Construction Contracts Administration, Procurement Contracts & Materials Management (PCMM)
Oregon State University
644 SW 13th Ave.
Corvallis, Oregon 97333

P 541-737-3401
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4/29/2019

Oregon State University
Construction Contract Administration
ITB 198995 – OSU SOFTBALL FIELD CONVERSION

ADDENDUM NO. 1

THIS ADDENDUM IS BEING ISSUED for clarification and/or revisions of the Solicitation Documents as noted. This document is hereby made a part of the Solicitation Documents to the extent as though it was originally included therein.

ITEM NO. 1 The Bid Due Date/Time has been changed to Tuesday, May 7, 2019 at 2:00 PM Pacific Time

ITEM NO. 2 Included with this addendum are the following:

- ATTACHMENT A – REVISED BID FORM with new Due Date/Time
- ATTACHMENT B - Sign-In sheets from the 4/26/2019 Pre-Bid Conference
- ATTACHMENT C – Questions asked and OSU Responses
- ATTACHMENT D – Changes to the Specifications as provided by DA Hogan (dated 4/29/2019)
- ATTACHMENT E – Revised Sheets F-1.4 and F-2.4

END OF ADDENDUM NO. 1

ATTACHMENT A

OREGON STATE UNIVERSITY

REVISED BID FORM – ADDENDUM 1

PROJECT: OSU SOFTBALL FIELD CONVERSION

BID DUE DATE/TIME: MAY 7, 2019 AT 2:00 PM PACIFIC TIME

FROM: _____
Name of Contractor

TO: Oregon State University ("Owner")
Construction Contract Administration
3015 SW Western Blvd.
Corvallis, Oregon 97333

1. The Undersigned (*check one of the following and insert information requested*):

____a. An individual doing business under an assumed name registered under the laws of the State of _____; or

____b. A partnership registered under the laws of the State of _____; or

____c. A corporation organized under the laws of the State of _____; or

____d. A limited liability corporation/company organized under the laws of the State of _____;

hereby proposes to furnish all material and labor and perform all work hereinafter indicated for the above project in strict accordance with the Contract Documents for the Base Bid as follows:

_____ Dollars ($_____)

and the Undersigned agrees to be bound by the following documents:

- Notice of Opportunity
- Supplemental Instructions to Bidders
- Performance Bond and Payment Bond
- Supplemental OSU General Conditions
- Prevailing Wage Rates
- Plans and Specifications
- Instructions to Bidders
- Sample Contract
- OSU General Conditions
- Payroll and Certified Statement Form
- Drawings and Details

- ADDENDA numbered ____ through____, inclusive *(fill in blanks)*

2. The Undersigned proposes to add to or deduct from the Base Bid indicated above the items of work relating to the following Alternate(s) as designated in the Specifications:

ALTERNATE 1: Add alternating green ("mow pattern") synthetic turf panels as shown and described. Green 1 will be a 1:1 blend of Field Green and Lime Green Athletic Yarns spun from the approved fiber. Green 2 will be entirely Field Green Athletic Yarn spun from the approved fiber.

ADD/DEDUCT: $_____

_____

ALTERNATE 2: Add a Synthetic Turf Graphics Package in the form of a central logo to be installed as shown and described, and as approved in the field by the Architect at the time of installation. Vectorized Art will be provided to the Contractor by the Architect prior to the Contractors production of shop drawings. fiber.

ADD/DEDUCT: $_____

ALTERNATE 3: Add a Synthetic Turf Graphics Package in the form of large foul territory lettering, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time of installation.

ADD/DEDUCT: $_____

ALTERNATE 4: Add a Synthetic Turf Graphics Package in the form of a smaller version foul territory lettering described in Alternate 3, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time of installation.

ADD/DEDUCT: $_____

3. The work shall be completed within the time stipulated and specified in Division 1, Section 01 11 00, of the Specifications.

4. The Undersigned certifies that: (1) This Bid has been arrived at independently and is being submitted without collusion with and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment or services described in the invitation to bid designed to limit independent bidding or competition; and (2) The contents of the Bid have not been communicated by the Undersigned or its employees or agents to any person not an employee or agent of the Undersigned or its surety on any Bond furnished with the Bid and will not be communicated to such person prior to the official opening of the Bid.

5. The undersigned **HAS, HAS NOT** (*circle applicable status*) paid unemployment or income taxes in Oregon within the past 12 months and **HAS, HAS NOT** (*circle applicable status*) a business address in Oregon.

6. The Undersigned agrees, if awarded a contract, to comply with the provisions of ORS 279C.800 through 279C.870 pertaining to the payment of the prevailing rates of wage.

7. Contractor's CCB registration number is _____. As a condition to submitting a bid, a Contractor must be registered with the Oregon Construction Contractors Board in accordance with ORS 701.035 to 701.055, and disclose the registration number. Failure to register and disclose the number will render the bid unresponsive and it will be rejected, unless contrary to federal law.

8. The successful Bidder hereby certifies that all subcontractors who will perform construction work as described in ORS 701.005(2) were registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time the subcontractor(s) made a bid to work under the Contract.

9. The successful Bidder hereby certifies that, in compliance with the Worker's Compensation Law of the State of Oregon, its Worker's Compensation Insurance provider is _____,

Policy No. _____, and that Contractor shall submit Certificates of Insurance as required.

10. Contractor's Project Manager for this project is: _____,
Office Phone: _____ Cell Phone: _____.

11. The Undersigned certifies that it has not discriminated against minority, women, or emerging small businesses in obtaining any subcontracts for this project.

12. The Undersigned agrees, if awarded the Contract, to execute and deliver to Owner, within twenty (20) calendar days after receiving the Contract Documents, an Agreement Form and a satisfactory Performance Bond and Payment Bond, each in an amount equal to one hundred (100) percent of the Contract sum, using forms provided by the Owner. The surety requested to issue the Performance Bond and Payment Bond will be: _____.
(name of surety company - not insurance agency) The Undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the Undersigned's ability to supply a Performance Bond and Payment Bond each in the amount of the Contract.

By signature below, Contractor agrees to be bound by this Bid.

NAME OF FIRM _____

ADDRESS _____

_____

FEDERAL TAX ID _____

TELEPHONE NO _____

FAX NO _____

SIGNATURE 1) _____
Sole Individual - Signature

_____
Sole Individual - Printed Name

or 2) _____
Partner

or 3) _____
Authorized Officer of Corporation - Signature

_____
Authorized Officer of Corporation Printed Name

(SEAL)

_____
Attested: Secretary of Corporation

Payment information will be reported to the IRS under the name and taxpayer ID # provided above. Information not matching IRS records could subject Contractor to 31 percent backup withholding.

***** END OF BID *****

ATTACHMENT B

Mandatory Pre-Bid Meeting Attendee List
Project: OSU SOFTBALL FIELD CONVERSION
Project Manager: RICK FREEMAN
Date: THURSDAY, APRIL 26, 2019 AT 1:00 PM

Oregon State University

Company	OREGON STATE UNIVERSITY	Email	Rick.freeman@oregonstate.edu	Prime ☐	Sub ☐
Name	RICK FREEMAN	Phone		Supplier ☐	Other ☐
Company	OREGON STATE UNIVERSITY	Email	matt.hausman@oregonstate.edu	Prime ☐	Sub ☐
Name	MATT HAUSMAN	Phone	541-737-3401	Supplier ☐	Other ☐
Company	DA Hogan	Email	ericg@dahogan.com	Prime ☐	Sub ☐
Name	Eric Gold	Phone		Supplier ☐	Other ☐
Company	Eagle Mountain	Email	chiphagle@eaglemountainexcavating.com	Prime ☐	Sub ☐
Name	Chip Hagle	Phone	971 400 6941	Supplier ☐	Other ☐
Company	North Santiam Paving	Email	caseyb@nspor.com	Prime ☐ ✓	Sub ☐
Name	Casey Boehsler	Phone	503-769-3436	Supplier ☐	Other ☐
Company	Knife River	Email	jason.chamberlain@kniferiver.com	Prime ☐	Sub ☐
Name	Jason Chamberlain	Phone	541-918-5123	Supplier ☐	Other ☐
Company	Turney Excavating	Email	Martin@turneyexcavating.com	Prime ☐	Sub ☐
Name	Bob Turney	Phone	503-307 7522	Supplier ☐	Other ☐
Company	~~Kevin Brown~~ Bernhardt Golf	Email	kevin@bernhardtgolf.com	Prime ☐	Sub ☐
Name	Kevin Brown	Phone	360-606-5649	Supplier ☐	Other ☐
Company	DARRYL BERNHARDT	Email	darryl@bernhardtgolf.com	Prime ☐ X	Sub ☐
Name	BERNHARDT GOLF	Phone	503-649-3535	Supplier ☐	Other ☐

Mandatory Pre-Bid Meeting Attendee List
Project: OSU SOFTBALL FIELD CONVERSION
Project Manager: RICK FREEMAN
Date: THURSDAY, APRIL 26, 2019 AT 1:00 PM

Oregon State University

Company	BENCHMARK CONTRACTING	Email	kelly@benchmark-pdx.com	Prime ☑	Sub ☐
Name	KELLY FITZPATRICK	Phone	(503) 780-9760	Supplier ☐	Other ☐
Company	GBC CONSTRUCTION	Email	cody@gbcconstruct.com	Prime ☒	Sub ☐
Name	CODY TIMMINS	Phone	541 752-0381	Supplier ☐	Other ☐
Company	Andersen Const	Email	msherman@andersen-const.com	Prime ☑	Sub ☐
Name	Matt Sherman	Phone	503-969-7025	Supplier ☐	Other ☐
Company	Fieldturf	Email	noah.speer@fieldturf.com	Prime ☐	Sub ☐
Name	NOAH Speer	Phone	(503) 710-T895	Supplier ☐	Other ☐
Company	FieldTurf	Email	Cory.Hughes@fieldturf.com	Prime ☐	Sub ☐
Name	Cory Hughes	Phone	503-989-4993	Supplier ☐	Other ☐
Company		Email		Prime ☐	Sub ☐
Name		Phone		Supplier ☐	Other ☐
Company		Email		Prime ☐	Sub ☐
Name		Phone		Supplier ☐	Other ☐
Company		Email		Prime ☐	Sub ☐
Name		Phone		Supplier ☐	Other ☐
Company		Email		Prime ☐	Sub ☐
Name		Phone		Supplier ☐	Other ☐
Company		Email		Prime ☐	Sub ☐
Name		Phone		Supplier ☐	Other ☐

ATTACHMENT C

OSU SOFTBALL FIELD CONVERSION		
QUESTION	QUESTION	OSU RESPONSE
1	What limits of General Liability will be required? Per Occurrence and Aggregate?	See OSU General Conditions for Reserve Contracts
2	What limits of Auto Liability will be required?	See OSU General Conditions for Reserve Contracts
3	What limit of Umbrella Liability will be required?	See OSU General Conditions for Reserve Contracts
4	Will Pollution Liability be required? What limits per occurrence and aggregate?	Not required in Supplemental General Conditions
5	Will Builders Risk Installation Floater coverage be required? Will Earthquake and Flood be required?	Yes, see OSU General Conditions for Reserve Contracts
6	Will a Bid Bond be required? What percentage? What Bid Bond Form?	Bid Security is not required for this solicitation
7	Do Drainage Notes 3, 6 & 8 on Sheet F-1.3 only apply to the isolated areas indicated as "expose existing perforated drainage laterals" and the existing collector piping as shown on Sheet F-1.3? In other words, please confirm that the intent of the base bid is to **NOT** to remove and replace the existing pea gravel to the spring line on the entire existing sub-drainage system?	The Existing Collector Piping aling the baselines is to be fully excavated and exposed as indicated by the Drainage Legend and as shown in 6/F2.1. The Lateral Piping requires limited excavation as shown on the Plan and Legend, and per Detail 2/F-2.1. The Engineer will direct where exactly the laterals will be excavated (quantity per plan) based on observed conditions following removal of the overburden.
8	In regards to Drainage Note 3 on Sheet F-1.3 - if the existing pea gravel is clean, does it need to be replaced with new pea gravel? If it is determined that the existing sub-drainage system is sufficient at the isolated areas indicated on Sheet F-1.3, wouldn't that be proof that the existing pea gravel would not need to be replaced?	The limited length of lateral piping excavation and pea gravel removal and replacement shown per plan, legend, and detail 2/F-2.1 is a Basis-of-Bid quantity that will allow the Engineer to make that determination when the materials are exposed.
9	In regards to Drainage Note 3 on Sheet F-1.3, is the intent of the base bid to extend the new structural fabric to the spring line of the entire existing sub-drainage system? In other words, if it is determined that the existing sub-drainage system is sufficient, will the Contractor still be required to hand excavate to the spring line on the entire existing system sub-drainage system to extend the new structural fabric to the spring line of the existing perforated pipe?	No. The intention is that the new fabric will extend only to the top of the trench wall on the prepared subgrade except where the pipe springline has been exposed. This is intended primarily to allow some reinforcing of the trench wall at the collecter.
10	Is there any as-built information in regards to invert elevations on the existing sub-drainage system?	No.
11	In regards to Edge Anchor "D" at the outfield fence as shown on Sheet F-1.1, Detail 4 on Sheet F-2.2 indicates "existing chain link fence / fence post to remain." Is the intent to leave the existing fence fabric in place during construction? If the existing fence fabric is to remain in place compaction and planarity will be very difficult if not impossible to achieve. In other words, if the existing fencing is required to be removed for construction, will the Contractor be paid extra for this work?	The detail as shown does not presume that the chain link fabric needs to be removed. The Contractor may do so at their option, however it must be replaced in its current condition. The Contractor will not be paid "extra" for issues of means and methods.
12	In regards to detail 4 on Sheet F-2.2, what depth should the #6 rebar be driven into the ground?	30".
13	Are ACAD files available?	Post-Award.
14	When I walked the site at the pre-bid meeting I noticed an existing slot drain at the location of Edge Anchor "C." The edge condition details on Sheet F-2.2 do not reflect this condition. Can you please provide a detail for this condition?	Note 12 on Sheet F-0.3 addresses the removal of the existing slot drain. It is believed to be an ACO Wall-Mount Channel Drain.
15	In regards to Section 01 11 00(I) - Contractor Qualifications. I am probably one of the most experience synthetic turf base contractors that attended the pre-bid meeting but still don't meet the qualifications listed under this section. We have installed the base work for around 2,000,000 SF (TWO MILLIION) of synthetic turf and are a preferred contractor by several of the leading turf manufactures/installers in the Pacific Northwest. With that said, I have the following questions:	Per ORS 352.138, OSU as a Public University is not subject to ORS 279C.375. As stated therein, the following sections (primarily Prevailing Wage related) of 279 apply to public universities: 279C.600 to 279C.625, 279C.800, 279C.810, 279C.825, 279C.827, 279C.830, 279C.835, 279C.836, 279C.838, 279C.840, 279C.845, 279C.850, 279C.855, 279C.860, 279C.865, 279C.870
15.1	A. Having completed around 2,000,000 SF of aggregate base and drainage work for synthetic turf fields, how can I not be qualified?	See response to Question 15 above
15.2	B. In regards to sub-paragraph (a), I meet this requirement, but would like to know how you are able to take exception to ORS 279C.375C by requiring a Contractor be operating under the current Business name for a period of 5 or more years? Is a bidder suddenly responsible because they have been in business for 5 years? I'm not sure Oregon Revised Statues allows this?	See response to Question 15 above
15.3	C. In regards to sub-paragraph (b), we do not meet this requirement. We have only worked on one college project. This project was successfully completed and wasn't any different in size or scope of work than any high school facility we have built. Again, I would like to know how you are able to take exception specifically to ORS 279C.375**(A) & (F)** by having this requirement?	See response to Question 15 above
15.4	D. Sub-paragraph (d), indicates "Projects for whom the named Contact cannot be located may be located may be removed from the list." How is it fair that a bidder is penalized because a "contact person" can not be found or just doesn't respond to your inquiry?	See response to Question 15 above

ATTACHMENT D

ADDENDUM 1
April 29, 2019

Changes to the Specifications:

The following Specification Sections are revised as follows. Deleted Text is ~~stricken~~. New text is underlined.

Section 31 00 00 Earthwork

REVISE Paragraph 2.5 as follows;

A. Blended proprietary materials approximately 67% sand, 15% silt, and 18% clay particles, for use as the surface lift of the infield playing surface.

B. Additional amendments and clay reinforcement as specified by the manufacturer for the application.

C. Dura-Edge "Collegiate" available from Ewing Irrigation & Landscape, Portland OR, www.ewingirrigation.com or www.duraedge.com.

ADD new Paragraph 3.10.C as follows (existing "C" becomes "D", existing "D" becomes "E").

C. Batters Boxes, Catchers Box, and Pitching Lane are to be reinforced with the manufacturers clay product "DuraPitch Premium Mound Clay" or "ProLoc" mound blocks as approved.

ADD Appendix referenced in the Tale of Contents, a Field Report detailing exploratory potholing of the site and a referenced geotechnical exploration for nearby light poles, dated 3-26-19 and 2-21-18 respectively (total 19 pages).

Section 33 46 16 Field Subsurface Drainage

DELETE Paragraph 1.5. Bidder Qualifications are as stated in Section 01 11 00 Summary of Work.

Changes to the Drawings:

The following Drawings are revised and are re-issued in their entirety. Revisions are as summarized.

F-1.4 IRRIGATION MODIFICATION & WASHWATER PLAN

Deleted reference to one (1) Turf Cool Box at existing mainline valve, added capping of existing mainline at one location, and eliminated new mainline “loop” segment along the outfield perimeter.

F-2.4 SOFTBALL DETAILS

ADDED Clay Reinforcing to 2/F2.4 Pitching Lane and 5/F2.4 Batters’ and Catcher’s Boxes.

DA HOGAN

MEMORANDUM

To: Rick Freeman, Project Manager
Oregon State University

Cc: File

From: Eric Gold ASLA

Date: March 26, 2019

Re: Field Report 3-25-19
Softball Facility Exploratory Excavations

OSU Grounds and myself performed a series of exploratory excavations with the goal of determining the nature of the underlying materials that will be encountered in the course of construction of the Softball Field Conversion Project. We observed three specific conditions as follows (reference photos follow);

Warning Track

The warning track appears to be an engineered infield soil or cinder material with a clay/silt amendment, generally only about 2" in compacted depth. This layer is very dense, almost crust-like. This material sits atop a dense, 3"-4" layer of agri-lime, a silty, mineral product. The imported warning track materials seem to total approximately 6" (photo 1A).

Two 10" perforated, corrugated high-density polyethylene storm drainage collectors run along the warning track, in foul territory, down the base lines from behind home plate to the outfield. These receive the subsurface drainage laterals, and are themselves bedded in drainage aggregate, a very wide trench (30" or more, photo 1B).

At the outfield fence line, the warning track section appears to thin down to approximately 4". A fence post foundation was observed at about 9" below finished grade, although we anticipate those will vary +/- 2-3" (phot 2A).

Outfield Grass

This is a very mature multi-species sod that has been well-maintained although age has resulted in a high accumulation of fine, well-consolidated, well-decomposed organic material, approximately 5" – 6" deep. This surface section holds itself together quite well (photos 2B,4A).

119 First Ave South
Suite 110
Seattle, WA 98104

p. 206-285-0400
f. 206-285-0480
www.dahogan.com

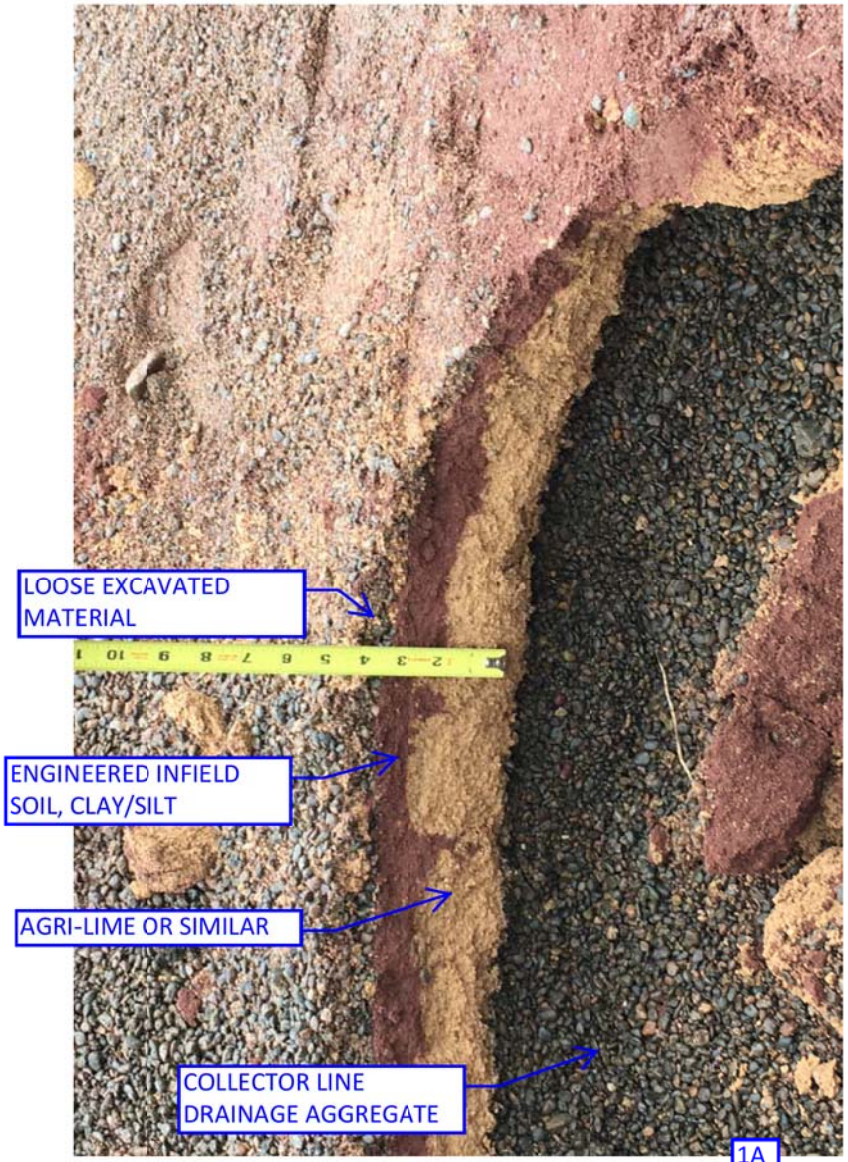
The full section includes an additional 5” - 7” of clean, poorly graded root zone sand on a gravelly subgrade reminiscent of screened pit-run (photo 3A). The root zone sand seems to be on a continuous geotextile, which is likely to be encountered throughout all of the disturbance. The drainage aggregate appears mostly clean (phot 3B).

Infield

The infield is a very dense clay/silt section approximately 9” in depth on a gravely subgrade. Excavation through this section required a power auger (photo5B).

119 First Ave South
Suite 110
Seattle, WA 98104

p. 206-285-0400
f. 206-285-0480
www.dahogan.com

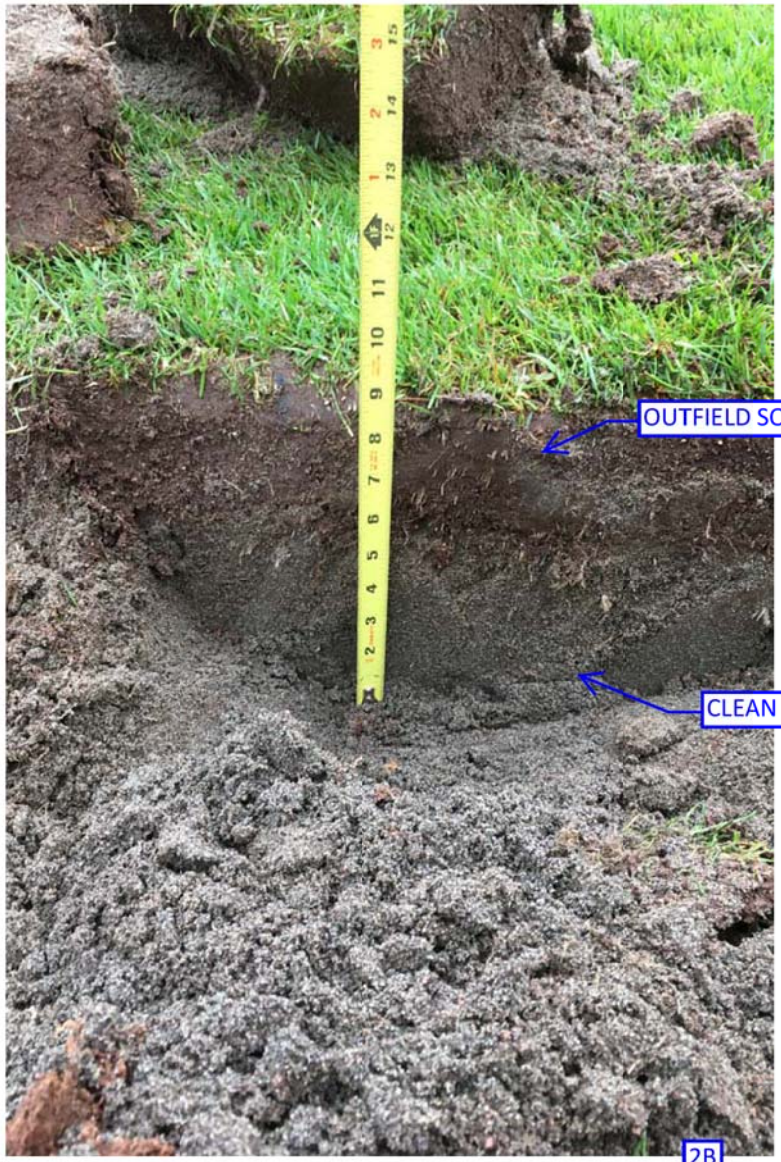


1A

1B

DA HOGAN

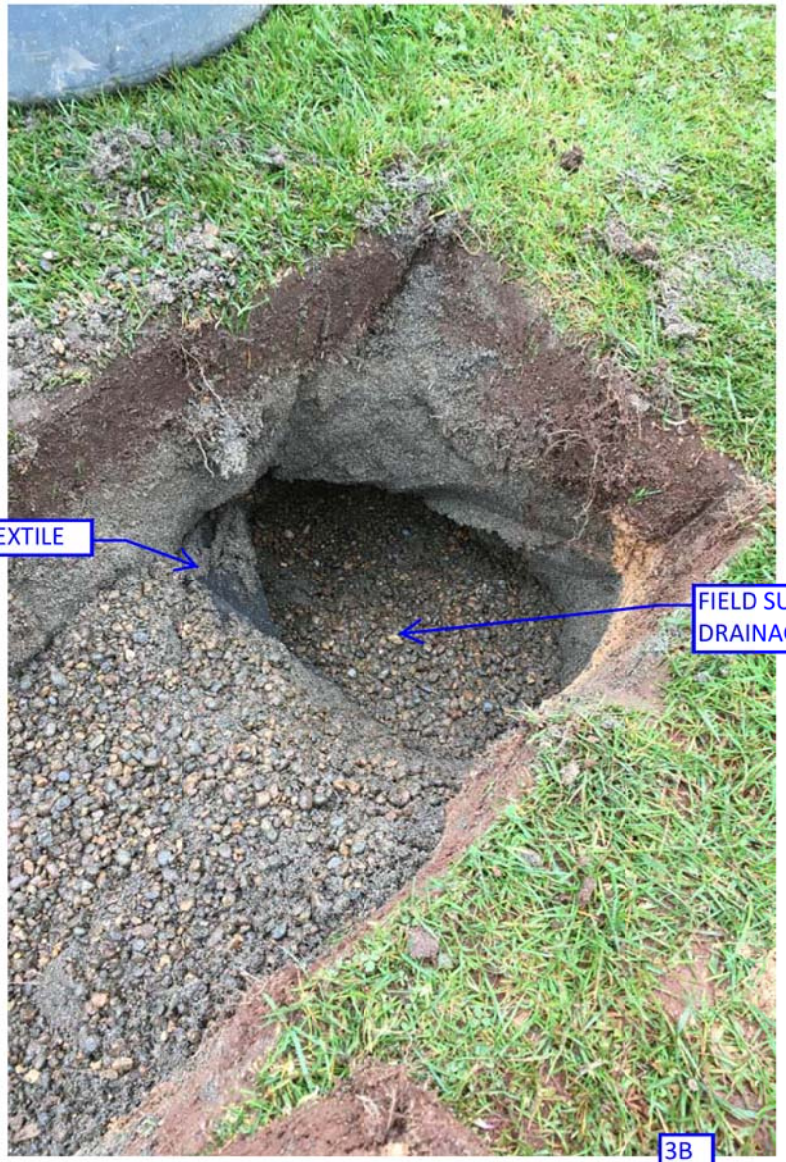
2A



2B

DA HOGAN

3A



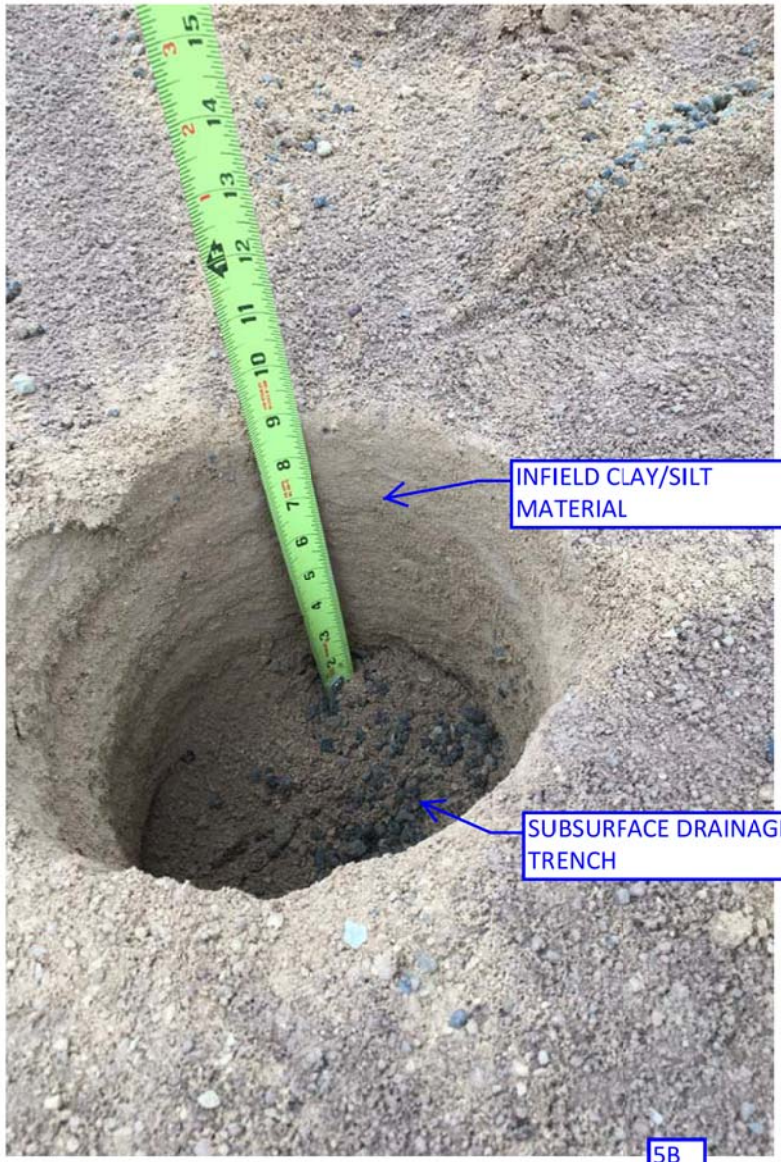
3B

DA HOGAN

DA HOGAN

LOCATION OF OUTFIELD TEST PIT

5A



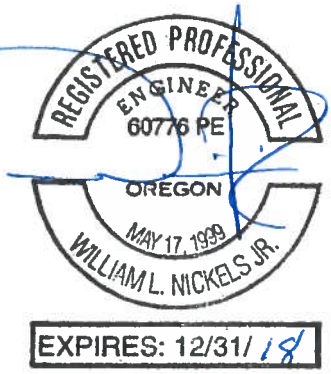
5B

DA HOGAN

Foundation Engineering, Inc.
Professional Geotechnical Services

Memorandum

Date:	February 21, 2018
To:	Rick Freeman OSU Capital Planning and Development Oregon State University
From:	William L. Nickels, Jr., P.E., G.E. Tony Rikli, P.E.
Subject:	Geotechnical Investigation
Project:	OSU Softball Complex – Field Lighting Project 2181011



Foundation Engineering, Inc. has completed the required geotechnical services for the addition of field lighting to the existing softball complex on the Oregon State University (OSU) Campus in Corvallis, Oregon. A discussion of the analysis and design, and construction recommendations are provided below.

BACKGROUND

OSU plans to install six light piles at the OSU Softball Complex in Corvallis. The light poles will be supported on 36-inch diameter drilled shaft foundations. The project location is shown on the Vicinity Map (Figure 1A, Appendix A).

OSU is the project owner and Musco Lighting is the lighting consultant. Foundation Engineering, Inc. was retained by OSU as the geotechnical consultant. Details of our scope of work were provided in a proposal dated January 30, 2018, and authorized by Supplement No. OSU-254-P-17-25, dated February 7, 2018.

DISCUSSION OF EXISTING SUBSURFACE CONDITIONS

Existing Subsurface Information

Due to the fast-track project schedule, drilling could not be integrated into the geotechnical work in a timely manner. Therefore, we have relied on subsurface information from the Whyte Track and Field Center – Phase 2 project, completed in 2015. In addition, we reviewed a boring completed by others for the adjacent Hilton Garden Inn Hotel.

Foundation Engineering Boring BH-8B completed for the track and field project was located just across the softball outfield fence. A boring completed for the adjacent hotel was located at the north end of the hotel. The subsurface information reported in the hotel boring is consistent with the information encountered in BH-8B. Therefore, BH-8B was used to represent the soil profile for the new light poles. A brief discussion of the conditions encountered in BH-8B is provide below. The boring log is provided in Appendix B.

Subsurface Conditions

A general discussion of the soil units encountered in the boring is provided below. Additional boring details are provided on the appended log.

Topsoil. Topsoil/fill consisting of soft to medium stiff, medium plasticity silt and clay extends below the ground surface to a depth of ±4 feet.

Fine-Grained Alluvium. Fine-grained alluvium consisting of silt, clay and sandy silt extends below the fill to a depth of ±16 feet. The silt and clay are predominately medium stiff to stiff and have medium to high plasticity. The sandy silt has low plasticity and is very soft.

Coarse-Grained Alluvium. Coarse-grained alluvium consisting of loose silty sand extends to ±23 feet, followed by medium dense sand and very dense sandy gravel to 26.5 feet, the limits of the exploration.

Ground Water

BH-8B was completed using a solid-stem auger, thus allowing an estimate of the ground water level in the boring at the time of drilling. The water level was reported a depth of 5 feet on February 19, 2015.

LIGHT POLE FOUNDATIONS

New light poles are planned behind left field, right field, first and third baseline bullpens and behind each dugout. The light pole type, location, and base reactions provided by Musco Lighting are provided in Table 1.

Table 1. Light Pole Type, Location and Base Reactions

Pole Location	Field Location	Axial (kips)	Shear (kips)	Moment (kip-ft)
A1	Behind Third Base Dugout	3.5	2.4	128
A2	Behind First Base Dugout	3.5	2.4	128
B1	Behind Third Base Bull Pen	4.6	3.1	171
B2	Behind First Base Bull Pen	4.6	3.1	171
C1	Behind Left Field Fence	3.6	2.3	108
C2	Behind Right Field Fence	3.4	2.2	98.9

Note: Maximum base reactions are unfactored and provided by Musco Lighting.

Lateral Analysis. LPile was selected to verify the deflection at the top of the drilled shaft. The design criteria uses a maximum deflection of 0.5 inches, when subjected to the base reactions in Table 1. The soil profile of BH-8B was used for the analysis of the new pole foundations. The estimated top and base deflections, and the corresponding shaft lengths for the light poles are summarized in Table 2.

Table 2. LPile Deflection Summary

Pole Location	Drilled Shaft Diameter (inches)[1]	Drilled Shaft Length (feet)	Top Deflection (inches)	Base Deflection (inches)
A1	36	15.0	0.10	-0.03
A2	36	15.0	0.10	-0.03
B1	36	15.0	0.30	-0.09
B2	36	15.0	0.30	-0.09
C1	36	15.0	0.07	-0.02
C2	36	15.0	0.05	-0.01

Note: Negative base deflection indicates deflection opposite the top deflection.

Axial Capacity. Foundation analysis and design for drilled shafts were completed in general accordance with the design methods presented in Drilled Shafts: Construction Procedures and LRFD Design Methods prepared by Federal Highway Administration (FHWA) (2010). The following assumptions and design criteria were applied to the drilled shaft analysis:

- Borehole completion and drilled shaft construction will follow construction techniques and procedures outlined by FHWA (2010) and the Oregon Department of Transportation (ODOT) Standard Specifications for Construction (2018).
- A temporary casing may be required at some locations to maintain the stability of the excavation. Permanent casing shall not be allowed.
- No axial capacity was accounted for in the upper 5 feet of the soil profile.
- Static water table at 4 feet below the ground surface.
- The concrete will have an 8½-inch slump (±1½ in.).

The axial resistance provided by the soil must be sufficient to resist the axial loads in Table 1 and the weight of the drilled shaft (±16 kips). Using the soil profile from BH-8B, our analysis indicated the soils will provide the required axial resistance with a factor of safety greater than 2.5.

CONSTRUCTION RECOMMENDATIONS

All specifications pertaining to drilled shaft construction for the light poles refer to the ODOT Standard Specifications for Construction (2018).

Individual shafts for light pole supports should be monitored throughout construction by a representative of Foundation Engineering to provide QA/QC during drilling and concrete placement. The specifications for drilled shaft construction should follow the requirements of ODOT's Section 00963, supplemented by Section 00512 and the FHWA (2010) manual for Construction Procedures and LRFD Design Methods for Drilled Shafts. The two referenced ODOT sections are available in Portable Document Format (PDF) on-line at:

http://www.oregon.gov/ODOT/Business/Documents/2018_STANDARD_SPECIFICATIONS.pdf

Additional specifications, as referenced from ODOT (2018) Section 00963 and ODOT (2018) Section 00512 may also be found and printed from the above-referenced address.

General Recommendations.

The shafts should be constructed using the above-referenced specifications. Several key specifications and additional information are highlighted below:

1. Personnel Qualifications and a Drilled Shaft Installation Plan are required as part of the contractor submittals (Section 00963.30 and Section 00963.40).

2. Crosshole Sonic Logging (CSL) tubes are not required.

3. A temporary casing may be installed as required to maintain sidewall stability during construction. However, permanent casing will not be allowed.

4. Drilling slurries meeting the requirements of Section 00512.14 may be used, if required to maintain sidewall stability.

5. Wet shaft concrete placement should be anticipated.

6. For wet concrete placement, casing removal must be in a manner that will not decrease the minimum 5 feet of concrete head above the tip of the tremie or breach the tremie from the concrete. The free fall of concrete through water will result in a rejected shaft until a mitigation plan is proposed and successfully implemented.

7. Tremie and coupler diameter for placement of concrete below water should pass freely between the rebar cage and precast mandrel.

8. Tolerances for horizontal position of the pole foundations should be provided by Musco.

9. The drilled shaft excavation shall be approved by a Foundation Engineering Representative prior to the placement of rebar and concrete.

DESIGN REVIEW/CONSTRUCTION OBSERVATION/TESTING

We should be provided the opportunity to review all drawings and specifications that pertain to drilled shaft construction. Foundation excavation for the light poles will require field confirmation of the subsurface conditions in accordance with recommendations provided herein. We recommend that we be retained to provide the necessary construction observations.

VARIATION OF SUBSURFACE CONDITIONS, USE OF THIS REPORT, AND WARRANTY

The analyses, conclusions and recommendations contained herein are based on the assumption that the soil information from the Whyte Track and Field – Phase 2 project are representative of the overall site conditions at the softball complex. The above recommendations assume that we will have the opportunity to review final drawings and be present during construction to confirm the assumed foundation conditions. No changes in the enclosed recommendations should be made without our approval. We will assume no responsibility or liability for any engineering judgment, inspection or testing performed by others.

This report was prepared for the exclusive use of Oregon State University (Capital Planning and Development) and their design consultants for the Softball Complex Lighting project in Corvallis, Oregon. Information contained herein should not be used for other sites or for unanticipated construction without our written consent. This report is intended for planning and design purposes. Contractors using this information to estimate construction quantities or costs do so at their own risk. Our services do not include any survey or assessment of potential surface contamination or contamination of the soil or ground water by hazardous or toxic materials. We assume that those services, if needed, have been completed by others.

Our work was done in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

REFERENCES

FHWA, 2010, Drilled Shafts: Construction Procedures and LRFD Design Methods, 2010 Publication No. FHWA-NHI-10-016.

Foundation Engineering, Inc. 2015, Whyte Track and Field Center – Phase 2, Corvallis, Oregon. Provided to Oregon State University.

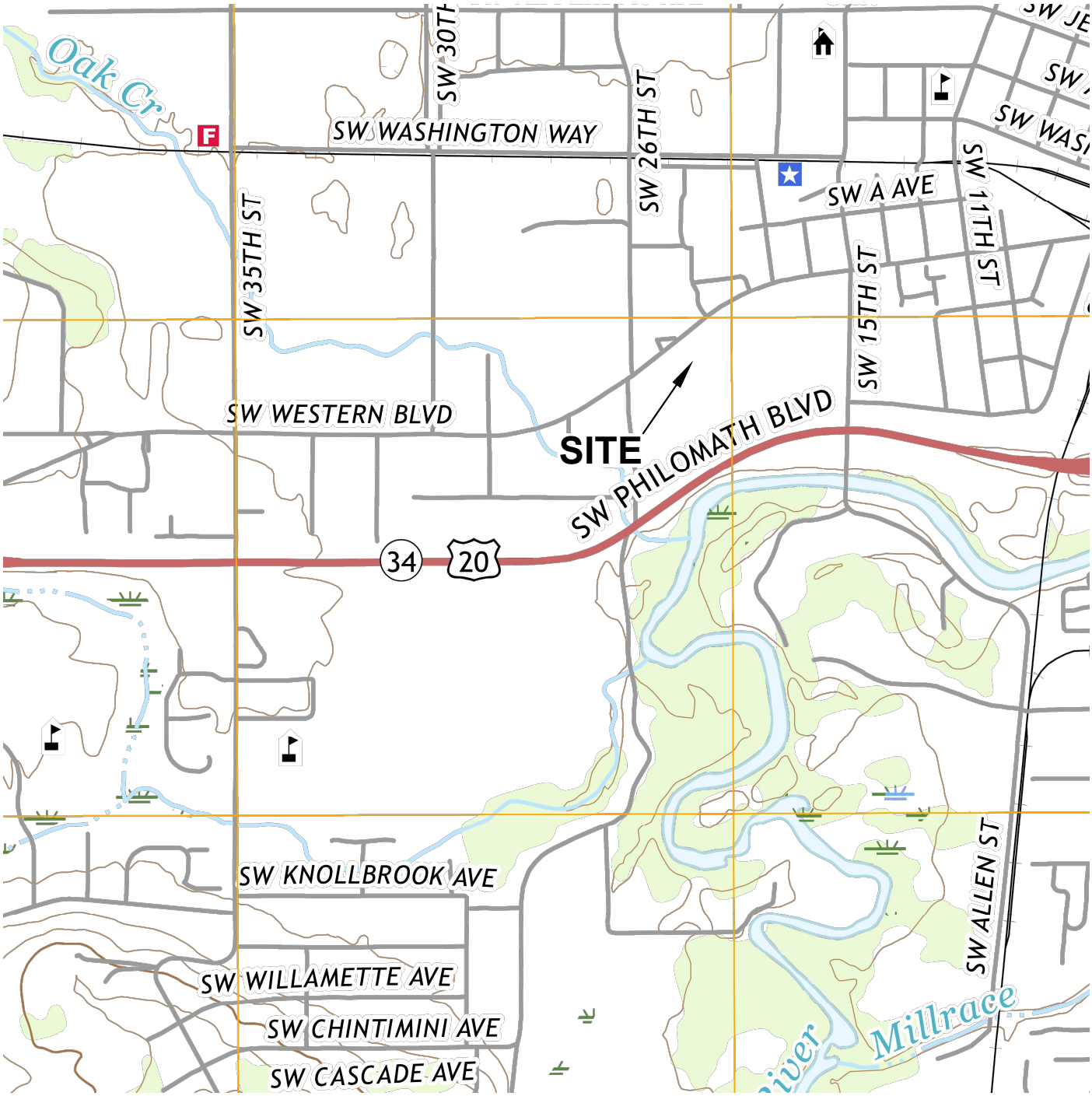
ODOT, 2018, Oregon Standard Specifications for Construction, 2018, Oregon Department of Transportation (ODOT).

Appendix A

Figure

Professional
Geotechnical
Services

Foundation Engineering, Inc.



SCALE IN FEET

0 500 1,000 2,000

DATE FEB. 2018
DWN. mlm
APPR.
REVIS.
PROJECT NO.
2181011

FOUNDATION ENGINEERING INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 NW CORNELL AVENUE
CORVALLIS, OR 97330-4517
BUS. (541) 757-7645 FAX (541) 757-7650

VICINITY MAP

OSU SOFTBALL COMPLEX LIGHTING
CORVALLIS, OREGON

FIGURE NO.
1A

FILE NAME: FIG 1A – VICINITY MAP

Appendix B

Boring Log

Professional
Geotechnical
Services

Foundation Engineering, Inc.

DISTINCTION BETWEEN FIELD LOGS AND FINAL LOGS

A field log is prepared for each boring or test pit by our field representative. The log contains information concerning sampling depths and the presence of various materials such as gravel, cobbles, and fill, and observations of ground water. It also contains our interpretation of the soil conditions between samples. The final logs presented in this report represent our interpretation of the contents of the field logs and the results of the sample examinations and laboratory test results. Our recommendations are based on the contents of the final logs and the information contained therein and not on the field logs.

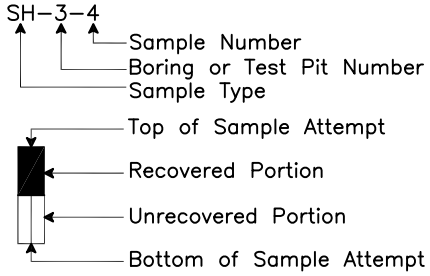
VARIATION IN SOILS BETWEEN TEST PITS AND BORINGS

The final log and related information depict subsurface conditions only at the specific location and on the date indicated. Those using the information contained herein should be aware that soil conditions at other locations or on other dates may differ. Actual foundation or subgrade conditions should be confirmed by us during construction.

TRANSITION BETWEEN SOIL OR ROCK TYPES

The lines designating the interface between soil, fill or rock on the final logs and on subsurface profiles presented in the report are determined by interpolation and are therefore approximate. The transition between the materials may be abrupt or gradual. Only at boring or test pit locations should profiles be considered as reasonably accurate and then only to the degree implied by the notes thereon.

SAMPLE OR TEST SYMBOLS



S – Grab Sample
SS – Standard Penetration Test Sample (split–spoon)
SH – Thin–walled Shelby Tube Sample
C – Pavement Core Sample
CS – Rock Core Sample

▲ Standard Penetration Test Resistance equals the number of blows a 140 lb. weight falling 30 in. is required to drive a standard split–spoon sampler 1 ft. Practical refusal is equal to 50 or more blows per 6 in. of sampler penetration.

● Water Content (%).

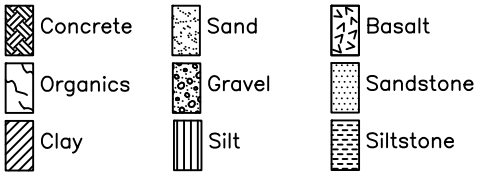
UNIFIED SOIL CLASSIFICATION SYMBOLS

G – Gravel	W – Well Graded
S – Sand	P – Poorly Graded
M – Silt	L – Low Plasticity
C – Clay	H – High Plasticity
Pt – Peat	O – Organic

FIELD SHEAR STRENGTH TEST

Shear strength measurements on test pit side walls, blocks of soil or Shelby tube samples are typically made with Torvane or Field Vane shear devices.

TYPICAL SOIL/ROCK SYMBOLS



WATER TABLE


Water Table Location

(1/31/16) Date of Measurement

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SYMBOL KEY

BORING AND TEST PIT LOGS

Explanation of Common Terms Used in Soil Descriptions

Field Identification	Cohesive Soils			Granular Soils	
	SPT*	S_u** (tsf)	Term	SPT*	Term
Easily penetrated several inches by fist.	0 – 2	< 0.125	Very Soft	0 – 4	Very Loose
Easily penetrated several inches by thumb.	2 – 4	0.125–0.25	Soft	4 – 10	Loose
Can be penetrated several inches by thumb with moderate effort.	4 – 8	0.25 – 0.50	Medium Stiff	10 – 30	Medium Dense
Readily indented by thumb but penetrated only with great effort.	8 – 15	0.50 – 1.0	Stiff	30 – 50	Dense
Readily indented by thumbnail.	15 – 30	1.0 – 2.0	Very Stiff	> 50	Very Dense
Indented with difficulty by thumbnail.	>30	> 2.0	Hard		

* SPT N–value in blows per foot (bpf)
** Undrained shear strength

Term	Soil Moisture Field Description
Dry	Absence of moisture. Dusty. Dry to the touch.
Damp	Soil has moisture. Cohesive soils are below plastic limit and usually moldable.
Moist	Grains appear darkened, but no visible water. Silt/clay will clump. Sand will bulk. Soils are often at or near plastic limit.
Wet	Visible water on larger grain surfaces. Sand and cohesionless silt exhibit dilatancy. Cohesive soil can be readily remolded. Soil leaves wetness on the hand when squeezed. Soil is wetter than the optimum moisture content and above the plastic limit.

Term	PI	Plasticity Field Test
Non–plastic	0 – 3	Cannot be rolled into a thread at any moisture.
Low Plasticity	3 – 15	Can be rolled into a thread with some difficulty.
Medium Plasticity	15 – 30	Easily rolled into thread.
High Plasticity	> 30	Easily rolled and re–rolled into thread.

Term	Soil Structure Criteria
Stratified	Alternating layers at least ¼ inch thick.
Laminated	Alternating layers less than ¼ inch thick.
Fissured	Contains shears and partings along planes of weakness.
Slickensided	Partings appear glossy or striated.
Blocky	Breaks into small lumps that resist further breakdown.
Lensed	Contains pockets of different soils.

Term	Soil Cementation Criteria
Weak	Breaks under light finger pressure.
Moderate	Breaks under hard finger pressure.
Strong	Will not break with finger pressure.

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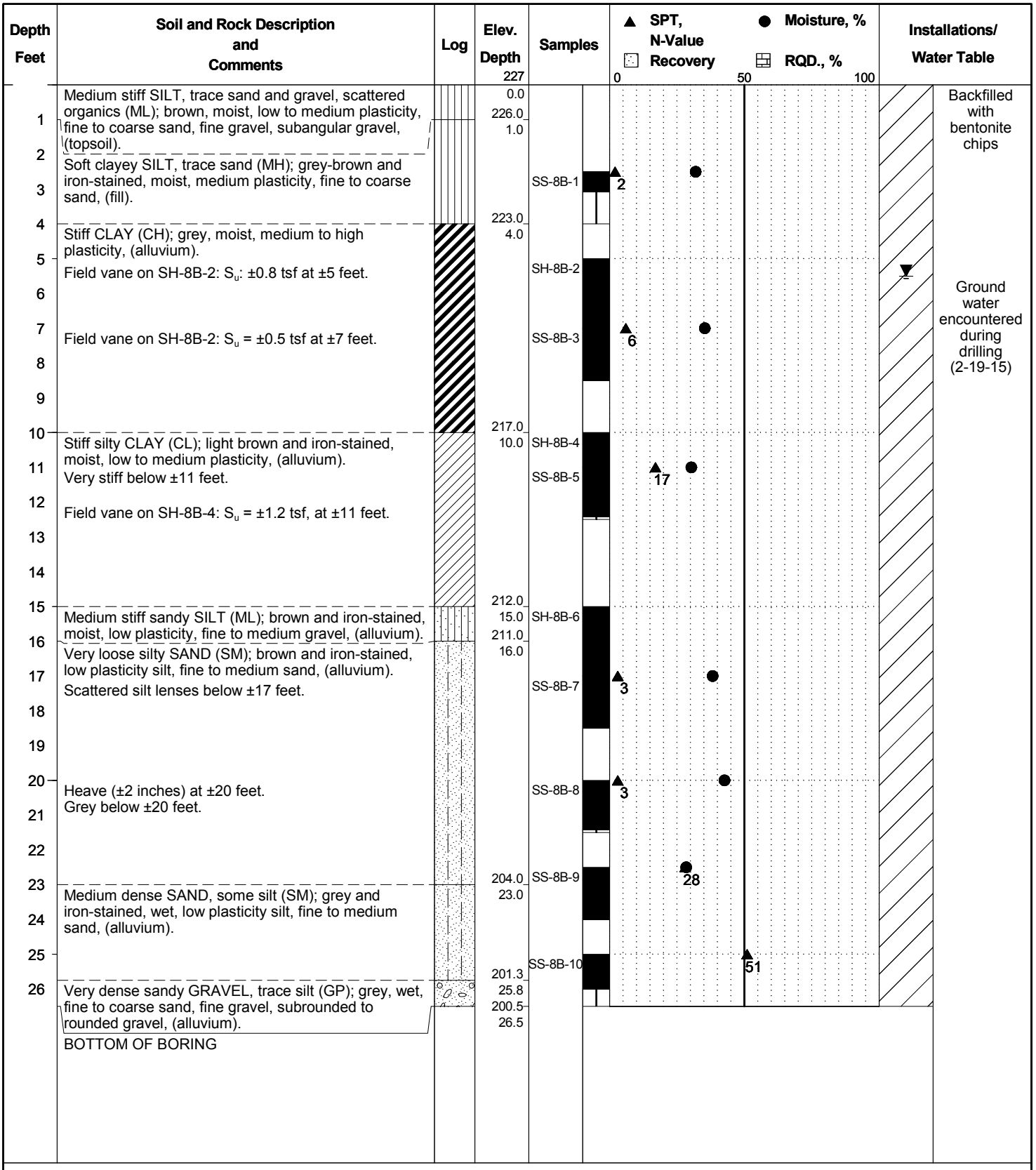
COMMON TERMS

SOIL DESCRIPTIONS



Project No.: 2151010

Surface Elevation: 227.0 feet (Approx.)

Date of Boring: February 19, 2015

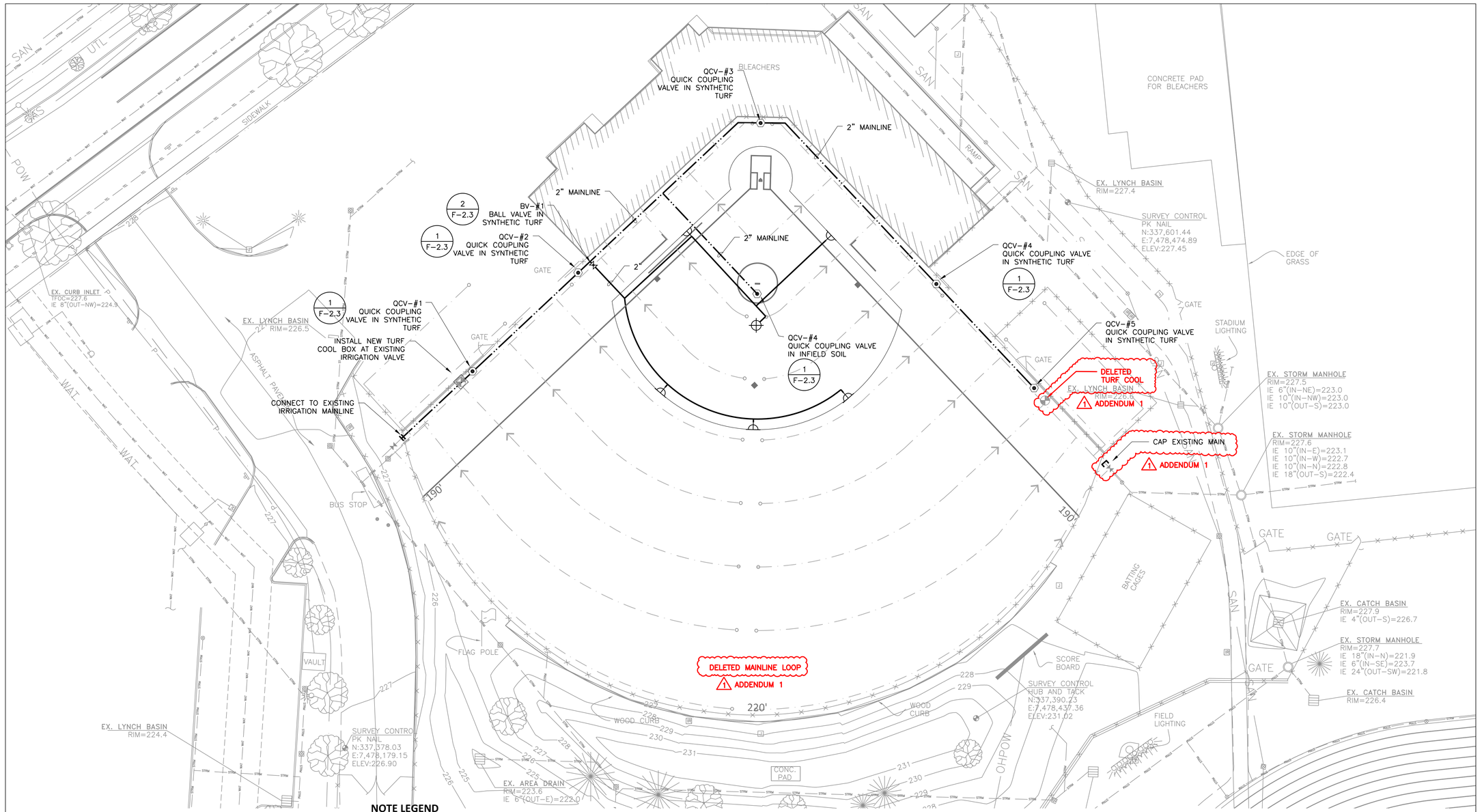
Boring Log: BH- 8B

Whyte Track and Field Center-Phase 2

Corvallis, Oregon

Foundation Engineering, Inc.

ATTACHMENT E



IRRIGATION NOTES

1. COORDINATE QUICK COUPLING VALVE LOCATIONS TO CORRESPOND TO THE CONCRETE EDGE ANCHOR AT THE SYNTHETIC TURF FIELD.
2. THE CONTRACTOR SHALL LOCATE EXISTING ELECTRICAL AND COMMUNICATION CONDUCTORS IN THE FIELD AND VERIFY TO DEPTH WITH THE PROJECT LANDSCAPE ARCHITECT PRIOR TO TRENCHING FOR THE WASHWATER SYSTEM.
3. COORDINATE IRRIGATION PIPING TO AVOID UNDERGROUND UTILITIES.
4. SPRINKLER HEADS IN THE INFIELD SOIL AREAS SHALL BE SET ¾ – 1" BELOW FINISH GRADE. NO SETTLEMENT AROUND THE SPRINKLER HEADS SHALL BE TOLERATED.
5. ALL LATERAL IRRIGATION PIPING WILL BE 1.5" UNLESS OTHERWISE NOTED ON PLAN.
6. POP UP RISER HEIGHT IN INFIELD SOIL AREAS TO BE 4".

NOTE LEGEND

1. (INDICATES GENERAL CONSTRUCTION NOTE)
③ (INDICATES SPECIFIC CONSTRUCTION KEYNOTE)

IRRIGATION LEGEND

- PROTECT REMOTE CONTROL VALVE IN NEW TURFCOOL BOX
- PROTECT EXISTING IRRIGATION MAIN LINE TO REMAIN
- SCH 40 PVC IRRIGATION MAIN LINE
- SCH 40 PVC PIPE (LATERAL)
- CONNECT TO EXISTING IRRIGATION
- EXISTING DRAIN LINES TO REMAIN
- QUICK COUPLING VALVE IN NEW TURFCOOL BOX
- BALL VALVE IN TURF COOL BOX
- 360° ROTARY POP UP SPRINKLER, 45 PSI. 42' RADIUS, 5.0 GPM — HUNTER I-20-04-SS-PRB-05
- ADJUSTABLE ROTARY POP UP SPRINKLER, 45 PSI. 42 RADIUS, 5.0 GPM — HUNTER I-20-04-SS-PRB-05

REVISION	DATE
1 ADDENDUM 1	4-26-19

OREGON STATE ATHLETICS

OREGON STATE UNIVERSITY SOFTBALL FIELD CONVERSION

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CIVIL & STRUCTURAL ENGINEER
PILLAR CONSULTING GROUP, INC.
835 Northwest 23rd Street
Corvallis, OR 97330
Phone (541) 752-9202 Fax (541) 752-2587

REGISTERED LANDSCAPE ARCHITECT
548
ROBERT HARDING
OREGON
05/31/19

NORTH

0 20' 40'

SCALE: 1" = 20'

BID DOCUMENTS

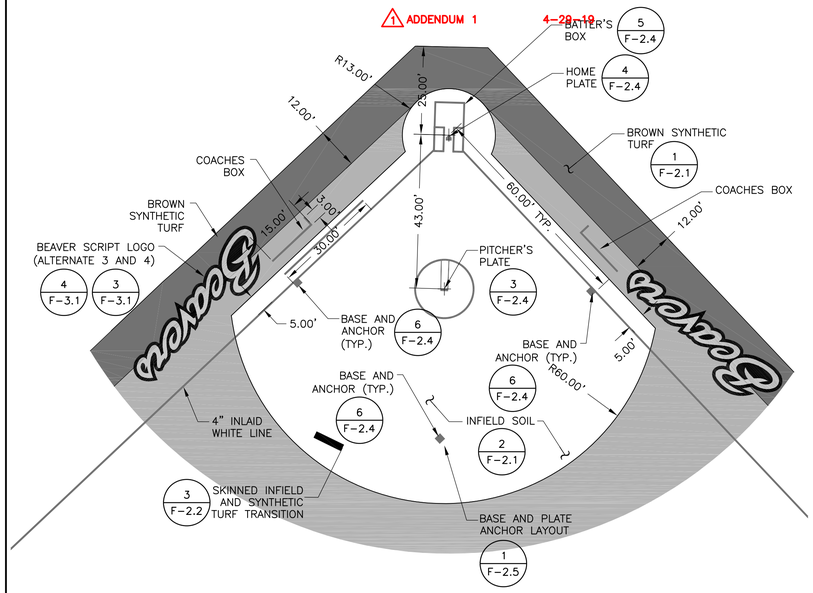
DATE	4-12-19
SCALE	1"=20'
DRAWN	CPW/DMD
CHECKED	EJG/RSH

IRRIGATION MODIFICATION & WASHWATER PLAN

SHEET

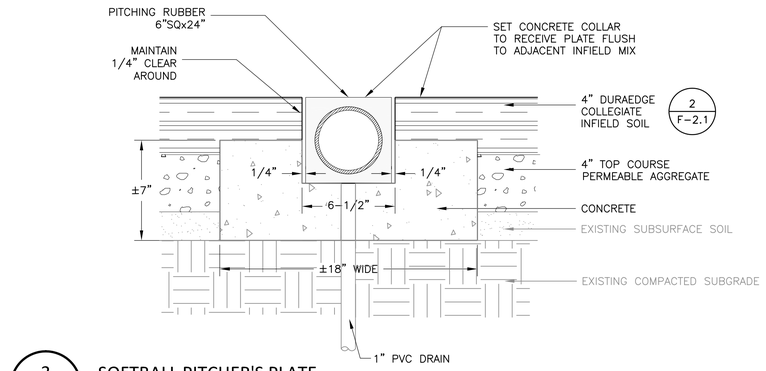
F-1.4

File: F-0.1 OSU Softball CURRENT 24X36.dwg Plotted by: EricG Date: 26-Apr-19 9:39:21am



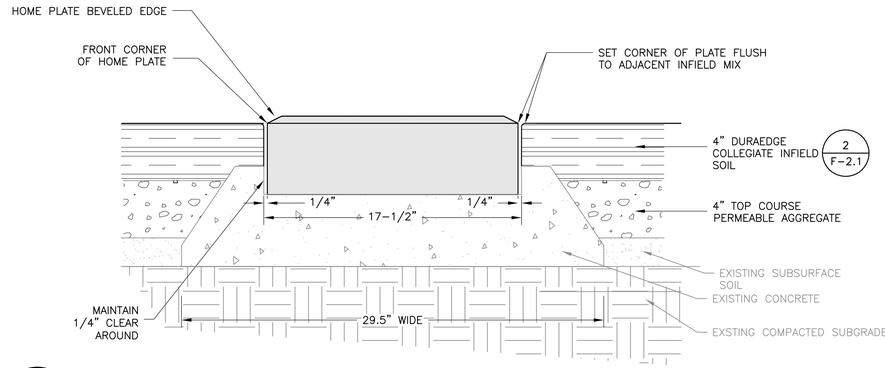
1 F-2.4 SOFTBALL INFIELD LAYOUT PLAN

NOT TO SCALE



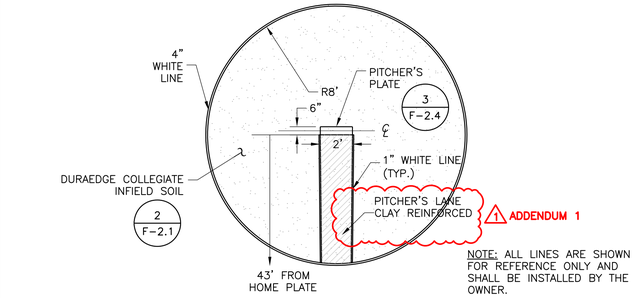
3 F-2.4 SOFTBALL PITCHER'S PLATE

NOT TO SCALE

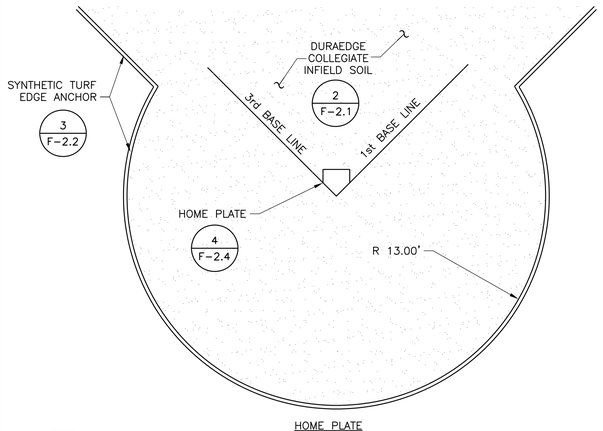


4 F-2.4 HOME PLATE

NOT TO SCALE



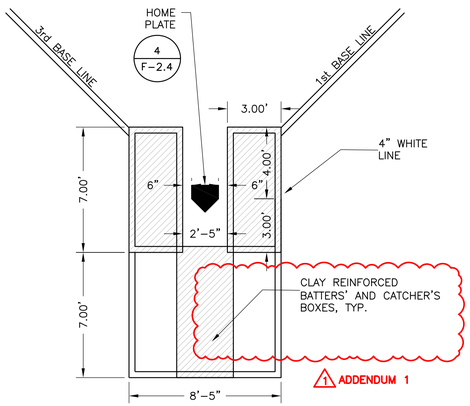
PITCHER'S CIRCLE



HOME PLATE

2 F-2.4 SOFTBALL HOMEPLATE AND PITCHER'S CIRCLE

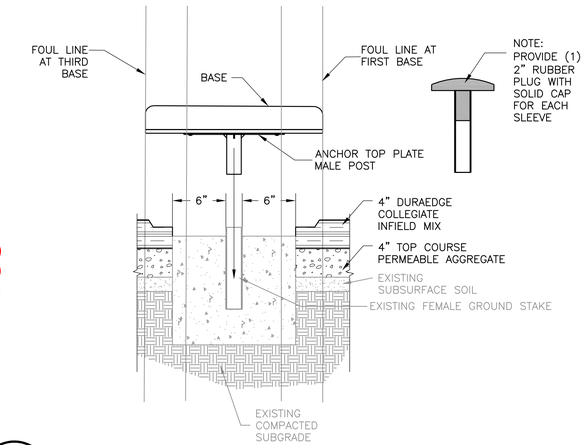
NOT TO SCALE



NOTE: ALL LINES ARE SHOWN FOR REFERENCE ONLY AND SHALL BE INSTALLED BY THE OWNER.

5 F-2.4 SOFTBALL BATTER'S BOX

NOT TO SCALE



6 F-2.4 BASE WITH ANCHOR

NOT TO SCALE

File: F-2.4 Softball Details.dwg Plotted by: EricG Date: 26-Apr-19 10:27:25am

REVISION	DATE
1 ADDENDUM 1	4-29-19

OREGON STATE ATHLETICS

OREGON STATE UNIVERSITY SOFTBALL FIELD CONVERSION

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835 Northwest 23rd Street
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Phone (541) 752-9202 Fax (541) 752-2587

REGISTERED 548 ROBERT HARDING OREGON 05/31/19 LANDSCAPE ARCHITECT

BID DOCUMENTS

DATE	4-12-19
SCALE	NTS
DRAWN	CPW
CHECKED	EJG/ RSH

SOFTBALL DETAILS

SHEET

F-2.4