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GEOENGINEERS 

4000 Kruse Way Place, Building 3, Suite 200
Lake Oswego, Oregon 97035
503.624.9274

November 7, 2019

ProLogis
12720 Gateway Drive, Suite 110
Tukwila, Washington 98168

Attention: Jake Maxwell

RECEIVED
NOV 08 2019
City of Portland
BDS • Document Services

Subject: Response to City of Portland BDS Site Development Checksheet dated November 5, 2019
Prologis Development at NE 158th Avenue and NE Airport Way
Portland, Oregon
File No. 3626-071-00

This letter respond to the checksheet correction items 1 and 2 provided by City of Portland Bureau of Development Services dated November 5, 2019. This letter is to acknowledge that GeoEngineers was aware of the revision to the proposed building footprint. We provided revised preload recommendations, and observed and evaluated the preload fill placed within the revised building footprint.

We understand that the proposed building at the site has been relocated approximately 16 feet west of its original location. Figure 1 presents the revised building footprint and the revised preload fill footprint constructed per our recommendations. We also completed two site visits to observe the preload fill placement within the revised building area west of the original building footprint. Our observations of the preload fill placement and evaluation are presented in the attached Field Reports 26 and 27, dated September 12 and 13, 2019, respectively. The settlement monitoring program developed and implemented for this project incorporated the revised footprint and therefore no updated preload summary letter is required.

We trust this letter serves your current needs. Please call if you have any questions or require additional information.

19-104957-REV-01-CO

Sincerely,
GeoEngineers, Inc.

Heidi C

Heidi P. Cashman, PE
Senior Geotechnical Engineer

HPC:KHC:kjb

Attachments:

Figure 1. Revised Building and Preload Fill Footprint
Field Report 26 - 9/12/2019
Field Report 27 - 9/13/2019

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.



King H. Chin, PE
Principal

EXPIRES: 12/31/2019

Print Record

Revision Record

1	4/1/2019	PLAN CHECK
2	4/18/2019	PLAN CHECK
3	5/24/2019	PLAN CHECK
4	N IN PROGRESS	PLAN CHECK

LEGEND

EXISTING PROPERTY LINE	---
PROPOSED PROPERTY LINE	- - - -
EXISTING CONTOUR	20
LIMITS OF SURCHARGE DISTURBANCE	---
ORIGINAL SURCHARGE FOOTPRINT	---

SURCHARGE NOTES

- EXCAVATOR(S) MUST COMPLY WITH O.R.S. 757.541 THROUGH 757.571; EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS 72 HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. ONE-CALL UTILITY NOTIFICATION CENTER FOR OREGON: 503-246-6699 OR 1-800-332-2344.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE GEOTECHNICAL ENGINEER 3 DAYS PRIOR TO PLACEMENT OF THE MONITORING PLATES TO ALLOW COORDINATION OF INITIAL READINGS.
- THE OWNER WILL PROVIDE A COPY OF THE SURCHARGE RECOMMENDATIONS PREPARED BY GEOENGINEERS.
- EXISTING TOPOGRAPHIC INFORMATION IS BASED ON A SURVEY BY NORTHWEST SURVEY, INC. DATED 02/12/2018.
- SETTLEMENT PLATES SHALL BE SURVEYED ON A WEEKLY BASIS DURING PRELOAD/SURCHARGE FILL CONSTRUCTION AND IMMEDIATELY FOLLOWING PLACEMENT. THE FIRST ROUND OF SURVEY READINGS SHALL BE OBTAINED BEFORE THE FIRST LIFT OF PRELOAD/SURCHARGE FILL IS PLACED. AFTER THE PRELOAD/SURCHARGE FILL HAS BEEN FULLY CONSTRUCTED THE SETTLEMENT PLATES SHOULD ALSO BE SURVEYED ON A WEEKLY BASIS.
- THE SITE SHALL BE GRADED AND MAINTAINED SUCH THAT NO STANDING WATER IS ALLOWED TO REMAIN FOLLOWING A RAINFALL EVENT.
- THE GEOTECHNICAL ENGINEER SHALL REVIEW THE SETTLEMENT DATA AND DETERMINE WHEN THE SURCHARGE CAN BE REMOVED TO FINISHED SUBGRADE.
- THE ENGINEER SHALL PROVIDE A LETTER TO THE CITY AT THE END OF SURCHARGING SUMMARIZING THE SURCHARGE PROGRAM AND STATING THAT THE IMPROVED SOILS ARE SUITABLE FOR FOUNDATION SUPPORT.
- THE CITY MUST RECEIVE THE GEOTECHNICAL ENGINEER'S SURCHARGE SUMMARY LETTER PRIOR TO EXCAVATION OF BUILDING FOUNDATIONS.

EROSION CONTROL

- THE CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL PROVISIONS OF THE DEQ 1200-C PERMIT ISSUED FOR THE PROJECT. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL APPLICABLE CITY OF PORTLAND CODES AND REQUIREMENTS RELATED TO SEDIMENT AND EROSION CONTROL.
- SEE THE SURCHARGE EROSION AND SEDIMENT CONTROL PLANS FOR ADDITIONAL DETAILS AND REQUIREMENTS.

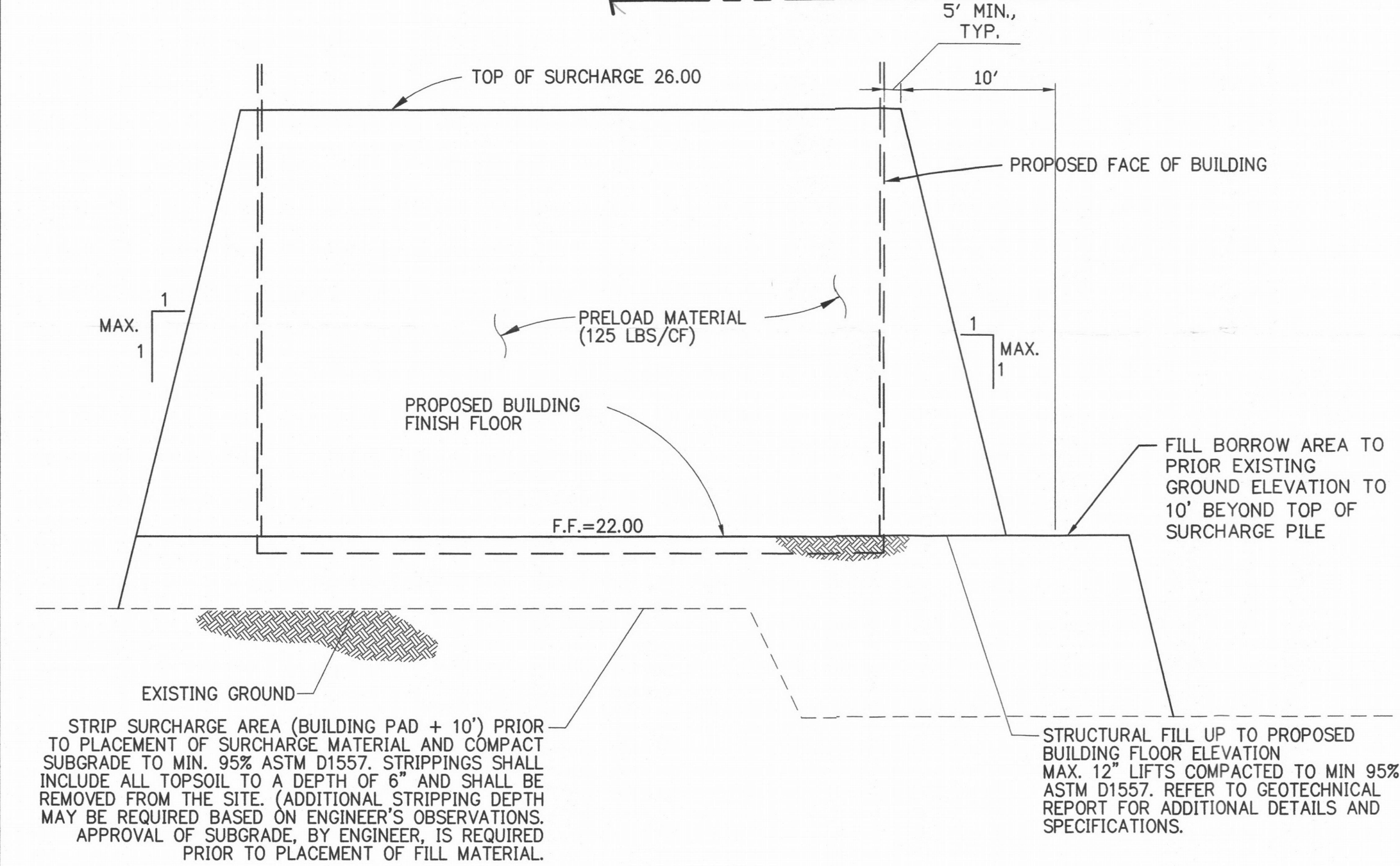
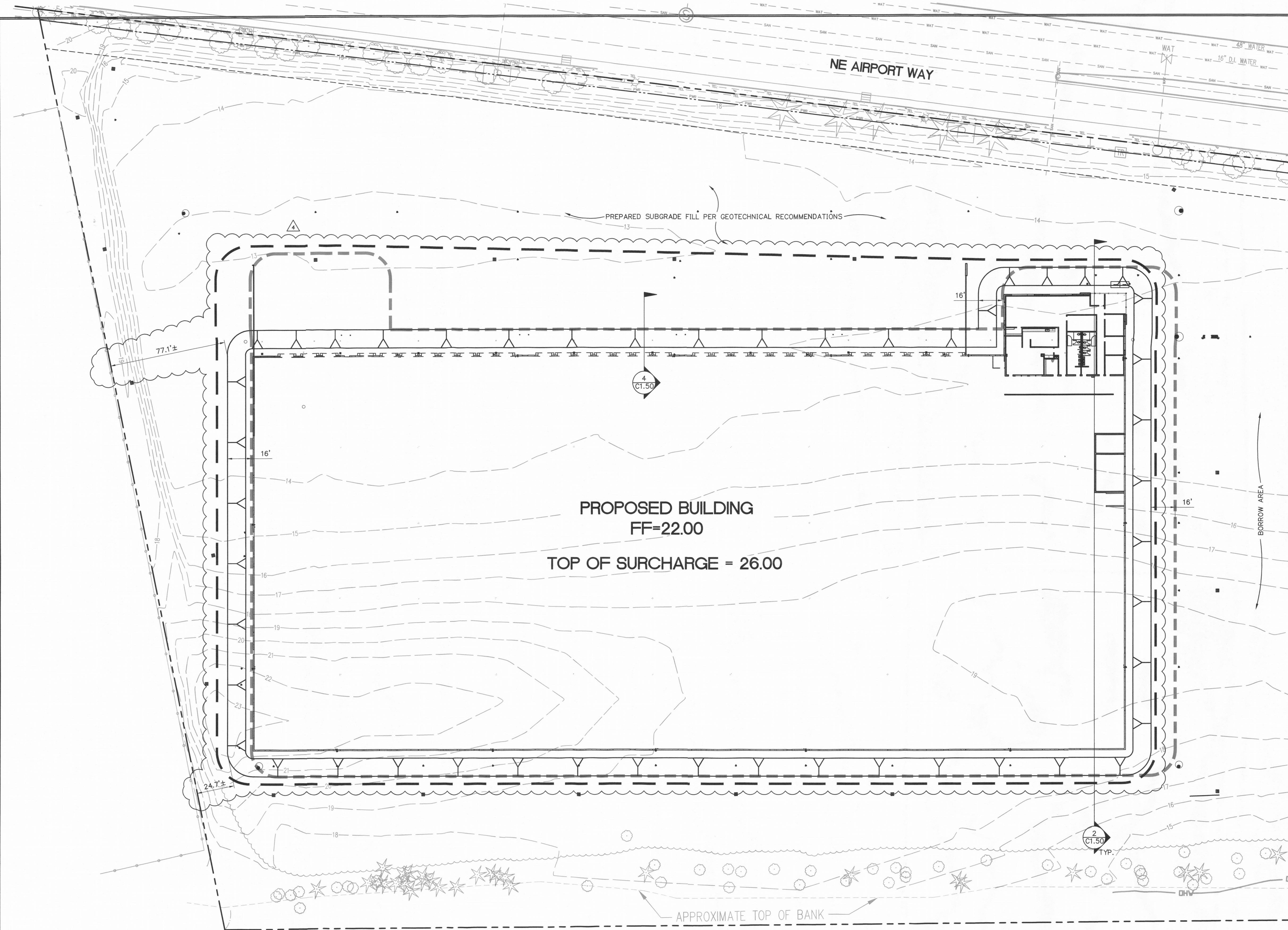
MONITORING PLATES

- THE NUMBER AND LOCATION OF MONITORING PLATES WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF THE SURCHARGE PILE. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THIS PRIOR TO CONSTRUCTION.

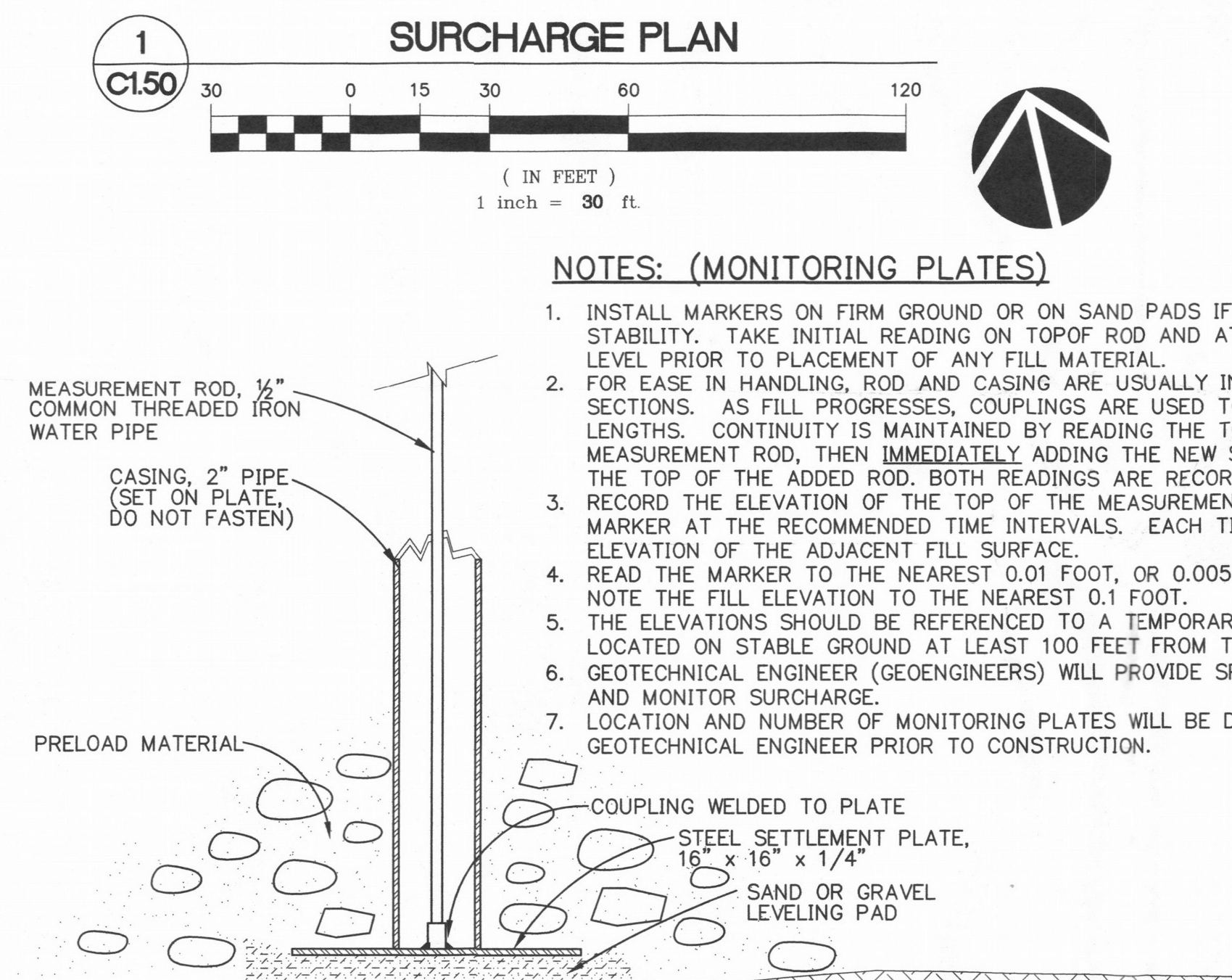
PRECONSTRUCTION MEETING

A PRECONSTRUCTION MEETING INCLUDING, AT A MINIMUM, OWNER, GENERAL CONTRACTOR, AND EXCAVATOR IS REQUIRED PRIOR TO CONSTRUCTION. THE CONTRACT SHALL BE RESPONSIBLE TO SCHEDULE THE FOLLOWING MEETINGS:

- MEETING PRIOR TO EXCAVATING FROM BORROW AREA

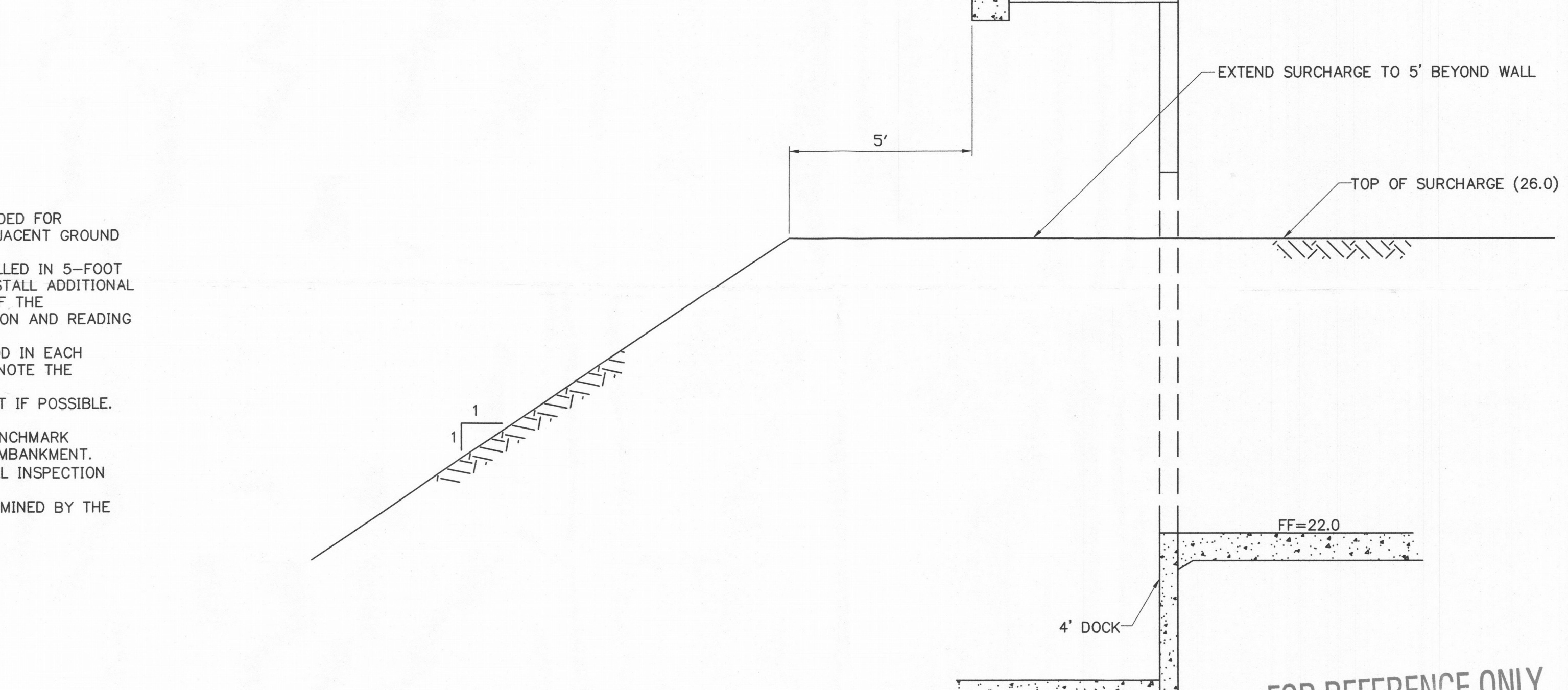


- NOTES:
- STRUCTURAL FILL IS REQUIRED TO THE PROPOSED BUILDING FLOOR ELEVATION TO ALLOW FOR UP TO 12" OF SETTLEMENT AND PLACEMENT OF BASE ROCK AND FLOOR SLAB.
 - IF STRUCTURAL FILLING IS NOT POSSIBLE (DUE TO THE TIME OF YEAR) ALL FILL MATERIAL WILL HAVE TO BE REMOVED AND COMPACTED PRIOR TO BUILDING CONSTRUCTION. COORDINATE WITH THE GEOTECHNICAL ENGINEER.



- NOTES:
- INSTALL MARKERS ON FIRM GROUND OR ON SAND PADS IF NEEDED FOR STABILITY. TAKE INITIAL READING ON TOP OF ROD AND AT ADJACENT GROUND LEVEL PRIOR TO PLACEMENT OF ANY FILL MATERIAL.
 - FOR EASE IN HANDLING, ROD AND CASING ARE USUALLY INSTALLED IN 5-FOOT SECTIONS. AS FILL PROGRESSES, COUPLINGS ARE USED TO INSTALL ADDITIONAL LENGTHS. CONTINUITY IS MAINTAINED BY READING THE TOP OF THE MEASUREMENT ROD, THEN IMMEDIATELY ADDING THE NEW SECTION AND READING THE TOP OF THE ADDED ROD. BOTH READINGS ARE RECORDED.
 - RECORD THE ELEVATION OF THE TOP OF THE MEASUREMENT ROD IN EACH MARKER AT THE RECOMMENDED TIME INTERVALS. EACH TIME, NOTE THE ELEVATION OF THE ADJACENT FILL SURFACE.
 - READ THE MARKER TO THE NEAREST 0.01 FOOT, OR 0.005 FOOT IF POSSIBLE. NOTE THE FILL ELEVATION TO THE NEAREST 0.1 FOOT.
 - THE ELEVATIONS SHOULD BE REFERENCED TO A TEMPORARY BENCHMARK LOCATED ON STABLE GROUND AT LEAST 100 FEET FROM THE EMBANKMENT.
 - GEOTECHNICAL ENGINEER (GEOENGINEERS) WILL PROVIDE SPECIAL INSPECTION AND MONITOR SURCHARGE.
 - LOCATION AND NUMBER OF MONITORING PLATES WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

1.1



- NOTES:
- STRUCTURAL FILL IS REQUIRED TO THE PROPOSED BUILDING FLOOR ELEVATION TO ALLOW FOR UP TO 12" OF SETTLEMENT AND PLACEMENT OF BASE ROCK AND FLOOR SLAB.
 - IF STRUCTURAL FILLING IS NOT POSSIBLE (DUE TO THE TIME OF YEAR) ALL FILL MATERIAL WILL HAVE TO BE REMOVED AND COMPACTED PRIOR TO BUILDING CONSTRUCTION. COORDINATE WITH THE GEOTECHNICAL ENGINEER.

1.1

FOR REFERENCE ONLY
Figure 1
Plan check 11.8.19
PERMIT SET - 1.4.19



4000 KRUSE WAY PLACE
BUILDING 3, SUITE 200
LAKE OSWEGO, OR 97035
(503) 624-9274

FIELD REPORT

File Number:

3626-071-00

Project:

Development at NE 158th Ave & NE Airport Way

Date:

September 12, 2019

Owner:

Prologis

Time of Arrival:

1100

Report Number:

FR-26

Prepared by:

Nathan Van Winkle

Location:

Portland, OR

Time of Departure:

1215

Page:

1 of 3

Purpose of visit:

Earthwork Observation

Weather:

Sunny, 70° F

Travel Time:

1.5 hr.

Permit Number:

Upon arrival to the site I assessed personal safety hazards: ☐ Yes or ☒ Referred to Site Safety Plan

Safety Hazards Were Addressed by: ☒ Staying Alert to Terrain and Equipment Hazards ☐ Other (describe):

I visited the site today for the Development at NE 158th Ave & NE Airport Way project in Portland, OR. I met with John Mickelson, Superintendent for Goodfellow Bros., Inc. (GBI, the earthwork contractor), while on-site. The following is a summary of my observations.

Cement Treated Subgrade Evaluation

Upon my arrival, I met with John (GBI) who informed me that recent changes to the building plan required that the building be moved 10-feet west of its current location. As such, an additional 10-feet of building pad would need to be constructed. He informed me that to facilitate construction of the new area of building pad, a 10-foot strip of native subgrade on the western edge of the existing building pad had been cement treated.

He informed me that the area had been treated on Saturday (09/07/19) with means and methods consistent with those we had previously observed on site. He informed me that the area had been treated at 5% to 7% cement by weight, to a depth of 12-inches below the existing subgrade surface.

I observed the surface to be firm under foot traffic and that it appeared consistently blended. There were indentations in the surface consistent with the segmented roller previously observed compacting the material (photo 1). I probed this cement treated material with a ½-inch steel foundation probe, typical penetrations under my full body weight were 2-3 inches indicating a generally firm condition. The approximate extent of the cement treated area probed today is shown on the attached site plan.

Before leaving the site I discussed with John my concerns in adding to the existing building pad. The slope of the existing building pad was poorly compacted, as it had previously been located outside the building area. He stated that attention would be paid to keying into the existing slope and removing poorly compacted material when expanding the building pad.



THIS FIELD REPORT IS PRELIMINARY

A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.

FIELD REPRESENTATIVE

Nathan Van Winkle

DATE

9/12/19



THIS FIELD REPORT IS FINAL

A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.

REVIEWED BY

Heidi P. Cashman, PE

DATE

9/26/19

This report presents opinions formed as a result of our observation of activities relating to our services only. We rely on the contractor to comply with the plans and specification throughout the duration of the project irrespective of the presence of our representative. Our work does not include supervision or direction of the work of others. Our firm will not be responsible for job or site safety of others on this project. **DISCLAIMER:** Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Attachments: Photo, Site Plan

Distribution: Prologis, GBI, File



Photo 1. Strip of treated native subgrade on the West edge of the building pad, taken looking south

Site Plan to Accompany FR26, 9/12/19

Legend



Cement amended subgrade evaluated today



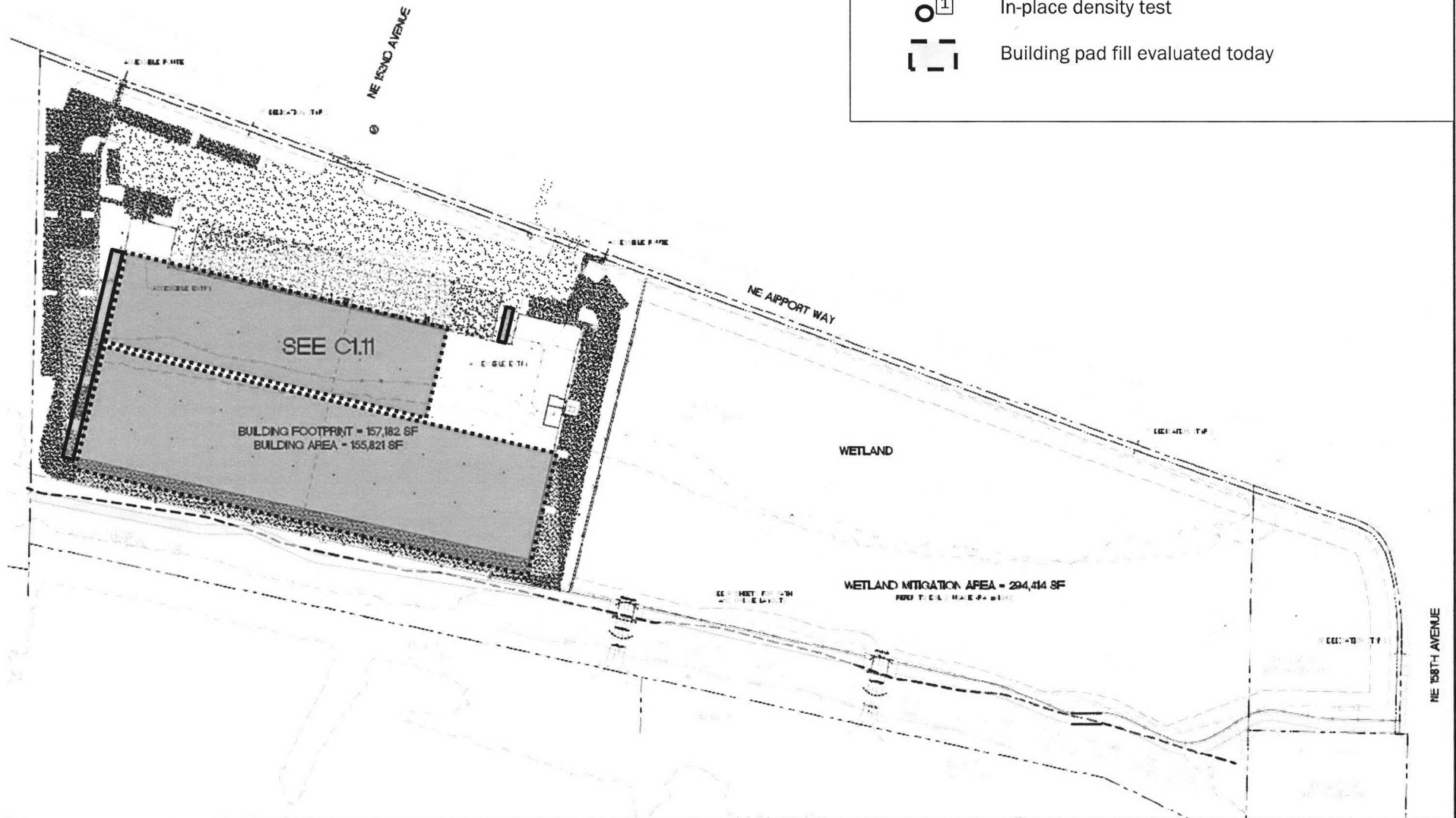
Surcharge fill placement to date



In-place density test



Building pad fill evaluated today





4000 KRUSE WAY PLACE
BUILDING 3, SUITE 200
LAKE OSWEGO, OR 97035
(503) 624-9274

FIELD REPORT

File Number:
3626-071-00

Project:
Development at NE 158th Ave & NE Airport Way

Date:
September 13, 2019

Owner:
Prologis

Time of Arrival:
0930

Report Number:
FR-27

Prepared by:
Nathan Van Winkle

Location:
Portland, OR

Time of Departure:
1330

Page:
1 of 4

Purpose of visit:
Earthwork Observation

Weather:
Sunny, 70°F

Travel Time:
1.5 hr.

Permit Number:

Upon arrival to the site I assessed personal safety hazards: ☐ Yes or ☒ Referred to Site Safety Plan
Safety Hazards Were Addressed by: ☒ Staying Alert to Terrain and Equipment Hazards ☐ Other (describe):

I visited the site today for the Development at NE 158th Ave & NE Airport Way project in Portland, OR. I met with John Mickelson, Superintendent for Goodfellow Bros., Inc. (GBI, the earthwork contractor), while on-site. The following is a summary of my observations.

Pad Fill Evaluation

Upon my arrival, I observed that GBI had begun building the new pad area on the west side of site. I observed that they had stripped the placed surcharge back from near the working area, and removed much of the poorly compacted slope material, as discussed yesterday (FR 26, 09/12/19). I observed that they had placed a 12 to 18 inch lift of fill material over the cement treated subgrade observed yesterday. I observed them compacting the material with a CAT CS64 segmented roller. The fill material consisted of silt sourced from an area of the building pad that had been removed in the recent re-design (see attached site plan for location of borrow material). This source material was a mixture of cement treated and untreated material and can be seen in photo 1.

After the lift had been compacted with several passes of the segmented roller I probed the lift with a ½-inch steel foundation probe. Resulting penetrations under my full body weight were 3 to 6 inches indicating a medium stiff condition. When subjected to the roller loading, I observed the material deflecting up to 6 inches.

GBI proceeded to build this area with 18-inch lifts, further keying into the existing slope with each lift, mixing this material with the imported fill and compacting it. At each lift I conducted a series of in-place moisture tests on the prepared cement fill material. Tests were performed with a Troxler nuclear density gauge in general accordance with ASTM International (ASTM) Standard Practices Test Method D 6938-17a at a depth of 12-inches. Results were compared to a maximum dry density (MDD) of 96.8 pounds per cubic foot (pcf) with an optimum moisture content (OMC) of 21.9 percent. A summary of the results can be found in the attached Moisture Density Test Summary sheet.

Due to the presence of cement in the material density tests results were used to document the general consistency of the material. The compaction of the material was evaluated based on the results of probing each layer with a ½-inch steel foundation probe as described above, which provided consistent penetrations of 3- to 6-inches, and difficulty to drive the testing pin. I discussed with John (GBI) that this area will be further evaluated once the preload/surcharge fill is removed and that corrective measures of any soft spots may be required at that time.

I remained on site until the building pad had been built to 4-feet above the native subgrade, at which time I departed the site.

☐ **THIS FIELD REPORT IS PRELIMINARY**

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FIELD REPRESENTATIVE

Nathan Van Winkle

DATE

9/13/19

☒ **THIS FIELD REPORT IS FINAL**

A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.

REVIEWED BY

Heidi P. Cashman, PE

DATE

9/26/19

This report presents opinions formed as a result of our observation of activities relating to our services only. We rely on the contractor to comply with the plans and specification throughout the duration of the project irrespective of the presence of our representative. Our work does not include supervision or direction of the work of others. Our firm will not be responsible for job or site safety of others on this project. **DISCLAIMER:** Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Attachments: Photos, Site Plan, Density test results

Distribution: Prologis, GBI, File



Photo 1. Borrow material used as fill today



Photo 2. Strip of pad being built on the West edge of site

GEOENGINEERS

Summary of In-Place Moisture and Density Tests

Project: Development at NE 158th Ave & NE Airport Way

Project No. 3626-071-00

Page 1 of 1

		Retest							Laboratory			Field				
Test Date	Test No.	Initial Test Date	Initial Test No.	General Location	Elev. (feet)	Feet from base	Soil Type	Type of Compactor	Sample No.	OMC (%)	Max Dry Density (pcf)	Moisture (%)	Dry Density (pcf)	Percent Compaction Achieved	Percent Compaction Specified	Pass/Fail
9/13/19	1			West Strip Fill Area North		1.5	Si	S	S-1	21.9%	96.8	30.6%	82.2	85%	N/A	N/A
9/13/19	2			West Strip Fill Area South		1.5	Si	S	S-1	21.9%	96.8	31.3%	81.2	84%	N/A	N/A
9/13/19	3			West Strip Fill Area North		3	Si	S	S-1	21.9%	96.8	35.6%	79.0	76%	N/A	N/A
9/13/19	4			West Strip Fill Area South		3	Si	S	S-1	21.9%	96.8	41.8%	41.8	76%	N/A	N/A
9/13/19	5			West Strip Fill Area North		4.5	Si	S	S-1	21.9%	96.8	29.9%	83.2	83%	N/A	N/A
9/13/19	6			West Strip Fill Area South		4.5	Si	S	S-1	21.9%	96.8	36.5%	78.1	75%	N/A	N/A

Percent Compaction Based On: ☐ Standard Proctor (AASHTO T99-57, ASTM D-698)
☒ Modified Proctor (AASHTO T180-57, ASTM D-1557)

Density Test Method

- ☒ N - Nuclear (ASTM D-2922)
☐ SC - Sand Cone (ASTM D-1556)
☐ RB - Rubber Ballon (ASTM D-3107)

Abbreviations

- OMC - Optimum Moisture Content
RT - Retest of an area
SL - Slightly

Type of Compactor

- R - Rubber-tired Roller
V - Vibratory Compactor
S - Sheepsfoot Roller
GD - Grid Roller
BV - Backhoe Vibratory Plate
JJ - Jumping Jack
L - Loaded Scraper
VP - Vibratory Plate
HT - Hand Tamper

Soil Type

- S - Sand s - sandy
G - Gravel g - gravelly
Si - Silt si - silty
C - Clay c - clayey

Site Plan to Accompany FR27, 9/13/19

Legend



Fill placed and observed today



Surcharge fill placement to date



In-place density test



Material borrow used today pad fill evaluated today

All in place density testing occurred within the fill area, at each lift one test was taken on the north and south end

