

BOSTON GROUNDWATER TRUST (BGwT)
BOARD MEETING
November 17th, 2016

The Board of Trustees of the Boston Groundwater Trust held its meeting in the Patriots Room at the Lenox Hotel located at 710 Boylston Street. The Executive Director electronically distributed meeting notice and agenda to the City Clerk at Boston City Hall in accordance with the provisions of the Commonwealth of Massachusetts' Open Meeting Law. Mr. Saunders, co-chair, called the meeting to order at 4:06 pm. The following trustees were present:

Mr. Gary Saunders, Boston Back Bay Association
Mr. John Hemenway, Beacon Hill Civic Association
Ms. Janine Commerford, Greater Boston Real Estate Board
Mr. Austin Blackmon, Chief, Office of Environment, Energy, & Open Space
Mr. Peter Shilland, Ellis Neighborhood Association

Also present:

Mr. Christian Simonelli, Executive Director; Ms. Kathryn Bell, Neighborhood Liaison at the Office of Boston City Councilor Josh Zakim; Mr. Chris Erikson, McPhail Associates; Mr. Justin Reddington, Civil Engineering Student Northeastern University

1. Adoption of the minutes of the September 15th, 2016 Meeting

Minutes were previously emailed to Board members for review. Ms. Commerford noted that presentations included in the meeting minutes file are hard to read. She suggested that the whole presentation be attached to the minutes when circulating them and posting them to the Trust website. Discussion followed. Mr. Simonelli will attach a PDF of any presentation made at Board meetings to the minutes going forward. Mr. Blackmon, Trustee, moved to adopt the minutes. Mr. Commerford, Trustee, seconded the motion.

Voted: To accept the minutes of the September 15th, 2016 meeting.

2. 2017 Meeting Dates

Mr. Simonelli reviewed the meeting dates for the 2017 Board meetings. Discussion followed.

3. Financial Report

Mr. Hemenway reviewed the BGWT's financial reports. Discussion followed. Mr. Simonelli noted that the Trust received their annual funding from the City. Discussion followed. The Board reviewed the Trust's annual report from Raphael & Raphael. Discussion followed.

4. Update on LightWell Project

Mr. Simonelli reviewed the update provided by Michelle Laboy of project team LightWell. Discussion followed.

- The LightWell display at Autodesk's South Boston facility is in place. Since the opening of the facility on October 5th, they have given several tours to the public, and the LightWell display has been well received by the attending crowds.
- With Mr. Simonelli's assistance, the LightWell team will be conducting environmental testing of well covers on Friday November 18th. These tests will ensure that the prototype well cover fits into the existing roadway box, is flush with the existing grade, and can securely be attached.
- The LightWell team has been surveying BGWT well caps in several areas to confirm they have developed the right size and type of cover, and to verify whether proposed well location has good visibility. The Team has taken photos of all potential wells and is in the process of labeling the photos with the well ID, mapping them, and developing a semi-final list of wells they would like to use. They will provide Mr. Simonelli with that list for review and comment.
- The LightWell Team is conducting "stress tests" on the battery, programming the controller to read less frequently than in the prototype display (where they have connected power) - and figuring out how many times they can display the readings with one battery charge.
- Caps will have crowd sourcing functionality through Bluetooth to engage the public in data collection, and bring awareness to the groundwater issues. The Lightwell team hopes to leverage cell phones to crowd source the transmission of daily data to the Trust. An app will be developed and available through the app store for download.
- In the future, the LightWell team will begin reaching out to neighborhood groups, the Boston Landmarks Commission and other appropriate agencies. They will work with the Trust and the Mayor's Office of New Urban Mechanics on this.

5. **Presentation by Chris Erikson of McPhail Associates on Underpinning**

Mr. Simonelli introduced Mr. Chris Erikson and noted that Mr. Erikson is member of the Trust's Technical Advisory Committee. Discussion followed. Mr. Erikson provided a presentation to the Board on the following:

- Standard timber pile underpinning
- Optional approaches to underpinning and case studies involving:
 - Broken Piles
 - Helical Piles
 - Grouted Foundation Support
 - Under Designed Timber Piles

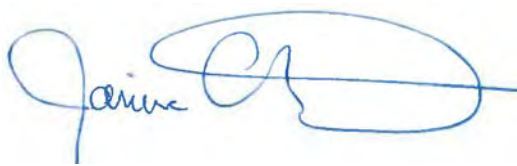
During the presentation Mr. Erikson took questions. Upon completion of the presentation a question and answer session also followed. Refer to the attached presentation for additional details.

6. **Executive Director's Report**

BGwT Executive Director Mr. Christian Simonelli distributed his report. Discussion followed. Refer to the attached *Executive Director's Report: November 17th, 2016* for a complete list of activities.

The meeting adjourned at 5:15 p.m.

NEXT MEETING: January 19th, 2017 @ 4:00 pm at the Lenox Hotel.
Notes submitted by Christian Simonelli, BGwT Executive Director, on 11/28/2016.



Approved 12/6/16 J Commerford, Secretary

EXECUTIVE DIRECTOR'S REPORT
November 17th, 2016

1. **Readings** – We are in the middle of our 9th and final set of readings of the year. For comparison we had only 5 sets in all of 2015.
2. **Meetings** –
 - a. I was interviewed by Fred Thys of WBUR radio about the current drought and its potential effects on woodpiles (9/22). The article and audio is up on our website under the News Items tab.
 - b. I met with Back Bay resident David Zucker (9/28) and provided additional information about the groundwater issue. Mr. Zucker attended our September Board meeting.
 - c. I met with Boston University student Grace Gulino (9/29) and provided information about the groundwater issue for a paper she was writing.
 - d. I attended the scoping session for the 2 Charlesgate West project (9/26).
 - e. I filed comment letters for the 2 Charlesgate West project and GE Headquarters.
 - f. I attended the rebranding of the Boston Redevelopment Authority (BRA) to the Boston Planning and Development Agency (BPDA) at City Hall (9/27).
 - g. I attended the launch of the LightWell project display (10/5) at the AutoDesk facility grand opening in the Innovation District.
 - h. I presented to the Inspectional Services Department Commissioner Christopher, building inspectors, and various staff. (11/16) The presentation focused on the work of the Trust, GCOD, and the importance building inspectors role in GCOD.
 - i. I spoke & met with residents & developers throughout the GCOD to discuss ZBA procedures and advised them on what they need to provide us to satisfy the zoning.
3. **MBTA** - Approximately 46.5 gpm is being injected into recharge wells in the area. In addition to our manual monitoring we have 4 wells in the area with dataloggers recording a water level every 60 min. Levels in the Appleton & Tremont Streets area are lower than what was projected. BWSC has relined a sewer at the corner of Appleton & Tremont Streets which did show some minor infiltration. So far we haven't seen a bump in groundwater levels. I coordinated with GZA and Public Works on repairing of manholes on Berkley Street in the South End that were damaged by sidewalk resurfacing and street paving.
4. **DCR** – The Storrow Drive Tunnel pump station system is operating as anticipated. Discharges in both pumps to the east and west have equal run times and are showing no anomalies. The low levels to the west of Berkeley Street along the Back Street have come back up and are stable. DCR coordinated with BWSC, inspected the infrastructure, and found no issues. I am not sure what caused the drop. I have installed 3 dataloggers in the wells that dropped to see if this occurs again. Internally within the next 6 months the DCR will look at underpass repairs

and start to form a plan for what's next. Recharge will be part of the plan and will be looked for possible upgrade.

5. **BWSC** – An update of the following:
 - a. Manholes, the west side interceptor, regulator, and tide gate along Fairfield Street by Beacon Street were all inspected but no infiltration seen. Back Street manholes were also inspected and there may be some infiltration. BWSC is actively inspecting their low infrastructure in the area. Dye tracer tests are being conducted in our wells.
 - b. Site visit of 330 Beacon Street was conducted on (10/6) with the Trust and ISD. 2 sumps were discovered in the parking garage and basement. According to the building manger these sumps are used as oil/water separator systems for the garage. BWSC will return to conduct dye tests in adjacent observation wells to see if any dye shows up in the sumps.
 - c. Entry into the North End buildings along Commercial Street is being coordinated with ISD. BWSC will accompany ISD personnel to inspect buildings and check for sump pumps.
 - d. A TV inspection of pipe along Richmond Street initially revealed what appeared to be a leak by the low well (25L-1586). However, additional TV inspection at the corner of Richmond and Commercial revealed no infiltration. BWSC will continue to investigate. Pipe in question is at a low level elevation.
 - e. Along Clarendon, Gray, & Appleton Streets there were no signs of infiltration. CCTV inspection is scheduled.
 - f. In the Stuart Street area between Berkeley and Dartmouth Streets steam lines are causing an issue for inspections. BWSC is coordinating with Veolia to help in accessing lines.
6. **MWRA** - Inspected the Boston Marginal Conduit (BMC) (approx. 4,000ft.) at the beginning of September. Minor signs of infiltration at four spots were discovered during the inspection. Those four spots will be repaired.
7. **MassDOT** - Additional inspection and repairs of the 30” portion of the Prudential Tunnel drain line is scheduled for after Thanksgiving. So far wells in the area have shown a slight increase in response to the previous repairs that were made last January.
8. **Veolia Energy** - Two current projects proposed in the Back Bay may use their condensate for ground water recharge. The concept has been well received by the projects.
9. **Opportunity for Trustee Site Visit** – I have arraigned for those Trustees who are interested to observe test pit work and pile installation work on an upcoming project in the South End at the beginning of December.
10. **Website** - I have posted articles and interviews about the recent drought and its potential effect on wood piles to our website. The most recent items are posted under the “*Latest News*” tab on our homepage. As always, I would appreciate any feedback you may have.
11. **Vacation** – I’ll be on Vacation the week of Thanksgiving and the last two weeks in December. I’ll be checking email and the office phone for correspondence.

BOSTON GROUNDWATER TRUST PRESENTATION

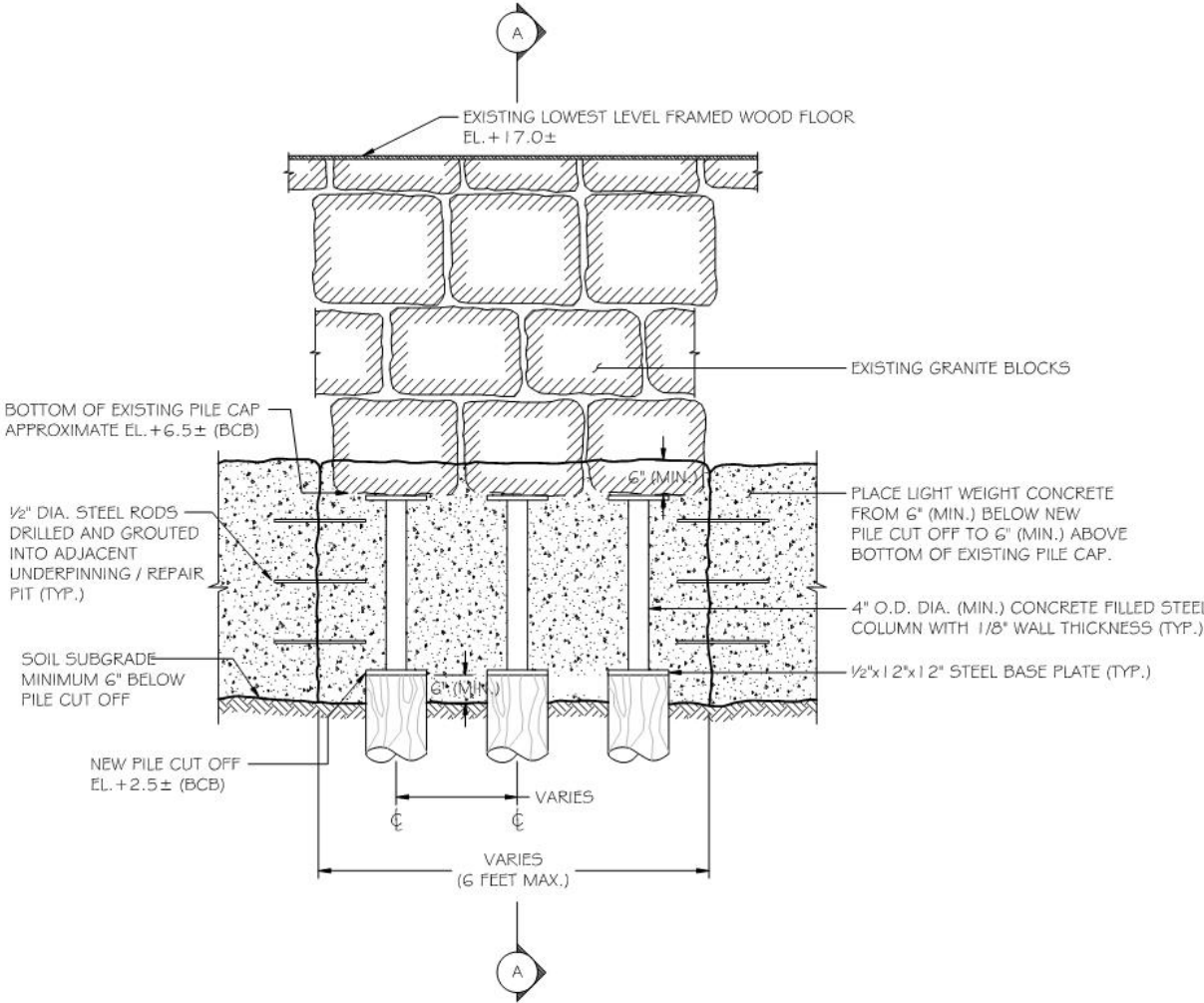
Chris M. Erikson, P.E.

McPhail Associates, LLC

November 17, 2016

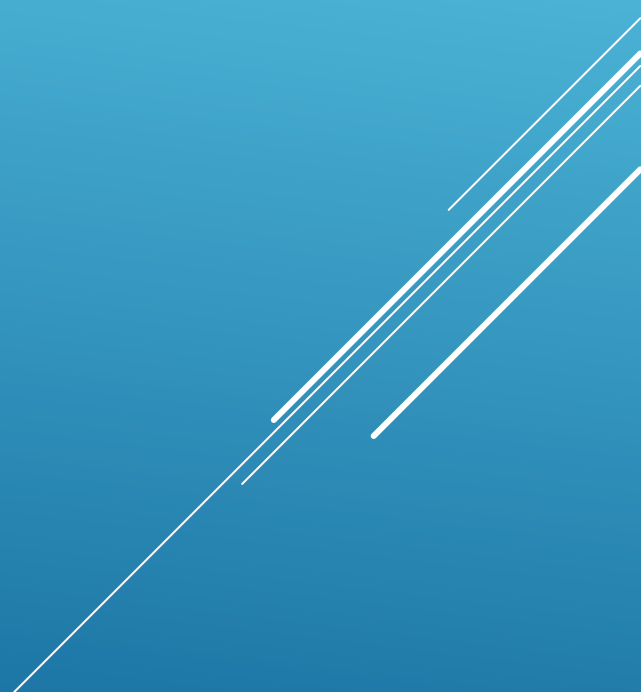
- “Standard” Timber Pile Underpinning
 - Optional Approaches/Case Studies
 - Broken Piles
 - Helical Piles
 - Grouted Foundation Support
 - Under Designed Timber Piles
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- A decorative graphic consisting of several parallel white lines of varying lengths and orientations, located in the bottom right corner of the slide.

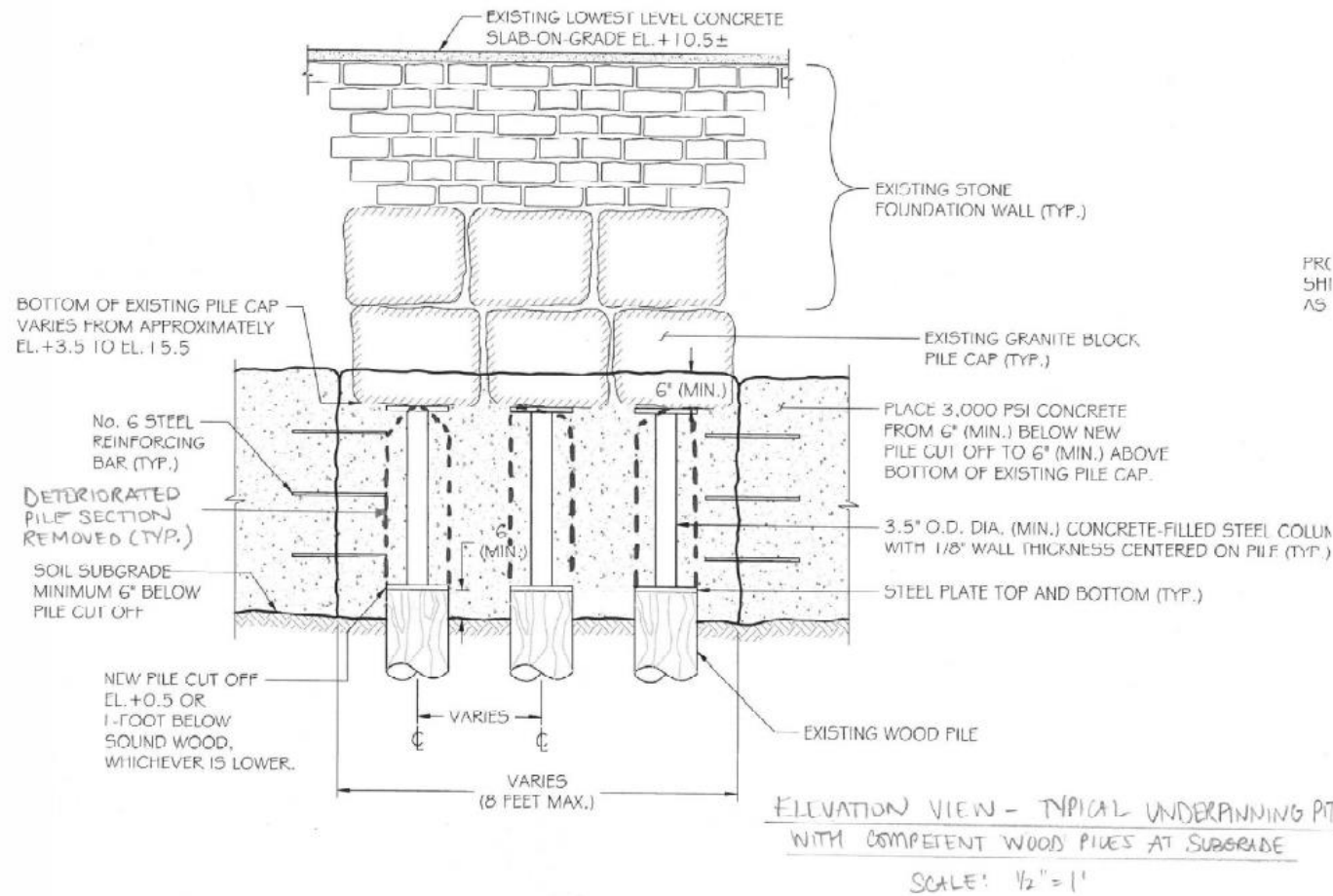
TYPICAL UNDERPINNING DETAIL

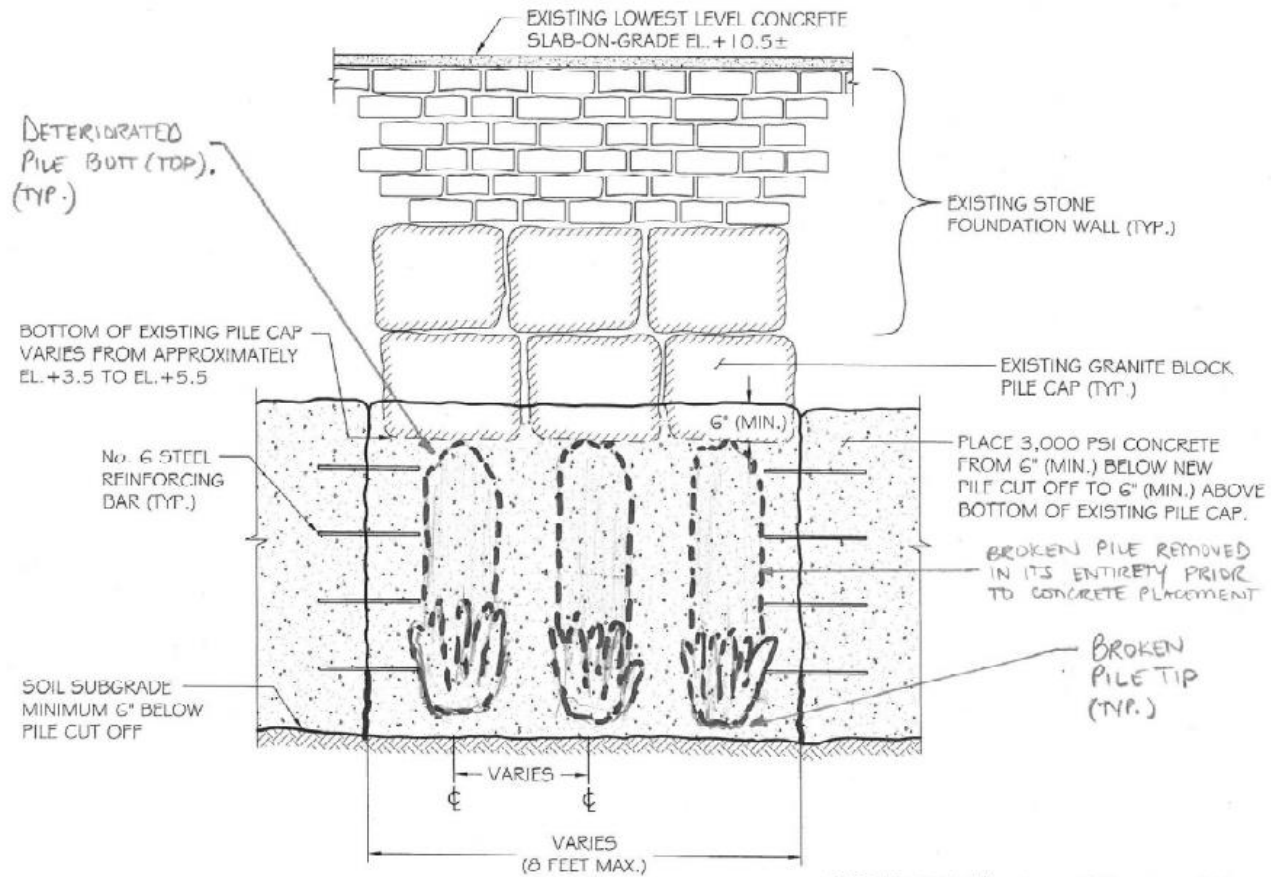


TYPICAL ELEVATION VIEW
N.T.S.





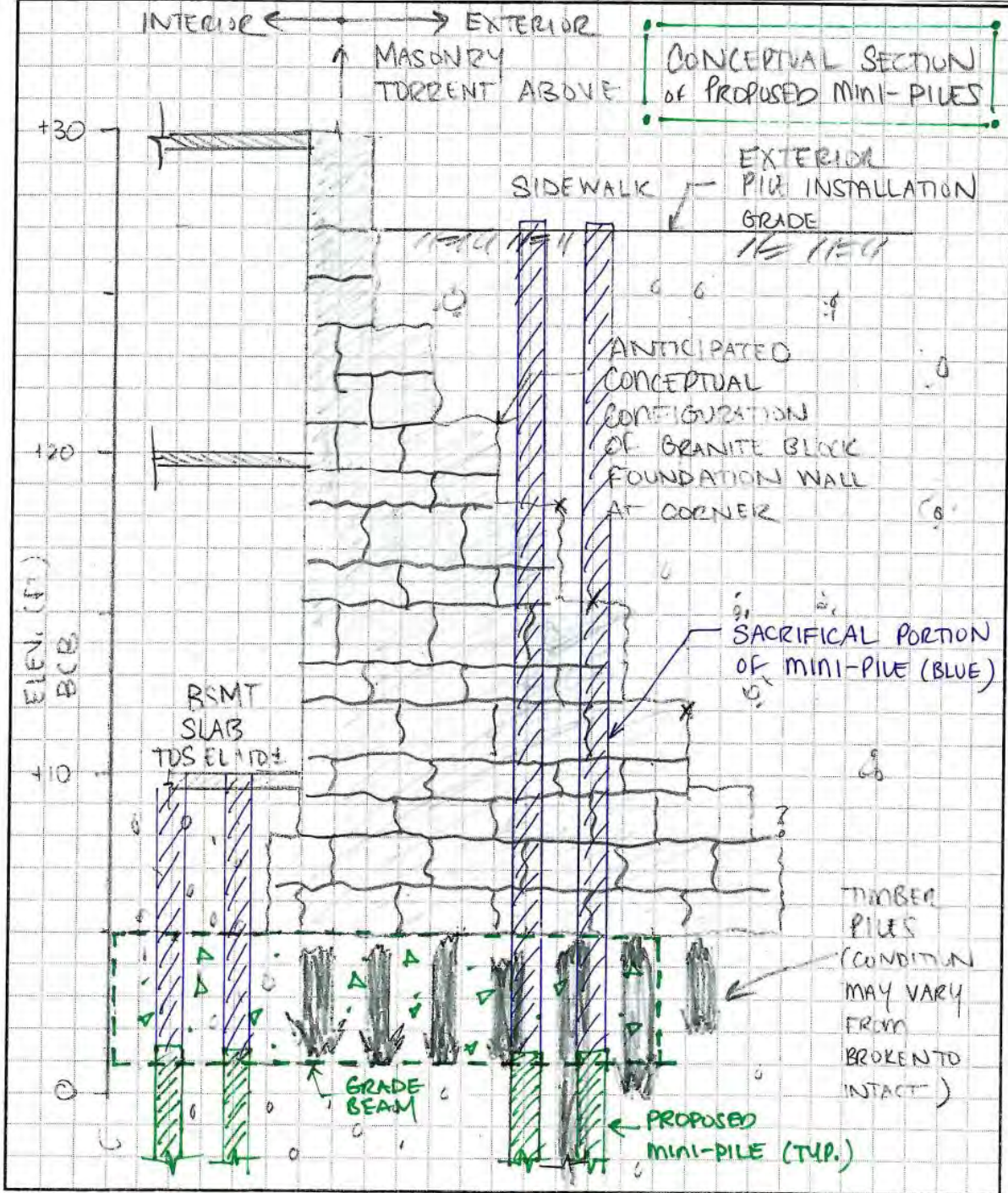


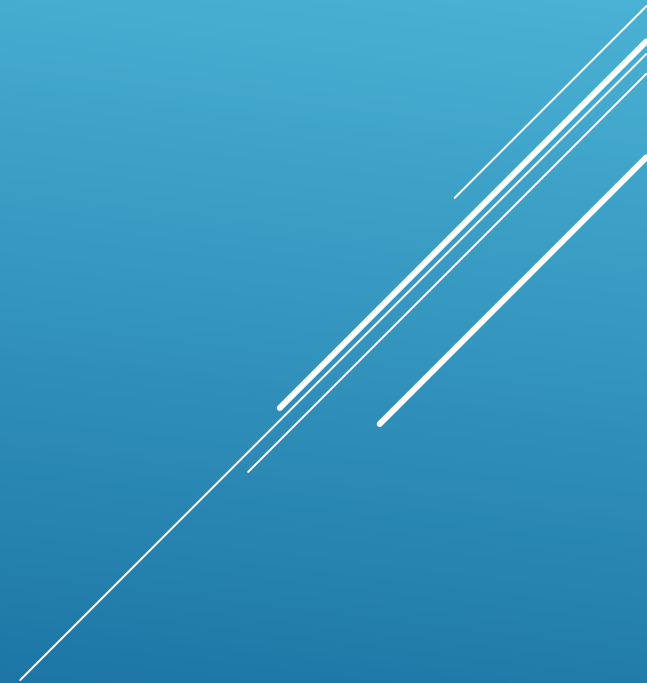


ELEVATION VIEW - TYPICAL UNDERPINNING PIT
WITH BROKEN PILES PRESENT
SCALE: 1/2" = 1'







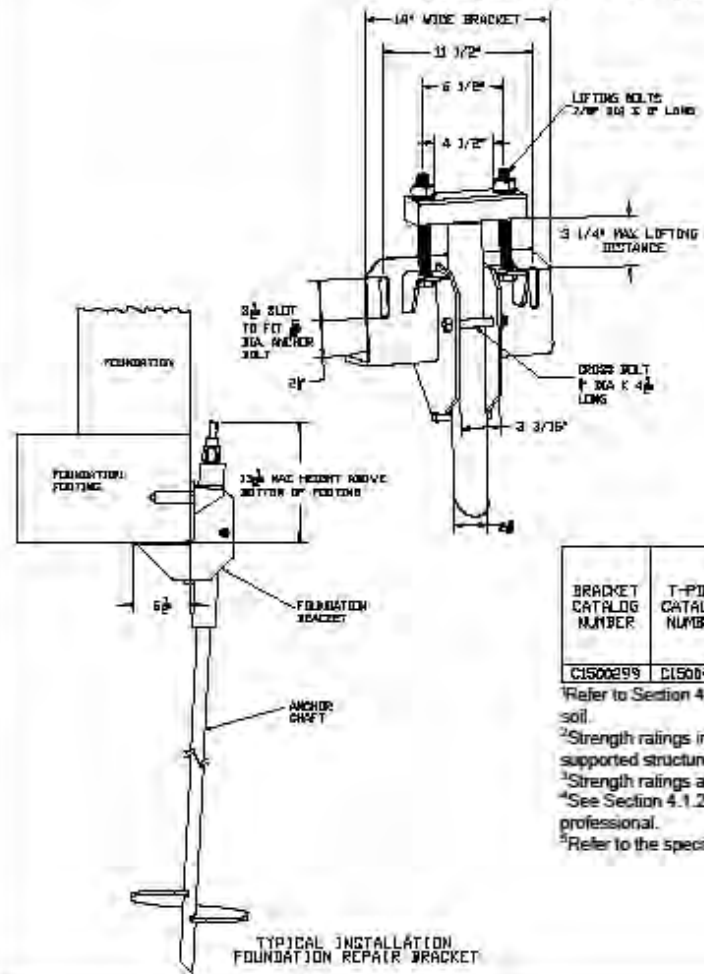




Helical Piles



STANDARD UNDERPINNING BRACKET AND T-PIPE
FOR CHANGE TYPE SS175 HELICAL PILES



-NOTES-

1. HOT DIP GALVANIZE PER ASTM A153-LATEST REVISION.
2. ASSEMBLE COMPLETE AS SHOWN IN SIDE VIEW.
3. THE NUTS ON THE LIFTING BOLTS AND CROSS BOLTS MUST BE TIGHTENED TO ACHIEVE A SNUG-TIGHT CONDITION AS DEFINED IN SECTION 3.3 OF AISI 360-85; AS A MINIMUM, NUTS MUST BE TIGHTENED 1/4 TURN BEYOND HAND TIGHT CONDITION. DO NOT EXCEED 165 FT-LB OF TORQUE ON LIFTING BOLTS DURING STABILIZATION OR LOAD LOCK OFF.
4. RECOMMENDED ANCHOR SHAFT CUTOFF LEVEL ABOVE THE BOTTOM OF THE FOOTING IS 10" TO 11" FOR MAXIMUM LIFT DISTANCE.
5. FOR DETAILED INSTALLATION INSTRUCTIONS, READ CHANGE BULLETIN 01-590E.
6. MATERIAL SPECIFICATIONS:
BRACKET BODY : PER ASTM A36 AND ASTM A570 GR. 50.
T-PIPE TUBE : HOT ROLLED MECHANICAL TUBING PER ASTM A500.
LIFTING BOLTS : HEX HEAD BOLT PER ASTM A325, TYPE 1.
CROSS BOLT : HEX HEAD BOLT PER ASTM A325, TYPE 1.
7. SEE ICC-ES EVALUATION SERVICE, INC., EVALUATION REPORT NO. ESR-2794 FOR STRENGTH VALUES AND/OR CONDITIONS OF USE CONCERNING INFORMATION PRESENTED ON THIS DRAWING.

BRACKET CATALOG NUMBER	T-PIPE CATALOG NUMBER	PILE MODEL	ASD ALLOWABLE STRENGTH IN AXIAL COMPRESSION (kips) ^{1,2,3,4}					
			2500 PSI CONCRETE ⁵		3000 PSI CONCRETE ⁵		4000 PSI CONCRETE ⁵	
			FIRM SOIL	SOFT SOIL	FIRM SOIL	SOFT SOIL	FIRM SOIL	SOFT SOIL
C1500299	C1500400	SS175	36.8	27.7	41.7	30.2	49.5	30.2

¹Refer to Section 4.1.3 of ESR-2794 for descriptions of fixed condition, pinned condition, soft soil and firm soil.
²Strength ratings include an allowance for corrosion over a 50-year service life and presume the supported structure is braced in accordance with IBC Section 1808.2.5.
³Strength ratings apply to the specific bracket, T-pipe and anchor/pile models listed.
⁴See Section 4.1.2 of ESR-2794 for applicable limit states that must be evaluated by a registered design professional.
⁵Refer to the specified compressive strength of concrete at 28 days.

ICC-ES LISTED

ESR-2794

BRACKET, STANDARD UNDERPINNING BRACKET

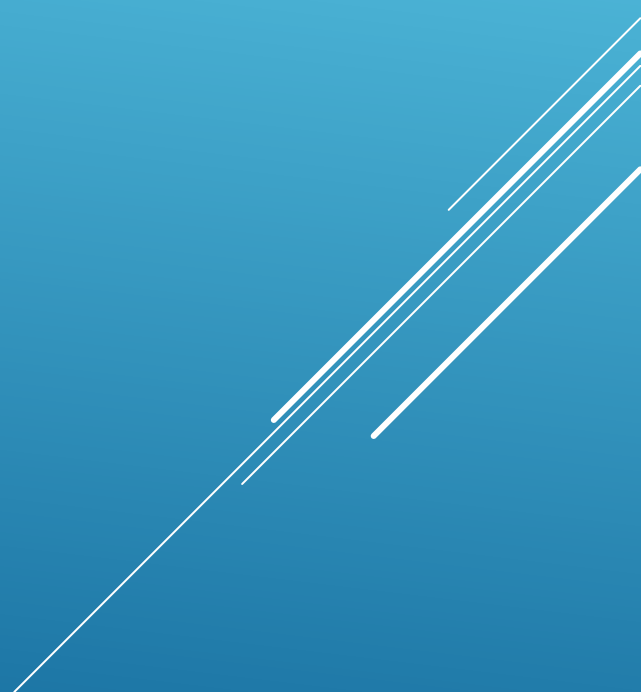
REV. 7 FROM 2011 REV. C 2018-0229H 2/2018-0229H

TYPICAL INSTALLATION FOUNDATION REPAIR BRACKET



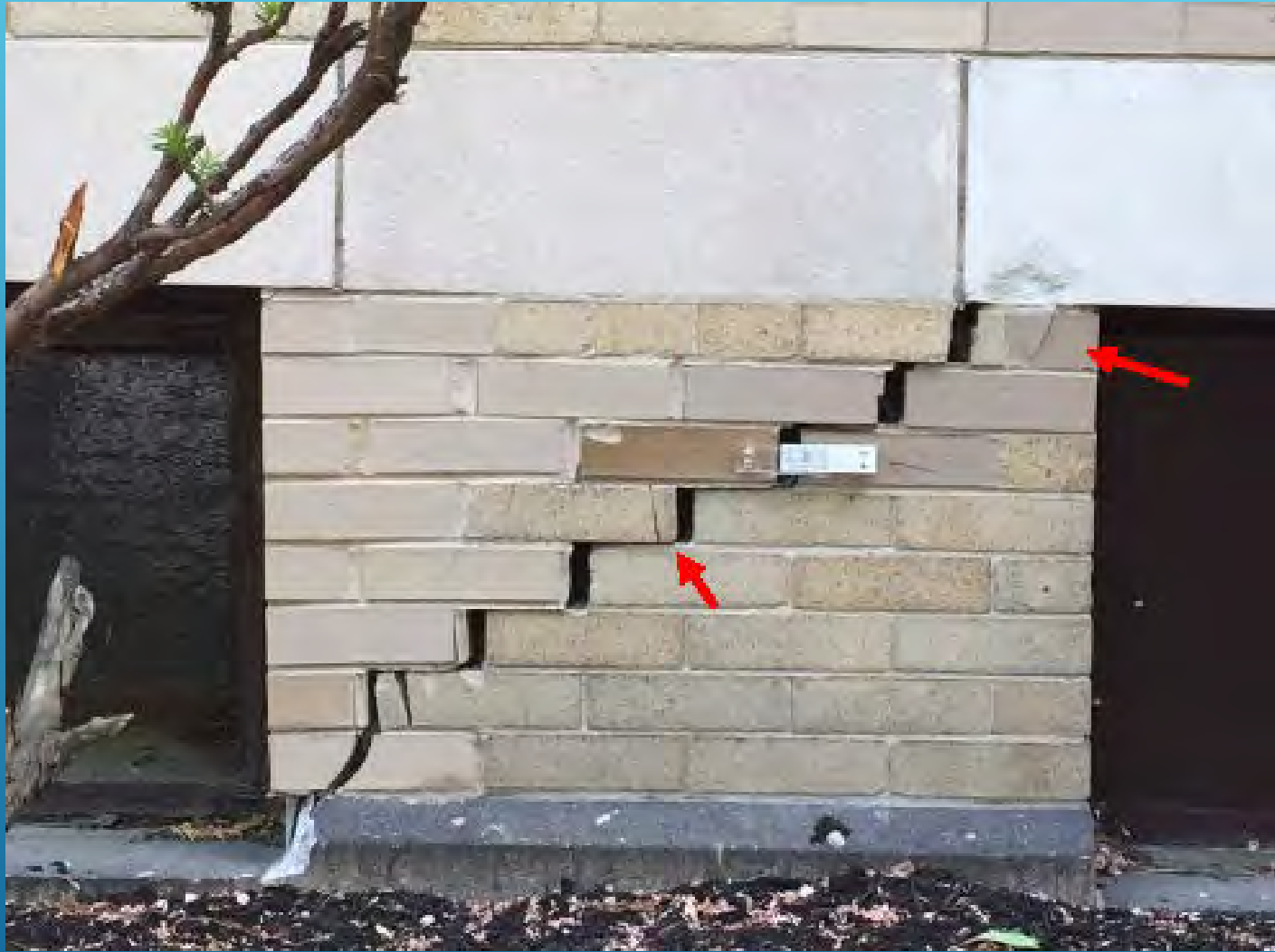


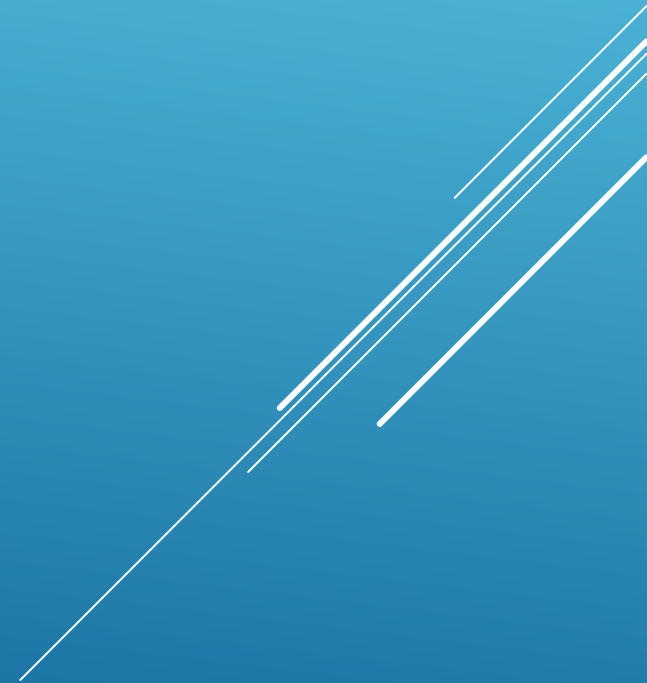


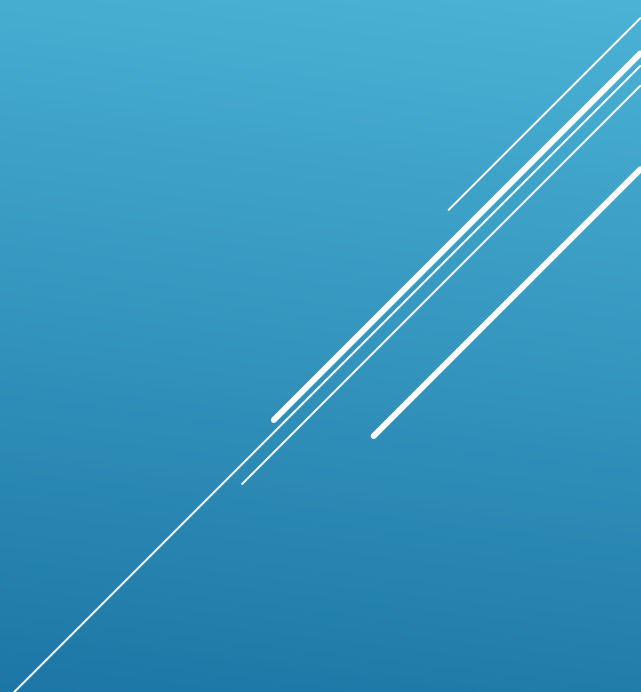
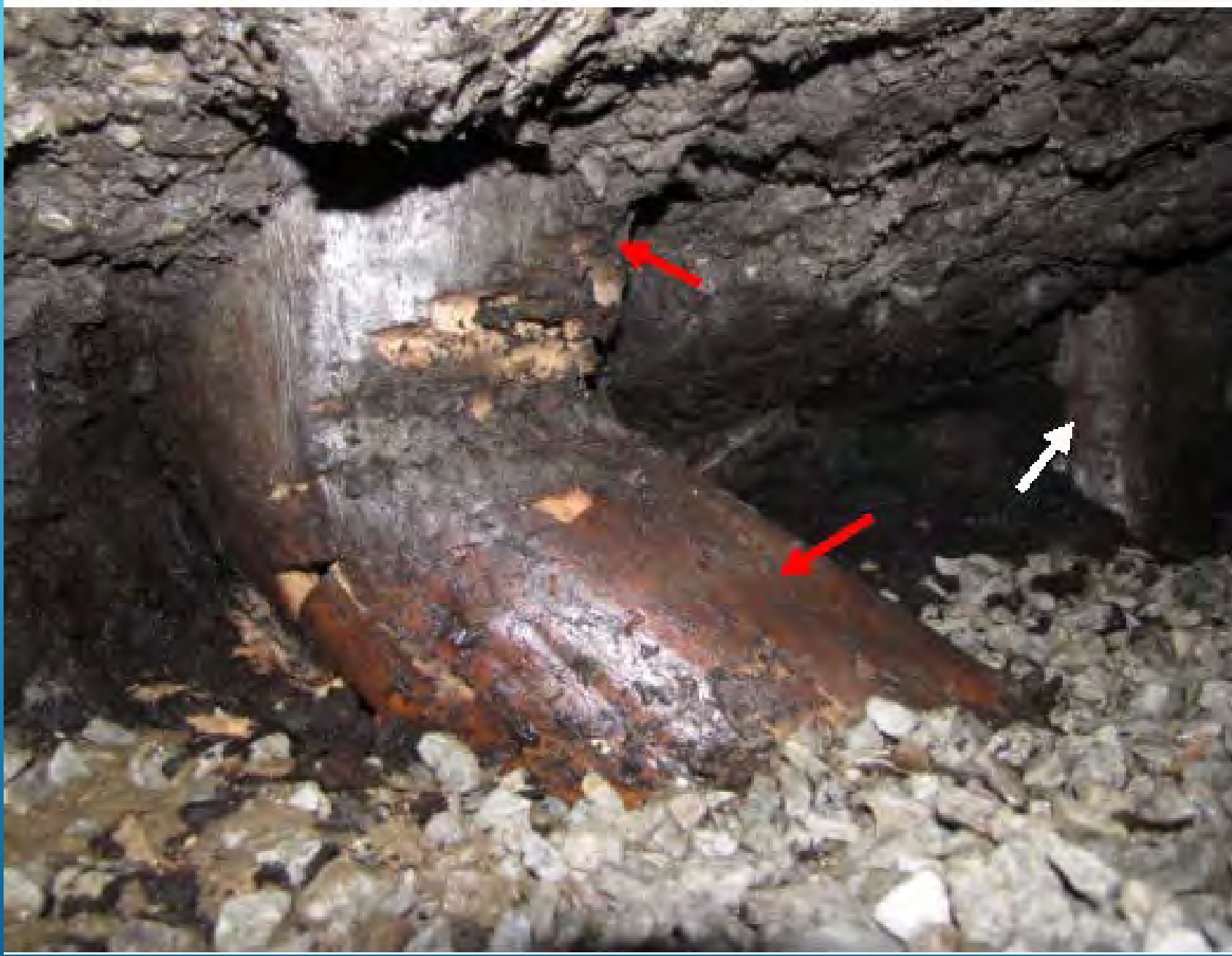




Under Designed Piles

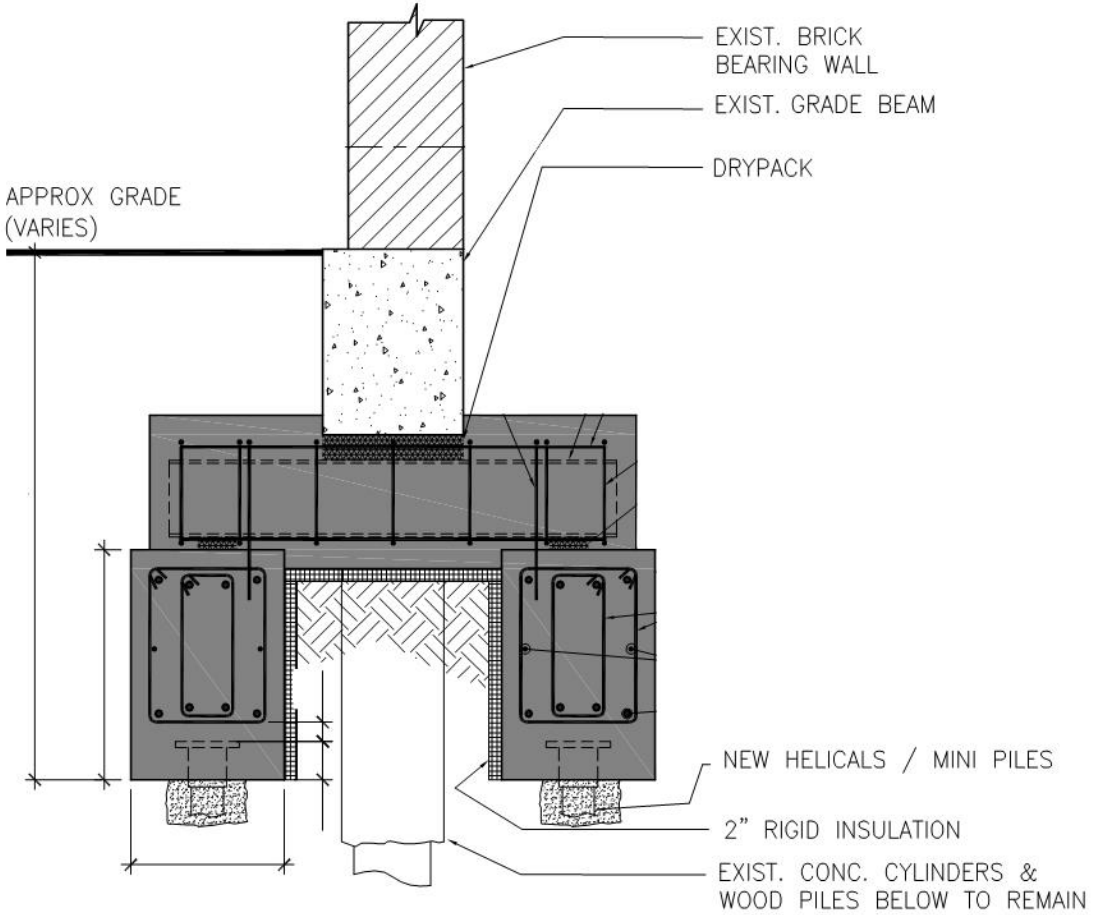






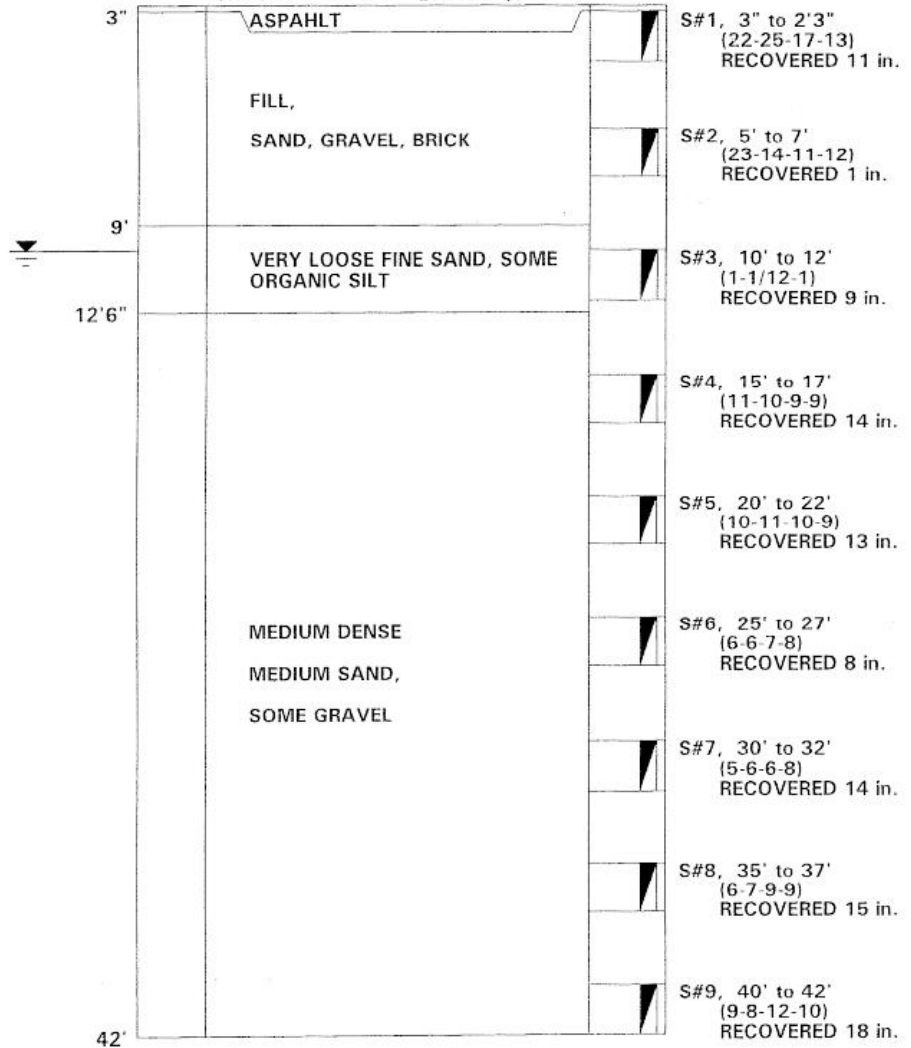


ALTERNATE FOUNDATION REPAIR OPTION



BORING 1

GROUND SURFACE EL+19.2

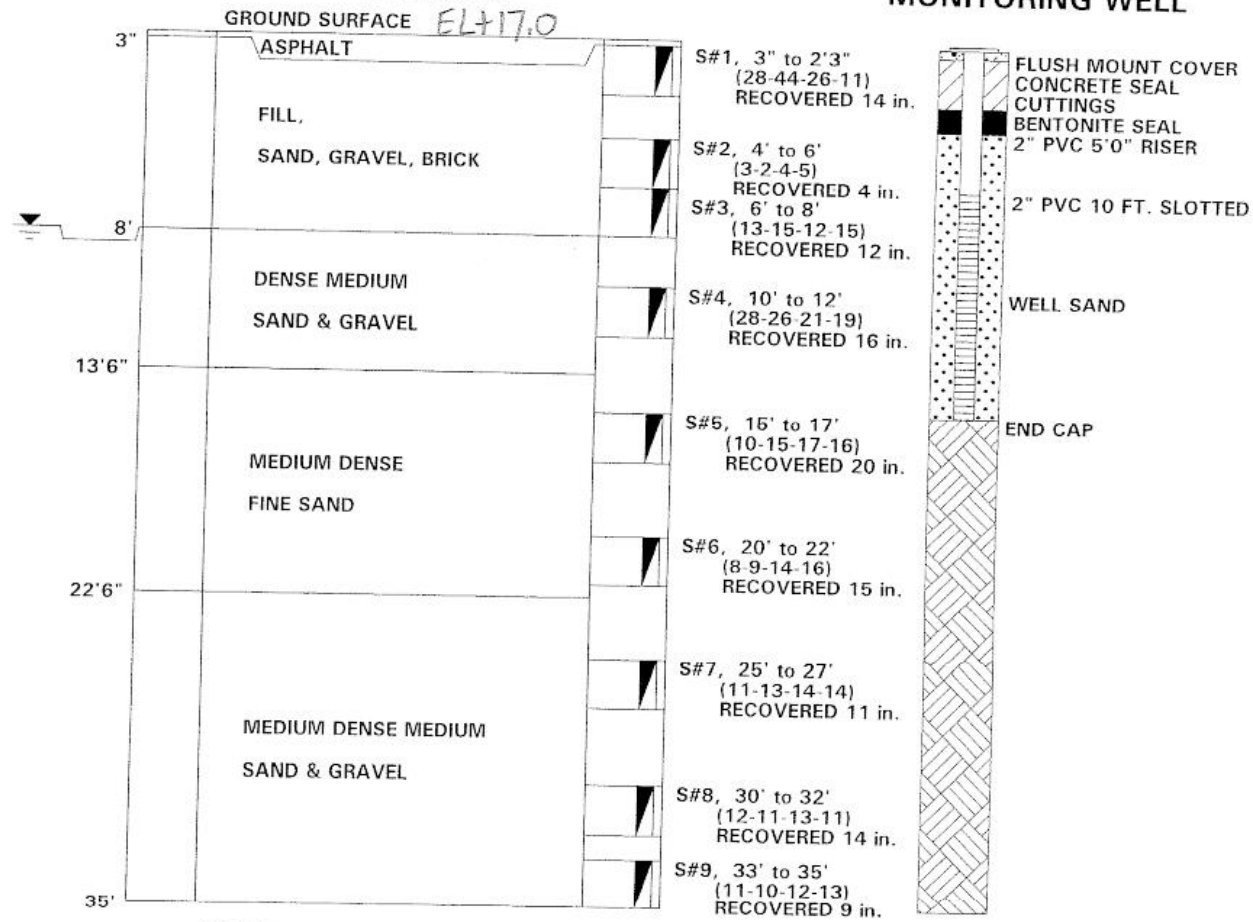


WATER LEVEL 10'
SIZE OF CASING: NW, LENGTH: 40'0"
DRILLER: JOSEPH DESIMONE, INSPECTOR: JENNIFER RAUCH
DATE STARTED & COMPLETED 11-10-2004

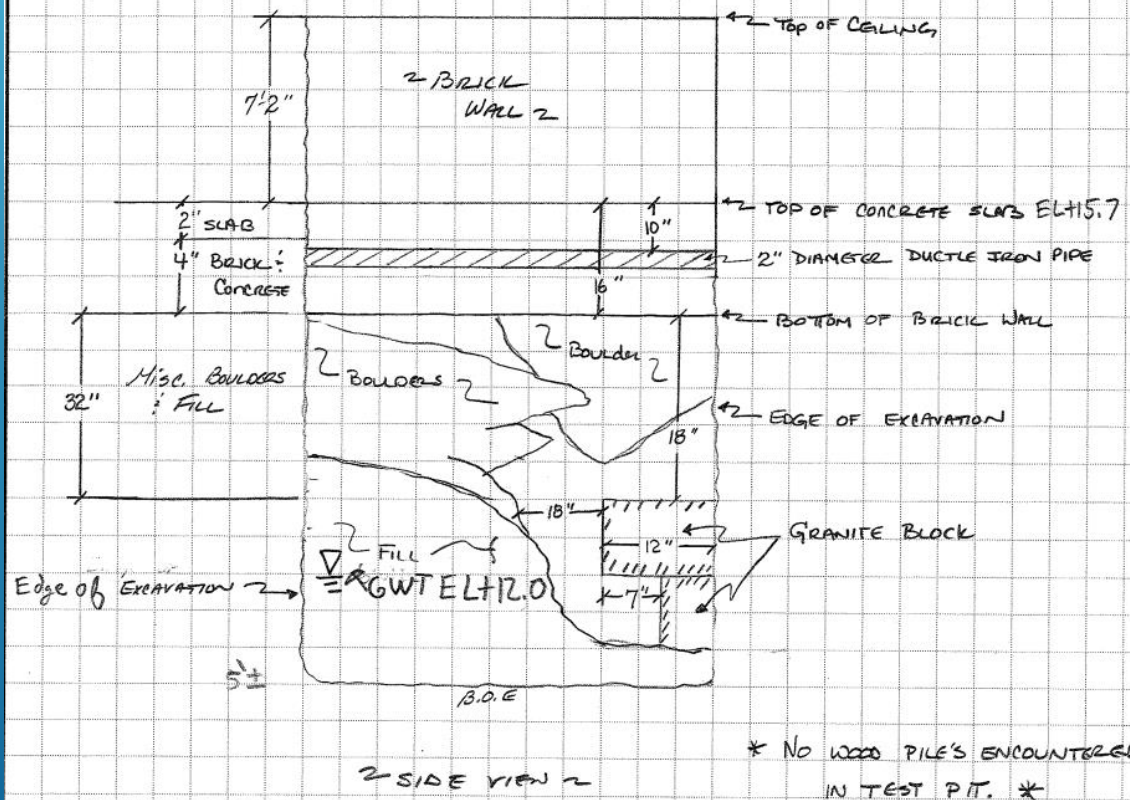
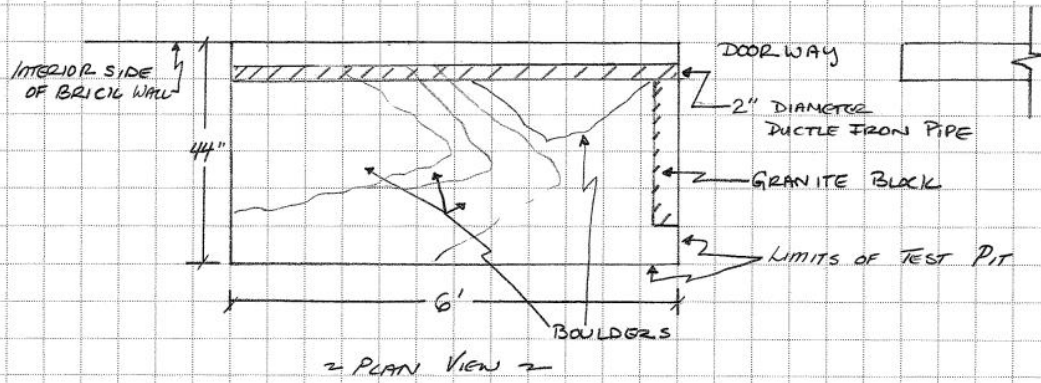
Grouted Support

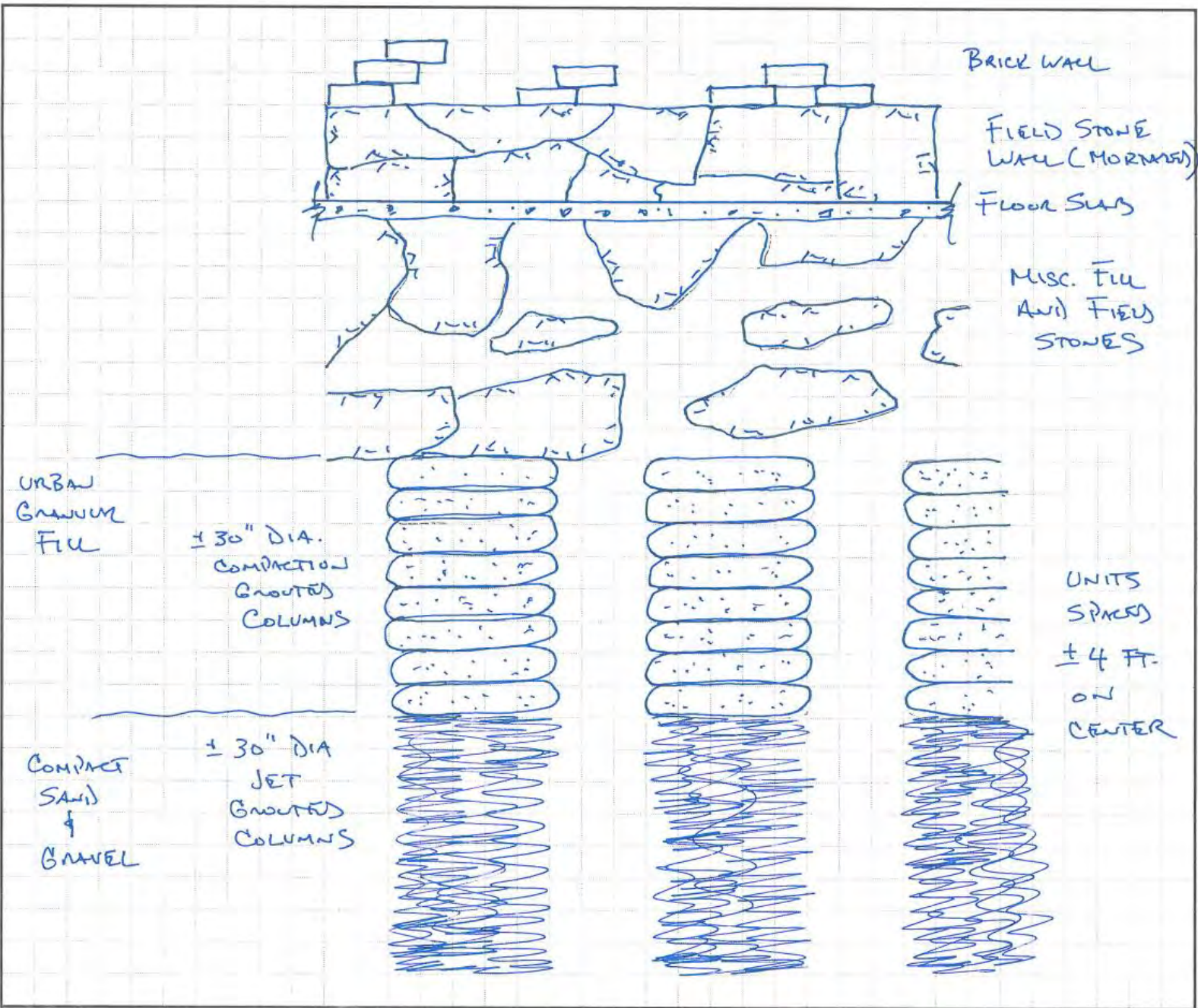
BORING 2

MONITORING WELL



WATER LEVEL 8'
 SIZE OF CASING: NW, LENGTH: 35'0"
 DRILLER: JOSEPH DESIMONE, INSPECTOR: JENNIFER RAUCH
 DATE STARTED & COMPLETED 11-10-2004





MCPHAIL ASSOCIATES, LLC
 Consulting Geotechnical Engineers
 2269 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02140

JOB _____ OF _____
 SHEET NO. _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE _____

