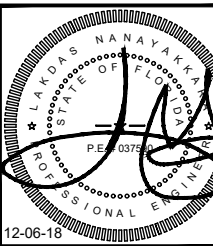




LAKDAS/OHALEM ENGINEERING, INC.
CONSULTING ENGINEERS
2211 NORTHEAST 54TH STREET
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Revisions:

Number	Description

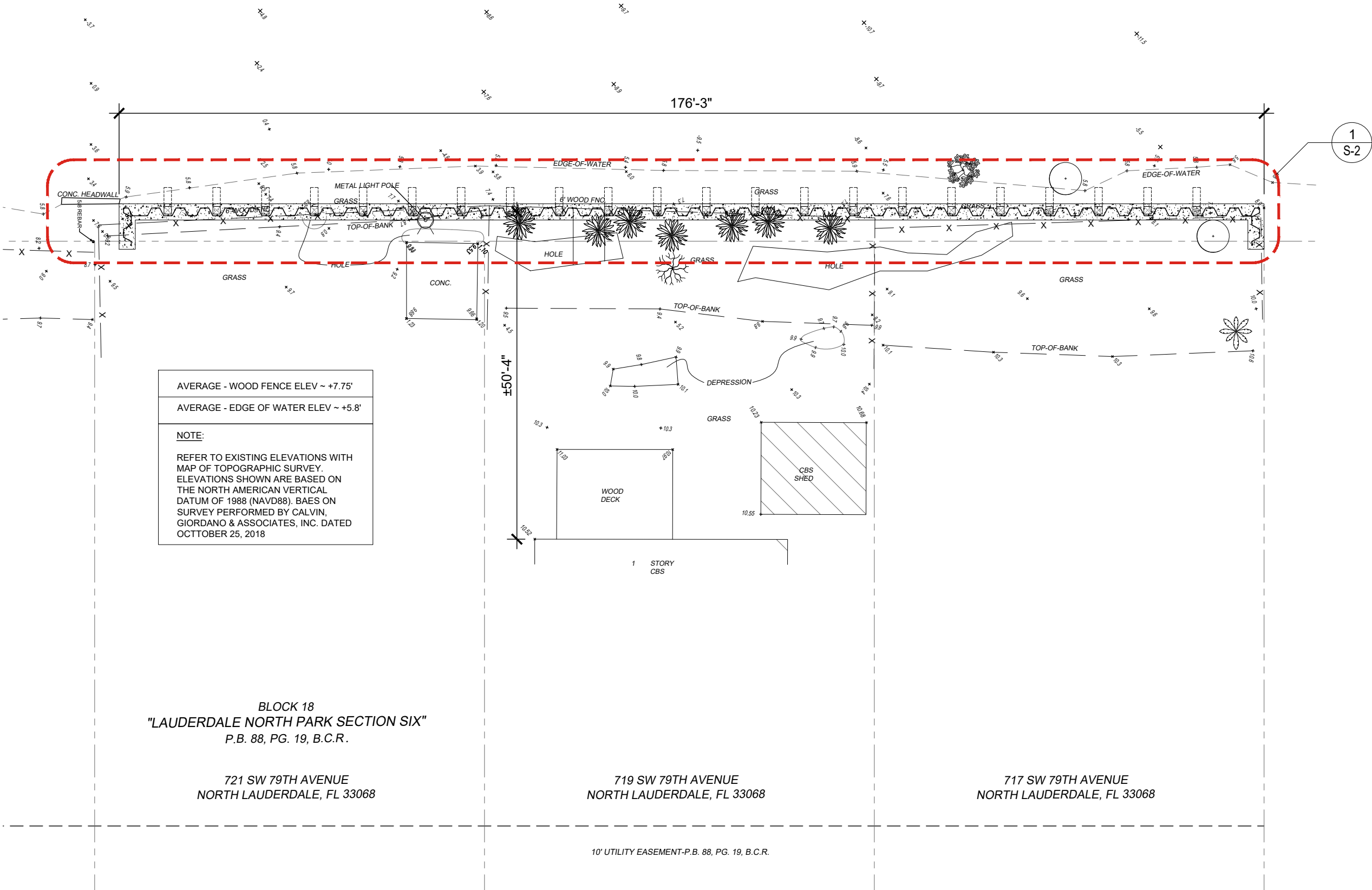
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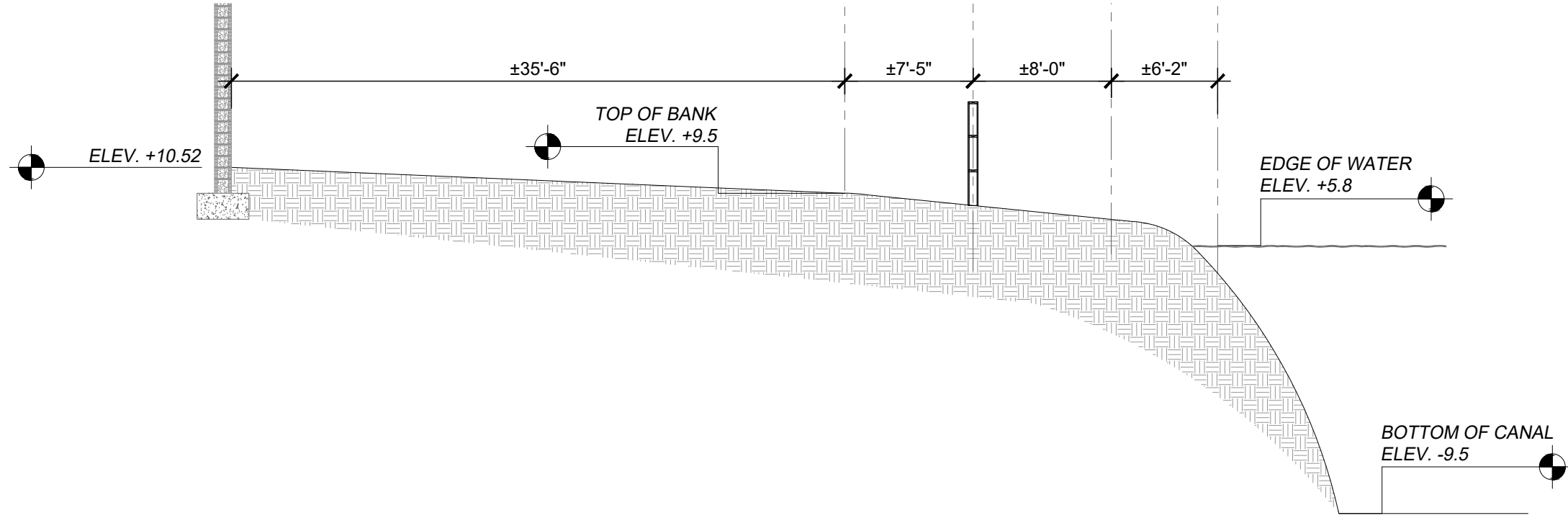
Project Name:
NORTH LAUDERDALE CANAL BANK EROSION
721-719-717
SW 79TH AVENUE
NORTH LAUDERDALE, FL 33068

Job Number: 178008
Scale: AS NOTED
Date: 08-16-18
Design: LN
Drawn: IG
Checked: LN

Draw/g Number:

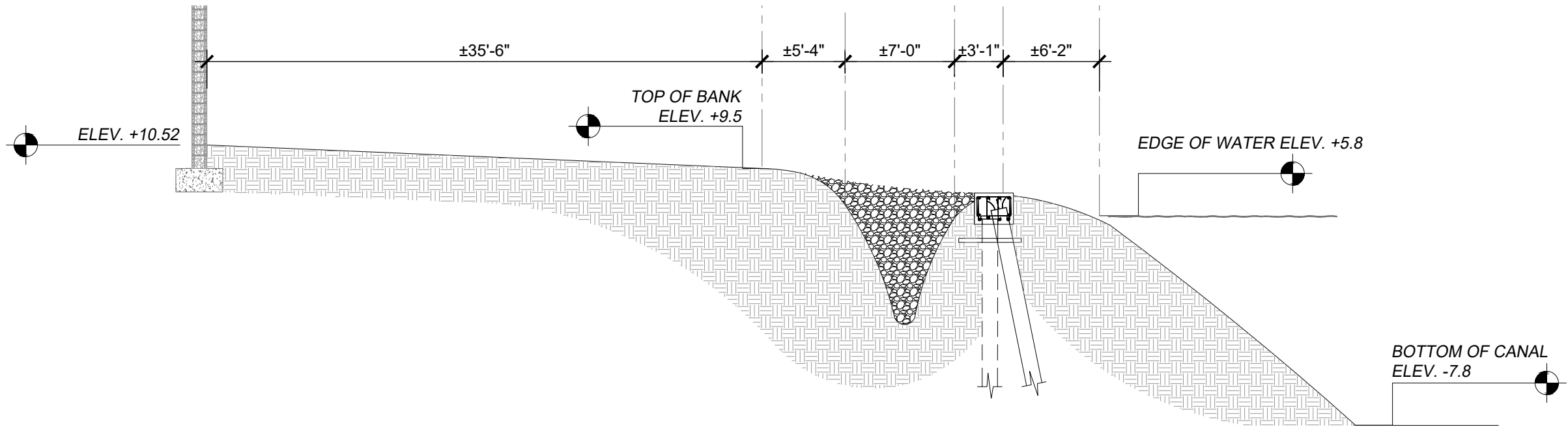
S-1.1





1 SECTION VIEW (APPROXIMATE, ORIGINAL CONDITION)

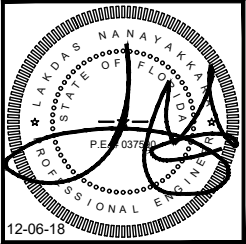
S-1.2 SCALE :3/16"=1'-0"



2 SECTION VIEW (APPROXIMATE, AFTER CANAL BANK FAILURE)

S-1.2 SCALE :3/16"=1'-0"

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SECTION VIEWS

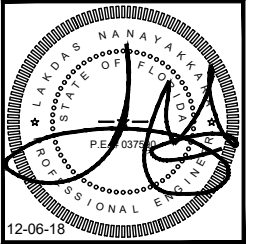
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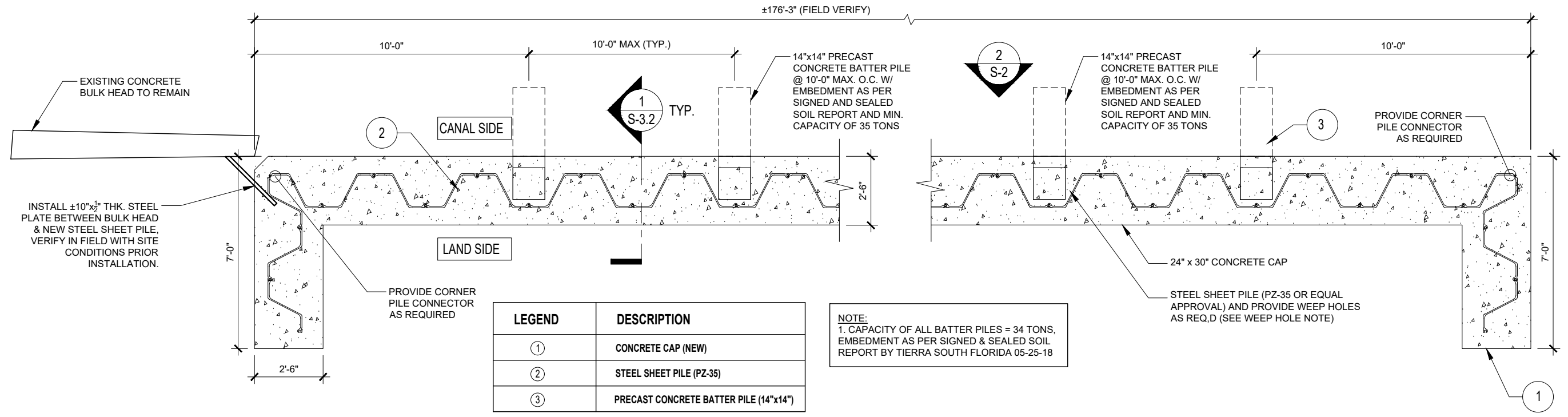
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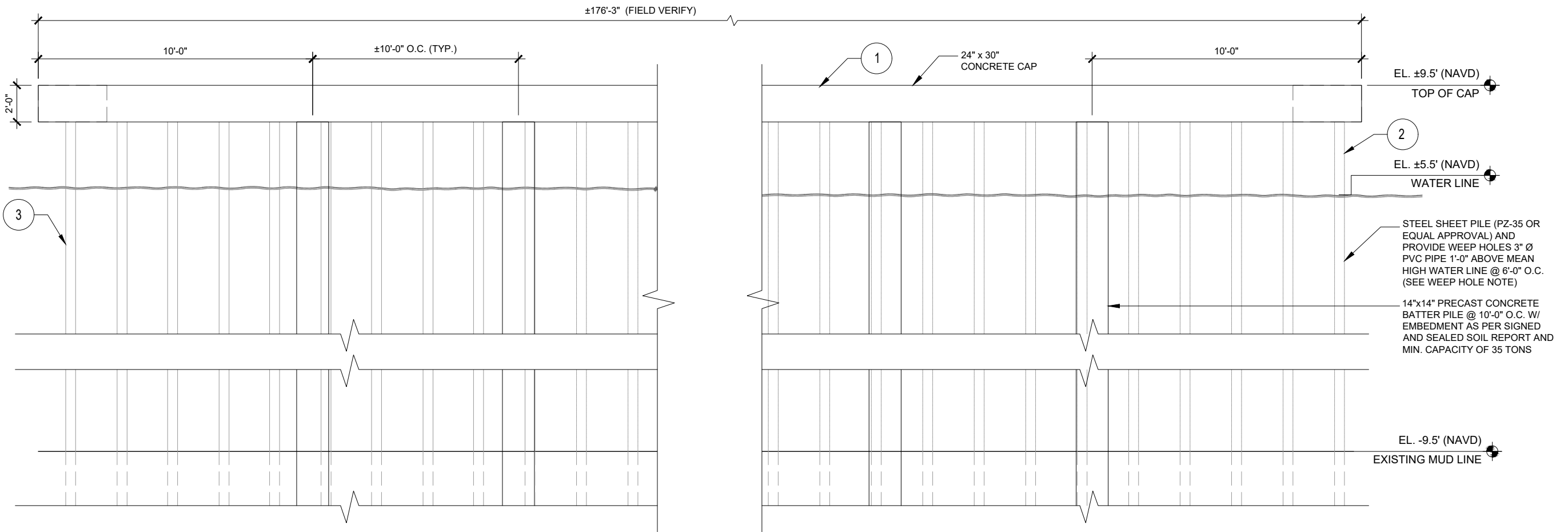
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LEGEND	DESCRIPTION
①	CONCRETE CAP (NEW)
②	STEEL SHEET PILE (PZ-35)
③	PRECAST CONCRETE BATTER PILE (14"x14")

NOTE:
1. CAPACITY OF ALL BATTER PILES = 34 TONS, EMBEDMENT AS PER SIGNED & SEALED SOIL REPORT BY TIERRA SOUTH FLORIDA 05-25-18

1 SEAWALL PLAN VIEW
S-2 SCALE : 1/4"=1'-0"



2 SEAWALL ELEVATION
S-2 SCALE : 1/4"=1'-0"

Revisions:

Number	Description

Drawing Title
SEAWALL PLAN & ELEVATION

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NORTH LAUDERDALE, FL 33068

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Drawing Number:
S-2

GENERAL NOTES

ALL WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL COMPLY WITH THE MOST RECENT EDITION OF THE FLORIDA BUILDING CODE, CITY LABOR LAWS, CITY ORDINANCES, CITY/ COUNTY ZONING CODES, RULES AND REGULATIONS, AND ANY APPLICABLE CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQ'D PERMITS TO CARRY OUT THE WORK DESCRIBED IN THE CONSTRUCTION DOCUMENTS.

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH PROJECT SPECIFICATIONS, . CONSULT ELEVATIONS WITH MAP OF TOPOGRAPHIC SURVEY

ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK. OTHERWISE NO PAYMENT SHALL BE MADE.

CONTRACTOR(S) SHALL FAMILIARIZE HERSELF/ HIMSELF WITH ALL THE EXISTING CONDITIONS AT THE SITE RELATIVE TO SCOPE OF WORK RELATING TO THIS PROJECT, MATERIALS HANDLING, STORAGE AND DELIVERY, WORKING SPACE AVAILABLE, SAFETY PRECAUTIONS REQUIRED, AND ALL OTHER CONDITIONS NECESSARY TO THE MAKING OF AN ACCURATE AND COMPLETE PROJECT BID, NO INCREASE IN PROJECT COST WILL BE ALLOWED FOR FAILURE OF THE CONTRACTOR TO KNOW EXISTING SITE CONDITIONS.

THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER IT IS COMPLETED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE PROCEDURES AND SEQUENCING TO ENSURE SAFETY DURING ERECTION. THIS INCLUDES, THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS, ETC.

DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONS. ANY DIMENSIONS NOT INDICATED ON DRAWINGS SHALL BE CONFIRMED WITH ENGINEER PRIOR TO CONSTRUCTION.

NO WORK SHALL BE PERFORMED OUTSIDE THE PROJECT LIMITS WITHOUT PRIOR WRITTEN APPROVAL FROM THE BUILDING OWNER AND OR ENGINEER.

CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AS REQUIRED FOR COMPLETION OF WORK.

MATERIALS SHALL BE NEW, OF QUALITY SPECIFIED, DELIVERED IN A TIMELY FASHION AND AMPLIFIED QUANTITY TO PREVENT DELAY OF WORK. SUBSTITUTIONS REQUIRE PRIOR APPROVAL FROM ENGINEER.

THERE ARE NO SUBSTITUTIONS ALLOWED UNLESS APPROVED BY THE ENGINEER. THE G.C. SHALL SUBMIT IN WRITING ALL REQUESTS FOR SUBSTITUTIONS.

THE G. C. SHALL SUBMIT IN WRITING TO THE ENGINEER PRIOR INSTALLATION, IF ANY UNFORESEEN CONDITIONS AFFECTING INSTALLATION ACCORDING TO SPECIFICATIONS.

ALL PLAN DETAILS AND WALL SECTIONS ARE ASSUMED TO BE TYPICAL CONDITIONS UNLESS DETAILED OR NOTED OTHERWISE.

CODES AND STANDARDS

THE PROJECT WAS DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:

- A FLORIDA BUILDING CODE 2017 (6TH EDITION)
- B BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-02).
- C MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315 / LATEST EDITION)
- D MANUAL FOR STANDARD PRACTICE FOR WELDING REINFORCED STEEL INSERTS & CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION AWS. D1.4 / LATEST EDITION.
- E SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS. ACI 301 / LATEST EDITION.
- G 2017-18 FDOT DESIGN STANDARD IF APPLICABLE

DESIGN LOADS

THE STRUCTURAL SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE LATEST EDITION, (2014). THE FOLLOWING SUPERIMPOSED LOADING HAVE BEEN UTILIZED:

SEAWALL

SURCHARGE LOAD OF 200 PSF
HYDRO STATIC PRESSURE START AT GRADE LEVEL.

DESIGN CRITERIA

ALL WORK SHALL CONFORM WITH THE MINIMUM STANDARDS AS SPECIFIED IN THE FLORIDA BUILDING CODE LATEST EDITION AND ASCE 7-10.

SPECIAL INSPECTION

THE OWNER SHALL EMPLOY A QUALIFIED SPECIAL INSPECTOR TO PERFORM INSPECTIONS IN ACCORDANCE WITH THE "THRESHOLD INSPECTION GUIDELINES", ISSUED SEPARATELY BY THE ENGINEER OF RECORD. THE SPECIAL INSPECTOR SHALL CERTIFY WITH HIS SEAL AND SIGNATURE AT THE END OF CONSTRUCTION, THAT THE CONSTRUCTION OF THIS STRUCTURE HAS BEEN COMPLETED ACCORDING TO THE PROJECT PLANS AND SPECIFICATIONS.

SPECIAL INSPECTIONS SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PERFORM INSPECTIONS UNDER FLORIDA THRESHOLD LAW OR HIS QUALIFIED FULL TIME EMPLOYEE.

SHOP DRAWING REVIEW

SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY COMPLIANCE WITH THE CONTRACT DOCUMENTS AS TO QUANTITY, LENGTH, ELEVATIONS, DIMENSIONS, ETC.

ALL SHOP DRAWINGS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ENGINEER. DRAWINGS SUBMITTED WITHOUT REVIEW WILL BE RETURNED UNCHECKED.

IN ALL INSTANCE THE CONTRACT DOCUMENTS WILL GOVERN OVER THE SHOP DRAWINGS UNLESS OTHERWISE SPECIFIED IN WRITING BY THE ENGINEER OF RECORD.

REPRODUCTION OF STRUCTURAL DRAWINGS FOR USE AS SHOP DRAWINGS IS NOT PERMITTED.

ALL CHANGES AND ADDITIONS MADE ON RE-SUBMITTAL MUST BE CLEARLY FLAGGED AND NOTED THE PURPOSE OF THE RE-SUBMITTAL MUST BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL. ARCHITECT/ENGINEER REVIEW WILL BE LIMITED TO THOSE ITEMS CAUSING THE RE-SUBMITTAL.

SHOP DRAWINGS REQUIRED BY THE SPECIALITY ENGINEER RETAINED BY THE CONTRACTOR

THE FOLLOWING SYSTEM AND COMPONENTS AS A MINIMUM REQUIRE FABRICATION AND ERECTION DRAWINGS WITH INPUT BY A SPECIALTY ENGINEER:

- STRUCTURAL PRECAST PILES
- STEEL SHEET PILES
- REINFORCEMENT

SUBMITTAL SHALL CLEARLY IDENTIFY THE SPECIFIC PROJECT AND APPLICABLE CODES, LIST DESIGN CRITERIA, AND SHOW ALL DETAILS AND PLANS NECESSARY FOR PROPER FABRICATION AND INSTALLATION CALCULATIONS AND SHOP DRAWINGS SHALL IDENTIFY SPECIFIC PRODUCT UTILIZED. GENERIC PRODUCT WILL NOT BE ACCEPTED.

SHOP DRAWING AND CALCULATIONS MUST BE PREPARED UNDER THE DIRECT SUPERVISION AND CONTROL OF THE SPECIALTY ENGINEER REGISTERED IN THE STATE OF FLORIDA.

SHOP DRAWINGS AND CALCULATIONS REQUIRE THE IMPRESSED SEAL, DATE AND SIGNATURE OF THE SPECIALTY ENGINEER. COMPUTER PRINTOUTS ARE AN ACCEPTABLE SUBSTITUTE FOR MANUAL COMPUTATIONS PROVIDED THEY ARE ACCOMPANIED BY SUFFICIENT DESCRIPTIVE INFORMATION TO PERMIT THEIR PROPER EVALUATION, SUCH DESCRIPTIVE INFORMATION SHALL BEAR THE IMPRESSED SEAL AND SIGNATURE OF THE SPECIALTY ENGINEER AS AN INDICATION THAT HE/SHE HAS ACCEPTED RESPONSIBILITY FOR THE RESULT.

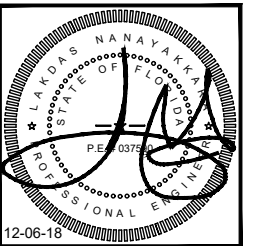
REVIEW BY THE STRUCTURAL ENGINEER OF RECORD OF SUBMITTAL IS LIMITED TO VERIFY THE FOLLOWING:

- THAT THE SPECIFIED STRUCTURAL SUBMITTAL HAVE BEEN FURNISHED.
- THAT THE STRUCTURAL SUBMITTAL HAVE BEEN SIGNED AND SEALED BY THE SPECIALTY ENGINEER.
- THAT THE SPECIALTY ENGINEER HAS UNDERSTOOD THE DESIGN INTENT AS HAS USED THE SPECIFIED STRUCTURAL CRITERIA. (NO DETAIL CHECK OF DIMENSIONS OR QUANTITIES WILL BE MADE.)
- THAT THE CONFIGURATION SET FORTH IN THE STRUCTURAL SUBMITTAL IS CONSISTENT WITH THE CONTRACT DOCUMENTS. (NO DETAIL CHECK OF DIMENSIONS OR QUANTITIES WILL BE MADE).

SUBMITTAL NOT MEETING THE ABOVE REFERENCED CRITERIA WILL NOT BE REVIEWED / APPROVAL.



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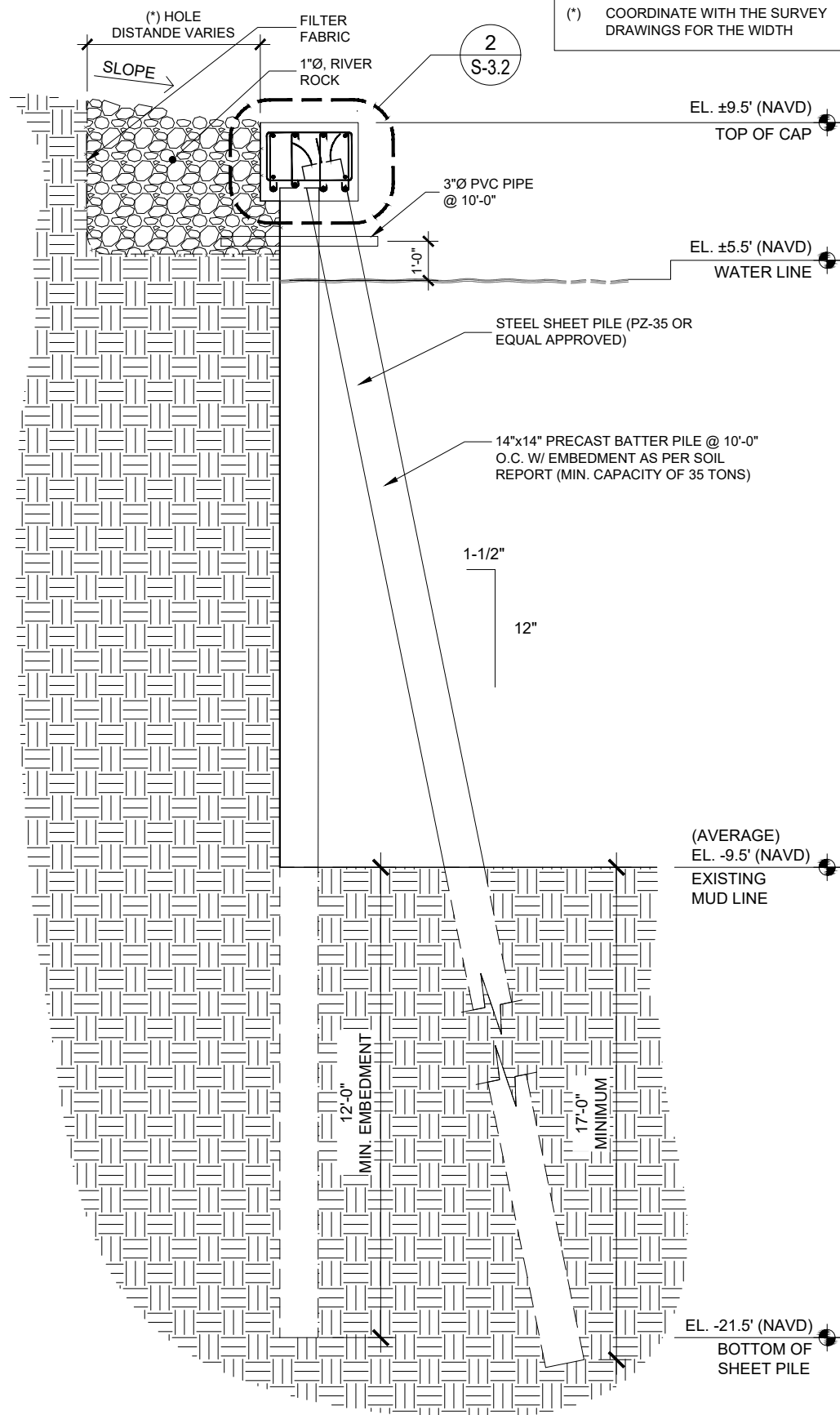
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Draw'g Number:

S-3.1

BID SET 01-10-2019



1 TYPICAL SEAWALL SECTION
S-3.2 SCALE : 1/4"=1'-0"

REINFORCING STEEL

SHALL BE ASTM A615 GRADE 60 DEFORMED BARS, FREE FROM OIL, SCALE AND RUST AND PLACED IN ACCORDANCE WITH THE TYPICAL BENDING DIAGRAM AND PLACING DETAILS OF ACI STANDARDS AND SPECIFICATIONS. SECURE APPROVAL OF SHOP DRAWINGS PRIOR COMMENCING ANY FABRICATION.

EMBEDDED ITEMS IN CONCRETE

EMBEDDED ITEMS INCLUDING BUT NOT LIMITED TO STEEL PLATES FOR CONNECTIONS, WATER STOPS, AND ANCHORS SHALL BE COORDINATED BY THE CONTRACTOR IN A TIMELY MANNER. ALL EMBEDDED STEEL PLATES FOR THE CONNECTION OF WALL FRAMING, ROOF FRAMING AND MISCELLANEOUS STEEL SHALL BE COORDINATED WITH WALL PANEL JOINTS AND OPENINGS. SUBMIT SHOP DRAWINGS AND OBTAIN ENGINEER APPROVAL PRIOR CONCRETE PLACEMENT.

CONCRETE

SHALL BE PER AN APPROVED MIX DESIGN PROPORTIONED TO ACHIEVE A STRENGTH AT 28 DAYS AS LISTED BELOW WITH A PLASTIC AND WORKABLE MIX:
 6,000 PSI FOR PILES WATER TO CEMENT RATIO BY WEIGHT SHALL NOT EXCEED 0.50
 4,000 PSI FOR ALL OTHER STRUCTURAL CONCRETE; WATER TO CEMENT RATIO BY WEIGHT SHALL NOT EXCEED 0.50

CONCRETE SHALL BE PLACED AND CURED ACCORDING TO ACI STANDARDS AND SPECIFICATIONS.

SUBMIT PROPOSED MIX DESIGN WITH RECENT FIELD CYLINDERS OR LAB TEST FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. MIX SHALL MEET THE REQUIREMENTS OF ASTM C33 FOR COARSE AGGREGATE. CONCRETE SHALL COMPLY WITH ALL THE REQUIREMENTS OF ASTM STANDARDS C94 FOR MEASURING, MIXING, TRANSPORTING, ETC.

CONCRETE TICKETS SHALL BE TIME STAMPED WHERE CONCRETE IS BATCHED. THE MAXIMUM TIME ALLOWED FROM THE TIME THE MIXING WATER IS ADDED UNTIL IT IS DEPOSITED IN ITS FINAL POSITION SHALL NOT EXCEED ON AND ONE HALF, (1 1/2), HOURS. IF FOR ANY REASON THERE IS A LONGER DELAY THAN THAT STATED ABOVE, THE CONCRETE SHALL BE DISCARDED, IT SHALL BE THE RESPONSIBILITY OF THE TESTING LAB TO NOTIFY THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR OF ANY NONCOMPLIANCE OF THE ABOVE.

ALL CONCRETE SHALL HAVE MID-RANGE WATER REDUCING ADMIXTURE CONFORMING TO ASTM C494 TYPE A. ADMIXTURES CONTAINING CHLORIDE IONS MORE THAN 0.05 PERCENT BY WEIGHT IN THE ADMIXTURE SHALL NOT BE USED. OTHERS ADMIXTURES SHALL BE APPROVED BY THE ENGINEER OF RECORD. AIR-ENTRAINING ADMIXTURES SHALL NOT BE USED IN STRUCTURAL CONCRETE.

ALL CONCRETE MIX DESIGN DESIGNS SHALL INCLUDE A WRITTEN DESCRIPTION INDICATING WHERE EACH PARTICULAR MIX IS TO BE PLACED WITHIN THE STRUCTURE.

ALL CONCRETE DESIGN MIX SUBMITTAL SHALL INCLUDE TESTED, STATISTICAL BACK-UP DATA AS PER CHAPTER 5 OF ACI 318.

CONCRETE TESTING

AN INDEPENDENT TESTING LABORATORY SHALL PERFORM THE FOLLOWING TEST ON CAST IN PLACE CONCRETE;
 ASTM C143 - "STANDARD TEST METHOD FOR SLUMP OF PORTLAND CEMENT CONCRETE". MAXIMUM SLUMP SHALL BE 4" INCHES. CONCRETE CONTAINING MID-RANGE WATER REDUCED SHALL HAVE A MAXIMUM SLUMP OF 7.5 INCHES.

ASTM C39 - "STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS." A SEPARATE TEST SHALL BE CONDUCTED FOR EACH CLASS, FOR EVERY 50 CUBIC YARDS, OR FRACTION THEREOF, PLACED PER DAY. REQUIRED CYLINDERS QUANTITIES AND TEST AGE AS FOLLOWS:

- 1 AT 7 DAYS
- 2 AT 28 DAYS

ONE ADDITIONAL RESERVE CYLINDER TO BE TESTED UNDER THE DIRECTION OF THE ENGINEER, IF REQUIRED, IF 28 DAY STRENGTH IS ARCHIVED, THE CYLINDER MAY BE DISCARDED.

2 GENERAL NOTES
S-3.2 NOT TO SCALE

PENETRATION

NO PENETRATING SHALL BE MADE IN ANY STRUCTURAL MEMBERS OTHER THAN THOSE LOCATED ON THESE DRAWINGS WITHOUT PRIOR APPROVAL OF THE ENGINEER.

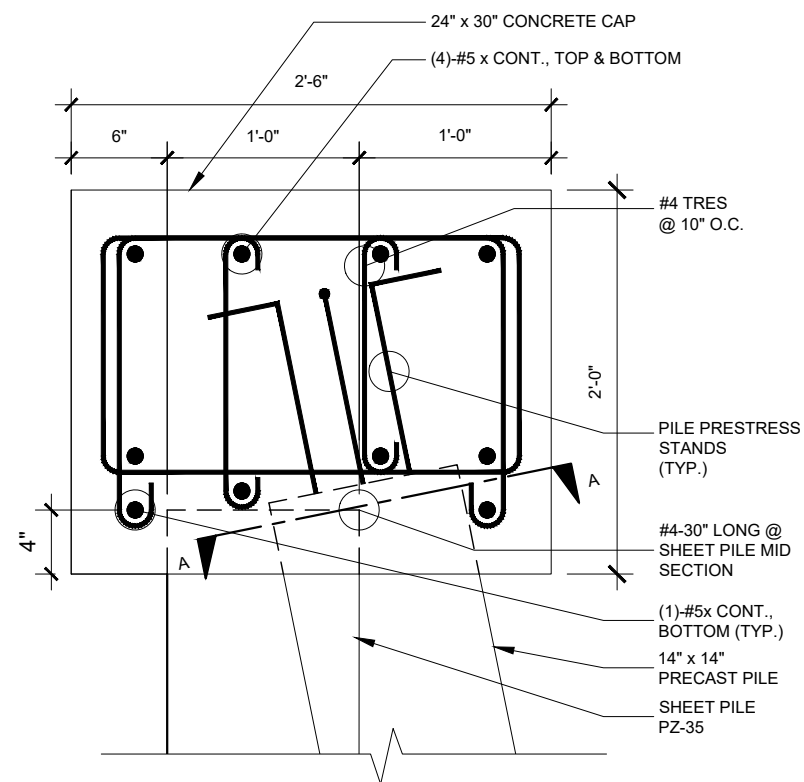
CHEMICAL ANCHORS.

SHALL BE TWO PART EPOXY POLYMER INJECTION SYSTEM, SUCH AS RAMSET 'EPCON', RAWL "FOIL-FAST" CARTRIDGE SYSTEM, DUR-O-WALL, "DUR-O-PAIR" EPOXY ANCHOR, OR HILTI HSE2411 EPOXY DOWELING SYSTEM, OR APPROVED EQUAL. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. INSTALLERS SHALL BE TRAINED BY THE MANUFACTURER'S REPRESENTATIVE.

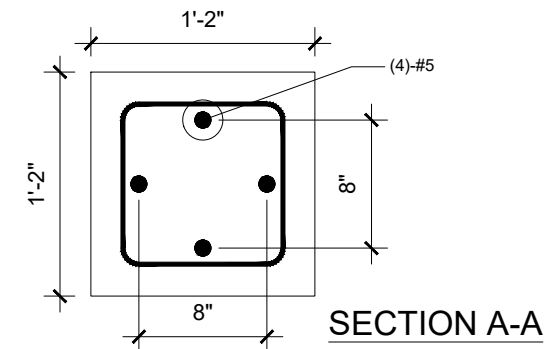
SHEET PILES

1. ALL SHEET PILES WORK SHALL BE PERFORMED AS PER F.D.O.T. SPECIFICATION 455-9 AND SECTION 962.
2. SHOULD THE CONTRACTOR DECIDE TO USE A DIFFERENT SIZE OF STEEL SHEET PILE SECTION, HE/ SHE SHALL MEET OR EXCEED THE FOLLOWING SHEET PILES REQUIREMENTS.

- SECTION TYPE PZ-35 OR SIMILAR APPROVALS
- SECTION MODULUS 48.5 CU.IN./FT
- MIN. EMBEDMENT AS SHOWN ON PLANS AND SECTION DETAILS
- SHALL SEEK PRIOR APPROVAL FROM ENGINEER OF RECORD



ENLARGED SECTION VIEW



SECTION A-A

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