

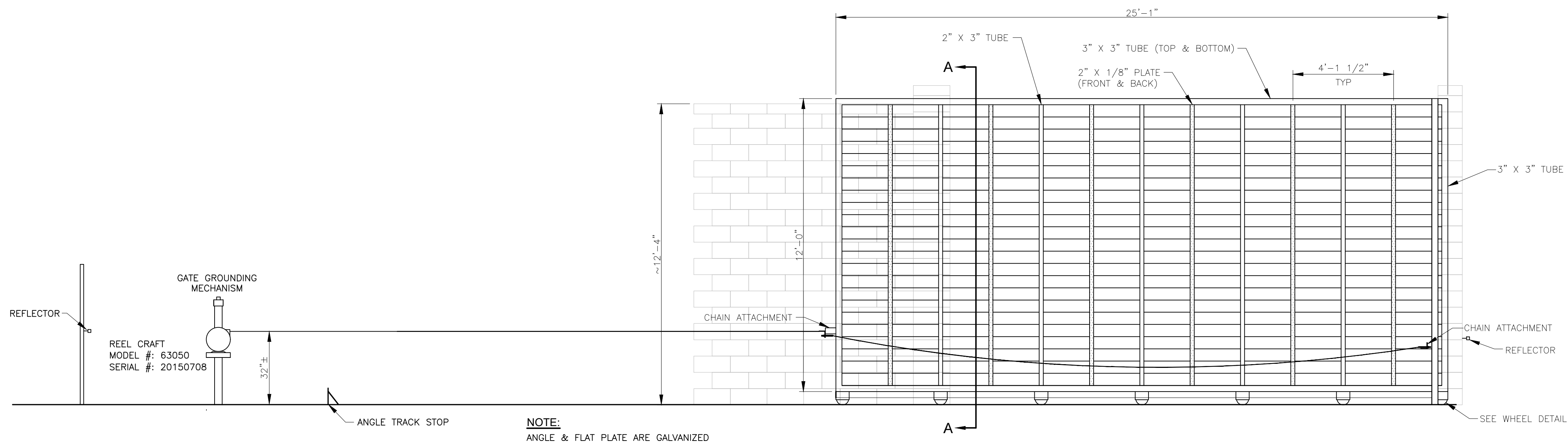
# CITY OF LOVELAND CROSSROADS POWER SUBSTATION — early 2020



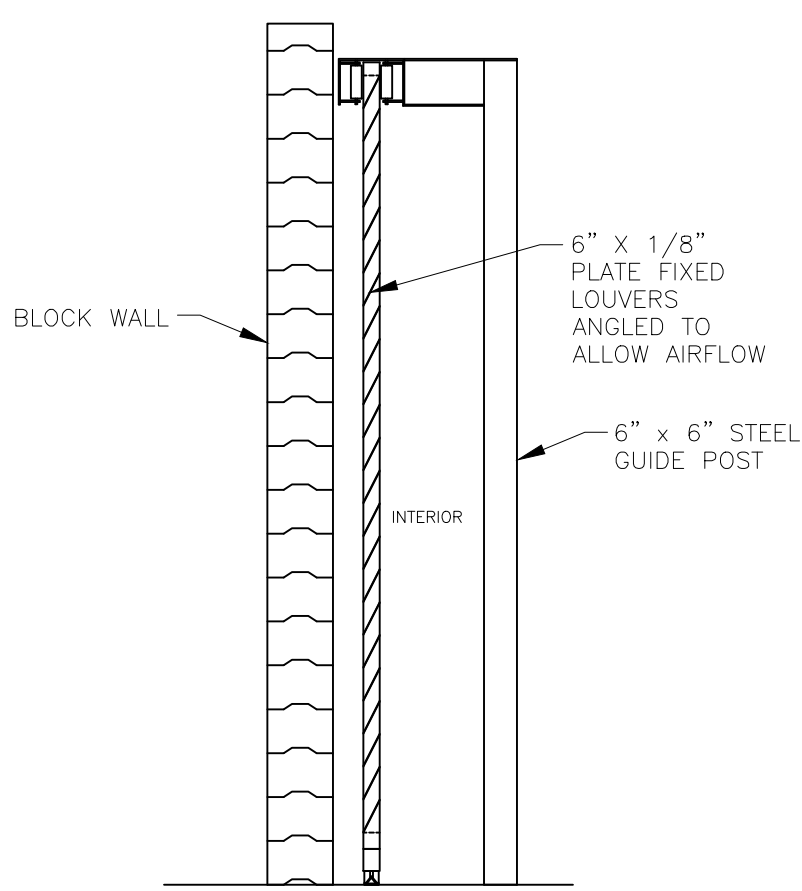
Aerial view of Crossroads Power Substation

Views from N. Boyd Lake Avenue—Chain link fence will be replaced with a concrete wall. Public artwork will be installed along the 321' l x 12' h façade of this substation.

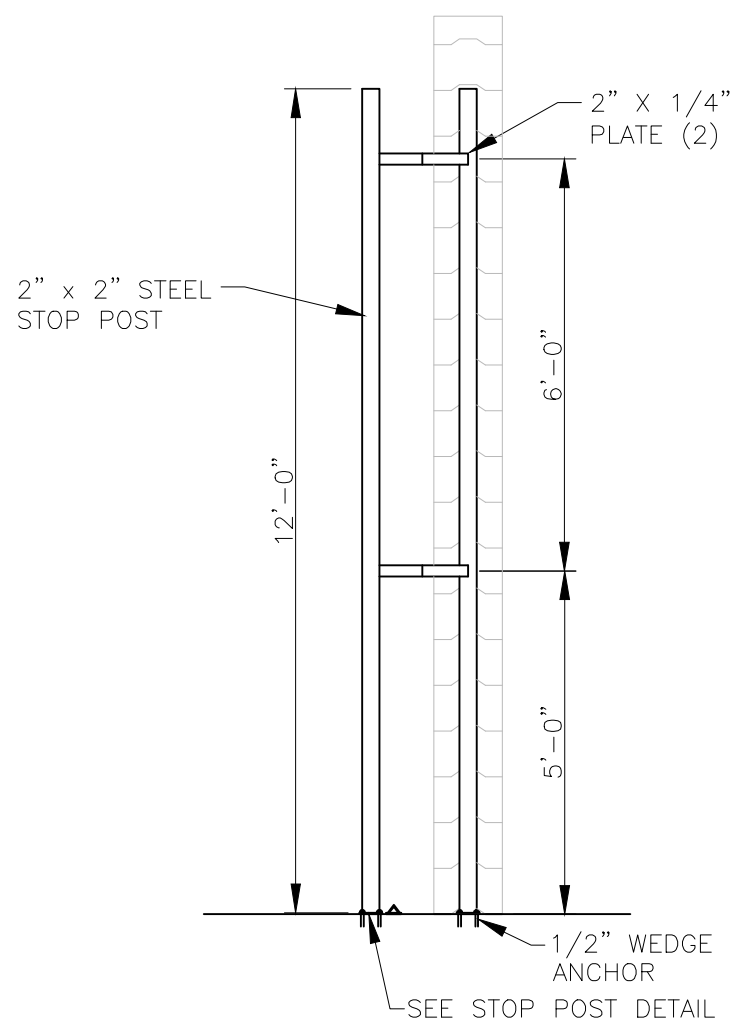




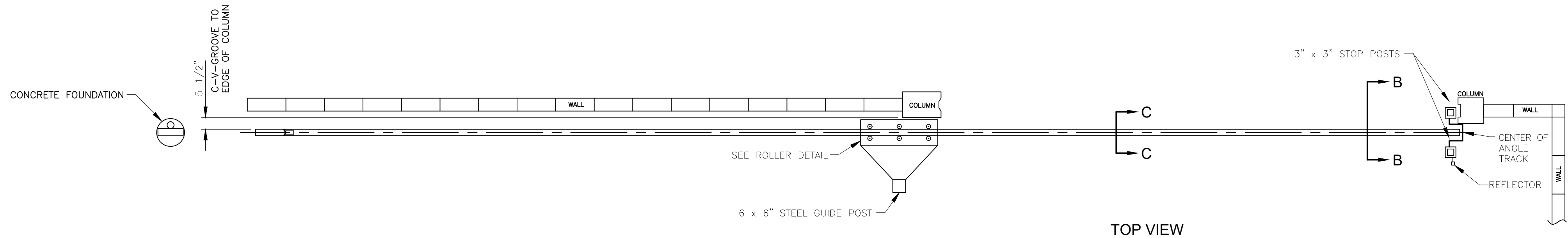
INSIDE VIEW



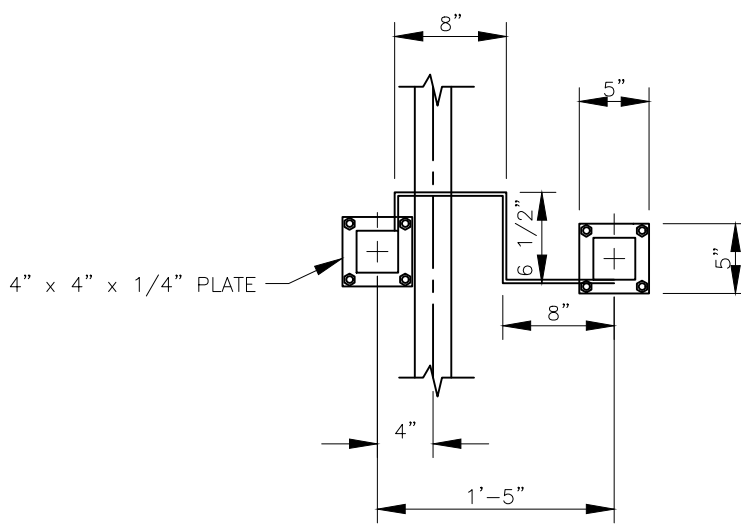
SECTION A-A



SECTION B-B

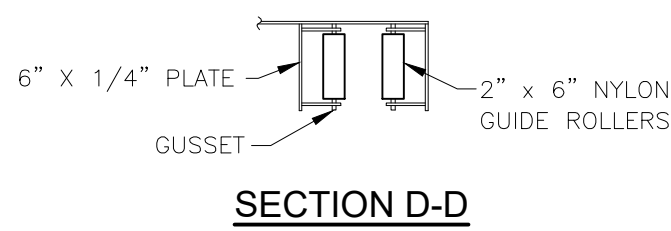


TOP VIEW

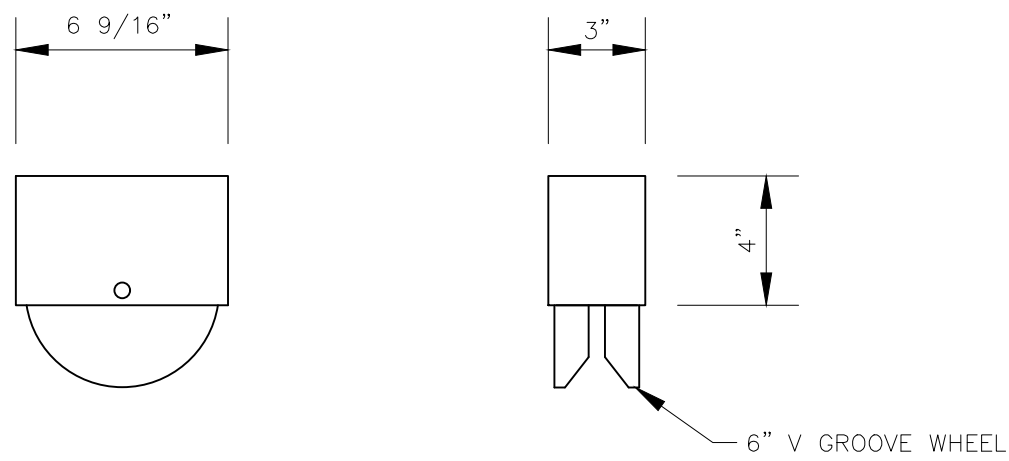


STOP POST DETAIL  
1" = 1'-0"

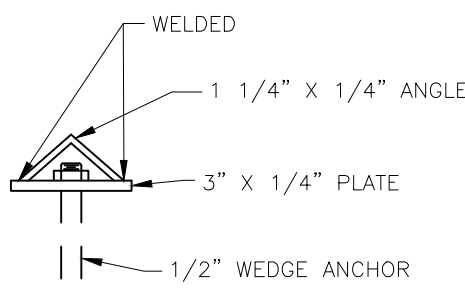
DRIVEABLE GATE GUIDE SYSTEM  
3/8" = 1'-0"



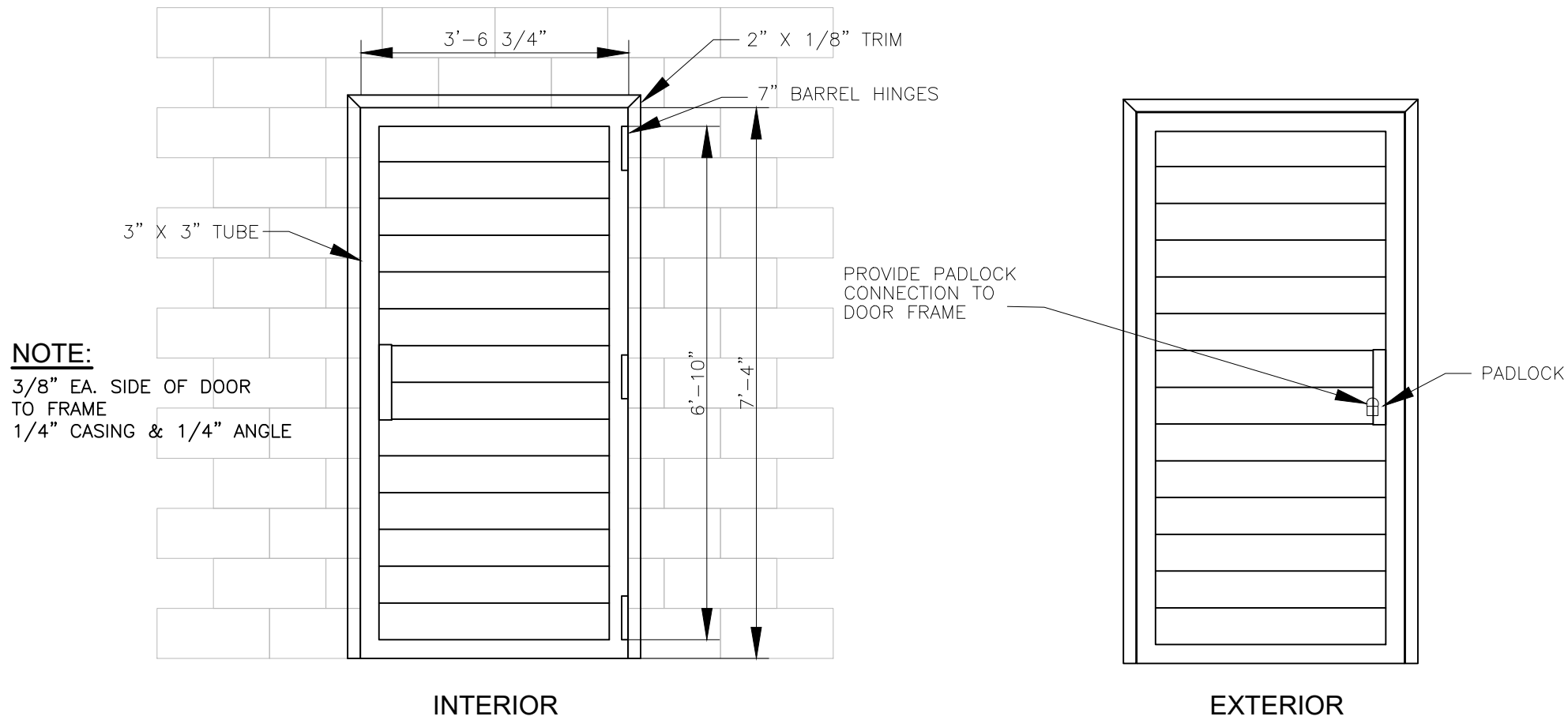
SECTION D-D



WHEEL DETAIL  
1 1/2" = 1'-0"



ANGLE TRACK DETAIL  
3" = 1'-0"



PERSONNEL GATE  
1/2" = 1'-0"

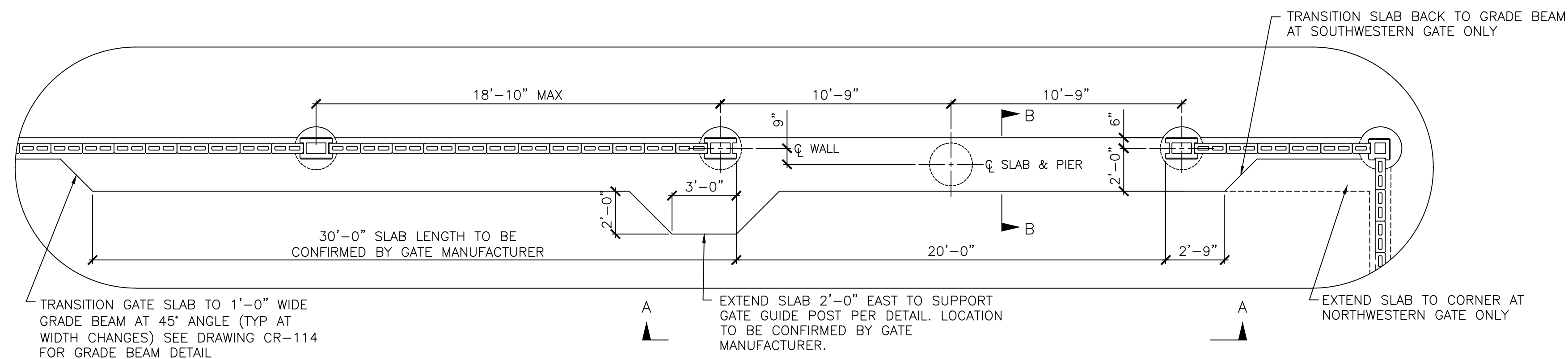
ROLLER DETAIL  
3/4" = 1'-0"

NOTES:

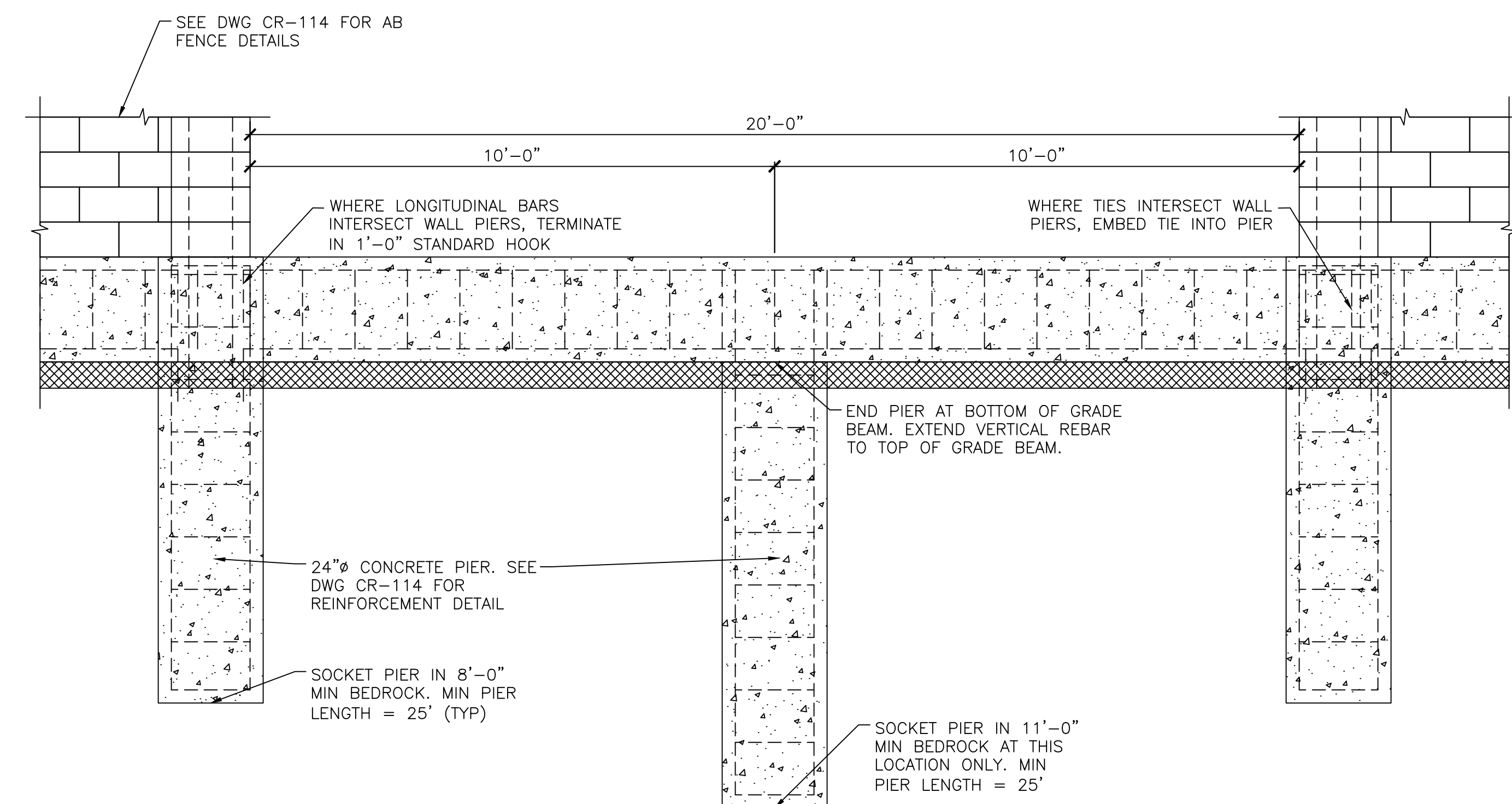
1. FOOTHILLS SUBSTATION SHALL HAVE TWO (2) VEHICULAR GATES & ONE (1) PERSONNEL GATE.
2. CONTRACTOR SHALL PROVIDE CHAMBERLAIN LIFTMASTER GEAR DRIVEN OPERATOR.
3. CONTRACTOR SHALL INCLUDE PROGRAMMABLE KEYPADS FROM LINEAR WITH ONE (1) ON THE EXTERIOR WALL AND ONE (1) MOUNTED ON THE AUTOMATIC OPERATOR.
4. CONTRACTOR SHALL PAINT GATES IN CITY APPROVED COLOR.

PLATTE RIVER POWER AUTHORITY				2000 E. HORSETOOTH ROAD FT. COLLINS, COLORADO 80525			
FOOTHILLS 115KV SUBSTATION PHYSICAL GATE DETAILS				NEW DWG.			
DESIGNED BY PEL		DRAWN BY JLN		CHECKED BY MFP			
APPROVED BY				DATE 07/02/2018			
NO. DATE		REVISION OR RECORD OF ISSUE		BY CK APP		SCALE AS NOTED	
						DRAWING NO. CR-114B	
						REV. 0	

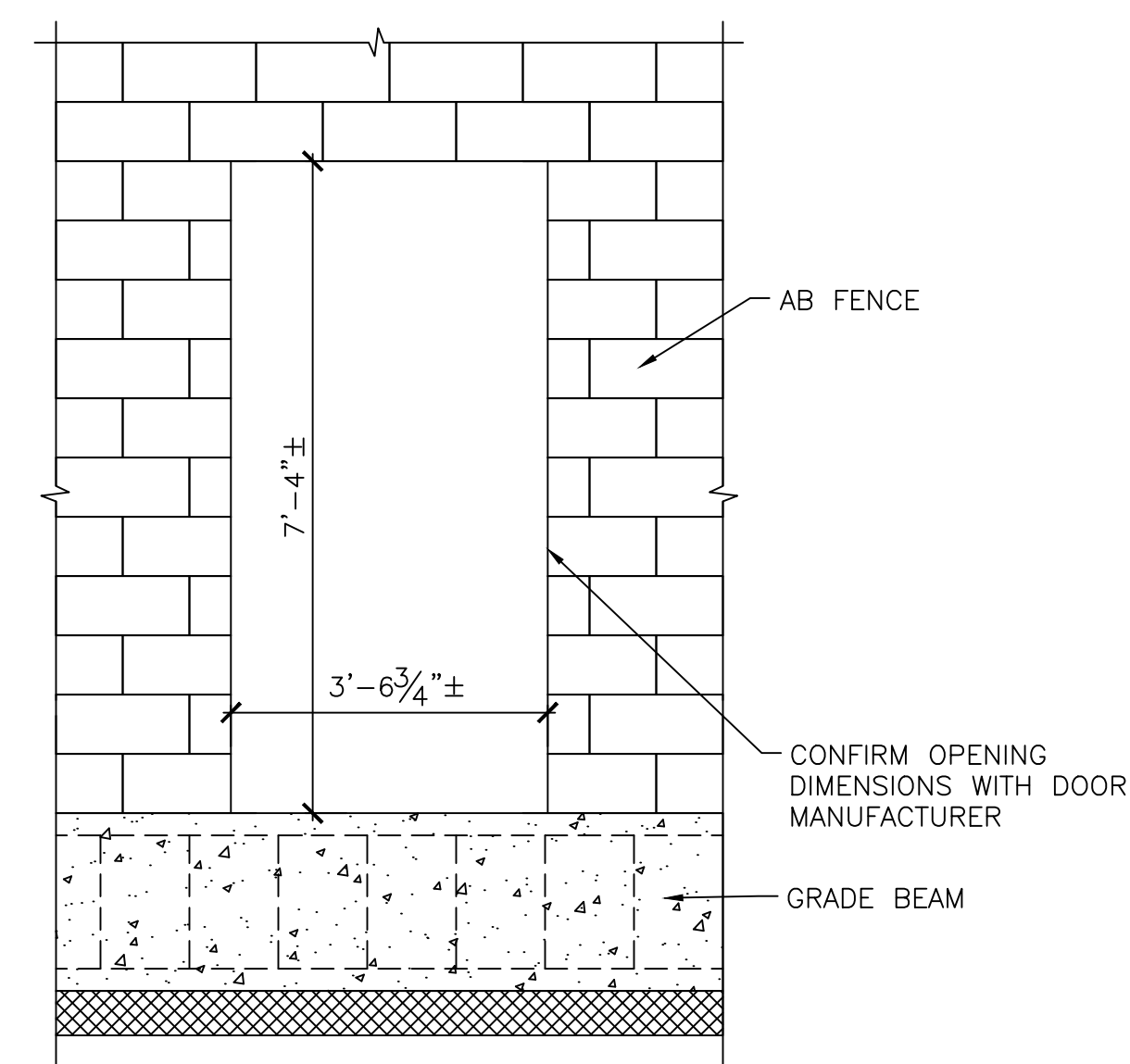




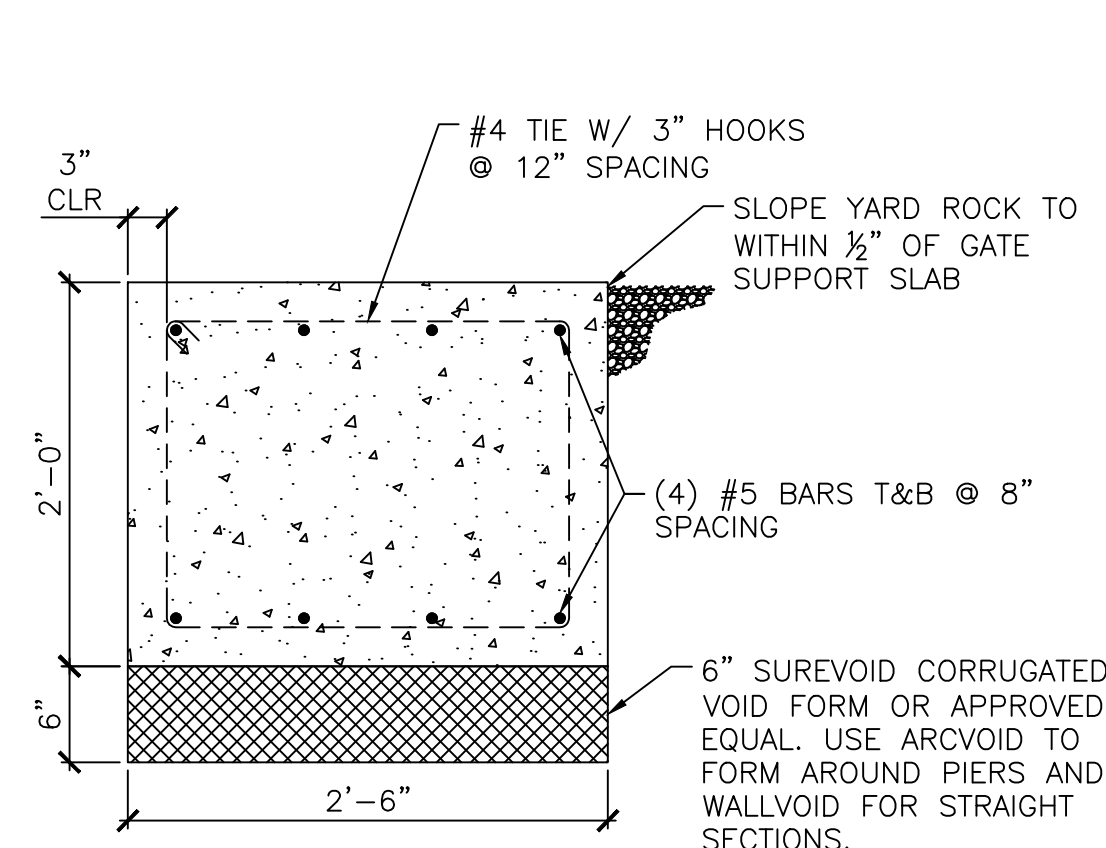
SCALE: 1/4"=1'-0"



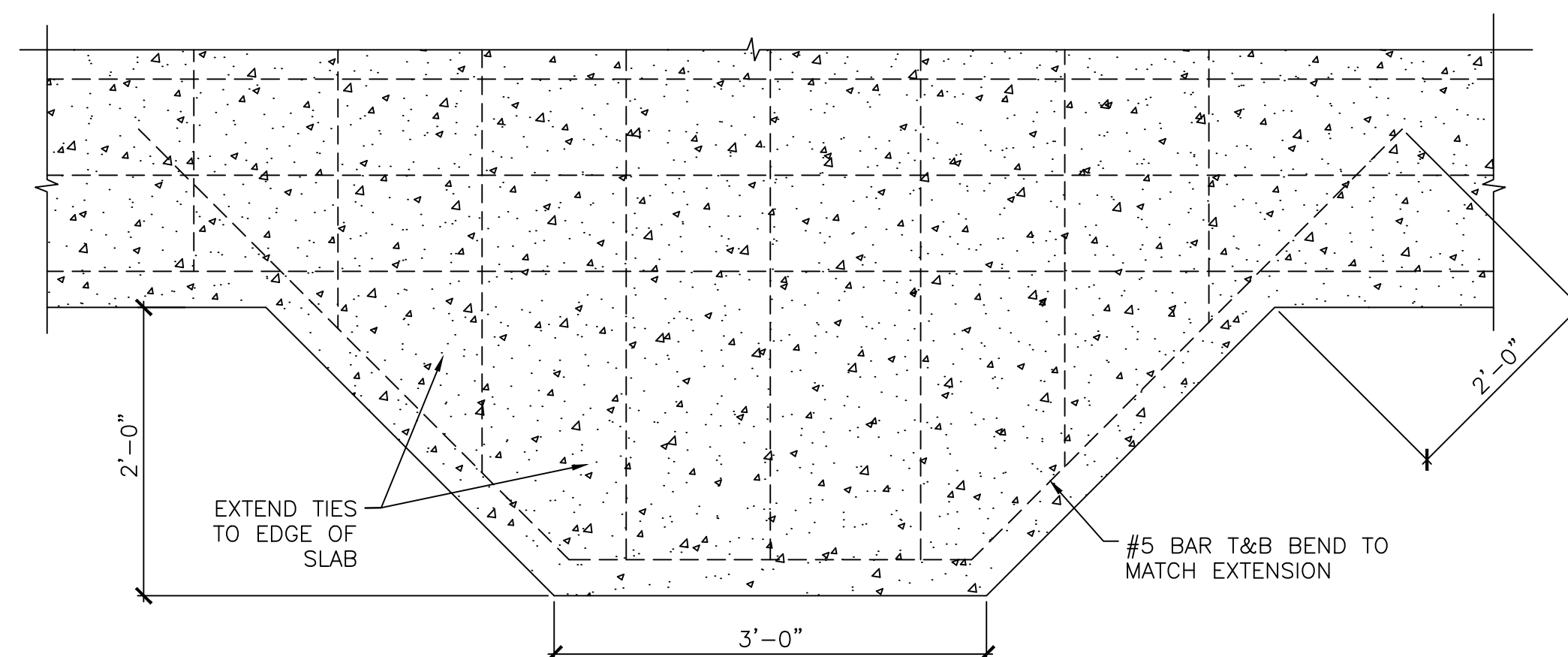
SCALE: 1/2"=1'-0"



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



N.T.S.

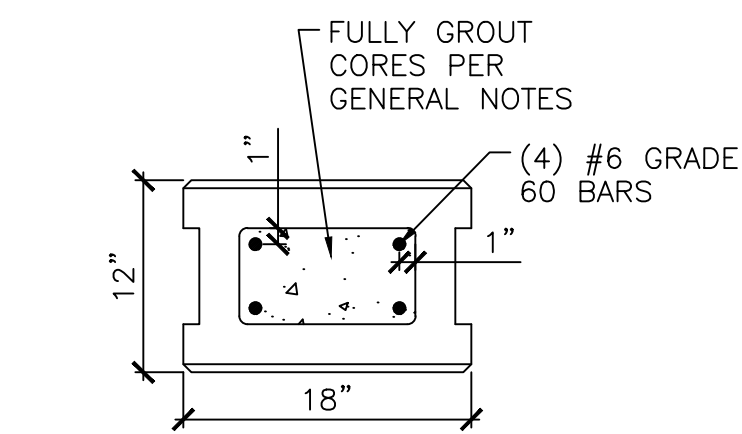


N.T.S.

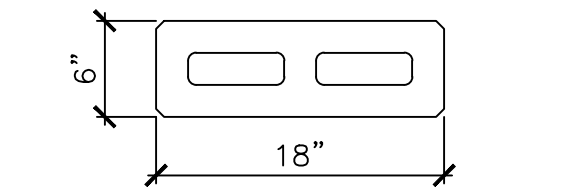
THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS. LOCATION AND FENCE HEIGHT SHALL COMPLY WITH CITY/COUNTY FENCING CODES AND CURRENT CONDITIONS. THIS PLAN IS BASED ON THE ABOVE REFERENCED SPECIFICATIONS. ANY DISCREPANCIES OR CHANGES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

							STRUCTURAL GATE SUPPORT SLAB DETAILS						
							NEW DWG.						
							DESIGNED BY JLN		DRAWN BY JLN		CHECKED BY MFP		
							APPROVED BY			DATE 06/18/2018			
NQ.	DATE	REVISION OR RECORD OF ISSUE				BY	CK	APP	SCALE AS SHOWN		DRAWING NO. CR-114A		REV. 0

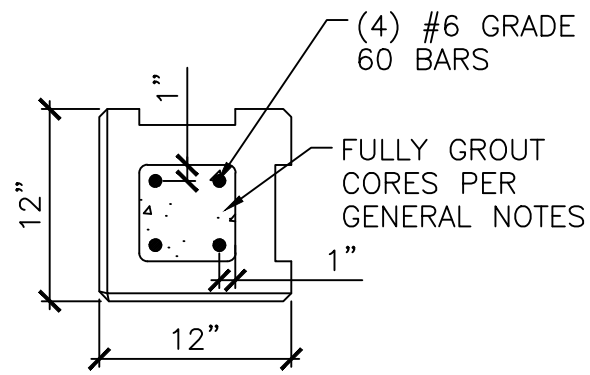




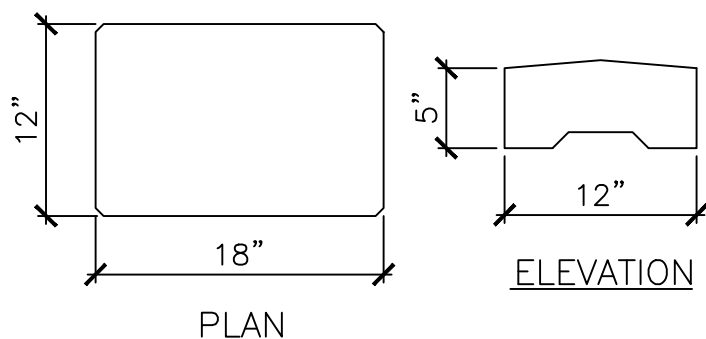
AB FENCE POST BLOCK  
N.T.S.



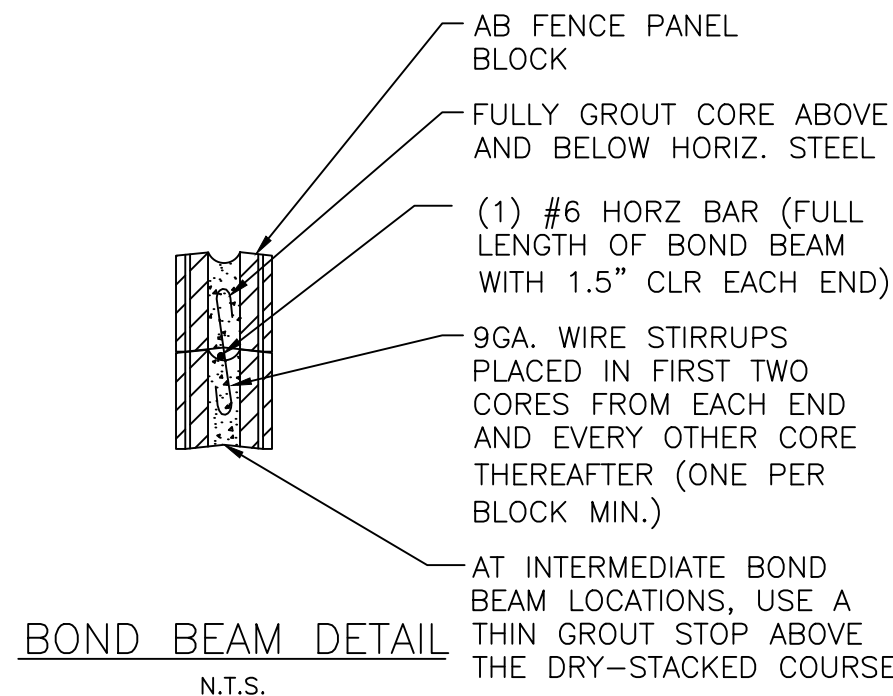
AB FENCE PANEL BLOCK  
N.T.S.



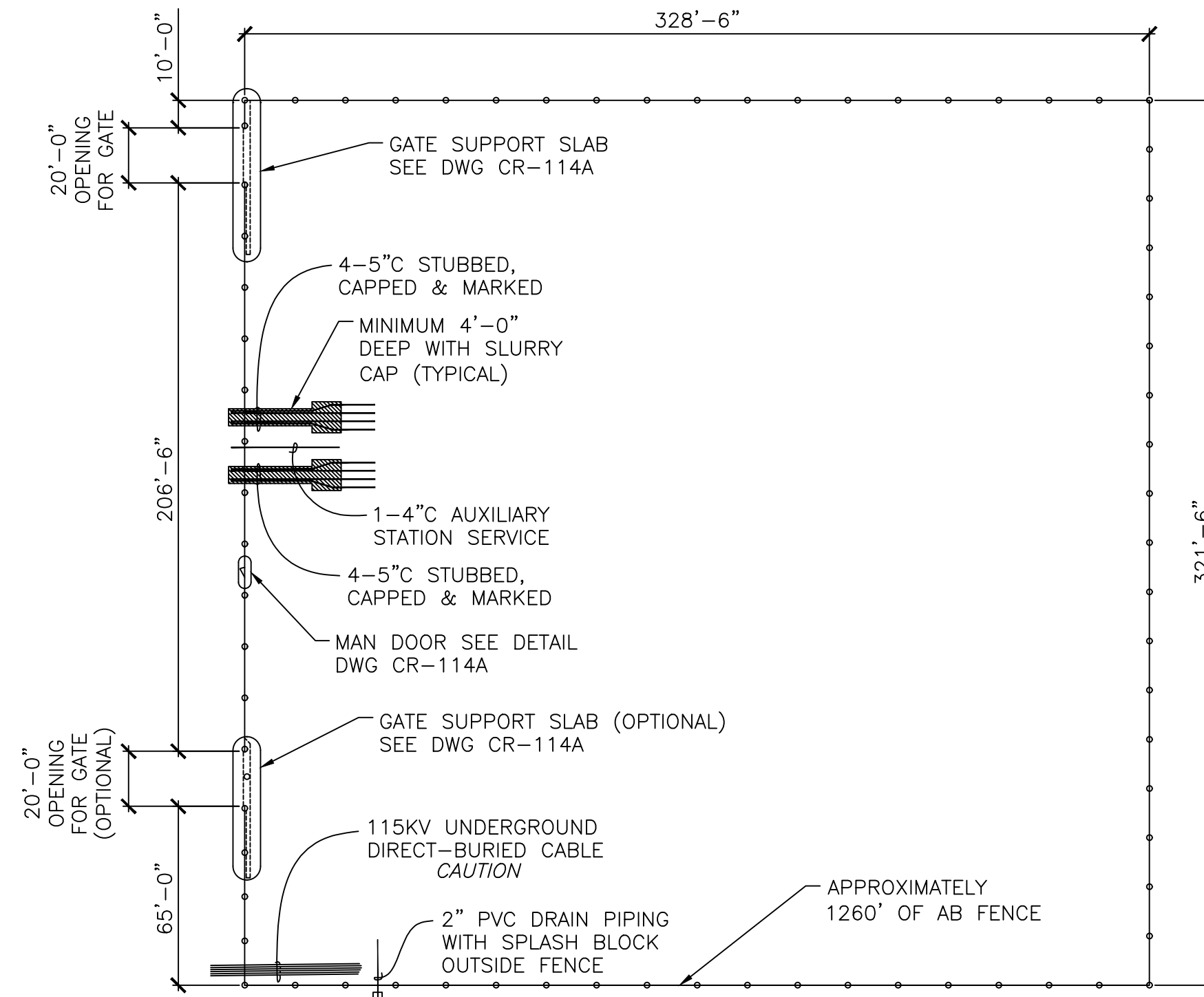
AB FENCE CORNER BLOCK  
N.T.S.



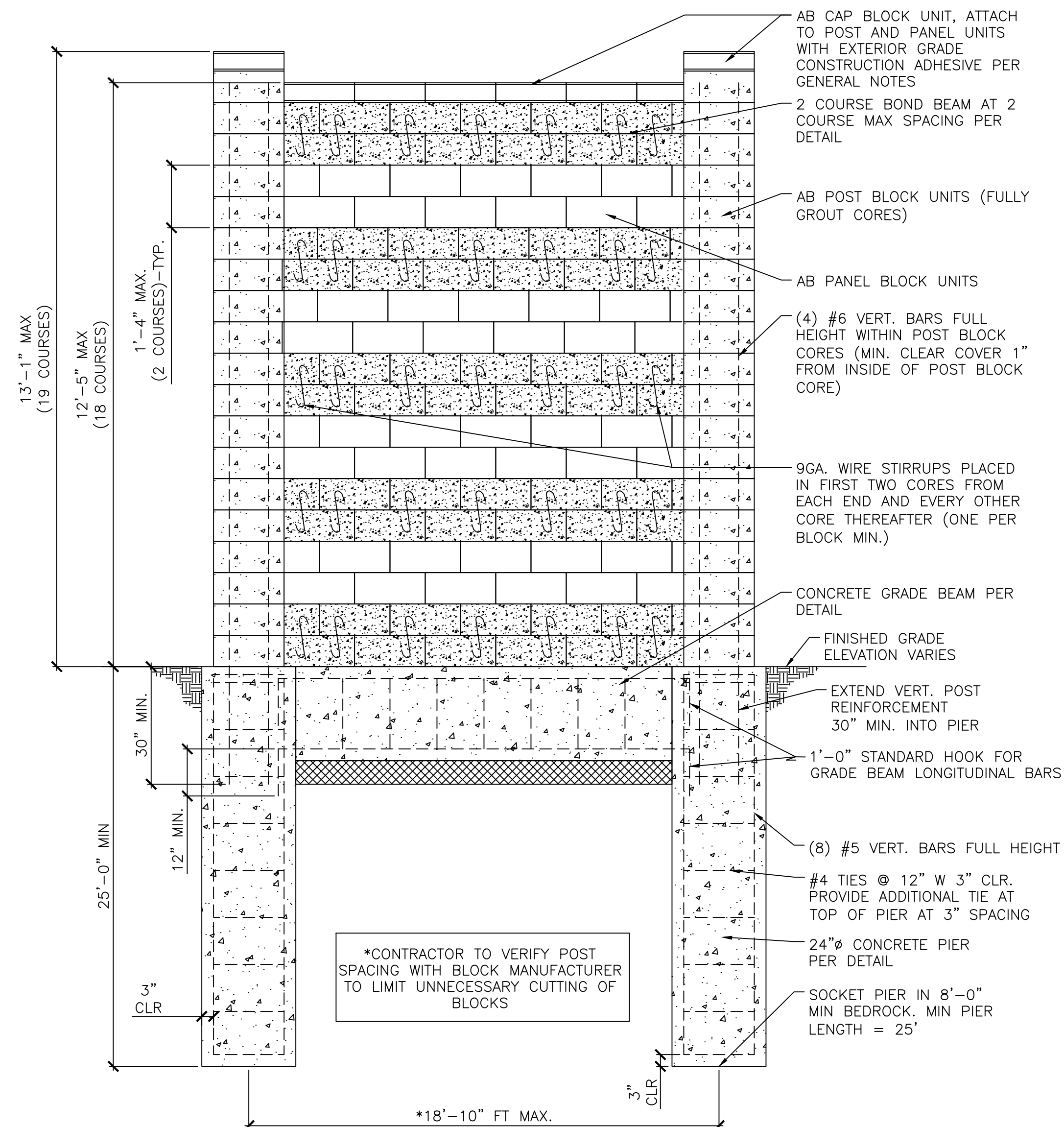
AB FENCE CAP BLOCK  
N.T.S.



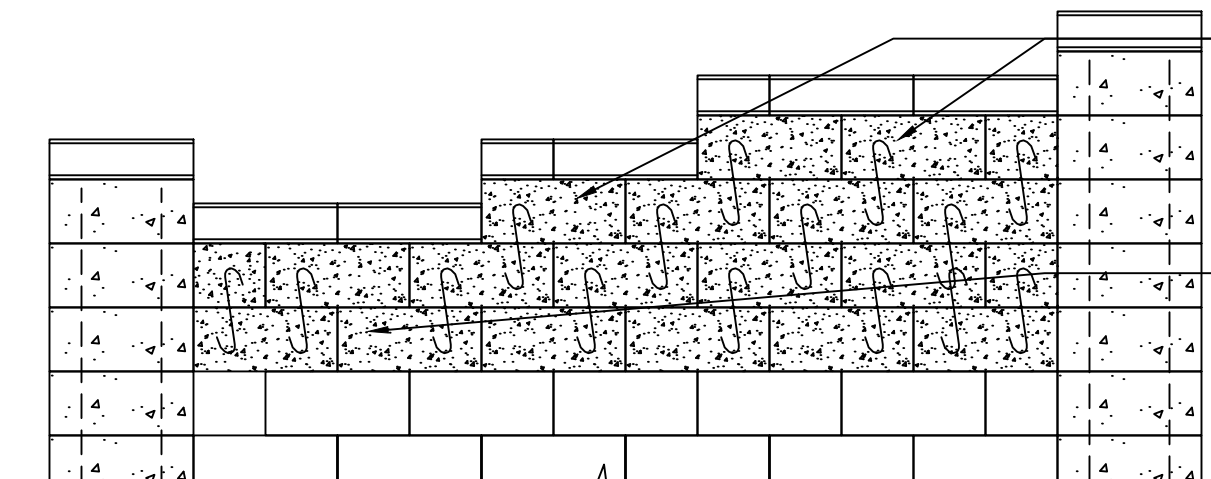
BOND BEAM DETAIL  
N.T.S.



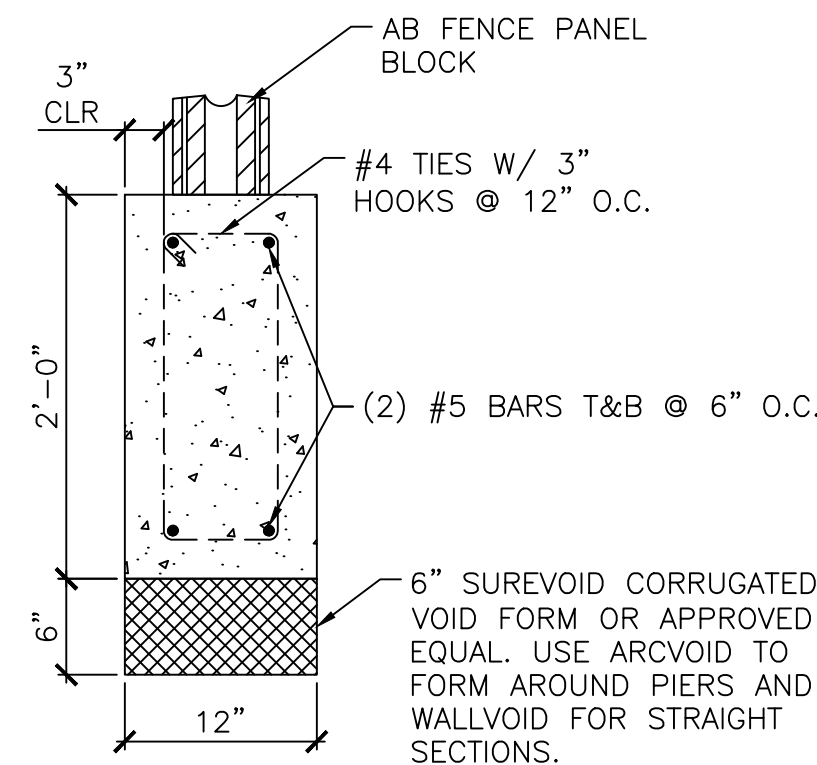
FENCE PLAN VIEW  
SCALE: 1"=48'



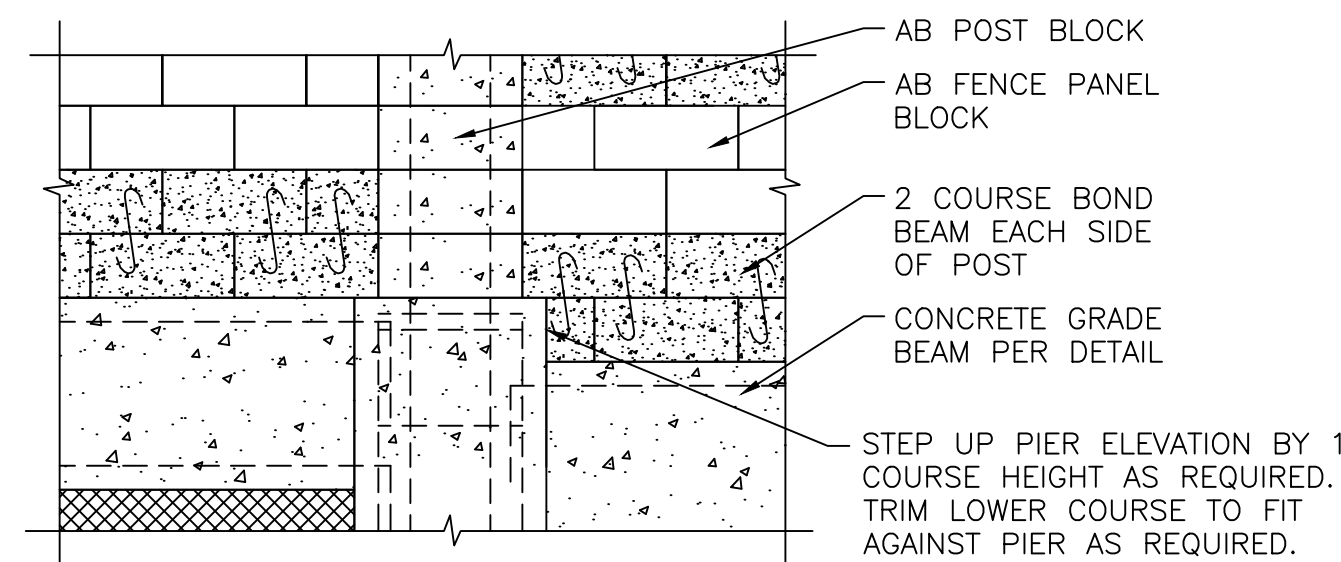
TYPICAL AB FENCE SECTION  
N.T.S.



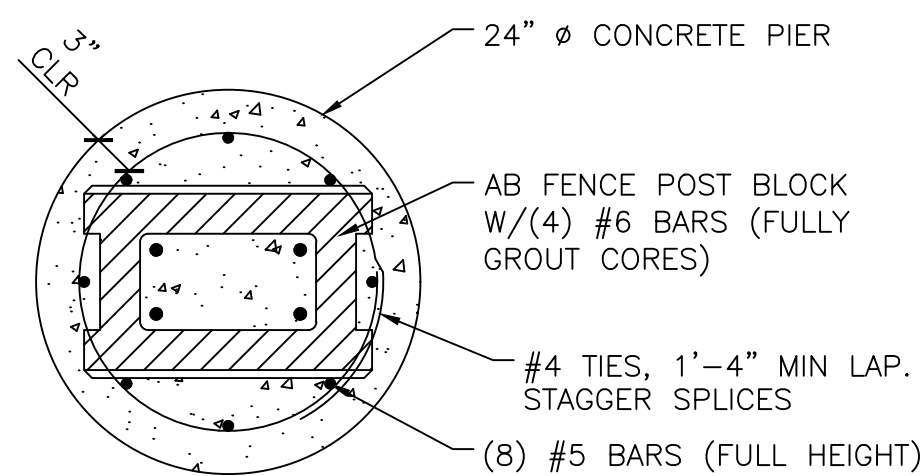
CAP STEP DETAIL  
N.T.S.



GRADE BEAM DETAIL  
N.T.S.



BASE STEP DETAIL AT POSTS  
N.T.S.



PIER DETAIL  
N.T.S.

## GENERAL NOTES:

### 1. CODES:

THIS PLAN WAS PREPARED BASED ON THE 2012 I-CODES WITH LOCAL AMENDMENTS AND PORTIONS OF THE MOST RECENT VERSIONS OF ACI 318.

### 2. LOADS:

THIS PLAN IS BASED UPON THE FOLLOWING LOAD PARAMETERS:

WIND: BASIC WIND SPEED = 115 MPH (3-SEC GUST), EXPOSURE C

SOILS REPORT BY: KUMAR & ASSOCIATES, PROJECT # 18-8-156, DATED: MAY 11, 2018

### 3. MATERIALS:

THIS PLAN IS BASED UPON THE FOLLOWING MATERIAL PROPERTIES:

**FENCE BLOCK:** FENCE UNITS SHALL BE AB FENCE SYSTEM UNITS AS PRODUCED BY A LICENSED MANUFACTURER AND HAVE A MIN. 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI IN ACCORDANCE WITH ASTM C1372.

**PIER, POST & BEAM CONCRETE:** CONCRETE SHALL CONTAIN TYPE I/II CEMENT, 6%+/-1% AIR ENTRAINMENT, AND A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.

**BOND BEAM GROUT:** CONCRETE GROUT USED AS UNIT CORE FILL FOR BOND BEAM PANEL BLOCKS SHALL CONFORM TO ASTM C476 AND HAVE A MIN. COMPRESSIVE STRENGTH OF 3,000 PSI WITH FINE AGGREGATE GRADING REQUIREMENTS DEFINED BY ASTM C404.

**REINFORCING:** REINFORCING SHALL BE DEFORMED GRADE 60 STEEL UNLESS NOTED OTHERWISE (U.N.O.) ON THE PLAN AND SHALL CONFORM TO ASTM A615. MINIMUM CONCRETE COVER SHALL BE 3" (IN) U.N.O. ON THE PLAN. OVERLAPS SHALL BE 40 BAR DIAMETERS BUT NOT LESS THAN 24" (IN). DETAIL REINFORCING BARS IN ACCORDANCE TO THE ACI DETAILING MANUAL AND ACI CODE, LATEST EDITION.

**CONSTRUCTION ADHESIVE:** EXTERIOR GRADE CONSTRUCTION ADHESIVE USED TO ADHERE THE CAP BLOCK TO BOTH THE POSTS AND PANELS SHALL BE NP1 AS MANUFACTURED BY BASF OR EQUIVALENT.

**SHIMMING MATERIAL:** MATERIAL USED FOR PERMANENT SHIMMING MUST BE NON-DEGRADABLE.

### 4. INSTALLATION:

LOCATE ALL UNDERGROUND UTILITIES AND OBSTRUCTIONS BEFORE STARTING EXCAVATION. REFER TO DRAWING CR-120 FOR KNOWN UNDERGROUND OBSTRUCTIONS.

INSTALLATION SHALL FOLLOW ALL GUIDELINES SET FORTH IN THE INSTALLATION MANUAL FOR THE AB FENCE SYSTEM. REFERENCE MANUAL FOR ALLOWABLE TOLERANCES AND CURING TIMES.

PIER HOLES MUST BE NEATLY DRILLED INTO EXISTING SOILS, NOT FORMED AND BACKFILLED. CLEAR ALL LOOSE MATERIAL AT THE BOTTOM OF THE HOLE. PIER HOLES SHALL EXTEND A MINIMUM OF 8' INTO CLAYSTONE BEDROCK. FENCE POSTS SHALL BE PLACED AT A MAXIMUM SPACING OF 18'-10" ON CENTER. CONFIRM EXACT SPACING WITH BLOCK MANUFACTURER TO LIMIT UNNECESSARY CUTTING OF BLOCKS. HEIGHT OF THE FENCE SYSTEM SHALL NOT EXCEED THAT SHOWN ON PLANS.

FORM AND POUR 1' WIDE BY 2' DEEP GRADE BEAM BETWEEN PIERS AS SHOWN IN DETAILS. UNDERLAY GRADE BEAM WITH 6" THICK SUREVOID FORM.

IF NECESSARY, SET FIRST POST BLOCK ON A MORTAR BED AT A MAX. THICKNESS OF 1".

PANEL BLOCKS MUST EXTEND A MIN. OF 1" INTO THE POST BLOCK COLUMNS AND BE PLACED IN A RUNNING BOND PATTERN.

MAX. STACKING LIFTS AND FILLING FOR THE POST BLOCKS SHALL BE 4FT. OR 6 COURSES. HORIZONTAL STEEL REINFORCEMENT MUST BE INSTALLED IN THE SPECIFIED BOND BEAM LOCATIONS. THE HORIZONTAL STEEL MUST HAVE A 1.5" CLEAR COVER AT EACH END. GROUT STOP MATERIAL SHALL BE INSTALLED UNDER INTERMEDIATE BOND BEAMS. CONSOLIDATE BOND BEAM GROUT WITH CONCRETE VIBRATOR.

CAP BLOCKS SHALL BE ADHERED TO POST AND PANEL BLOCK UNITS WITH A FLEXIBLE, EXTERIOR GRADE CONSTRUCTION ADHESIVE.

### 5. SOILS:

OPEN-HOLE OBSERVATION IS REQUIRED TO BE PERFORMED BY A REPRESENTATIVE OF A QUALIFIED GEOTECHNICAL ENGINEER. OPEN-HOLE OBSERVATIONS ARE TO VERIFY THAT THE SOIL CONDITIONS ARE CONSISTENT WITH THOSE DESCRIBED IN THE ABOVE REFERENCED SOILS REPORT. SOILS CONDITIONS INCONSISTENT WITH THE SOILS REPORT MAY REQUIRE ADDITIONAL EVALUATION OR A FOUNDATION REDESIGN, AND SHOULD BE BROUGHT TO THE ATTENTION OF THE FOUNDATION ENGINEER. ALL PIERS SHOULD SOCKET 8' INTO NATIVE BEDROCK. ALL OTHER RECOMMENDATIONS CONTAINED IN THE SOILS REPORT PERTAINING TO BACKFILL, DRAINAGE, ETC. SHOULD BE INCORPORATED INTO THE DESIGN OF THIS PROJECT.

ANTICIPATED SOILS: EXPANSIVE CLAYS AND CLAYSTONE.

### 6. DRAINAGE:

THE LONG-TERM PERFORMANCE OF FOUNDATIONS AND FENCING ELEMENTS DEPENDS ON PROPER GRADING. POSITIVE DRAINAGE AWAY FROM THE FENCE FOUNDATIONS TO THE EXTENT POSSIBLE IS RECOMMENDED AT ALL TIMES. FENCE SYSTEM UNITS CAN BE ARRANGED TO ALLOW FOR CONTINUOUS OR INTERMITTENT DRAINAGE BENEATH THE FENCE WHERE NECESSARY.

### 7. LIMITATIONS:

THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS. LOCATION AND FENCE HEIGHT SHALL COMPLY WITH CITY/COUNTY FENCING CODES AND CURRENT CONDITIONS. THIS PLAN IS BASED ON THE ABOVE REFERENCED SPECIFICATIONS. ANY DISCREPANCIES OR CHANGES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

FENCE SYSTEM SHOULD NOT BE USED AS AN EARTH RETENTION SYSTEM.

## RECOMMENDED QUALITY ASSURANCE OBSERVATIONS

RECOMMENDED OBSERVATIONS:	OBSERVATION PERFORMED BY:	NOTE:
OPEN-HOLE / SOIL VERIFICATION	K+A	OTHER OBSERVATIONS MAY BE REQUIRED BY THE CITY OR OTHER ENGINEERS WORKING ON THIS PROJECT.
PIER REINFORCEMENT AND INSTALLATION	K+A	
BOND BEAM REINFORCEMENT	K+A	
COLUMN REINFORCEMENT	K+A	

## PLATTE RIVER POWER AUTHORITY

2000 E. HORSETOOTH ROAD  
FT. COLLINS, COLORADO 80525

## CROSSROADS 115KV SUBSTATION STRUCTURAL AB FENCE DETAILS

NEW DWG.

DESIGNED BY	JLN	DRAWN BY	JLN	CHECKED BY	MFP
APPROVED BY		DATE	07/02/2018		
SCALE	AS SHOWN	DRAWING NO.	CR-114	REV.	0