# FORMING AND SHORING EQUIPMENT FOR CONCRETE CONSTRUCTION

## HEF EAST & WEST ABUTMENT WALL FORMWORK

**CONTRACTOR:** 

HERBACK GENERAL ENGINEERING, LLC

PROJECT:

WEYLAND BRIDGE RE-INSTALLATION

RELEASE DATE:

OCTOBER 12, 2020

EFCO PROJECT NUMBER:

P300650

EFCO AGREEMENT NUMBER:

2060112-01 & 2060113-01

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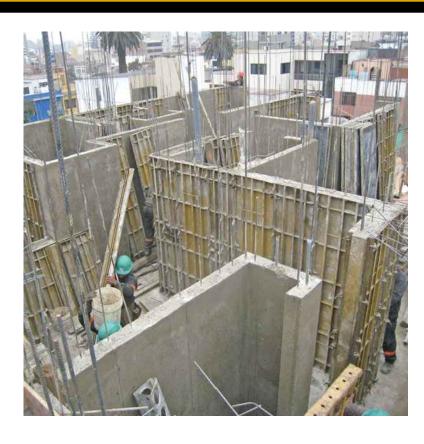
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HAVE BEEN UPDATED





#### **SCAFFOLD SAFETY**

- IT IS THE USER'S RESPONSIBILITY TO ENSURE THAT ALL SCAFFOLDING AND ACCESS TO THE FORMS COMPLIES WITH ALL APPLICABLE LAWS, REGULATIONS, AND CODES, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- 2. SCAFFOLD LOCATIONS SHOWN ON EFCO DRAWINGS ARE TYPICAL AND ONLY FOR ILLUSTRATION. ACTUAL LOCATIONS WILL VARY WITH JOB CONDITIONS AND ARE THE RESPONSIBILITY OF THE USER.
- 3. IF, DUE TO JOB OR ANY OTHER CONDITIONS, EFCO SCAFFOLD BRACKETS AND POSTS CANNOT BE USED AS ILLUSTRATED, IT IS THE RESPONSIBILITY OF THE USER TO PROVIDE ADEQUATE ALTERNATIVE SCAFFOLDING AND ACCESS.
- EFCO SCAFFOLD BRACKETS ARE DESIGNED FOR THE SUPPORT OF PERSONNEL ONLY, NOT FOR THE STORAGE OF MATERIALS SUCH AS REINFORCING ROD. ETC., OR HEAVY EQUIPMENT.
- 5. EFCO SCAFFOLD BRACKETS COMPLY WITH ALL APPLICABLE LAWS, REGULATIONS, AND CODES, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA). IT IS THE USER'S RESPONSIBILITY TO ENSURE THAT ALL PLANKING AND RAILS ARE ADEQUATE FOR THE SPACING USED AND IN GOOD CONDITION. ALL PLANKING AND RAILS ARE PROVIDED BY USER.
- USER MUST INSPECT ALL SCAFFOLDING FOR DAMAGE. DAMAGED SCAFFOLDING MUST BE DISCARDED AND NOT USED.
- USERS SHOULD NOT CLIMB FORMS WITHOUT FALL ARREST SYSTEMS CONFORMING TO OSHA SUB PART M.
- IF POSITIONING SYSTEMS ARE USED, EFCO RECOMMENDS CAPITAL SAFETY SAFELOK CARABINER No. 200114 OR EQUAL, IN COMBINATION WITH REQUIRED FALL ARREST SYSTEMS.

#### CONTRACTOR'S RESPONSIBILITIES

- THE CUSTOMER SHALL BEAR THE SOLE RESPONSIBILITY FOR ENSURING THAT ASSEMBLY, USE AND MAINTENANCE OF THE EQUIPMENT AND MATERIALS SHOWN ON THESE DRAWINGS CONFORMS TO ALL LAWS, REGULATIONS, ORDINANCES AND LOCAL CODES, AND FOR CHECKING THE ACCURACY AND SUFFICIENCY OF FIELD DETAILS AND DIMENSIONS.
- 2. ALL DRAWINGS MUST BE CHECKED BY THE CUSTOMER FOR CORRECTNESS IN RELATION TO PROJECT PLANS SPECIFICATIONS PARTICULAR REFERENCE MUST BE MADE FOR REVISIONS ISSUED BY THE ARCHITECT OR ENGINEER.
- 3. THE INDICATED CAPACITY OF DEVICES SECURED BY DRILLING OR EMBEDMENT IN CONCRETE IS ENTIRELY DEPENDENT UPON THE QUALITY AND HOLDING CAPACITY OF THE SURROUNDING CONCRETE. THE CUSTOMER SHALL ENSURE THAT THE CONCRETE HAS SUFFICIENT STRENGTH TO HOLD THE LOADS APPLIED.
- 4. IT IS THE CUSTOMER'S RESPONSIBILITY TO COMMUNICATE TO ALL PERSONNEL INVOLVED IN THE USE OF THE EQUIPMENT ALL INFORMATION CONTAINED IN THESE NOTES AND OTHER NOTES ON ALL DRAWINGS SUPPLIED BY EFCO AND TO ENSURE THAT THEY UNDERSTAND THEM AND USE THE EQUIPMENT ACCORDINGLY.
- 5. ANY ALTERATION OR REPAIR OF EFCO EQUIPMENT MUST BE AUTHORIZED IN WRITING BY EFCO AND MUST BE CARRIED OUT BY QUALIFIED PERSONNEL. ANY MODIFICATIONS OF EQUIPMENT OR USE OF THAT EQUIPMENT OTHER THAN AS SHOWN WITHOUT APPROVAL IN WRITING BY EFCO WILL VOID ALL FORM WARRANTIES. THE EFCO PLATE GIRDER® SYSTEM IS A REGISTERED TRADEMARK. THIS PRODUCT WAS DESIGNED FOR USE WITH PRODUCTS MANUFACTURED BY EFCO AND IT IS RECOMMENDED THAT IT NOT BE COMMINGLED WITH PRODUCTS OF OTHER MANUFACTURER'S FORMING SYSTEMS.

#### **EFCO FORMWORK**

- EFCO FORM PANELS HAVE BEEN RUST PROTECTED WITH "EF-GARD®" AT THE PLANT. TO SECURE MAXIMUM BENEFIT, THE FORMS MUST BE OILED WITH "EF-COAT®" FORM RELEASE AGENT PRIOR TO THE FIRST USE AND BEFORE EACH REUSE.
- 2. IT IS THE FORM USER'S RESPONSIBILITY TO MONITOR AND MANAGE CONCRETE TEMPERATURE, CONCRETE CHEMISTRY, AND CONCRETE PLACEMENT RATE TO PREVENT CONCRETE PRESSURE FROM EXCEEDING THE RATED CAPACITY OF THE FORM.
- 3. DO NOT WELD TIES UNLESS NOTED OTHERWISE.
- ALL WOOD, BULKHEADS, AUTHORIZED FIELD DRILLING AND WELDING, GUYING, BRACING, AND ALIGNMENT BY CONTRACTOR.
- SHIM ALL FORM JOINTS AS REQUIRED FOR PROPER FORM ALIGNMENT
- HEAVY DUTY PIPE BRACES ARE LOCATED ADJACENT TO EACH VERTICAL FORMWORK JOINT UNLESS NOTED OTHERWISE.
- ANCHOR CAPACITY IS BASED ON A MINIMUM CONCRETE STRENGTH, f'c = 3000 psi UNLESS NOTED OTHERWISE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE CONCRETE STRENGTH BEFORE LOADING
- USE Ø3/4" x 2" QUICK BOLTS WITH NUTS AT ALL CONNECTIONS UNLESS NOTED OTHERWISE.

#### HAND-E-FORM® DRAWING

- THE RATED CAPACITY IS 750 lb/ft² EQUATING TO 5'-0" MAX LIQUID HEAD OF CONCRETE.
- 2. ATTACH SCAFFOLD BRACKET TO FORMS WITH SPREADER TIE PINS.
- WHEN ATTACHING BLOCKOUTS TO FORMS, FIELD DRILL Ø3/16" HOLE AND NAIL BLOCKOUT TO FORM.
- 4. WALER ALL UNTIED JOINTS.

#### "A Practical Guide to Concrete Pressure and Formwork" is now available.

This video will help your team to reduce the risk of formwork failure due to exceeding the pour rate and over-pouring the forms.



#### **DESIGN LOADS**

#### MAXIMUM CONCRETE FORM PRESSURE RATING

1.1. WALL FORM = 750 lb/ft<sup>2</sup> EQUATING TO 5'-0" MAX LIQUID HEAD OF CONCRETE

#### DEAD LOAD

2.1. CONCRETE = 150 lb/ft<sup>3</sup>

#### LÍVÉ LOAĎ

3.1. LIVE LOAD = 50 lb/ft<sup>2</sup>

#### CONTRACTOR'S RESPONSIBILITY

- 4.1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT DESIGN LOADING IS NOT EXCEEDED IN ANY CASE.
- 4.2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE PERMANENT CONCRETE STRUCTURE CAN SAFELY WITHSTAND THE TEMPORARY FORMWORK AND SHORING DESIGN LOAD IMPOSED DURING CONSTRUCTION.
- 4.3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL FORMWORK AND/OR SHORING IS LATERALLY SECURED IN ALL DIRECTIONS TO EXISTING WALLS, BEAMS, OR COLUMNS. EXTERNAL BRACING IS REQUIRED AT UNRESTRAINED AREAS AND IN NO CASE SHOULD THE LATERAL RESTRAINT BE LESS THAN THE DESIGN LATERAL LOADS NOTED ABOVE.

**DRAWING NOTES:** 



FOR CONCRETE CONSTRUCTION

HOME OFFICE DES MOINES, IOWA, U.S.A.

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PAGE FOR CONTRACTOR'S RESPONSIBILITIES

4	UPDATE DESIGN LOAD NOTE	120CT20	PJ	
Ю.	REVISION	DATE	BY	
OCTOBER 12, 2020				

RELEASED FOR: CONSTRUCTION M. NOTES AND SAFETY

OJECT: WEYLAND BRIDGE RE-INSTALLATION

ROJECT BIG SUR, CA

CONTRACTOR: HERBACK GENERAL ENGINEERING, LLC			
DETAILED BY	DATE DRAWN	ISSUING OFFICE	
DAS	07FEB18	FRESNO EFCO PROJECT NUMBER	
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AGREEMENT NO. **VARIES** 

## **EFCO SYMBOLS AND ABBREVIATIONS**

@ - AT

ADJ. - ADJUSTABLE ATS - ADJUSTABLE TOP SPREADER

AS - ALIGNER SPLICE ASS'Y - ASSEMBLY

BT - BOLT THRU

BYL/R - BOTTOM YOKE - LEFT/RIGHT

"C" - CHAMFER

CBC - COMBINATION BIAS CORNER

CR - CORNER "REGULAR" CH - CORNER "HEAVY" CL - CENTER LINE

CWS - CANTILEVERED WALL SYSTEM

O.C. - ON CENTER

Ø - DIAMETER

S/DBT - SINGLE/DOUBLE BOLT TUBE

ELEV. - ELEVATION

FSH - FLYING SLAB HEADER FSR - FLYING SLAB RUNNER

FC - FRICTION COLLAR

FS - FAR SIDE

GS - GRADE STRIP

HDR - HEADER

HDTP - HEAVY DUTY TOLERANCE PLATE HA - HORIZONTAL ALIGNER

HDIA - HEAVY DUTY INSERT ANGLE

HDMTB - HEAVY DUTY MOVEABLE TIE BEARING

HD - HEAVY DUTY

HDPB - HEAVY DUTY PIPE BRACE

IR - INNER ROD

IS - INSIDE

LA - LAP ANGLE LB - LIFTING BEAM LE - LIFTING EYE

LQMTB - LIQUID HEAD MOVEABLE TIE BEARING

MAX - MAXIMUM MIN - MINIMUM

NA - NOT APPLICABLE

NS - NEAR SIDE

OAC - OUTSIDE ANGLE CORNER

O.C. - ON CENTER OS - OUTSIDE

OH - OPPOSITE HAND

PY - PILASTER YOKE PFC - PILE FRICTION COLLAR PBS - PIPE BRACE SHOE

PG - PLATE GIRDER PSF - PER SQUARE FOOT

RC - ROUND COLUMN FORM

"R" - RIB LENGTH

SS - SUPER STUD

SJ - SCREW/ SWIVEL JACK

SB - SUPPORT BRACKET

SWL - SAFE WORKING LOAD

TT - TAPER TIE

TB - THRU BOLT TTW - TAPER TIE WASHER

TP - TOLERANCE PLATE
TY - TOP YOKE

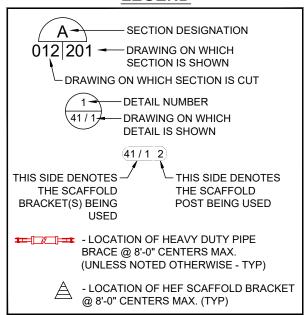
TYE - TOP YOKE ELEVATOR TYP - TYPICAL

UNO - UNLESS NOTED OTHERWISE

VIF - VERIFY IN FIELD

WB - WIND BEAM W/ - WITH W/O - WITHOUT

#### **LEGEND**





**DRAWING NOTES:** 

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OCTOBER 12, 2020

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DWG SYMBOLS & ABBREVIATIONS

ROJECT: WEYLAND BRIDGE RE-INSTALLATION

PROJECT BIG SUR, CA

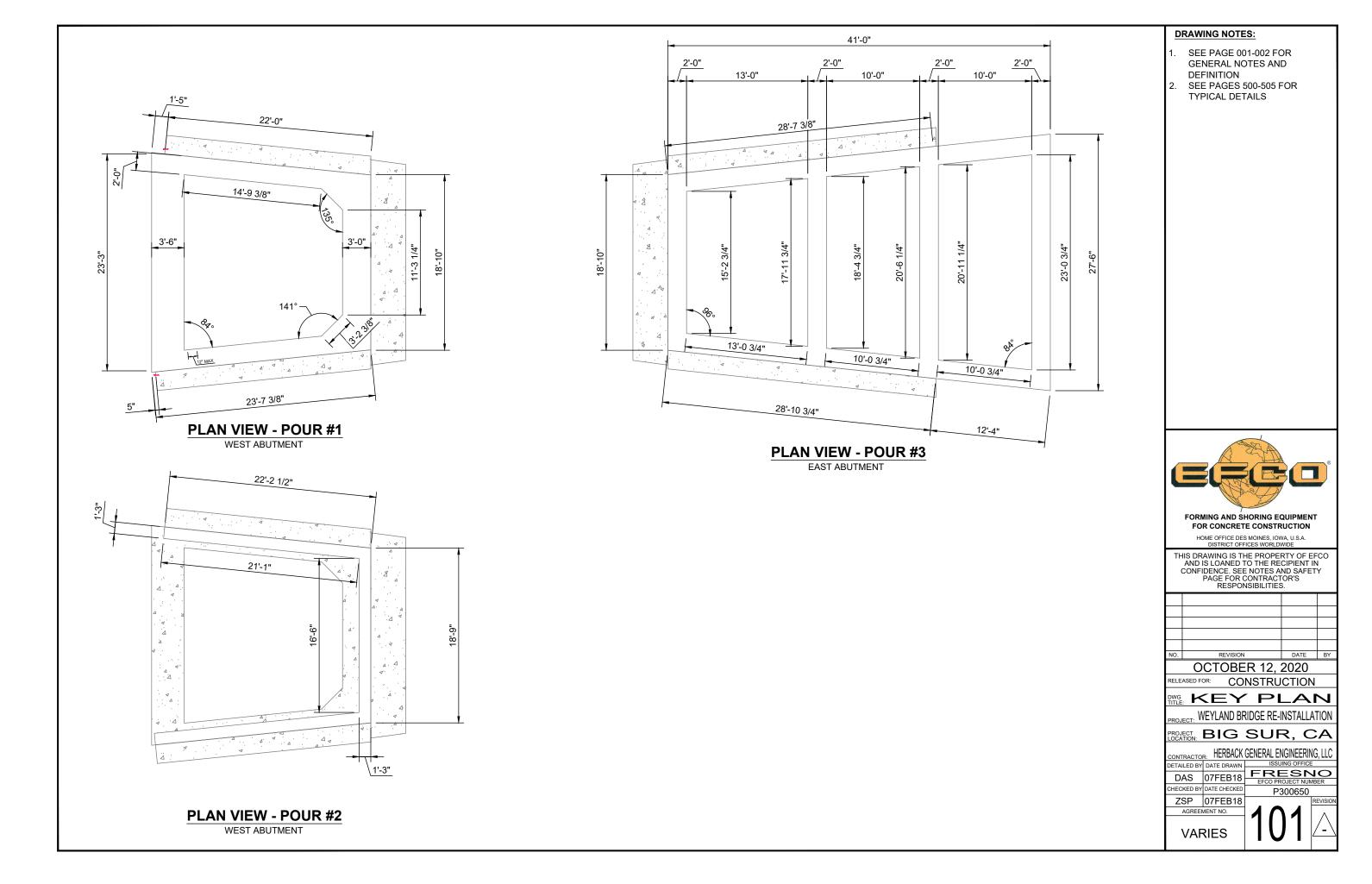
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VARIES

AGREEMENT NO.

002



- WALL ALIGNER x 3'-0"

22'-2 3/8"

2'-4"

102

8" (TYP, UNO)

# DRAWING NOTES: 1. SEE PAGE 001-002 FOR

- GENERAL NOTES AND DEFINITION
- 2. SEE PAGES 500-505 FOR TYPICAL DETAILS



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WEST ABUTMENT POUR #1
ROJECT: WEYLAND BRIDGE RE-INSTALLATION

ROJECT: BIG SUR, CA

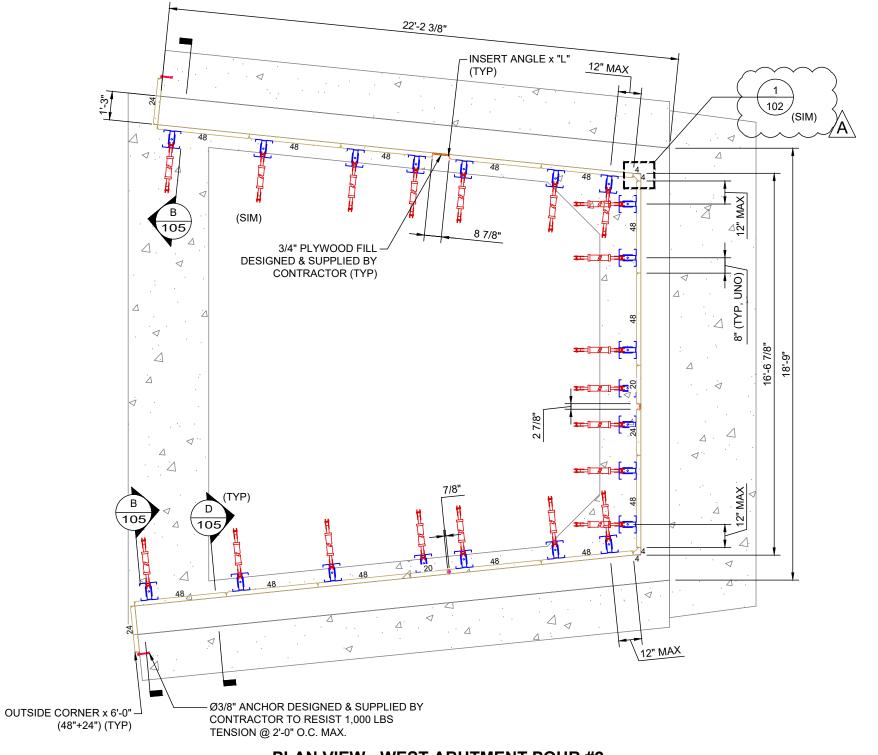
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FRESNO EFCO PROJECT NUMBER P300650

VARIES

102



### **PLAN VIEW - WEST ABUTMENT POUR #2**

PRESSURE RATING = 750 PSF (5'-0" PRESSURE ALLOWED. THEREFORE PLACEMENT RATE LIMITATIONS DO

#### **DRAWING NOTES:**

- SEE PAGE 001-002 FOR GENERAL NOTES AND DEFINITION
- SEE PAGES 500-505 FOR TYPICAL DETAILS



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PROJECT: WEYLAND BRIDGE RE-INSTALLATION

PROJECT BIG SUR, CA

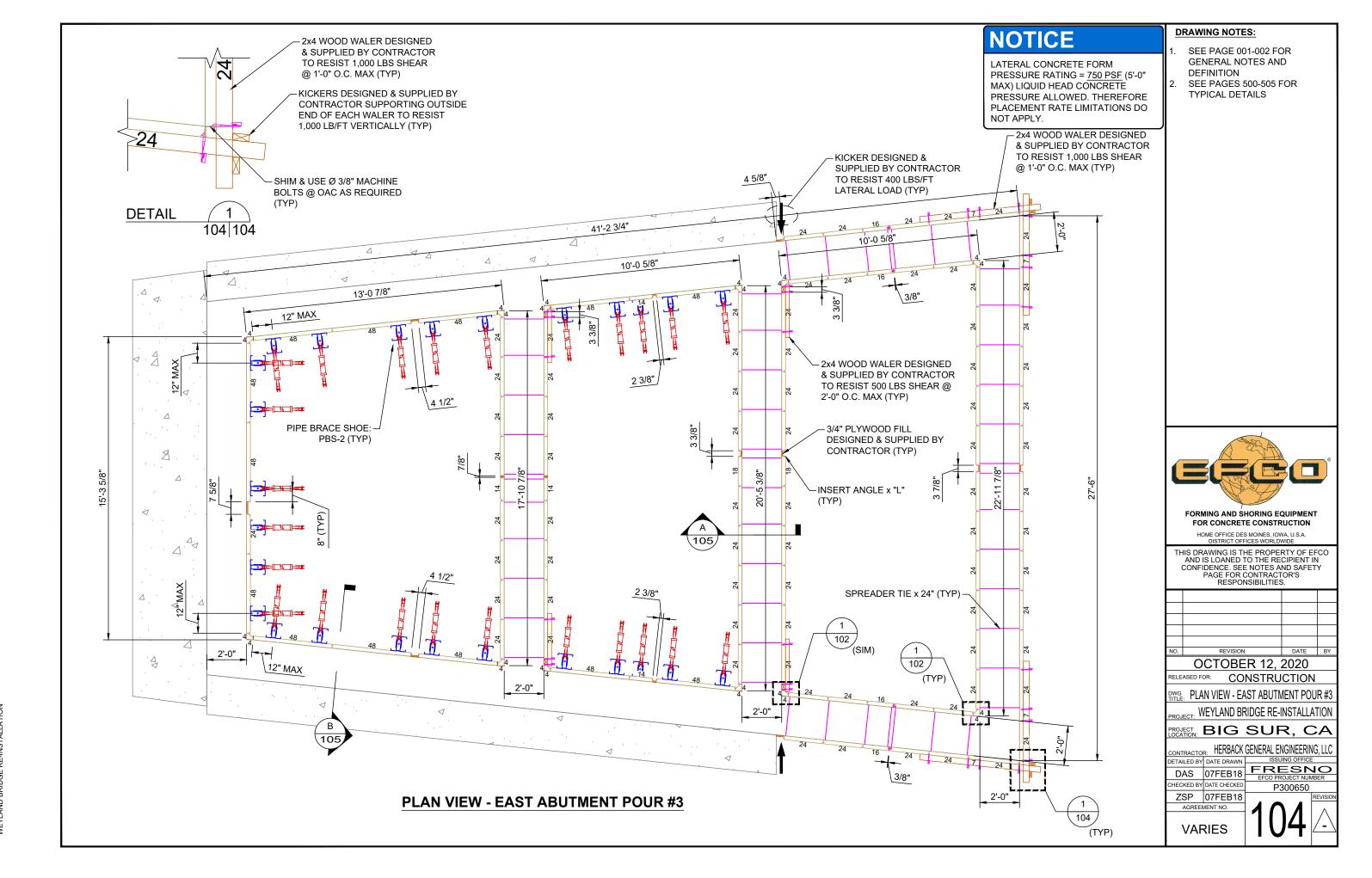
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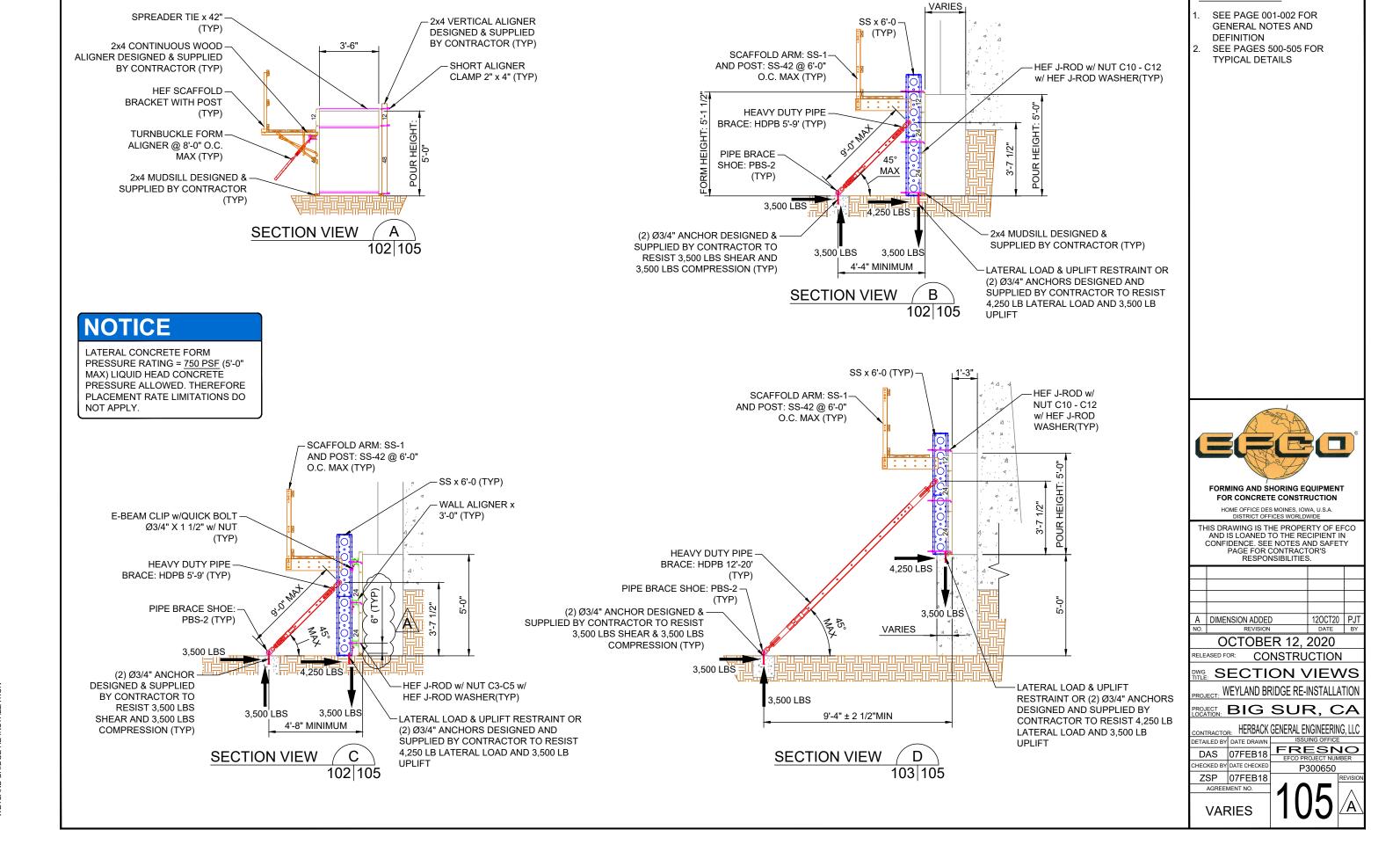
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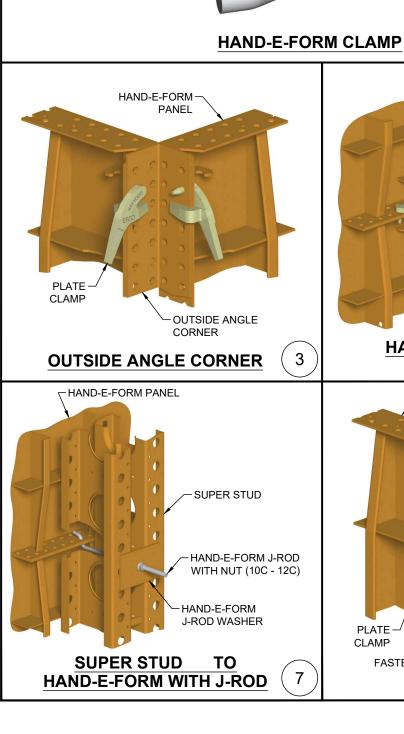
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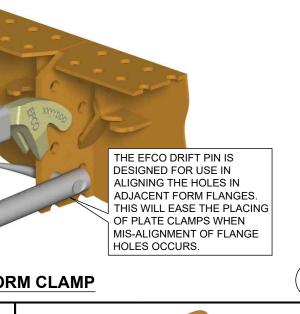


**DRAWING NOTES:** 



ONE END OF THE PIN AND PLATE CLAMP TOOL IS USED TO ASSIST IN THE PLACING OF PLATE CLAMPS WHEN NECESSARY. THE OTHER END OF THIS TOOL IS USED FOR PLACING AND

REMOVING SPREADER TIE PINS.



THE EFCO SPREADER TIE IS DESIGNED (AS A TIE IN TENSION) WITH A RECOMMENDED MAXIMUM WORKING LOAD OF ABOUT 4800 lb. IT ALSO ACTS AS A SPREADER IN COMPRESSION SPREADER TIES MAY BE PLACED OR REMOVED AFTER THE FORM PANELS ARE CLAMPED IN PLACE, THUS PERMITTING EASY CHANGES IN TIE LOCATION. DUE TO THE STRENGTH AND THE EXACT PUNCHING OF THE EFCO SPREADER TIE, ACCURATE WALL DIMENSIONS ARE MAINTAINED.

**ALIGNER CLAMP** 

HAND-E-FORM PANEL

THE EFCO SPREADER TIE PINS HELP TO ALIGN THE FACES OF THE FORM PANELS AND TRANSFER THE LOADS FROM ONE FORM PANEL TO ANOTHER, THUS PREVENTING OFF-SETS AT THE FORM JOINTS. THE HANDLE OF THE SPREADER TIE PIN IS LOCKED IN POSITION TO PREVENT THE PIN FROM FALLING OUT WHILE CONCRETE IS BEING PLACED.

## HAND-E-FORM SPREADER TIE

**ALIGNER** 

5

CLAMP

-HAND-E-FORM **PANEL** ALIGNER CLAMP

**ALIGNER CLAMP** 



WITH POST: SS-42



**DRAWING NOTES:** 

2

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Α	DETAIL REMOVED	120CT20	PJT
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OCTOBER 12, 2020			

CONSTRUCTION

ME. HAND-E-FORM DETAILS

OJECT: WEYLAND BRIDGE RE-INSTALLATION

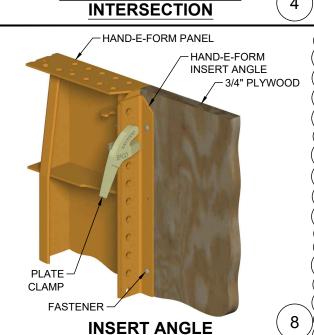
BIG SUR, CA CONTRACTOR: HERBACK GENERAL ENGINEERING, LLO

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**VARIES** 

AGREEMENT NO.



**HAND-E-FORM PANEL** 

PLATE CLAMP

AT INTERSECTIONS OF 3 OR 4 PANELS, THE JAW PORTION OF THE PLATE

CLAMP SHOULD COVER

THE THIRD HOLE FROM

THE TOP OR BOTTOM