CONFIDENTIAL AND PRIVILEGED

PROJECT INFORMATION

BUILDING AND SITE DATA

BUILDING ADDRESS: 301 MISSION STREET, SAN FRANCISCO, CA
BLOCK/LOT: 3719/020
TYPE OF CONSTRUCTION: 1A
NUMBER OF STORIES OF OCCUPANCY: 58
NUMBER OF BASEMENTS/CELLARS: 5
BUILDING USE: APARTMENTS
OCCUPANCY CLASS: R-2, A-3, S-2
NUMBER OF DWELLINGS UNITS: 420

MUNICIPAL JURISDICTION:

CITY OF SAN FRANCISCO
SAN FRANCISCO DEPARTMENT OF BUILDING INSPECTION
1660 MISSION STREET
SAN FRANCISCO, CALIFORNIA 94103

CONTACT INFORMATION

BUILDING OWNER:

MILLENNIUM TOWER ASSOCIATION (MTA)
301 MISSION STREET
SAN FRANCISCO, CA

ARCHITECT:

STANTEC ARCHITECTURE INC
100 CALIFORNIA STREET, SUITE 1000
SAN FRANCISCO, CA 94111

STRUCTURAL ENGINEER:

LERA
40 WALL STREET, 23rd FLOOR
NEW YORK, NY 10005

SCOPE OF WORK:

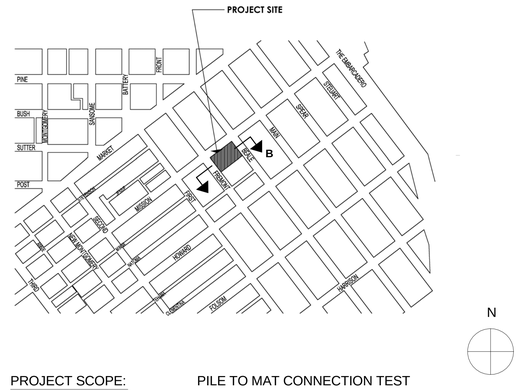
PILE TO MAT CONNECTION TEST. DATA TO BE USED FOR FUTURE 301 MISSION STREET FOUNDATION RETROFIT DESIGN.

APPLICABLE CODE

CALIFORNIA BUILDING CODE (2016 EDITION)
2016 SAN FRANCISCO CODE AMENDMENTS

DRAWING INDEX

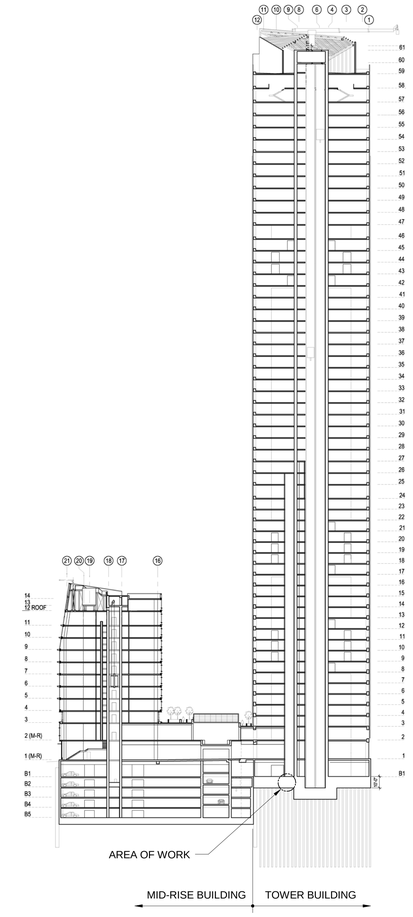
AREA OF WORK



PROJECT SCOPE: PILE TO MAT CONNECTION TEST

PROJECT LOCATION: 301 MISSION STREET, SAN FRANCISCO, CA

A SITE PLAN



B BUILDING SECTION

LERA
Leslie E. Robertson Associates, R.L.L.P.
Consulting Structural Engineers
40 Wall Street, 23rd Floor
New York, New York 10005
Tel: (212) 750-9000
Fax: (212) 750-9002

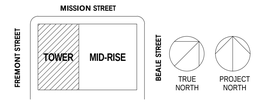
Stantec
Stantec Architecture Inc.
100 California Street, Suite 1000
San Francisco CA 94111-4505
Tel: 415-882-9500 / Fax: 415-882-9523

NICHOLSON HAYWARD BAKER JOINT VENTURE
101 Broadway #213
Oakland, California
Tel: (925) 825-5056
Fax: (925) 825-3037

No.	Revision/Issue	Date

Professional Stamp:

Keyplan:



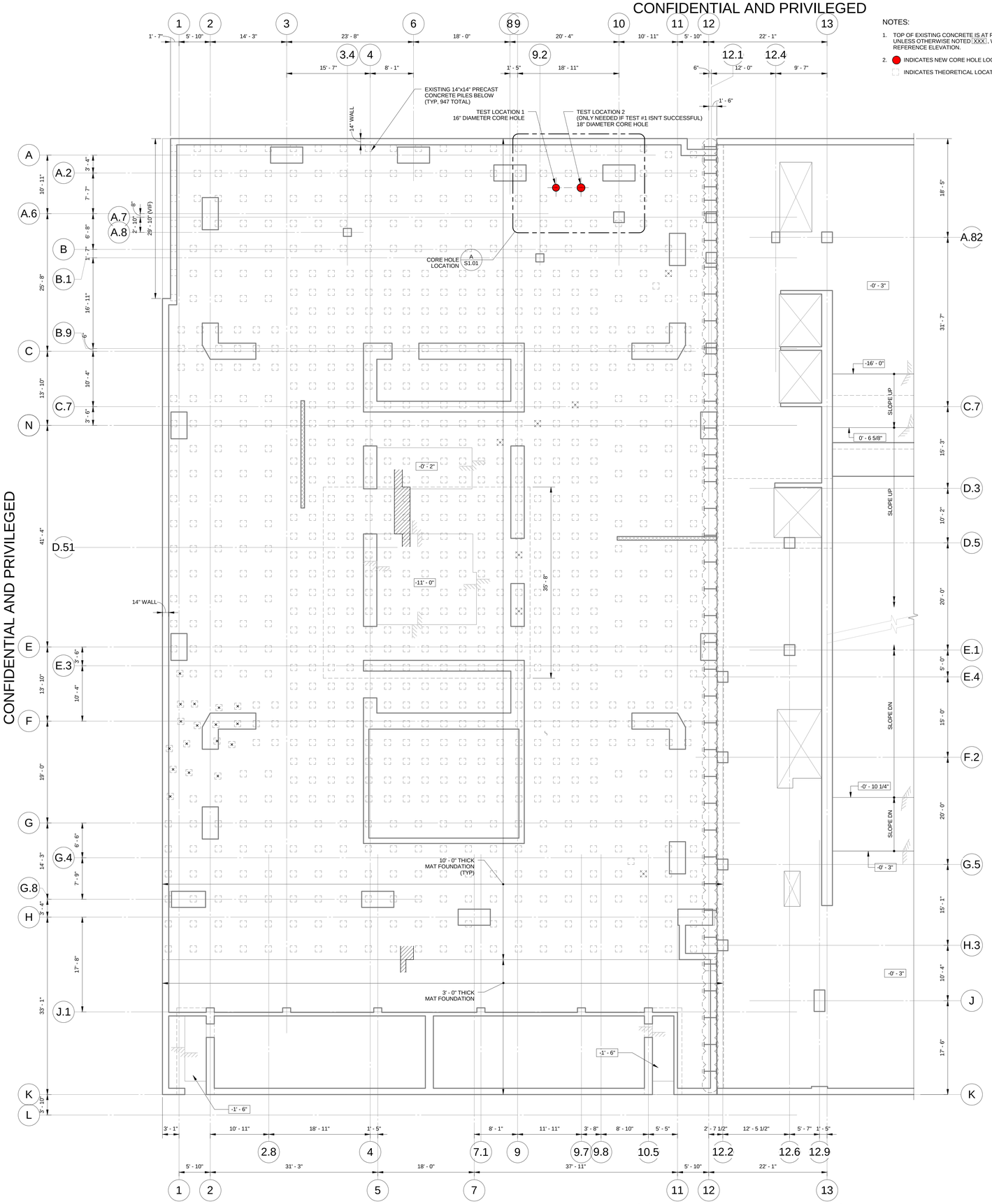
Phase:
CONSTRUCTION DOCUMENTS

Project Title:
301 Mission Street Micropile Connection Test Program

Drawing Title:
COVER SHEET

Drawn: LERA	**Design:** LERA
Check: LERA	**Date:** 06 MAR 2018
Scale: NTS	**Project Numbers:** P0X021

Sheet:
S1.00



NOTES:

1. TOP OF EXISTING CONCRETE IS AT REFERENCE ELEVATION -15' - 9" UNLESS OTHERWISE NOTED XXX, WHERE XXX IS WITH RESPECT TO REFERENCE ELEVATION.
2. INDICATES NEW CORE HOLE LOCATION FOR MAT CONNECTION TEST

   INDICATES THEORETICAL LOCATION OF EXISTING 14"x14" PRECAST PILE.

MICROPILE TEST PROCEDURE:

STEP 1: LOCATE EXISTING TOP REBAR IN EXISTING MAT FOUNDATION BY GROUND PENETRATING RADAR.

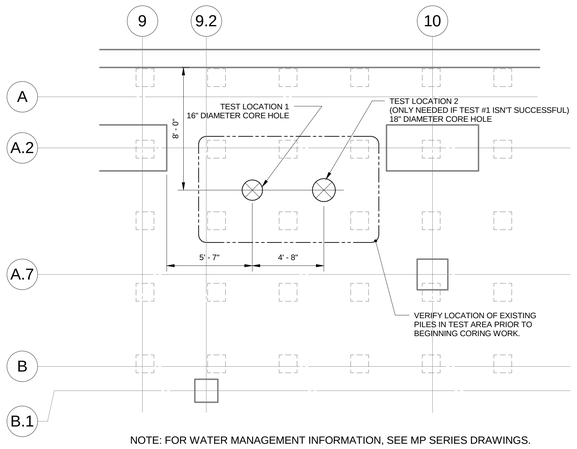
STEP 2: CORE TEST LOCATION 1 IN EXISTING MAT FOUNDATION (SEE DETAIL A/S1.01).

STEP 3: INSTALL MICROPILE SECTION AT TEST LOCATION 1. LOCATE AND DRILL REACTION ANCHORS FOR TEST FRAME AWAY FROM EXISTING TOP REBAR LOCATIONS (SEE DETAIL B/S1.01).

STEP 4: INSTALL TEST FRAME AND TEST PILE CONNECTION AS DESCRIBED IN DRAWING MP-1.

STEP 5: IF TEST 1 IS UNSUCCESSFUL. REPEAT STEP 2 THROUGH 5 FOR TEST LOCATION 2.

STEP 6: REMOVE TEST FRAME (SEE DETAIL C/S1.01).



NOTE: FOR WATER MANAGEMENT INFORMATION, SEE MP SERIES DRAWINGS.

A CORING
1/4" = 1'-0"

NOTE: GPR SCANNING OF MAT TOP REINFORCEMENT TO BE ACCOMPLISHED PRIOR TO DRILLING REACTION ANCHORS.

B TESTING
1/4" = 1'-0"

C FINAL CONDITION
1/4" = 1'-0"

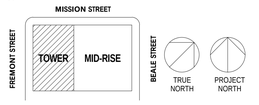
LERA

Leslie E. Robertson Associates, R.L.L.P.
Consulting Structural Engineers
40 Wall Street, 23rd Floor
New York, New York 10005
Tel: (212) 750-9000
Fax: (212) 750-9002

No.	Revision/Issue	Date

Professional Stamp:

Keyplan:



Phase:
CONSTRUCTION DOCUMENTS

Project Title:
301 Mission Street Micropile Connection Test Program

Drawing Title:
TOWER B1 LEVEL PLAN AND DETAILS

Drawn:	Design:
LERA	LERA
Check:	**Date:**
LERA	06 MAR 2018
Scale:	**Project Numbers:**
As indicated	P0X021

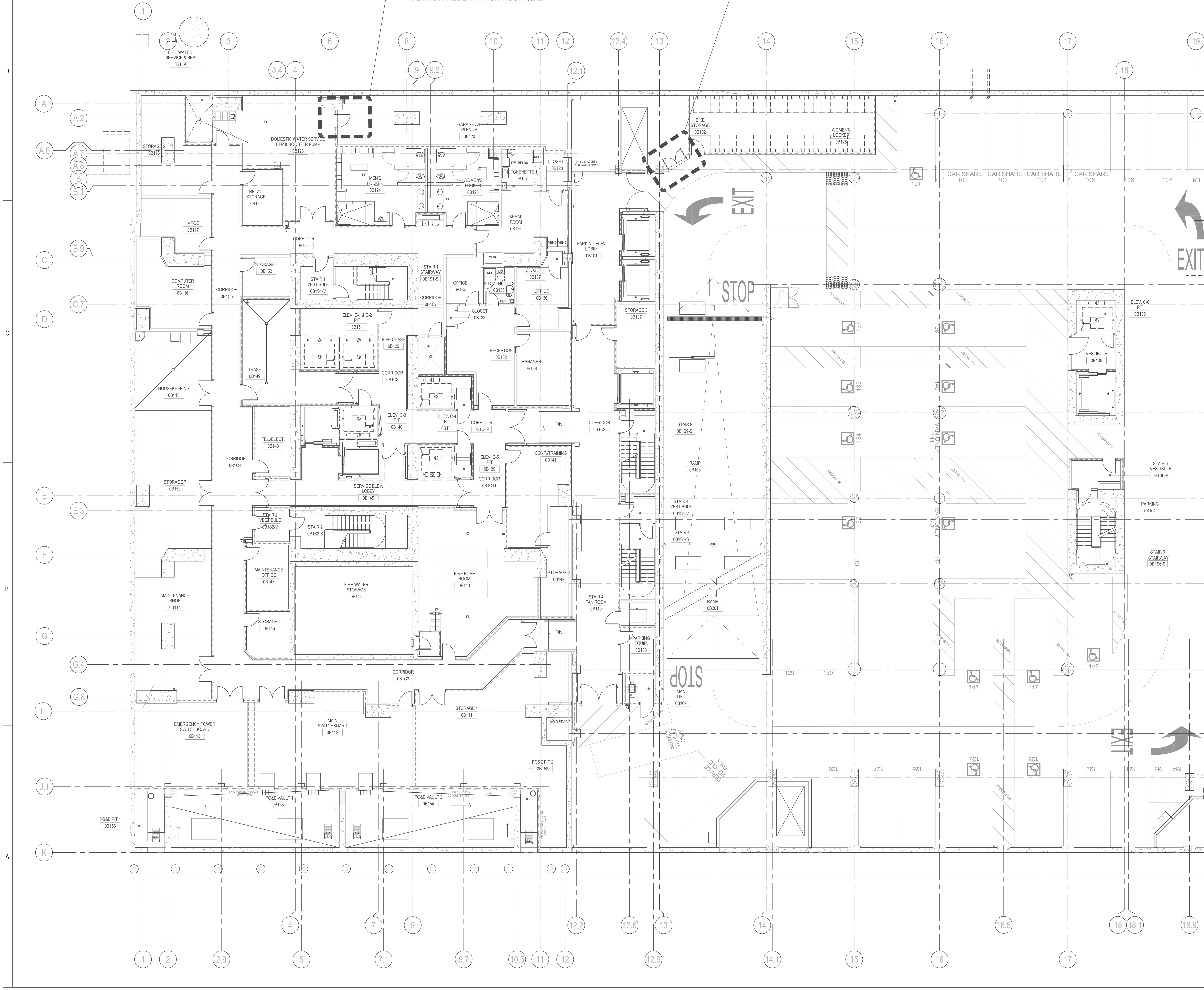
Sheet:

S1.01

CONFIDENTIAL AND PRIVILEGED

DEMO. EXISTING DRYWALL AND PROVIDE FRAMING FOR NEW 90-MIN. RATED 3'-0" X 7'-0" HOLLOW METAL DOOR AND FRAME. INSTALL PER MFG'S INSTALLATION INSTRUCTIONS. INCLUDE FIRE/SMOKE GASKETING, LOCKING / LATCHING HARDWARE AND CLOSER. MAINTAIN FREE EXIT FROM ROOM SIDE.

DEMO. EXISTING DRYWALL AND PROVIDE NON-RATED PAIR DOORS, SIZED PER AVAILABLE OPENING. INCLUDE LOCKING HARDWARE. MAINTAIN FREE EXIT FROM ROOM SIDE.



FIRE WATER SERVICE & BFP 0B119
STORAGE 2 0B118
DOMESTIC WATER SERVICE BFP & BOOSTER PUMP 0B123
GARAGE AIR PLENUM 0B120
BIKE STORAGE 0B102
WOMEN'S LOCKER 0B125
MEN'S LOCKER 0B124
KITCHENETTE 1 0B127
CLOSET 2 0B128
RETAIL STORAGE 0B122
MPOE 0B117
BREAK ROOM 0B126
CORRIDOR 0B1C6
PARKING ELEV. LOBBY 0B101
EXIT
STOP
CAR SHARE
STORAGE 6 0B152
COMPUTER ROOM 0B116
CORRIDOR 0B1C5
STAIR 1 VESTIBULE 0B1S1-V
STAIR 1 STAIRWAY 0B1S1-S
OFFICE 0B134
KITCHENETTE 2 0B135
CLOSET 1 0B137
OFFICE 0B136
STORAGE 3 0B107
ELEV. C-6 PIT 0B106
CORRIDOR 0B1C7
CLOSET 0B133
ELEV. C-1 & C-2 PIT 0B151
PIPE CHASE 0B129
RECEPTION 0B132
MANAGER 0B138
VESTIBULE 0B105
TRASH 0B149
CORRIDOR 0B1C8
HOUSEKEEPING 0B115
ELEV. C-3 PIT 0B140
ELEV. C-4 PIT 0B131
CORRIDOR 0B1C09
CORRIDOR 0B1C2
STAIR 9 0B1S9-S
TEL./ELECT. 0B148
CORRIDOR 0B1C4
RAMP 0B103
STAIR 6 VESTIBULE 0B1S6-V
ELEV. C-5 PIT 0B139
CONF./TRAINING 0B141
CORRIDOR 0B1C11
STORAGE 7 0B150
SERVICE ELEV. LOBBY 0B145
STAIR 4 VESTIBULE 0B1S4-V
PARKING 0B104
STAIR 2 VESTIBULE 0B1S2-V
STAIR 2 0B1S2-S
STAIR 4 0B1S4-S
STAIR 6 STAIRWAY 0B1S6-S
MAINTENANCE OFFICE 0B147
FIRE WATER STORAGE 0B144
FIRE PUMP ROOM 0B143
STORAGE 4 0B142
MAINTENANCE SHOP 0B114
STAIR 4 FAN ROOM 0B110
RAMP 0B201
STORAGE 5 0B146
PARKING EQUIP. 0B108
CORRIDOR 0B1C3
MAN LIFT 0B109
VAN ONLY
EMERGENCY POWER SWITCHBOARD 0B113
MAIN SWITCHBOARD 0B112
STORAGE 1 0B111
VOID SPACE
SERVICE VEHICLE ONLY
PG&E PIT 2 0B153
PG&E VAULT 1 0B155
PG&E VAULT 2 0B154
PG&E PIT 1 0B156

Stantec

Consultants

Agency

Revision

Revision

By Appd YYYY.MM.DD

Key Plan

Issued Title

FLOOR PLAN - LEVEL B1
3.01.18

Client/Project
301 MISSION STREET
SAN FRANCISCO, CA
MICROPILE CONNECTION TEST PROG.

Title
FLOOR PLAN - LEVEL B1

Project No. 2014038500
Scale 1/8" = 1'-0"

Drawing No.

Sheet of

A-1

ORIGINAL SHEET - ARCH E1

GENERAL NOTES

1. THE ENGINEER IS THE REGISTERED CIVIL ENGINEER WHOSE STAMP RESIDES ON THESE DRAWINGS.
2. THE GENERAL CONTRACTOR AND OWNER ARE AS DEFINED IN THE PROJECT CONTRACT DOCUMENTS.
3. THE SUBCONTRACTOR IS DEFINED AS THE PARTY RESPONSIBLE FOR INSTALLING THE MICROPILES AS SHOWN IN THE PLANS HEREIN AND AS DESCRIBED IN THE CONTRACT DOCUMENTS.
4. ALL DATA AND DETAILS ON THESE SHEETS ARE THE PROPERTY OF THE JOINT VENTURE (HAYWARD BAKER/NICHOLSON). THEY SHALL NOT BE USED WITHOUT PRIOR CONSENT.
5. ALL CONSTRUCTION SHALL BE PERFORMED IN A MANNER CONSISTENT WITH STANDARDS ESTABLISHED BY THE GOVERNING JURISDICTION.
6. THE GENERAL CONTRACTOR OR OWNER SHALL LOCATE ALL EXISTING UTILITY LINES PRIOR TO THE START OF CORING OPERATIONS.
7. THE GENERAL CONTRACTOR SHALL CONFIRM THAT THE PROPOSED MICROPILE MAT CONNECTION TEST DOES NOT CONFLICT WITH FUTURE IMPROVEMENTS PRIOR TO INSTALLATION.
8. HORIZONTAL CONTROL TO ESTABLISH LOCATION OF THE CORE HOLES SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
3. IN PREPARATION OF THESE DRAWINGS, THE JOINT VENTURE (HAYWARD BAKER/NICHOLSON) HAS NOT BEEN CONTRACTED NOR IS JOINT VENTURE (HAYWARD BAKER/NICHOLSON) RESPONSIBLE TO PROVIDE FIELD OBSERVATION OR VERIFICATION OF THE CONSTRUCTION. ON SITE INSPECTION TO VERIFY COMPLIANCE WITH THESE DRAWINGS SHALL BE PERFORMED BY A QUALIFIED ENGINEER IN ACCORDANCE WITH ALL PROJECT REQUIREMENTS.
4. ALL PERMITS SHALL BE PROCURED AND PAID FOR BY THE GENERAL CONTRACTOR OR OWNER.
5. ALL DATA AND DETAILS ON THESE SHEETS HAVE BEEN DESIGNED FOR APPLICATIONS SPECIFICALLY FOR THE PROJECT NAMED: **301 MISSION, SAN FRANCISCO, CALIFORNIA**. THE JOINT VENTURE (HAYWARD BAKER/NICHOLSON) TAKES NO RESPONSIBILITY FOR THE PERFORMANCE OF THESE DETAILS IF UTILIZED FOR ANY APPLICATION OR PROJECT NAMED OTHERWISE.
6. ALTERNATE STRUCTURAL SHAPES, MATERIAL AND DETAILS CANNOT BE USED UNLESS REVIEWED AND APPROVED BY THE ENGINEER.
7. UNLESS OTHERWISE NOTED, ALTERNATE PLACEMENT OF THE MICROPILES MAT CONNECTION TEST ELEMENTS CANNOT BE PERFORMED UNLESS REVIEWED AND APPROVED BY THE ENGINEER ON RECORD.
8. THE TEST FRAME SHOWN IN THE DRAWINGS HEREIN IS DESIGNED FOR A MAXIMUM TEST LOAD OF 2,5000 KIPS.
9. JACK TEST LOADS SHOWN ON THESE DRAWINGS ARE PRELIMINARY. THE FINAL JACK TEST LOADS SHALL BE DETERMINED AFTER THE REACTION BAR LOCATIONS ARE FINALIZED IN THE FIELD.
10. ALL REACTION PILES WILL BE LOADED IN TENSION WHILE THE ROCK PILE MAT CONNECTION WILL BE LOADED IN COMPRESSION.

MATERIALS

1. STRUCTURAL STEEL BEAMS: ASTM A572 OR A992 50 KSI STEEL
2. REACTION PILE THREADBAR: 150 KSI ULTIMATE STRENGTH ASTM A–722–07, THREADBAR BY DSI, WILLIAMS, SKYLINE OR EQUIVALENT.
3. THREADBAR NUTS SHALL CONFORM TO ASTM A108 SPECIFICATIONS
4. GROUT: ASTM C150/AASHTO M85, TYPE V NEAT CEMENT OR SAND/CEMENT MIXTURE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI. MIXTURE SHALL HAVE A WATER/CEMENT RATIO BY WEIGHT BETWEEN 0.40 TO 0.45.
5. MILL TEST REPORTS FOR STRUCTURAL STEEL SHALL BE SUBMITTED TO THE OWNER FOR REVIEW.
6. WELDS: ELECTRODES SHALL BE AWS A5.1 AND A5.5 DESIGNATED E70XX
7. BEARING PLATES AND FLATBAR SHALL BE ASTM A572 OR A992 50 KSI STEEL
8. PERMANENT CASING SHALL BE 80 KSI SECONDHAND OIL FIELD CASING.
9. BOLTS: ASTM A325, 120 KSI TENSILE STRENGTH OR BETTER.

CONSTRUCTION SEQUENCE

1. LOCATE CORE HOLES AS SHOWN ON PLANS. LOCATION OF CENTERLINE OF HOLE SHALL BE WITHIN +/– 3 INCHES OF PLAN LOCATION. LICENSED SURVEYOR TO PROVIDE LOCATIONS WITH SURFACE ELEVATIONS. IF RELOCATION OF REACTION PILE LOCATIONS IS REQUIRED, JACK TEST LOADS WILL BE UPDATED AS NECESSARY.
2. DRILL CORE HOLES FOR MICROPILE MAT CONNECTION TEST. CORE HOLES SHALL BE DRILLED IN THE FOUNDATION AS SHOWN ON THE DRAWINGS HEREIN. IF GROUNDWATER IS ENCOUNTERED DURING DRILLING, IT WILL BE CONTAINED USING SANDBAGS AND WILL BE PUMPED TO A LOCAL DRAIN OUTLET.
3. AT THE COMPLETION OF CORE HOLE DRILLING, INSTALL THE REACTION PILE AND ROCK MICROPILE CASING AS SHOWN ON THE DRAWINGS HEREIN.
4. INSTALL GROUT FOR PILES AND VERIFY THAT THERE IS NO EVIDENCE OF ENTRAPPED AIR, WATER, OR DILUTED GROUT. THE GROUT SHALL BE PLACED USING GROUT TUBES. WITHDRAWAL RATE OF THE GROUT TUBE SHALL BE SUCH THAT THE END OF THE TUBE IS BELOW THE GROUT SURFACE. THE QUANTITY OF THE GROUT SHALL BE RECORDED.
5. ONCE GROUT HAS ACHIEVED THE MINIMUM REQUIRED COMPRESSIVE STRENGTH, SET UP LOAD FRAME AS SHOWN IN THE DRAWINGS HEREIN.
6. PERFORM SACRIFICIAL MICROPILE CONNECTION TEST ON TEST PILE #1 AS REQUIRED BY THE CONTRACT DOCUMENTS TO A MAXIMUM TEST LOAD OF 2,000 KIPS.
7. UPON COMPLETION OF TESTING, MICROPILE ENGINEER OF RECORD SHALL REVIEW THE TEST DATA AND CONFIRM RESULTS ARE ACCEPTABLE.
8. IF TEST PILE #1 RESULTS ARE DEEMED UNSATISFACTORY, PROCEED WITH TEST #2.
9. UPON COMPLETION OF MICROPILE MAT CONNECTION TESTING, REMOVE THE LOAD FRAME AND CUT THE REACTION PILE THREADBARS AT THE TOP OF THE MAT SURFACE.
10. APPLY EPOXY PAINT AT THE SURFACE OF THE REACTION BARS BEING CUT FOR CORROSION PROTECTION.
11. CORE HOLES FOR THE ROCK MICROPILE MAT CONNECTION ARE TEMPORARY AND WILL BE RE–CORED DURING THE RETROFIT CONSTRUCTION ACTIVITIES. DUE TO THIS THE CORE HOLES WILL BE WATERPROOFED UNDER A SEPARATE COVER AT THAT TIME.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL M. EMPEZO
No. 63148
CIVIL
STATE OF CALIFORNIA

HAYWARD BAKER
NICHOLSON JOINT VENTURE
101 BROADWAY #213,
OAKLAND, CALIFORNIA
PH: 925-825-5056
FX: 925-825-3037

HBI's drawings have been prepared based upon electronic drawings (as referenced below) provided to HBI for use as background information. The owner or general contractor shall immediately notify HBI of any revisions to the background drawings.
References:

SHEET: **DATE:**

MICROPILE CONNECTION TEST PROGRAM
301 MISSION STREET
SAN FRANCISCO, CALIFORNIA

REV. NO.	REVISION DESCRIPTION	DATE XX/XX/XX
0	1ST SUBMITTAL	10/05/17

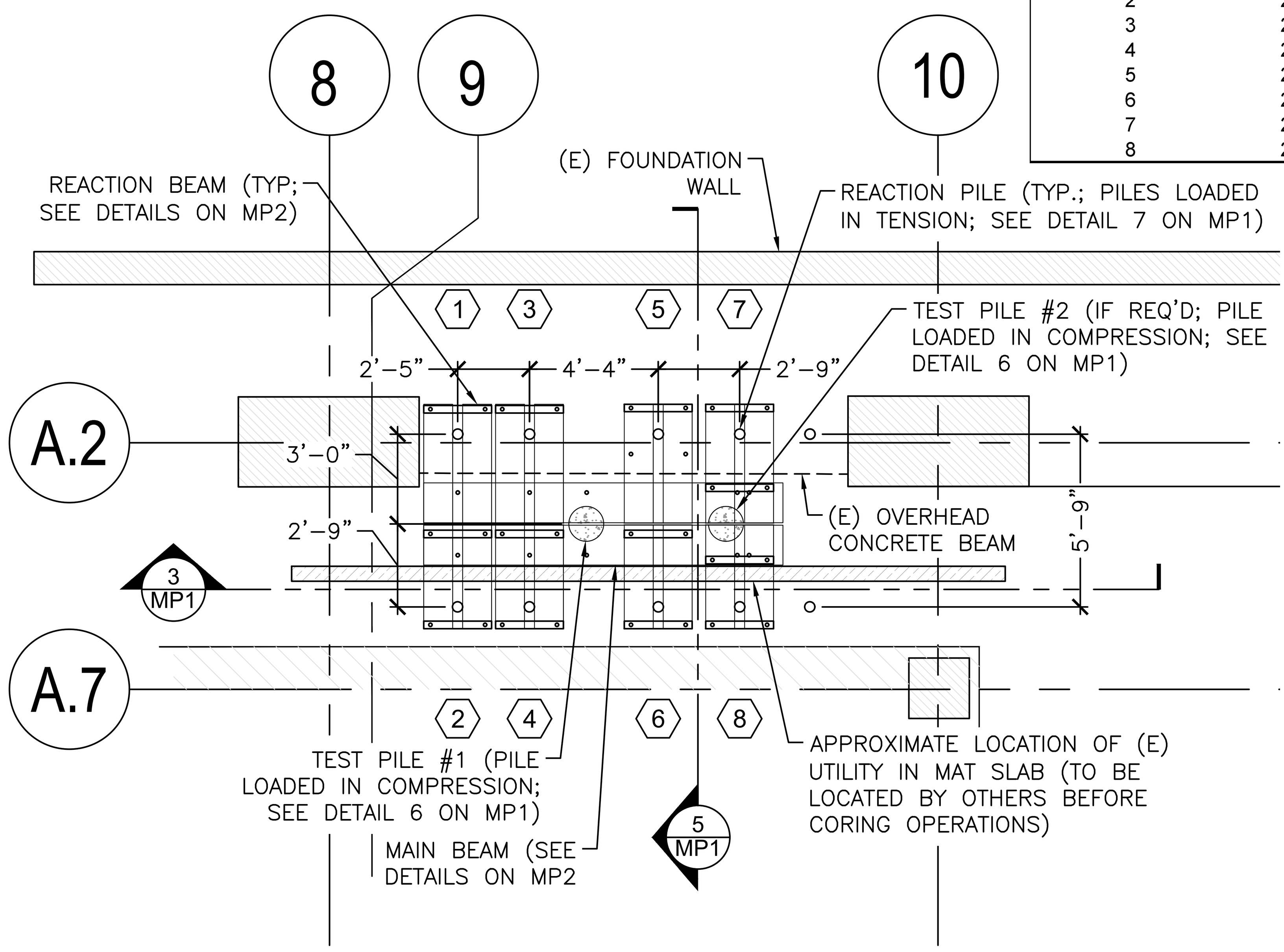
PROJECT NUMBER: 900203
ISSUE DATE: 03/07/18

SHEET NUMBER: **MP-0**

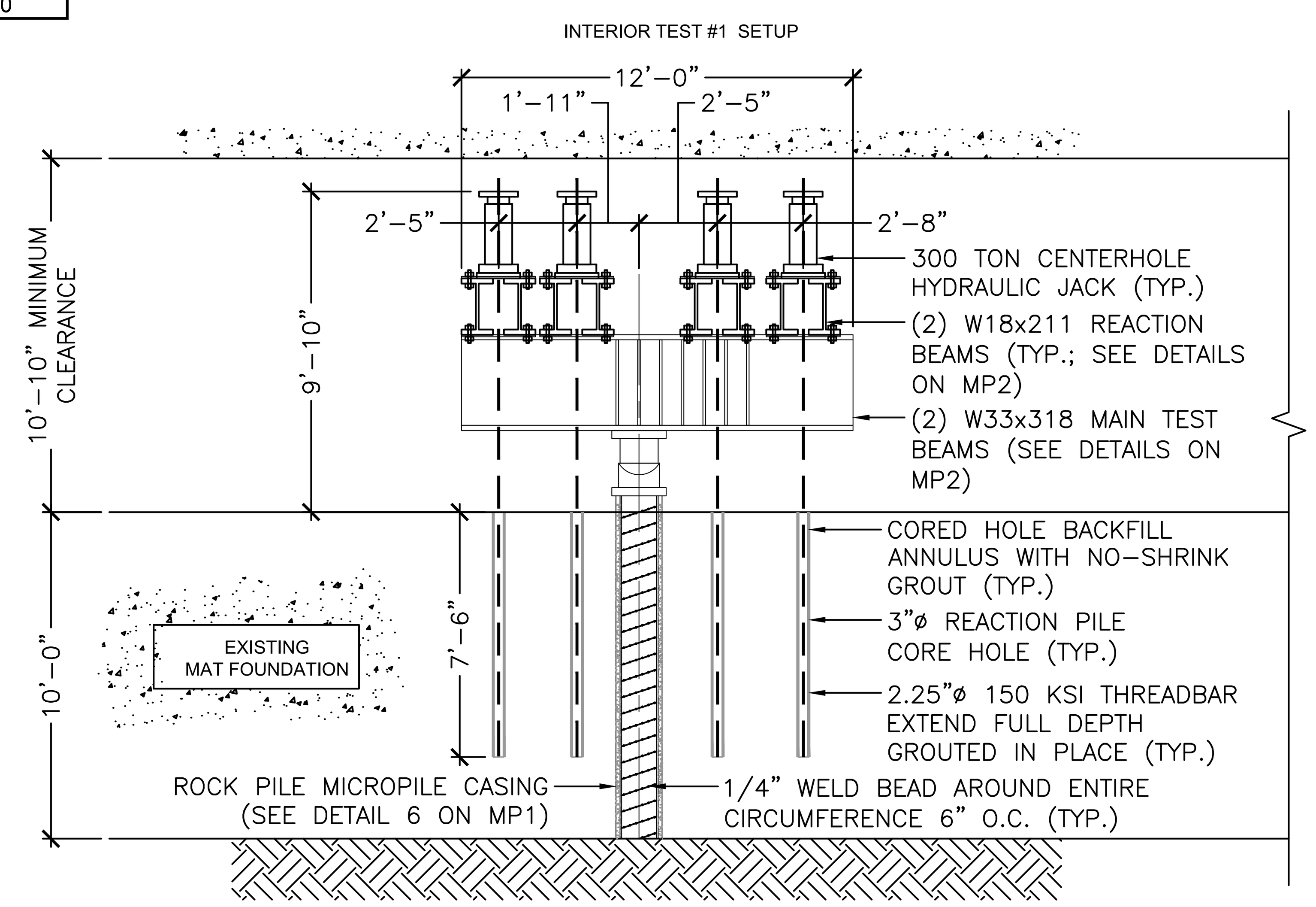
MAT CONNECTION
PLAN AND SECTION VIEWS

Connection Test #1

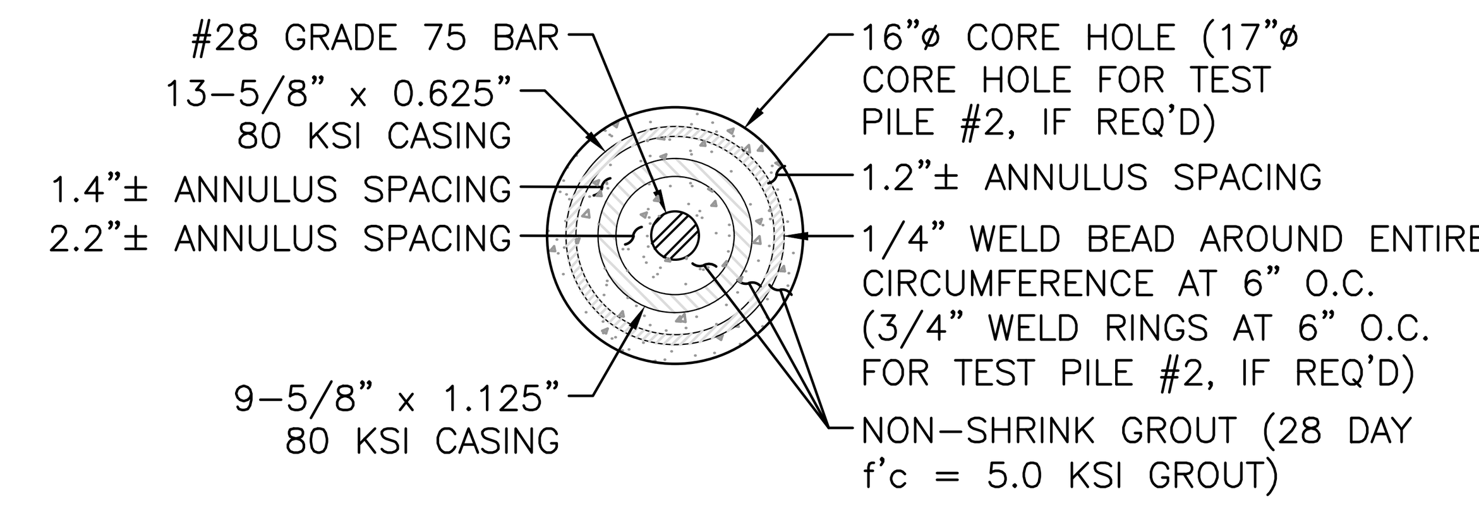
Jack #	Test Load kip
1	278
2	278
3	260
4	260
5	242
6	242
7	220
8	220



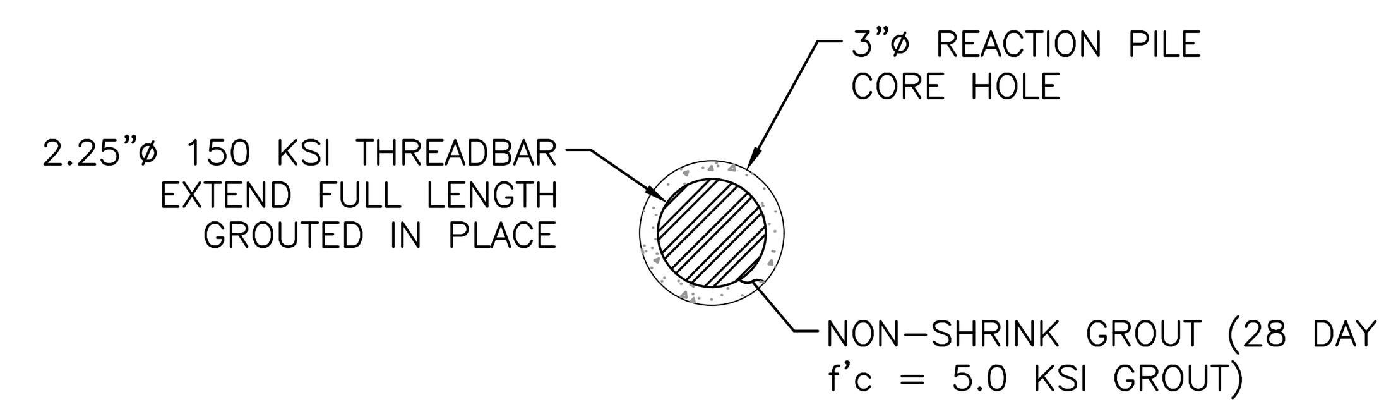
1-MP1 INTERIOR 2000 KIP COMPRESSION TEST #1 - PLAN VIEW
SCALE: 1/4"=1'



3-MP1 CONNECTION TEST #1 - SECTION VIEW
SCALE: 1/4"=1'



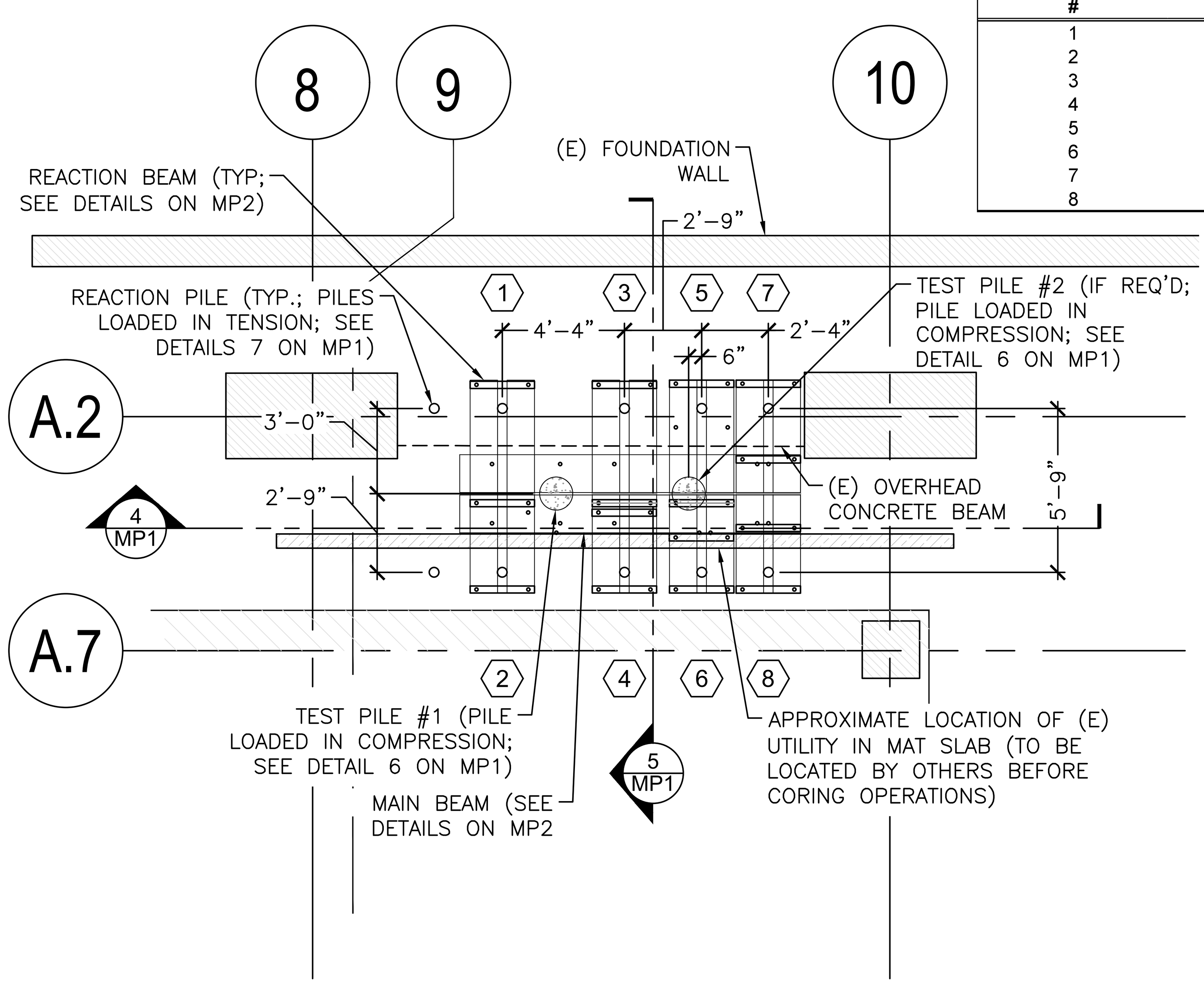
6-MP1 MICROPILE CONNECTION TEST - SECTION VIEW
SCALE: 1"=1'



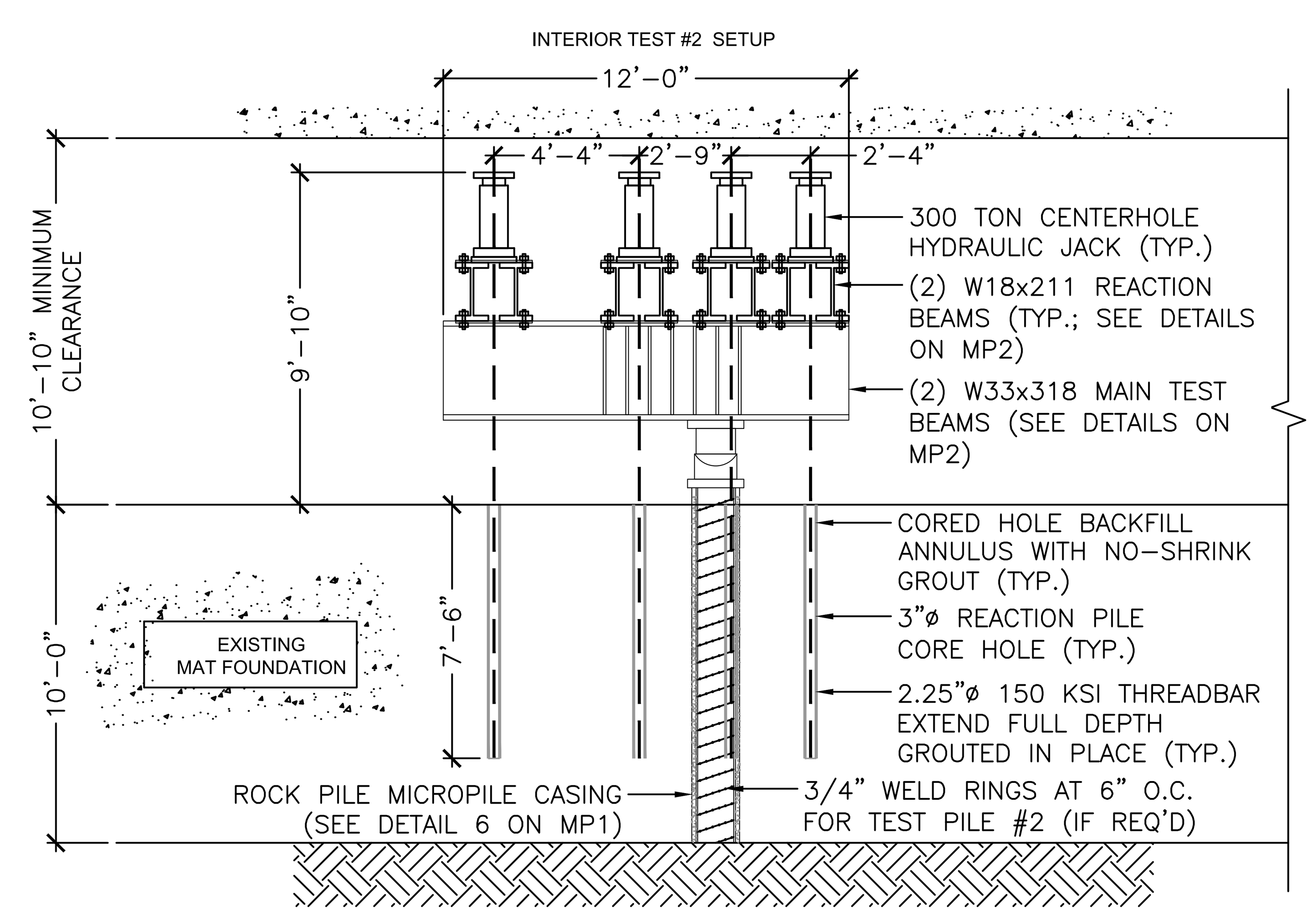
7-MP1 REACTION PILE - SECTION VIEW
SCALE: 3"=1'

Connection Test #2

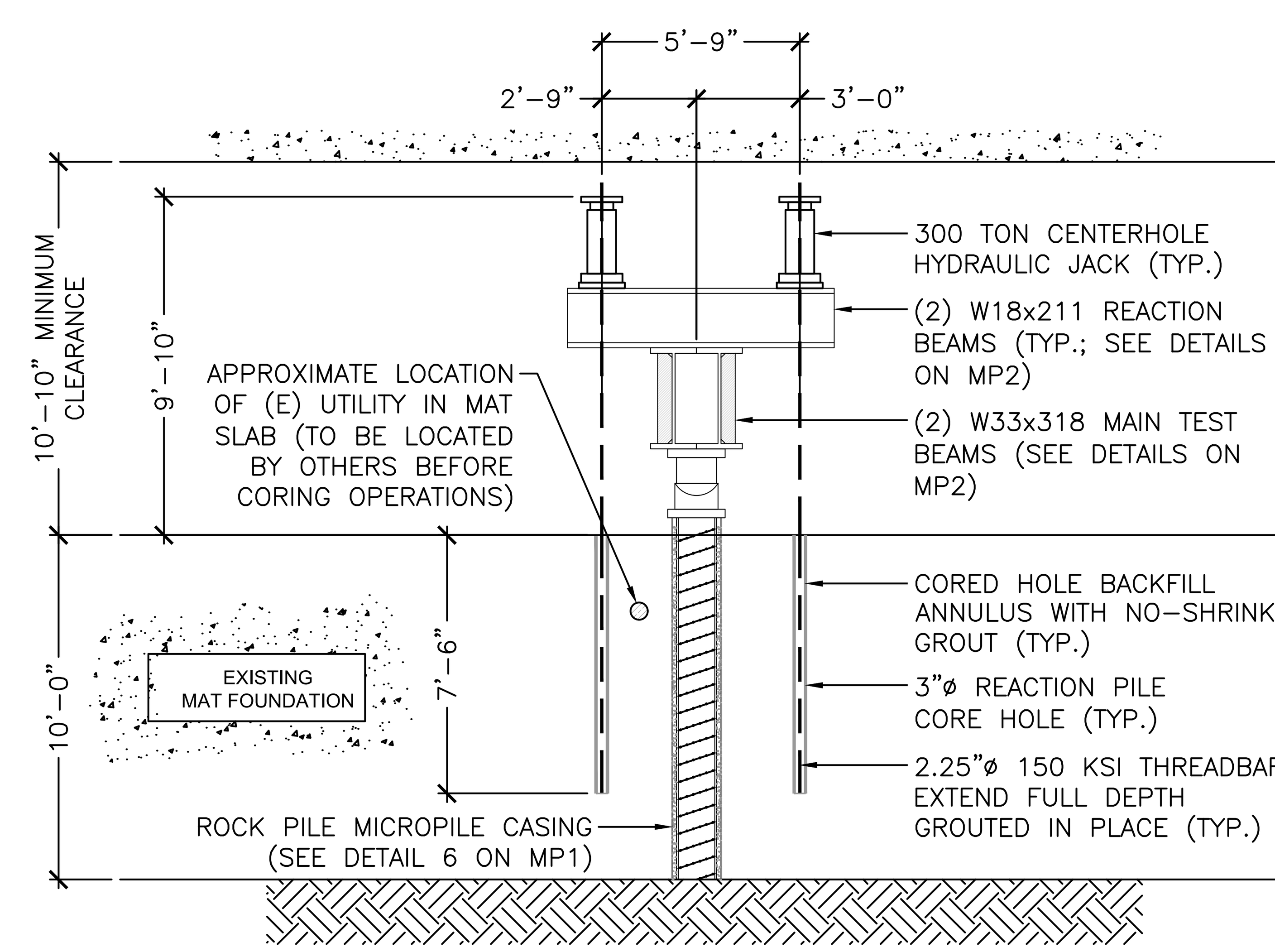
Jack #	Test Load kip
1	98
2	98
3	241
4	241
5	286
6	286
7	375
8	375



2-MP1 INTERIOR 2000 KIP COMPRESSION TEST #2 - PLAN VIEW
SCALE: 1/4"=1'



4-MP1 CONNECTION TEST #2 - SECTION VIEW
SCALE: 1/4"=1'



5-MP1 CONNECTION TEST #1 AND #2 - SECTION VIEW
SCALE: 1/4"=1'

REGISTERED PROFESSIONAL ENGINEER
MICHAEL M. EMPZO
No. 63148
CIVIL
STATE OF CALIFORNIA

Scale = 3":1' — 0' .17' .33' .67'
Scale = 1/2":1' — 0' 1' 2' 4'
Scale = 1/4":1' — 0' 2' 4' 8'

NICHOLSON | HAYWARD BAKER
JOINT VENTURE
101 BROADWAY #213,
OAKLAND, CALIFORNIA
PH: 925-825-5056
FX: 925-825-3037

References:

SHEET: DATE:

MICROPILE CONNECTION TEST PROGRAM
301 MISSION STREET
SAN FRANCISCO, CALIFORNIA

REV. NO.	REVISION DESCRIPTION	DATE XX/XX/XX
0	1ST SUBMITTAL	10/05/17

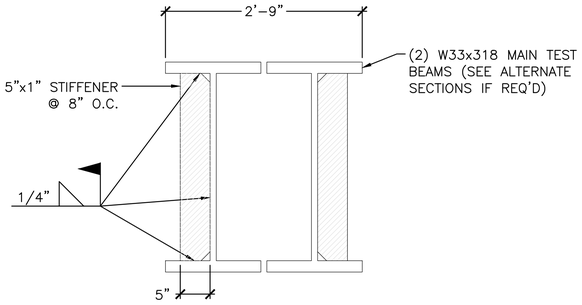
PROJECT NUMBER: 900203
ISSUE DATE: 03/07/18

SHEET NUMBER:
MP-1

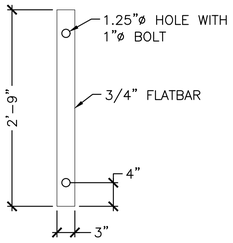
C:\Users\jhurley\Keller\301 Mission St. Project - Documents\II - Calculations-Submittals-Work Plans\II.5 - Work Plans\301 Mission - Mat Connection Load Frame -

TEST BEAM FABRICATION DRAWINGS

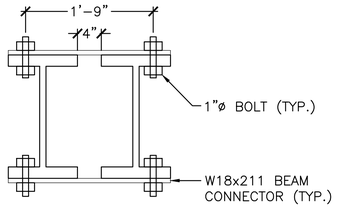
*SEE ALTERNATE STRUCTURAL SCHEDULE BELOW



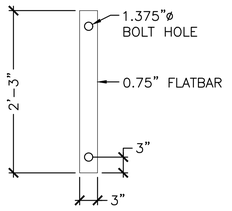
1-MP2 MAIN TEST BEAM - SECTION VIEW
SCALE: 1"=1'



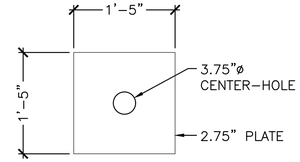
2-MP2 MAIN TEST BEAM CONNECTOR DETAIL
SCALE: 1"=1'



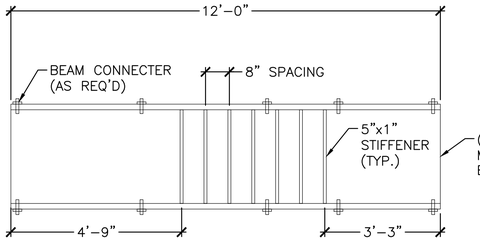
3-MP2 R1 - R4 REACTION BEAMS SECTION VIEW
SCALE: 1"=1'



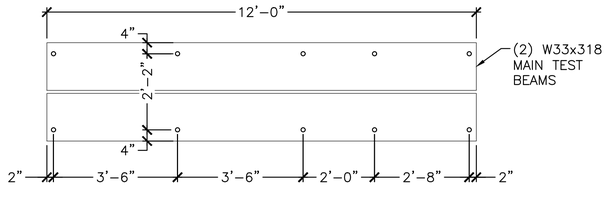
4-MP2 REACTION BEAM CONNECTOR DETAIL
SCALE: 1"=1'



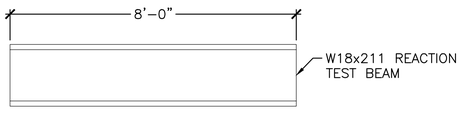
5-MP2 REACTION PILE BEARING PLATE DETAIL
SCALE: 1"=1'



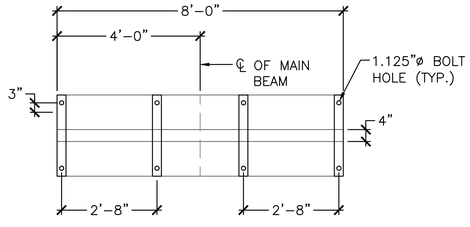
6-MP2 MAIN TEST BEAM - SECTION VIEW
SCALE: 1/2"=1'



7-MP2 MAIN TEST BEAM - PLAN VIEW
SCALE: 1/2"=1'



8-MP2 REACTION TEST BEAM - SECTION VIEW
SCALE: 1/2"=1'



9-MP2 REACTION TEST BEAM - PLAN VIEW
SCALE: 1/2"=1'

ALTERNATE MAIN BEAM STRUCTURAL SCHEDULE

SECTION NAME
W30X326
W33X318
W36X282
W40X277
W44X262

ALTERNATE REACTION BEAM STRUCTURAL SCHEDULE

Section Name
W12X210
W14X193
W18X158
W21X147
W24X131

HAYWARD BAKER JOINT VENTURE
NICHOLSON
101 BROADWAY #213,
OAKLAND, CALIFORNIA
PH: 925-825-5056
FX: 925-825-3037

HBI's drawings have been prepared based upon electronic drawings (as referenced below) provided to HBI for use as background information. The owner or general contractor shall immediately notify HBI of any revisions to the background drawings.

References:

SHEET: **DATE:**

MICROPILE CONNECTION TEST PROGRAM
301 MISSION STREET
SAN FRANCISCO, CALIFORNIA

REV. NO.	REVISION DESCRIPTION	DATE XX/XX/XX
0	1ST SUBMITTAL	10/05/17

PROJECT NUMBER: 900203
ISSUE DATE: 03/07/18

SHEET NUMBER: **MP-2**

REGISTERED PROFESSIONAL ENGINEER
MICHAEL M. EMRAZO
No. 63148
CIVIL
STATE OF CALIFORNIA

Scale = 1":1'
0' 0.5' 1' 2'

Scale = 1/2":1'
0' 1' 2' 4'

C:\Users\hurley\Keller\301 Mission St. Project - Documents\II - Calculations-Submittals-Work Plans\II.5 - Work Plans\301 Mission - Mat Connection Load Frame - MP.dwg, 7/2018