL KILPATRICK

TELEPHONE: 561-904-3641

MAILING ADDRESS: 700UNIVERSE BLVD. TS4/JW, JUNO BEACH, FL 33408

=====

TO BE COMPLETED BY APPLICANT OR APPLICANT'S AUTHORIZED AGENT. SYSTEMS MUST BE CONSTRUCTED BY A PERSON LICENSED PURSUANT TO 489.105(3) (m) OR 489.552, FLORIDA STATUTES. IT IS THE APPLICANT'S RESPONSIBILITY TO PROVIDE DOCUMENTATION OF THE DATE THE LOT WAS CREATED OR PLATTED (MM/DD/YY) IF REQUESTING CONSIDERATION OF STATUTORY GRANDFATHER PROVISIONS.

=====

PROPERTY INFORMATION

LOT: _____ BLOCK: _____ SUBDIVISION: _____ PLATTED: _____

PROPERTY ID #: 00404329000007010 ZONING: SA I/M OR EQUIVALENT: ☐ Y ☐ N

PROPERTY SIZE: 69.998 ACRES WATER SUPPLY: ☒ PRIVATE PUBLIC ☐ ≤ 2000 GPD ☐ > 2000 GPD

IS SEWER AVAILABLE AS PER 381.0065, FS? ☐ Y ☐ N DISTANCE TO SEWER: 1,300 FT

PROPERTY ADDRESS: 20505 SOUTHERN BLVD. LOXAHATCHEE, FL, 33470

DIRECTIONS TO PROPERTY: SEE ATTACHED MAP FOR LOCATION

BUILDING INFORMATION

☐ RESIDENTIAL

☒ COMMERCIAL

Unit No	Type of Establishment	No. of Bedrooms	Building Area Sqft	Commercial/Institutional System Design Table 1, Chapter 64E-6, FAC
1	<u>ELECT. TRANS.STATION</u>	<u>0</u>	<u>5,456</u>	<u>TWO EMPLOYEES, TWO VISITS PER MONTH</u>
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____

☐ Floor/Equipment Drains ☐ Other (Specify) N/A

SIGNATURE: _____

DATE: 01-31-18



STATE OF FLORIDA
DEPARTMENT OF HEALTH
ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM
CONSTRUCTION PERMIT

PERMIT NO. _____
DATE PAID: _____
FEE PAID: _____
RECEIPT #: _____

CONSTRUCTION PERMIT FOR:

[X] New System [] Existing System [] Holding Tank [] Innovative
[] Repair [] Abandonment [] Temporary [] _____

APPLICANT: FLORIDA POWER & LIGHT COMPANY / ATTN DARYL KILPATRICK 561-904-3641

PROPERTY ADDRESS: 20505 SOUTHERN BLVD. LOXAHATCHEE, FL, 33470

LOT: _____ BLOCK: _____ SUBDIVISION: _____
[SECTION, TOWNSHIP, RANGE, PARCEL NUMBER]
PROPERTY ID #: 00404329000007010 [OR TAX ID NUMBER]

SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATIONS AND STANDARDS OF SECTION 381.0065, F.S., AND CHAPTER 64E-6, F.A.C. DEPARTMENT APPROVAL OF SYSTEM DOES NOT GUARANTEE SATISFACTORY PERFORMANCE FOR ANY SPECIFIC PERIOD OF TIME. ANY CHANGE IN MATERIAL FACTS, WHICH SERVED AS A BASIS FOR ISSUANCE OF THIS PERMIT, REQUIRE THE APPLICANT TO MODIFY THE PERMIT APPLICATION. SUCH MODIFICATIONS MAY RESULT IN THIS PERMIT BEING MADE NULL AND VOID. ISSUANCE OF THIS PERMIT DOES NOT EXEMPT THE APPLICANT FROM COMPLIANCE WITH OTHER FEDERAL, STATE, OR LOCAL PERMITTING REQUIRED FOR DEVELOPMENT OF THIS PROPERTY.

SYSTEM DESIGN AND SPECIFICATIONS

T [900] GALLONS / GPD SEPTIC TANK/AEROBIC UNIT CAPACITY MULTI-CHAMBERED/IN-SERIES []
A [] GALLONS / GPD CAPACITY MULTI-CHAMBERED/IN-SERIES []
N [] GALLONS GREASE INTERCEPTOR CAPACITY [MAXIMUM CAPACITY SINGLE TANK: 1250 GALLONS]
K [] GALLONS DOSING TANK CAPACITY [] GALLONS @ [] DOSES PER 24 HRS # PUMPS []

D [446] SQUARE FEET PRIMARY DRAINFIELD SYSTEM
R [] SQUARE FEET SYSTEM

A TYPE SYSTEM: [X] STANDARD [] FILLED [] MOUND [] _____

I CONFIGURATION: [] TRENCH [X] BED [] _____

N

F LOCATION OF BENCHMARK: NE AREA OF SITE (BM #161 @ ELEV. 23.68' - 5/8" IRON ROD LB3300)

I ELEVATION OF PROPOSED SYSTEM SITE [0.18] [INCHES/FT] [ABOVE/BELOW] BENCHMARK/REFERENCE POINT

E BOTTOM OF DRAINFIELD TO BE [2.68] [INCHES/FT] [ABOVE/BELOW] BENCHMARK/REFERENCE POINT

L

D FILL REQUIRED: [N/A] INCHES EXCAVATION REQUIRED: [N/A] INCHES

O

T

H

E

R

SPECIFICATIONS BY: DARYL KILPATRICK, PE TITLE: PRINCIPAL ENGINEER

APPROVED BY: _____ TITLE: _____ CHD

DATE ISSUED: _____ EXPIRATION DATE: _____

DH 4016, 08/09 (Obsoletes all previous editions which may not be used)

Incorporated: 64E-6.003, FAC

**FLORIDA POWER & LIGHT COMPANY - TRANSMISSION SWITCHYARD SECURITY WALL PROJECT,
EXAMPLE PHOTOGRAPHS**



Attachment B

Paving Improvements

**Drainage Statement for the
Florida Power and Light Company (FPL)
West County Energy Center (WCEC) Paving Improvements at Well Sites**

Introduction:

The following improvements are necessary to facilitate access and maintenance operations at the WCEC Plant:

- Construct a paved access drive from the existing asphalt drive on the south side of the site to the injection wells located just north of the South Pond (approximately 425 feet long and 20 feet wide);
- Construct pavement at the existing radius return on the northeast corner of the access road to the injection wells (approximately 65 feet long by 5 feet wide along the radius);
- Construct an additional 5 feet of pavement from the access road to the injection wells south (approximately 510 linear feet long and 5 feet wide) to prevent erosion of the existing pavement;

There will be the increase in impervious area of approximately 14,370 square feet or 0.33 acres for the improvements.

The stormwater management for the WCEC is part of a previously approved Site Certification Application (SCA) permitted under the following SCA No.:

- PA05-47: West County Energy Center (Units 1 & 2)
- PA05-47SA1: West County Energy Center (Unit 3)

Based on a review of the WCEC Surface Water Management Calculations, it appears that the improvements will be constructed within the South Basin of the WCEC. Refer to Figure 1 below.

Paving, Grading and Drainage Improvements:

The runoff from the proposed improvements will sheet flow south or west via overland flow. The runoff from all proposed improvements will ultimately drain to the South Pond.

Piping and drainage structures will not be installed as part of the planned improvements. All improvements will be constructed at the existing finished grades. The existing topographical elevations will not change with the proposed construction (i.e. no filling of the site is planned). The existing ponds will not be modified.

The water quality treatment for the proposed improvements will be provided by the existing system.

Based on the 0.33 acres of impervious area added, the existing system will provide the required treatment and volumetric requirements for the proposed improvements.

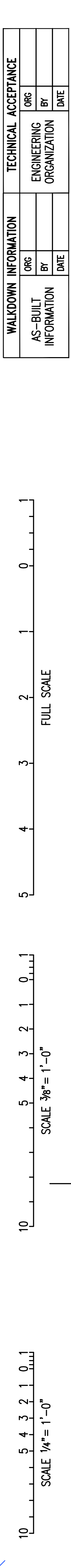
Prepared by:

Claudine Alexander, P.E.
Professional Engineer No. 53822 (Florida)
CAPE Jupiter, LLC
Certificate of Authorization No. 30993
Contract Civil Engineer working on behalf of Florida Power and Light Company

April 26, 2018



CLxd
CLxd
4/26/18.

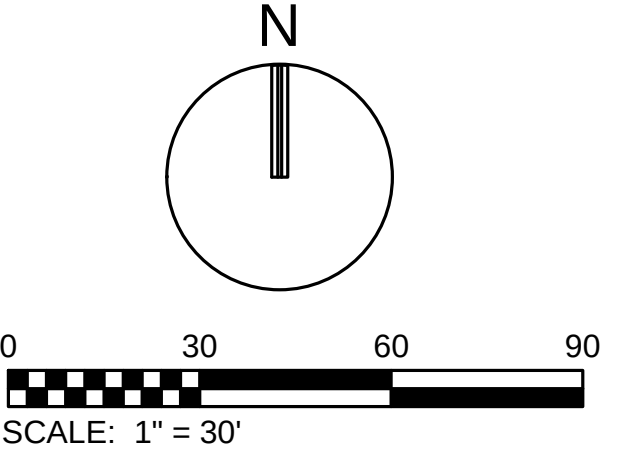


1	04/25/18	-	CA	JRC	-	-	-	-	-
REV	DATE	REVISION DESCRIPTION	BY	CH	COR	APR	ORG		



SYSTEM —	DISCIPLINE —	PLANT/UNIT WEST COUNTY ENERGY CENTER
TYPE —	UNIT	TITLE CIVIL MISCELLANEOUS PAVING IMPROVEMENTS
DRAWING SIZE D(24"X36")	SCALE SEE PLAN	
DRAWING NUMBER —		SHEET —
		REV —

12 FPLBORDER-D 6/10



Attachment C

Extension of Water Piping

TECHNICAL MEMORANDUM

To: Mr. James R. Chapman, P.E.
Power Generation –ETS
Plant System and Infrastructure
Florida Power and Light

From: David Holtz, PE,
Vice President
Holtz Consulting Engineers, Inc.

Date: September 2, 2016

Subject: **Evaluation of Emergency Potable Water Supply for Back-Up Cooling Water to the West County Energy Center**

1.0 Introduction and Background

The Florida Power and Light (FPL) West County Energy Center (WCEC) is provided with reclaimed water from the East Central Regional Water Reclamation Facility for use as cooling water. The reclaimed water system is designed to provide an average of 22 mgd, and a peak of 27 mgd, of reclaimed water to the WCEC. The agreement with Palm Beach County Water Utilities Department (PBC WUD) states that up to 3.2 mgd of potable water will be provided to FPL at no cost if the delivery of reclaimed water is insufficient.

The purpose of this Technical Memorandum is to evaluate the capacity of the existing potable water supply system and develop alternatives for increasing the capacity of this system to provide additional potable water in emergencies for use as cooling water at the WCEC. The back-up potable water supply system would be used if the reclaimed water from the ECRWRF is unavailable or insufficient in flow and to supplement and dilute the water from the Upper Floridan Aquifer wells located at the WCEC.

This technical memorandum will summarize the existing potable water supply system at the WCEC, the modelling of the flow capacity of the existing system with the pump operating and field testing of the system, alternative improvements to the system to increase the potable water supply capacity to provide emergency cooling water supply, the increased capacity predicted for each improvement alternative, and their estimated capital costs.

2.0 Existing Water Supply System

The WCEC is provided potable water from PBC WUD from a 24" water main adjacent to the WCEC on the north side of Southern Boulevard. A 16" water line was originally installed from the PBC WUD line to convey water through an 8" meter and then 12" water main with dual 10" RPZs to the service water tank. In 2010, a separate 12" parallel line with a 10" meter was added from the 16" main to the WCEC site to a new potable water booster pump station. Therefore,

there are two parallel lines from the 16" water main to the booster pump station, and each line has a flow meter with bypass.

A separate 12" line with dual, parallel 10" RPZ's to an above-ground stub-out with a blind flange was also constructed in 2010 to provide for an emergency connection of the potable water supply system to an existing 30" HDPE pipeline running from the south end of the site to the WCEC's cooling water system. In an emergency, temporary surface piping can be installed from the 12" stub-out to the 30" line to allow potable water to be conveyed to the cooling water system.

The 30" HDPE line was subsequently connected to the 36" reclaimed water pipeline from the ECRWRF to the WCEC. Connection of the potable water supply system directly to the 30" HDPE reclaimed water line would not be allowed by the Health Department even with the dual RPZs. Therefore, if the 12" potable main stub-out was to be connected to the 30" HDPE line to increase the potable water conveyance system capacity in the future, the 30" HDPE line would have to be disconnected from the reclaimed water system, flushed and disinfected until testing showed no coliform bacteria.

A depiction of the existing potable and reclaimed water supply systems at the ECRWRF is provided in **Figure 1**. The potable water supply system from the 24" PBC WUD line through the booster pump and 12" main to the service water tank is shown in blue. The 30" HDPE line and other reclaimed water piping systems are shown in red. The 30" line from near the 12" water main stub-out to the location where it is connected to the 36" reclaimed water line from the ECRWRF near the flow metering station could be available for use with the potable water conveyance system if disconnected and adequately cleaned.

2.1 Estimated Capacity of Existing Water Supply System

Utilizing Bentley WaterGEMS, a hydraulic model of the existing water supply system was developed. The model was based on as-built drawings of the potable water and reclaimed water supply systems at the WCEC and other information provided by FPL, including the booster pump curves and backflow preventer headloss curves, as well as aerial imagery of the WCEC site. The hydraulic model was used to predict the capacity of the existing potable water conveyance system from the point of connection to the PBC WUD 24" water main along Southern Boulevard

The potable water system conveyance capacity is dependent on the pressure in the PBC WUD 24" water main at the point of connection to the WCEC piping system. The pressure in the water main at Southern Boulevard will vary depending on the pumping system operation and demands on the distribution system, both the flow to the WCEC and other water users in the area. Development activity along Southern Boulevard in the vicinity of the WCEC will increase water demands and decrease the pressure in the water main. The hydraulic modeling for this analysis is based on a pressure of 50 psi at the point of connection to the WCEC.

The flow conveyance capacity of the existing system with the booster pump operating was estimated to be 3,277 gpm or 4.72 mgd, with water discharged to the service tank. The predicted

flow through the 8" meter was 1,597 gpm (2.30 mgd) and through the 10" meter was 1,680 gpm (2.42 mgd). The design capacity of the booster pump according the approved shop drawing is 3,000 gpm (4.32 mgd). At this flow rate, the velocity in the 12" water main is over 9 feet per second; therefore, increasing the pump capacity or adding another pump to increase the flow in the 12" water line is not practical.

2.2 Results of Field Testing of Potable Water Supply System

Field testing of the potable water supply system was conducted by FPL and PBC WUD staff on July 20, 2016. The booster pump station was operated and flow was recorded at the 8" and 10" flow meters and a meter on the 2" bypass line around one of the larger meters. PBC WUD staff also opened up to three fire hydrants on the water main along Southern Boulevard east of the WCEC to determine the pressure drop in the water main as the withdrawal of water from the system increased. The actual flow recorded at the meters to the WCEC with the water booster pump operating as well as the predicted flow from the hydraulic modeling is summarized in **Table 1**.

Table 1: Predicted and Actual Flow and Variance

WCEC Meter	Actual Flow		Estimated Flow		Variance		
	GPM	MGD	GPM	MGD	GPM	MGD	Percent
8" meter	580	0.84	1,597	2.30	1,017	1.46	36.3%
10" meter	1,780	2.56	1,680	2.42	(100)	(0.14)	106%
2" bypass meter	90	0.13	-	-	-	-	-
Total	2,450	3.53	3,277	4.72	827	1.19	74.8%

The flow through the 10" meter during the field test was very close to the flow through this line predicted by the hydraulic model. However, the flow through the 8" meter was significantly less than predicted. The flow through the line with the 8" meter should be closer to the flow through the longer line with the 10" meter. It appears that a restriction may exist in the piping with the 8" meter that is limiting the flow, like a partially closed valve or clogged strainer. Testing of the system in 2010 after the booster pump was installed indicated a flow of close to the design flow of 4.3 mgd.

3.0 Potable Water Supply System Improvement Alternatives

Alternatives to increase the capacity of the existing potable water supply system and deliver potable water to the WCEC cooling water system were developed and evaluated, and are described in this section. The hydraulic model of the existing system was modified to include the alternative piping improvements and was used to estimate the hydraulic capacity of the improved system. Conceptual cost estimates for the alternative improvements were then developed.

3.1 Summary of Water Supply System Improvement Alternatives

Several alternatives were evaluated for increasing the capacity of the potable water supply system for the WCEC, including the following.

- **Alternative 1:** Extend the 12" water line around the service tank and connect it to the 14" gravity line from the service tank to the surge tank. This will allow the surge tank to be filled directly from the potable water booster pump.
- **Alternative 2:** Connect the 12" stub-out with dual RPZs to the 30" HDPE line at the south end and connect the 30" HDPE line to the 12" water main just south of the reclaimed water meter station. In this scenario, the booster pump will discharge through the existing 12" water main and the 30" HDPE pipeline will flow by PBC WUD pressure to the connection of the 30" HDPE pipe back to the existing 12" water main. This alternative also includes the 12" bypass line to the surge tank described in Alternative 1.
- **Alternative 3:** Connect the 12" water main from the booster pump station to the 30" HDPE line at the south end, and connect the 30" pipe to the existing 12" water main just south of the reclaimed water metering station. In this scenario, the booster pump will discharge through both the existing 12" water main and the 30" HDPE pipe to the location of the reclaimed water metering station, where all the flow will be conveyed to the surge tank through the existing 12" water main. This alternative also includes the 12" bypass line to the surge tank described in Alternative 1.
- **Alternative 4A:** Connect the 30" HDPE line to the end of the 10" stub out and extend the 30" HDPE line from south of the reclaimed water metering station to the surge tank with a 12" pipe. In this scenario, the booster pump will discharge through the existing 12" water main to the surge tank, and the 30" HDPE line with 12" new pipe extension to the surge tank will flow via PBC WUD system pressure. This alternative also includes the 12" bypass line to the surge tank described in Alternative 1.
- **Alternative 4B:** Connect the 30" HDPE line to the end of the 10" stub out and extend the 30" HDPE line from south of the reclaimed water metering station to the surge tank with a 16" pipe. This is the same scenario as Alternative 4A but with a 16" new extension of the 30" HDPE pipe to the surge tank. This alternative also includes the 12" bypass line to the surge tank described in Alternative 1.

3.2 Estimated Capacity of Water Supply System Improvement Alternatives

The hydraulic model was used to estimate the potable water system capacity if alternative improvements are made to the existing system. The piping improvements were added to the model and the model was run with the booster pump on and potable water discharged to the surge tank for mixing with reclaimed water or well water. The estimated capacity of the various piping system improvements are summarized in **Table 2**.

Table 2: Summary of Estimated Flow for Alternative Piping System Improvements

Discharge Location	Predicted Total Flow	
	GPM	MGD
Alternative 1: 12" WM Extension around service tank to surge tank.	3,388	4.87
Alternative 2: Connect 30" HDPE pipe to 12" stub-out and to existing 12" main at the reclaimed water meter station.	3,388	4.87
Alternative 3: Connect 30" HDPE Pipe to booster pump discharge and existing 12" line to surge tank at the reclaimed water meter station.	4,062	5.85
Alternative 4A: Connect and extend 30" HDPE pipe with new 12" line to surge tank.	5,081	7.31
Alternative 4B: Connect and extend 30" HDPE pipe with new 16" line to surge tank.	5,641	8.12

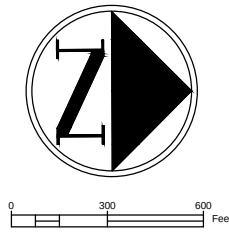
The potable water conveyance system capacity can be increased depending on the improvement alternative selected. Alternative 2 does not increase the flow at all because one line is fed by the booster pump and the other line is not. Therefore, the 30" line that is not connected to the booster pump will be at a much lower pressure than the 12" line fed by the booster pump. In alternative 3, both the existing 12" line and 30" HDPE line would be connected to the booster pump discharge and would therefore be at the same pressure and in parallel. The predicted flow of 5.85 is the flow limit of the booster pump and is near run-out (cavitation point on the pump curve). Therefore, no additional capacity can be achieved by the booster pump. Alternatives 4A and 4B increase the flow the most as there are two lines from the 16" water main near the point of connection to the 24" water main on Southern Boulevard all the way to the surge tank.

3.3 Budgetary Cost Estimates for Improvement Alternatives

Budgetary cost estimates were developed for the proposed water supply system improvement alternatives. A summary of the cost estimates for the various improvement alternatives is summarized in **Table 3** below.

Table 3 – Budgetary Cost Estimates for the Water Supply System Improvements

Connection to Existing Main Location	Estimated Piping Cost (\$)
Alternative 1: 12" WM Extension around service tank to surge tank.	\$116,000
Alternative 2: Connect 30" HDPE pipe to 12" stub-out and to existing 12" main at the reclaimed water meter station.	\$300,000
Alternative 3: Connect 30" HDPE Pipe to booster pump discharge and existing 12" line to surge tank at the reclaimed water meter station.	\$350,000
Alternative 4A: Connect and extend 30" HDPE pipe with new 12" line to surge tank.	\$800,000
Alternative 4B: Connect and extend 30" HDPE pipe with new 16" line to surge tank.	\$1,060,000



DATE	BY	REVISIONS

Date: 5/19/16
Scale: AS NOTED
Design By:
Drawn By: RJR
Check By:

FPL WEST COUNTY ENERGY CENTER

WATER & RECLAIMED WATER SYSTEMS

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FIG. 1