FIELD DENSITY TESTING REPORT

Report Number: 02191565.0004
Service Date: 03/06/20
Report Date: 03/11/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building pad and Site backfill (See attached diagram)

Material Type Tested: Weathered Shale, gray

Proctor No.: 02191565.0002A

Compaction Equipment: Sheepsfoot roller

Contractor placing the fill: Larry Bair Construction

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Specified moisture %: 0% to 4% above optimum moisture content, obtained from geotechnical report

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing with Observation:
The referenced fill material was placed in approximately 8-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of native soil. The elevation at the test locations today was from 14 feet below finished grade as provided by Norm with Axiom.

Tests:
Terracon performed 5 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction and moisture content.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Results of the test performed by Terracon were reported to Norm with Axiom before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Kevin Hollis
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0004
Service Date: 03/06/20
Report Date: 03/11/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002A	Weathered Shale trace Gravel, gray	ASTM D698	15.3	112.6	15.3 - 18.3	Min 95

Field Test Data

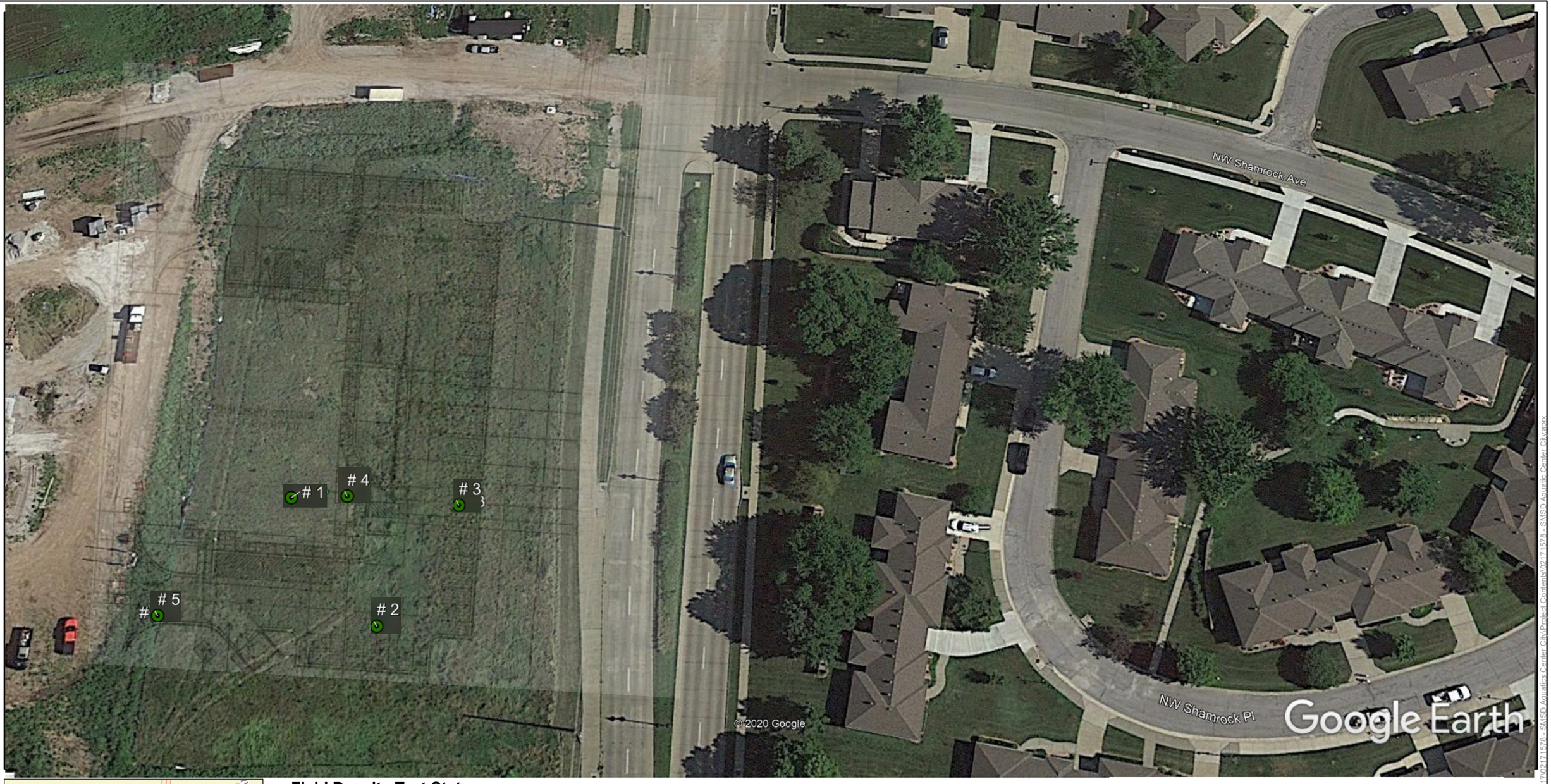
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Mass Fill								
1	38.916092N 94.413989 W	-13'4"	1	6	132.8	19.6	17.3	113.2	100+
2	38.915919N 94.413851W	-13'4"	1	6	130.4	18.7	16.7	111.7	99
3	38.916086N 94.413726W	-12'8"	1	6	132.1	19.4	17.2	112.7	100
4	39.916099N 94.413935W	-12'8"	1	6	130.3	20.1	18.2	110.2	98
5	38.915921N 94.414261W	-12'8"	1	6	129.2	18.0	16.2	111.2	99

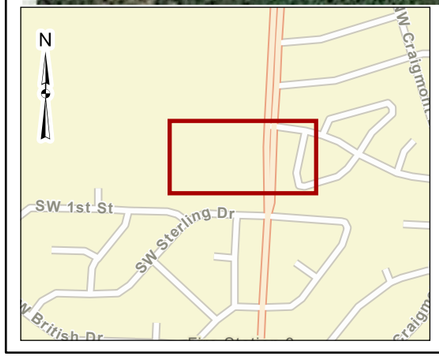
Datum: Top of Ground **Std. Cnt. M:** 688 **Std. Cnt. D:** 2081
S/N: 37061 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/23/2019
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Kevin Hollis
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938





Field Density Test Status

Pass -- 5 Test(s)

Report No.:	02191565.0004
Service Date:	03/06/2020
Technician:	Kevin Hollis
Scale:	1" = 80'

Terracon
Consulting Engineers & Scientists
13910 West 96th Terr Lenexa, KS 66215
PH. (913) 998 7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0006
Service Date: 03/07/20
Report Date: 03/11/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building pad and Site backfill (See attached diagram)

Material Type Tested: Weathered Shale, yellowish brown; Weathered Shale, gray

Proctor No.: 02191565.0002B; 02191565.0002A

Compaction Equipment: Sheepsfoot roller

Contractor placing the fill: Larry Bair Construction

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Specified moisture %: 0% to 4% above optimum moisture content, obtained from geotechnical report

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing with Observation:
The referenced fill material was placed in approximately 8-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of previously placed and tested fill.
The elevation at the test locations today was from 966 to 971, as estimated from site grade stakes.

Tests:
Terracon performed 7 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction and moisture content.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Results of the test performed by Terracon were reported to Norm with Axiom before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0006
Service Date: 03/07/20
Report Date: 03/11/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002B	Weathered Shale trace Gravel, yellowish brown	ASTM D698	19.8	103.5	19.8 - 23.8	Min 95
2	02191565.0002A	Weathered Shale trace Gravel, gray	ASTM D698	15.3	112.6	15.3 - 19.3	Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Site Fill (See Attached Diagram)								
1	Y: 38.91610, X: -94.41385	966.5	1	8	128.7	22.2	20.8	106.5	100+
2	Y: 38.91639, X: -94.41380	971	1	8	128.0	22.1	20.9	105.9	100+
	Building Pad								
3	Y: 38.91616, X: -94.41398	969	2	8	127.8	20.2	18.8	107.6	96
4	Y: 38.91636, X: -94.41396	971	1	8	125.3	21.7	20.9	103.6	100
	Site Fill								
5	Y: 38.91614, X: -94.41385	969	1	8	126.0	22.2	21.4	103.8	100
	Building Pad								
6	Y: 38.91622, X: -94.41409	970	1	8	126.5	21.7	20.7	104.8	100+
	Site Fill								
7	Y: 38.91603, X: -94.41396	966	1	8	123.6	23.3	23.2	100.3	97

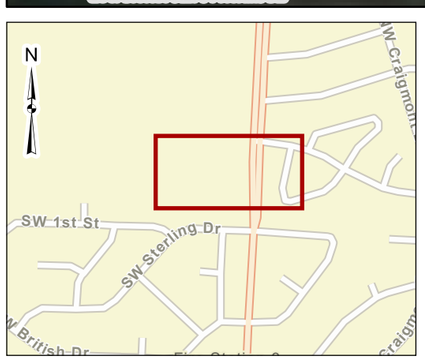
Datum: Civil Elevation **Std. Cnt. M:** 644 **Std. Cnt. D:** 1995
S/N: 36256 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/24/2019

Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

Pass -- 7 Test(s)

Report No.:	02191565.0006
Service Date:	03/07/2020
Technician:	Carl Creamer
Scale:	1" = 80'

Terracon
Consulting Engineers & Scientists
13910 West 96th Terr Lenexa, KS 66215
PH. (913) 998 7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0007
Service Date: 03/07/20
Report Date: 03/11/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building Pad and Site backfill (See attached diagram)

Material Type Tested: Weathered shale trace gravel, yellowish brown

Proctor No.: 02191565.0002B

Compaction Equipment: Sheepsfoot roller

Contractor placing the fill: Larry Bair Excavating

Specified Compaction %: 95% of Standard Proctor (ASTM D 698

Specified moisture %: 0% to 4% above optimum moisture content, obtained from geotechnical report

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing with Observation:
The referenced fill material was placed in approximately 8-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of previously placed and tested fill.

Tests:
Terracon performed 2 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction and moisture content.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Todd Lawler
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0007
Service Date: 03/07/20
Report Date: 03/11/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002B	Weathered Shale trace Gravel, yellowish brown	ASTM D698	19.8	103.5	19.8 - 23.8	Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building Pad (See Attached Diagram)								
1	Y: 38.91611, X: -94.41408	970'	1	8	121.5	22.1	22.2	99.4	96
2	Y: 38.91639, X: -94.41392	972'	1	8	122.6	21.8	21.6	100.8	97

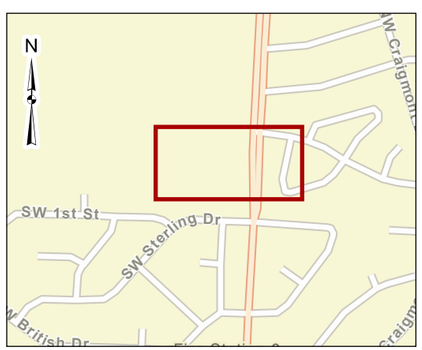
Datum: Civil Elevation
S/N: **Make:** **Model:** **Last Cal. Date:**
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Todd Lawler
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938

DIAGRAM IS FOR GENERAL LOCATION ONLY
AND IS NOT INTENDED FOR CONSTRUCTION PUPOSES
LOCATIONS ARE APPROXIMATE



Field Density Test Status

⊙ Passing -- 2 Test(s)

Report No.:	02191565.0007
Service Date:	03/07/2020
Technician:	Todd Lawler
Scale:	1" = 80'

Terracon
Consulting Engineers & Scientists
13910 West 96th Terr Lenexa, KS 66215
PH. (913) 998 7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0009
Service Date: 03/26/20
Report Date: 04/02/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Mass fill

Material Type Tested: Weathered Shale trace Gravel, yellowish brown

Proctor No.: 02191565.0002B

Compaction Equipment: Pad Foot Roller

Contractor placing the fill: Larry Bair Excavating

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Specified moisture %: 0 to 4% above optimum moisture content, as obtained from the geotechnical report.

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing with Observation:
The referenced fill material was placed in approximately 8-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of previously placed and tested fill. The elevation at the test locations today was approximately 974 feet, but the GPS was not set up and this was only an estimate provided by Larry Baier .

Tests:
Terracon performed 4 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. Two of the four tests performed met the project specifications for compaction and moisture content, the other two were retested on April 2, 2020 (refer to Terracon Report No. 02191565.0012 for retests).

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0009
Service Date: 03/26/20
Report Date: 04/02/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Results of the test performed by Terracon were reported to Norm with Axiom Construction before leaving the project site.

Services:

Terracon Rep.: Kevin Hollis
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0009
Service Date: 03/26/20
Report Date: 04/02/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002B	Weathered Shale trace Gravel, yellowish brown	ASTM D698	19.8	103.5	19.8 - 23.8	Min 95

Field Test Data

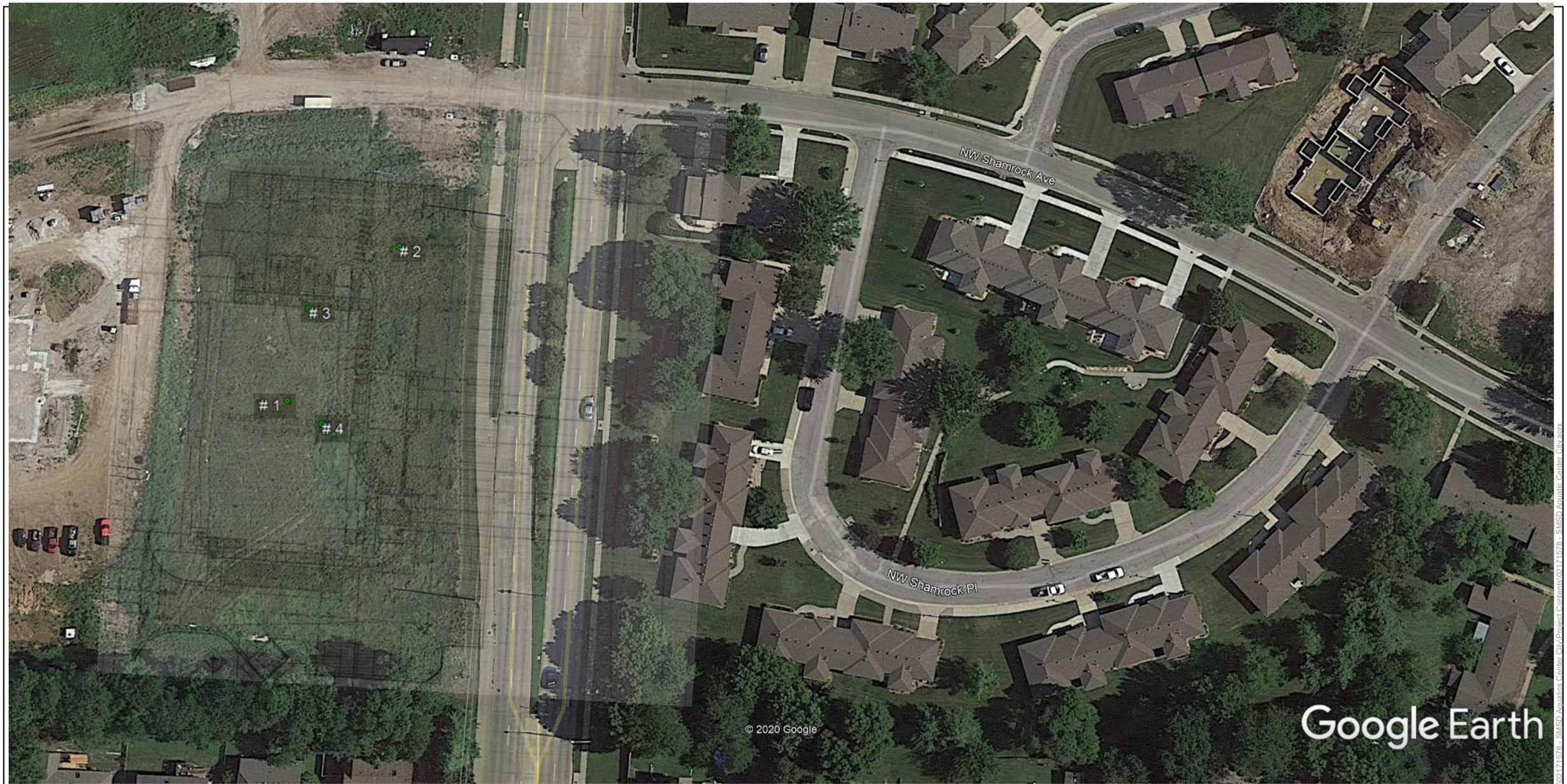
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)		Dry Density (pcf)	Percent Compaction (%)
	Mass Fill									
1	38.916142N -94.413994W	974	1	6	120.8	21.9	22.1		98.9	96
2	38.916461N -94.413720W	974	1	6	116.5	17.3	17.4	*	99.2	96
3	39.916328N -94.413940W	974	1	6	122.0	19.9	19.5	*	102.1	99
4	38.916092N -94.413898W	974	1	6	125.9	22.0	21.2		103.9	100

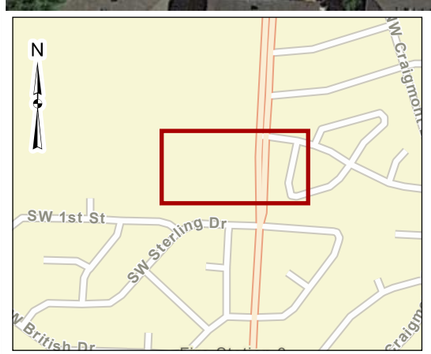
Datum: Civil Elevation
S/N: **Make:** **Model:** **Last Cal. Date:**
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services:
Terracon Rep.: Kevin Hollis
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghassein
Project Manager

Test Methods: ASTM D6938





Field Density Test Status

Pass -- 4 Test(s)

Report No.:	02191565.0009
Service Date:	03/26/2020
Technician:	Kevin Hollis
Scale:	1" = 80'

Terracon
Consulting Engineers & Scientists
13910 West 96th Terr Lenexa, KS 66215
PH. (913) 998 7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0010
Service Date: 03/31/20
Report Date: 04/03/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building Pad and Parking Lot Fill

Material Type Tested: Weathered Shale trace Gravel, yellowish brown.

Proctor No.: 02191565.0002B

Compaction Equipment: Pad Foot Roller

Contractor placing the fill: Larry Bair Excavating

Specified Compaction %: 95% of Standard Proctor (ASTM D 698).

Specified moisture %: 0% to +4% above optimum moisture content, as obtained from the geotechnical report.

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing with Observation:
The referenced fill material was placed in approximately 10-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of previously placed and tested fill.

Tests:
Terracon performed 6 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction and moisture content.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Results of the test performed by Terracon were reported to Norm with Axiom Construction before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Caleb Brewer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0010
Service Date: 03/31/20
Report Date: 04/03/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002B	Weathered Shale trace Gravel, yellowish brown	ASTM D698	19.8	103.5	19.8 - 23.8	Min 95

Field Test Data

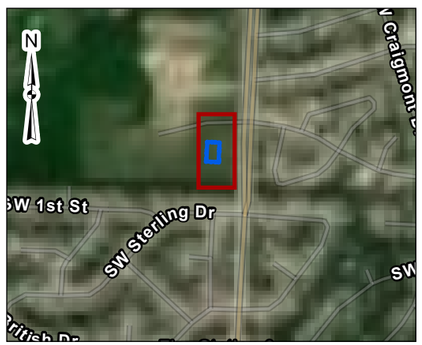
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building Pad (See Attached Diagram)								
1	Y: 38.91613, X: -94.41412	971.4'	1	6	122.3	20.8	20.5	101.5	98
2	Y: 38.91633, X: -94.41410	973.0'	1	6	123.9	20.6	19.9	103.3	100
	Parking Lot								
3	Y: 38.91607, X: -94.41377	970.0'	1	8	123.9	21.8	21.4	102.1	99
4	Y: 38.91624, X: -94.41383	972.3'	1	8	125.3	22.2	21.5	103.1	100
5	Y: 38.91650, X: -94.41373	974.8'	1	8	122.3	20.2	19.8	102.1	99
6	Y: 38.91593, X: -94.41382	968.5'	1	8	119.6	21.4	21.8	98.2	95

Datum: Civil Elevation (feet) **Std. Cnt. M:** 620 **Std. Cnt. D:** 1933
S/N: 36264 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/21/2019
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Caleb Brewer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

- Pass -- 6 Test(s)

0 15 30 60 90 Feet

Report No.:	01191565.0010
Service Date:	03/31/2020
Technician:	Caleb Brewer
Scale:	1" = 30'

Terracon
Consulting Engineers & Scientists
15620 W 113th Street Lenexa, KS 66219
PH. (913) 492-7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0011
Service Date: 04/01/20
Report Date: 04/03/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building Pad and Parking Lot Fill

Material Type Tested: Weathered Shale trace Gravel, yellowish brown.

Proctor No.: 02191565.0002B

Compaction Equipment: Pad Foot Roller

Contractor placing the fill: Larry Bair Excavating

Specified Compaction %: 95% of Standard Proctor (ASTM D 698).

Specified moisture %: 0% to +4% above optimum moisture content, as obtained from the geotechnical report.

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing with Observation:
The referenced fill material was placed in approximately 8-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of previously placed and tested fill.

Tests:
Terracon performed 3 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction and moisture content.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Results of the test performed by Terracon were reported to Norm with Axiom Construction before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0011
Service Date: 04/01/20
Report Date: 04/03/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002B	Weathered Shale trace Gravel, yellowish brown	ASTM D698	19.8	103.5	19.8 - 23.8	Min 95

Field Test Data

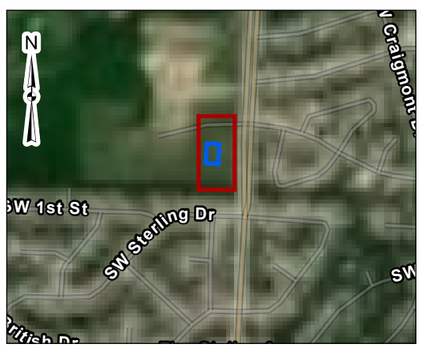
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building Pad (See Attached Diagram)								
1	Y: 38.91638, X: -94.41396	974.0'	1	8	124.0	22.4	22.0	101.6	98
2	Y: 38.91632, X: -94.41417	974.0'	1	8	123.7	22.6	22.4	101.1	98
3	Y: 38.91617, X: -94.41421	973.0'	1	8	123.2	21.8	21.5	101.4	98

Datum: Civil Elevation (feet) **Std. Cnt. M:** 643 **Std. Cnt. D:** 1977
S/N: **Make:** **Model:** **Last Cal. Date:**
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

- Pass -- 3 Test(s)

0 15 30 60 90 Feet

Report No.:	01191565.0011
Service Date:	04/01/2020
Technician:	Carl Creamer
Scale:	1" = 30'

Terracon
Consulting Engineers & Scientists
15620 W 113th Street Lenexa, KS 66219
PH. (913) 492-7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0012
Service Date: 04/02/20
Report Date: 04/03/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location:	Building Pad and Parking Lot Fill
Material Type Tested:	Weathered shale trace gravel, yellowish brown; weathered shale trace gravel, gray
Proctor No.:	02191565.0002B and 02191565.0002A
Compaction Equipment:	Pad foot roller
Contractor placing the fill:	Larry Bair Excavating
Specified Compaction %:	95% of Standard Proctor (ASTM D 698)
Specified moisture %:	0% to +4% above optimum moisture content, as obtained from the geotechnical report

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing with Observation:
The referenced fill material was placed in approximately 10-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of previously placed and tested fill.

Tests:
Terracon performed 4 nuclear field density tests, and 1 retest to determine wet density and water content in general accordance with ASTM D6938. One of the tests and its corresponding retest performed did not meet the project specifications for moisture content.

Deviations: Test No. 4 did not meet project specifications for moisture content. The materials represented by these tests should be moisture conditioned and recompacted and follow-up tests scheduled.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0012
Service Date: 04/02/20
Report Date: 04/03/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Results of the test performed by Terracon were reported to Norm with Axiom before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Feras El-Ghussein
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0012
Service Date: 04/02/20
Report Date: 04/03/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002B	Weathered Shale trace Gravel, yellowish brown	ASTM D698	19.8	103.5	19.8 - 23.8	Min 95
2	02191565.0002A	Weathered Shale trace Gravel, gray	ASTM D698	15.3	112.6	15.3 - 19.3	Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)		Dry Density (pcf)	Percent Compaction (%)
	Building Pad and Parking Lot (See attached diagram)									
1	Retest of Report 02191565.0009, Test 2	975.5	1	8	121.0	20.5	20.4		100.5	97
2	Retest of Report 02191565.0009, Test 3	973.5	1	8	125.0	20.7	19.8		104.3	100+
3	Y: 38.916303, X: -94.413821	972.6	2	6	129.8	17.1	15.2	*	112.7	100
4	Retest of Test No. 3, Y: 38.916252, X: -94.413874	972.6	2	10	136.1	16.1	13.4	*	120.0	100+
5	Y: 38.916439, X: -94.414001	975.0	2	10	134.1	18.3	15.8		115.8	100+

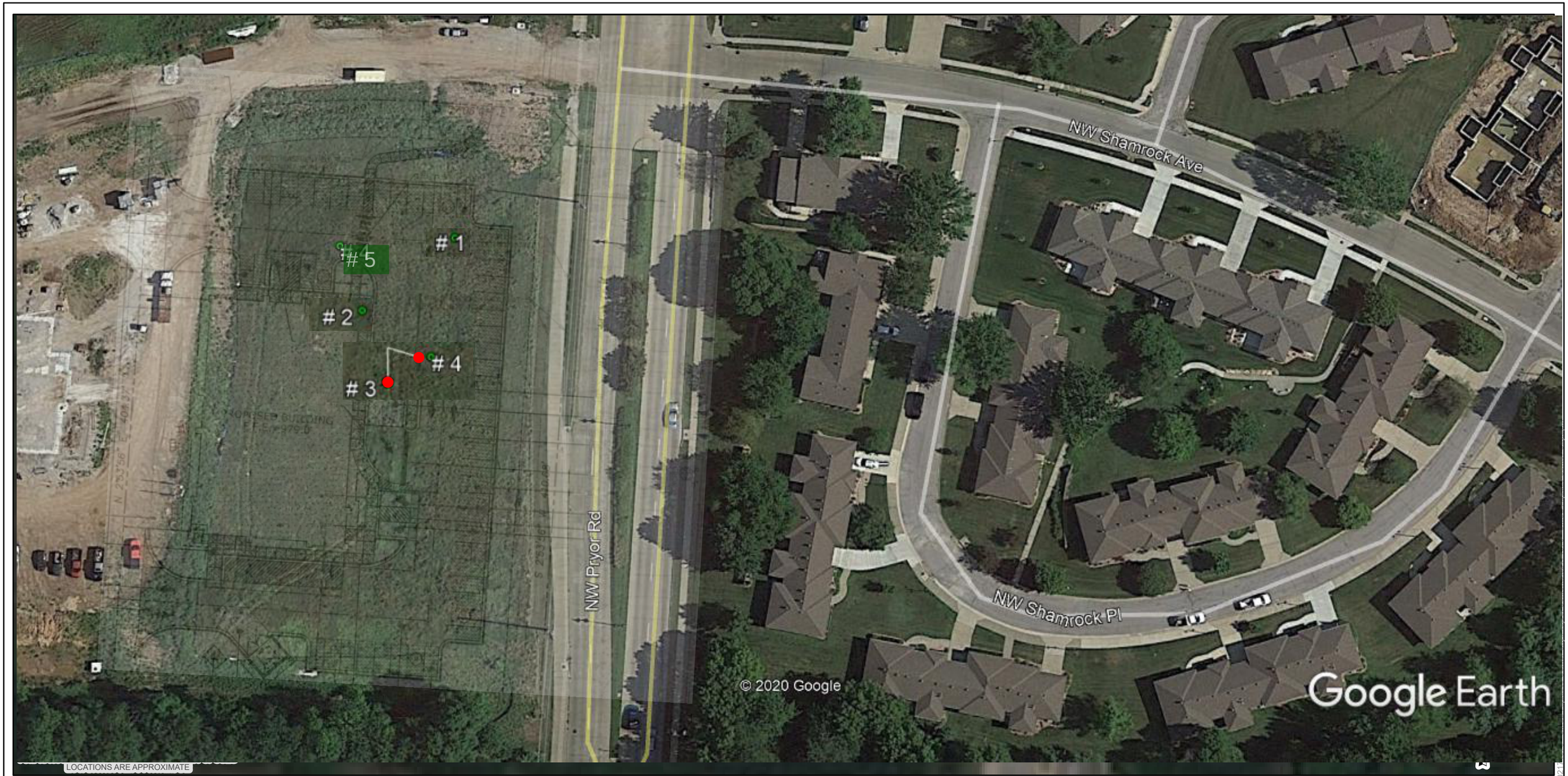
Datum: Civil Elevation **Std. Cnt. M:** 746 **Std. Cnt. D:** 2139
S/N: 38862 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/23/2019

Comments: **An asterisk (*) appears next to the test results which do not meet the project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Feras El-Ghussein
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

- Pass -- 3 Test(s)
- Fail -- 1 Test (s)

Report No.:	02191565.0012
Service Date:	04/03/2020
Technician:	Feras El-Ghussein
Scale:	NTS

Terracon
Consulting Engineers & Scientists
13910 West 96th Terr Lenexa, KS 66215
PH. (913) 998 7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

N:\TARGET\D\Terracon Projects\Divisions\CEL\Lenexa\2017\02191565.0012 DCI - Lee's Summit\Exhibit A-1 Observed Locations.dwg

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0014
Service Date: 04/07/20
Report Date: 04/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Pavement subgrade and Building Pad

Material Type Tested: Weathered Shale trace Gravel, gray

Proctor No.: 02191565.0002A

Compaction Equipment: Sheepsfoot roller

Contractor placing the fill: Larry Bair Construction

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Specified moisture %: 0% to 4% above optimum moisture content, as obtained from the geotechnical report

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing without Observation:
Terracon was directed to the previously placed and compacted fill by Norm with Axiom. Terracon was not on-site during fill placement to observe the material below the fill placed or observe lift thickness and compaction equipment.

Tests:
Terracon performed 3 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed did not meet the project specifications for moisture content.

Deviations: Test Nos. 1 to 3 did not meet project specifications for compaction and/or moisture content. We've observed that the materials represented by these tests were moisture conditioned, recompacted, and follow-up tests performed. Refer to Terracon Report No. 02191565.0015 for the results of these tests.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested. Results of the test performed by Terracon were reported to Norm with Axiom before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0014
Service Date: 04/07/20
Report Date: 04/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002A	Weathered Shale trace Gravel, gray	ASTM D698	15.3	112.6	15.3 - 19.3	Min 95

Field Test Data

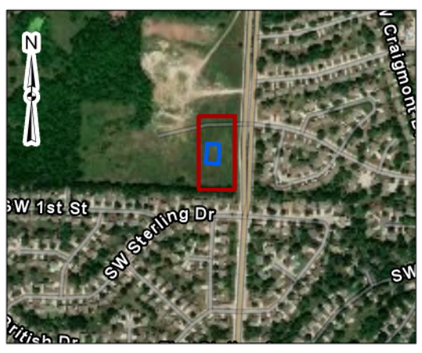
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building Pad and East Parking (See Attached Diagram)								
1	Y: 38.91639, X: -94.41388	975.5'	1	8	133.6	15.5	13.1 *	118.1	100+
2	Y: 38.91629, X: -94.41404	975.5'	1	8	135.4	15.3	12.7 *	120.1	100+
3	Y: 38.91612, X: -94.41414	975.5'	1	8	136.7	15.7	13.0 *	121.0	100+

Datum: Civil Elevation (feet) **Std. Cnt. M:** 646 **Std. Cnt. D:** 1987
S/N: 36257 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/24/2019
Comments: **An asterisk (*) appears next to the test results which do not meet the project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

- Fail -- 3 Test(s)

0 15 30 60 90 Feet

Report No.:	01191565.0014
Service Date:	04/07/2020
Technician:	Carl Creamer
Scale:	1" = 30'

Terracon
Consulting Engineers & Scientists
15620 W 113th Street Lenexa, KS 66219
PH. (913) 492-7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

DEVIATION LOG

Report Date: 4/13/2020

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Deviation No.	Report No.	Service	Service Date	Description/Comments	How Resolved	Date Resolved	Status
D000001	0012	Field Density Testing	04/02/20	Moisture content does not comply, Test 4			Open
D000002	0014	Field Density Testing	04/07/20	Moisture content does not comply, Test 1	Moisture conditioned and retested, refer to Terracon Report 02191565.0015	04/08/20	Closed
D000003	0014	Field Density Testing	04/07/20	Moisture content does not comply, Test 2	Moisture conditioned and retested, refer to Terracon Report 02191565.0015	04/08/20	Closed
D000004	0014	Field Density Testing	04/07/20	Moisture content does not comply, Test 3	Moisture conditioned and retested, refer to Terracon Report 02191565.0015	04/08/20	Closed
D000005	0015	Field Density Testing	04/08/20	Moisture content does not comply, Test 1	Moisture conditioned and retested, refer to Terracon Report 02191565.0016	04/09/20	Closed
D000006	0015	Field Density Testing	04/08/20	Moisture content does not comply, Test 2	Moisture conditioned and retested, refer to Terracon Report 02191565.0016	04/09/20	Closed
D000007	0015	Field Density Testing	04/08/20	Moisture content does not comply, Test 3	Moisture conditioned and retested, refer to Terracon Report 02191565.0016	04/09/20	Closed

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0015
Service Date: 04/08/20
Report Date: 04/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Pavement subgrade and Building Pad

Material Type Tested: Weathered Shale trace Gravel, gray

Proctor No.: 02191565.0002A

Compaction Equipment: Sheepsfoot roller

Contractor placing the fill: Larry Bair Construction

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Specified moisture %: 0% to 4% above optimum moisture content, as obtained from the geotechnical report

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing without Observation:
Terracon was directed to the previously placed and compacted fill by Norm with Axiom. Terracon was not on-site during fill placement to observe the material below the fill placed or observe lift thickness and compaction equipment.

Tests:
Terracon performed 3 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed did not meet the project specifications for moisture content.

Deviations: Test Nos. 1 to 3 did not meet project specifications for compaction and/or moisture content. We've observed that the materials represented by these tests were moisture conditioned, recompacted, and follow-up tests performed. Refer to Terracon Report No. 02191565.0016 for the results of these tests.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested. Results of the test performed by Terracon were reported to Norm with Axiom before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Kevin L. McCurdy
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0015
Service Date: 04/08/20
Report Date: 04/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002A	Weathered Shale trace Gravel, gray	ASTM D698	15.3	112.6	15.3 - 19.3	Min 95

Field Test Data

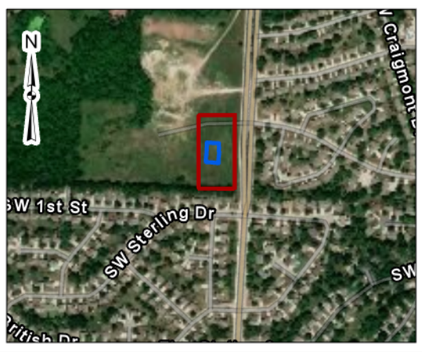
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building pad								
1	N 38.91633, W 94.41411	975.5	1	6	134.5	16.7	14.2 *	117.8	100+
2	N 38.91615, W 94.41397	975.5	1	6	133.4	16.1	13.7 *	117.3	100+
3	N 38.91621, W 94.41367	975.5	1	6	138.1	16.8	13.8 *	121.3	100+

Datum: Civil Elevation (feet)
S/N: 60910 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/22/2019
Comments: **An asterisk (*) appears next to the test results which do not meet the project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Kevin L. McCurdy
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

- Fail -- 3 Test(s)

0 15 30 60 90 Feet

Report No.:	02191565.0015
Service Date:	04/08/2020
Technician:	Kevin McCurdy
Scale:	1" = 30'

Terracon
Consulting Engineers & Scientists
15620 W 113th Street Lenexa, KS 66219
PH. (913) 492-7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

DEVIATION LOG

Report Date: 4/13/2020

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Deviation No.	Report No.	Service	Service Date	Description/Comments	How Resolved	Date Resolved	Status
D000001	0012	Field Density Testing	04/02/20	Moisture content does not comply, Test 4			Open
D000002	0014	Field Density Testing	04/07/20	Moisture content does not comply, Test 1	Moisture conditioned and retested, refer to Terracon Report 02191565.0015	04/08/20	Closed
D000003	0014	Field Density Testing	04/07/20	Moisture content does not comply, Test 2	Moisture conditioned and retested, refer to Terracon Report 02191565.0015	04/08/20	Closed
D000004	0014	Field Density Testing	04/07/20	Moisture content does not comply, Test 3	Moisture conditioned and retested, refer to Terracon Report 02191565.0015	04/08/20	Closed
D000005	0015	Field Density Testing	04/08/20	Moisture content does not comply, Test 1	Moisture conditioned and retested, refer to Terracon Report 02191565.0016	04/09/20	Closed
D000006	0015	Field Density Testing	04/08/20	Moisture content does not comply, Test 2	Moisture conditioned and retested, refer to Terracon Report 02191565.0016	04/09/20	Closed
D000007	0015	Field Density Testing	04/08/20	Moisture content does not comply, Test 3	Moisture conditioned and retested, refer to Terracon Report 02191565.0016	04/09/20	Closed

FIELD DENSITY TESTING REPORT

Report Number: 02191565.0016
Service Date: 04/09/20
Report Date: 04/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Pavement subgrade and Building Pad

Material Type Tested: Weathered Shale trace Gravel, gray

Proctor No.: 02191565.0002A

Compaction Equipment: Sheepsfoot roller

Contractor placing the fill: Larry Bair Construction

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Specified moisture %: 0% to 4% above optimum moisture content, as obtained from the geotechnical report

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing without Observation:
Terracon was directed to the previously placed and compacted fill by Norm with Axiom. Terracon was not on-site during fill placement to observe the material below the fill placed or observe lift thickness and compaction equipment.

Tests:
Terracon performed 5 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. 2 of the 5 tests performed did not meet the project specifications for moisture content. The material represented by these tests were moisture conditioned, recompacted, and retested the same day, and the retests met project specifications.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested. Results of the test performed by Terracon were reported to Norm with Axiom before leaving the project site.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.

Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:

Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0016
Service Date: 04/09/20
Report Date: 04/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0002A	Weathered Shale trace Gravel, gray	ASTM D698	15.3	112.6	15.3 - 19.3	Min 95

Field Test Data

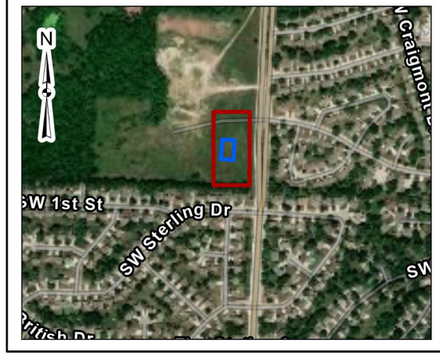
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building Pad and East Parking (See Attached Diagram)								
1	Y: 38.91637, X: -94.41392, Retest of test 1, 4/8/2020	975.5'	1	8	136.5	16.3	13.6 *	120.2	100+
2	Y: 38.91628, X: -94.41409, Retest of test 2, 4/8/2020	975.5'	1	8	134.4	17.8	15.3	116.6	100+
3	Y: 38.91613, X: -94.41417, Retest of test 3, 4/8/2020	975.5'	1	8	138.5	17.0	14.0 *	121.5	100+
4	Y: 38.91638, X: -94.41394, Retest of test 1, 4/9/2020	975.5'	1	8	141.0	19.2	15.8	121.8	100+
5	Y: 38.91614, X: -94.41415, Retest of test 3, 4/9/2020	975.5'	1	8	133.5	19.1	16.7	114.4	100+

Datum: Civil Elevation (feet) **Std. Cnt. M:** 644 **Std. Cnt. D:** 1995
S/N: 36257 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/24/2019
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition.
Terracon Rep.: Carl W. Creamer
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

- Pass -- 3 Test(s)
- Retested/ Accepted Same Day -- 2 Test(s)

0 15 30 60 90 Feet

Report No.:	01191565.0016
Service Date:	04/09/2020
Technician:	Carl Creamer
Scale:	1" = 30'

Terracon
Consulting Engineers & Scientists
15620 W 113th Street Lenexa, KS 66219
PH. (913) 492-7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

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FIELD DENSITY TESTING REPORT

Report Number: 02191565.0017
Service Date: 04/10/20
Report Date: 04/19/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building pad (west side) and Pavement Subgrade(east side)

Material Type Tested: Fat clay (west side) and Weathered shale(east side)

Proctor No.: 02191565.0001A and 02191565.0002A

Compaction Equipment: Pad foot roller

Contractor placing the fill: Larry Bair Excavating

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Specified moisture %: 0% to+4% above optimum moisture content, as obtained from geotechnical report.

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing without Observation:
The referenced fill material was placed in approximately 8-inch thick lifts and compacted with the equipment referenced above. Prior to fill placement the exposed subgrade consisted of previously placed and tested fill.

Tests:
Terracon performed 7 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction and moisture content.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Results of the test performed by Terracon were reported to Norm w/Axiom before leaving the project site.

Services:

Terracon Rep.: Canaan Punzo
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0017
Service Date: 04/10/20
Report Date: 04/19/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0001A	Fat Clay (CH), brown & grayish brown	ASTM D698	19.0	100.3	19.0 - 23.0	Min 95
2	02191565.0002A	Weathered Shale trace Gravel, gray	ASTM D698	15.3	112.6	15.3 - 19.3	Min 95

Field Test Data

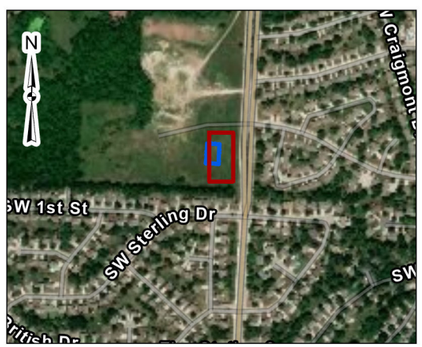
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	(See Attached Diagram)								
1	Y: 38.91620, X: -94.41409	975.5	1	8	119.2	19.1	19.1	100.1	100
2	Y: 38.91638, X: -94.41404	975.5	1	8	119.9	20.1	20.1	99.8	100
3	Y: 38.91628, X: -94.41371	975.5	2	8	129.3	17.2	15.3	112.1	100
4	Y: 38.91628, X: -94.41379	976	2	8	129.8	17.7	15.8	112.1	100
5	Y: 38.91599, X: -94.41371	976	2	8	130.1	17.3	15.3	112.8	100
6	Y: 38.91626, X: -94.41375	976	1	8	125.0	21.5	20.8	103.5	100+
7	Y: 38.91608, X: -94.41381	976	1	8	120.7	20.2	20.1	100.5	100

Datum: Civil Elevations(in feet) **Std. Cnt. M:** 701 **Std. Cnt. D:** 1770
S/N: 35429 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/23/2019
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services:
Terracon Rep.: Canaan Punzo
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938



Field Density Test Status

- Pass -- 7 Test(s)

0 10 20 40 60 Feet

Report No.:	01191565.0017
Service Date:	04/10/2020
Technician:	Canaan Punzo
Scale:	1" = 20'

Terracon
Consulting Engineers & Scientists
15620 W 113th Street Lenexa, KS 66219
PH. (913) 492-7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

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FIELD DENSITY TESTING REPORT

Report Number: 02191565.0026
Service Date: 05/06/20
Report Date: 05/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building pad

Material Type Tested: Limestone Screenings, dark gray

Proctor No.: 02191565.0025A

Compaction Equipment: Steel smooth drum roller

Contractor placing the fill: Larry Bair Construction

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing without Observation:
Terracon was directed to the previously placed and compacted fill by Nick with Larry Bair Construction. Terracon was not on-site during fill placement to observe the material below the fill placed or observe lift thickness and compaction equipment.

Tests:
Terracon performed 3 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Results of the test performed by Terracon were reported to Nick with Larry Bair Construction before leaving the project site.

Services:

Terracon Rep.: Carl W. Creamer
Reported To: Nick with Larry Bair Construction
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0026
Service Date: 05/06/20
Report Date: 05/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0025A	Limestone Screenings, dark gray	ASTM D698	10.3	129.2		Min 95

Field Test Data

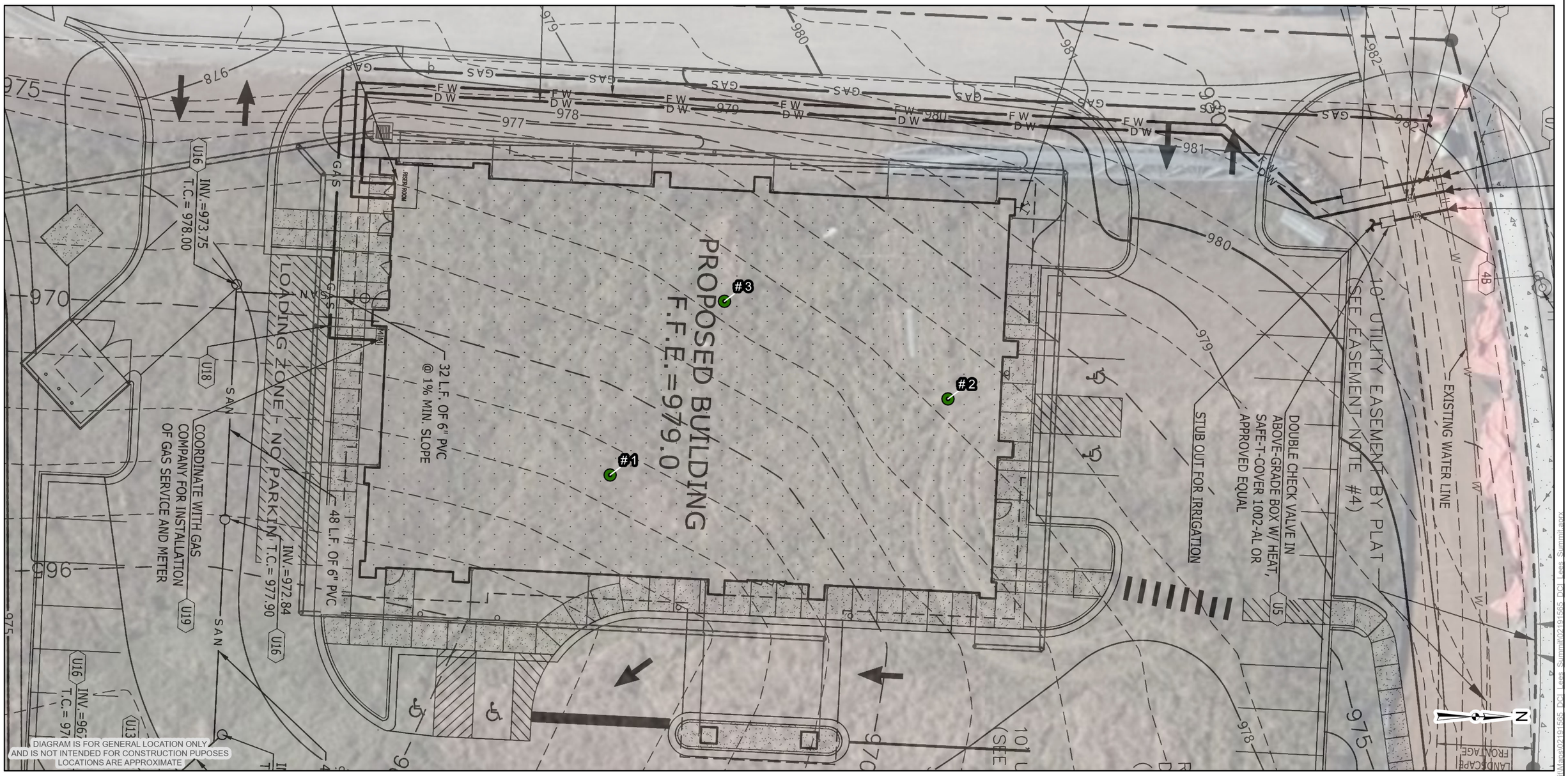
Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building Pad (See Attached Diagram)								
1	Y: 38.91620, X: -94.41403	-10"	1	8	143.5	13.3	10.2	130.2	100+
2	Y: 38.91639, X: -94.41408	-10"	1	8	137.4	8.9	6.9	128.5	99
3	Y: 38.91627, X: -94.41415	-10"	1	8	136.3	9.2	7.2	127.1	98

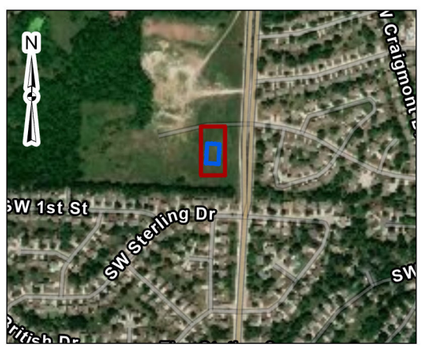
Datum: Final Subgrade **Std. Cnt. M:** 646 **Std. Cnt. D:** 1981
S/N: 36257 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/24/2019
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services:
Terracon Rep.: Carl W. Creamer
Reported To: Nick with Larry Bair Construction
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc.,
norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

Test Methods: ASTM D6938





Field Density Test Status

- Pass -- 3 Test(s)

Report No.:	01191565.0029
Service Date:	05/06/2020
Technician:	Carl Creamer
Scale:	1" = 20'

Terracon
Consulting Engineers & Scientists
15620 W 113th Street Lenexa, KS 66219
PH. (913) 492-7777 terracon.com

DCI - Lee's Summit

Nuclear Field Density Testing

Observed Locations

Exhibit

A-1

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FIELD DENSITY TESTING REPORT

Report Number: 02191565.0027
Service Date: 05/06/20
Report Date: 05/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client
Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project
DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Observed/Tested Location: Building pad

Material Type Tested: Limestone Screenings, dark gray

Proctor No.: 02191565.0025A

Compaction Equipment: Steel smooth drum roller

Contractor placing the fill: Larry Bair Construction

Specified Compaction %: 95% of Standard Proctor (ASTM D 698)

Service:
As requested, a Terracon representative performed field density tests with a nuclear density meter to measure wet density and water content of the material referenced above.

Testing without Observation:
Terracon was directed to the previously placed and compacted fill by Nick with Larry Bair Construction. Terracon was not on-site during fill placement to observe the material below the fill placed or observe lift thickness and compaction equipment.

Tests:
Terracon performed 5 nuclear field density tests to determine wet density and water content in general accordance with ASTM D6938. The tests performed met the project specifications for compaction.

Comments:
The results of the tests provided in this report are based on the soil conditions present at the time of our site visit. Should any changes occur to the subgrade soils prior to placement of additional fill, the condition of the material tested today should be retested.

Results of the test performed by Terracon were reported to Nick with Larry Bair Construction before leaving the project site.

Services:

Terracon Rep.: Richard N. Cohen
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghussein
Project Manager

FIELD DENSITY TEST REPORT

Report Number: 02191565.0027
Service Date: 05/06/20
Report Date: 05/13/20
Task: 01 - Earthwork Observation and Testing

Terracon
15620 W 113th St
Lenexa, KS 66219-5102
913-492-7777

Client

Axiom Northwest Construction, Inc.
Attn: Norm Hellings
2232 Broadway
Suite 101
Everett, WA 98201

Project

DCI - Lee's Summit
2001 Shamrock Rd
Lee's Summit, MO

Project Number: 02191565

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Density (pcf)	Project Requirements: Water Content (%)	Project Requirements: Compaction (%)
1	02191565.0025A	Limestone Screenings, dark gray	ASTM D698	10.3	129.2		Min 95

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Density (pcf)	Percent Compaction (%)
	Building pad								
1	20' N. & 20' E. of the S.W. corner	Grade	1	8	143.0	11.6	8.8	131.4	100+
2	30' N. & 15' E. of the S.E. corner	Grade	1	8	144.9	10.1	7.5	134.8	100+
3	Middle of building	Grade	1	8	146.1	11.7	8.7	134.4	100+
4	25' S. & 20' E. of N.W. corner	Grade	1	8	144.4	11.8	8.9	132.6	100+
5	20'S. & 25'W. of N.E. corner	Grade	1	8	141.5	11.2	8.6	130.3	100+

Datum: Grade Stakes **Std. Cnt. M:** 738 **Std. Cnt. D:** 1859
S/N: 37049 **Make:** TROXLER **Model:** 3430 **Last Cal. Date:** 10/24/2019
Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services:
Terracon Rep.: Richard N. Cohen
Reported To: Norm with Axiom
Contractor: Axiom Northwest Construction
Report Distribution:
(1) Axiom Northwest Construction, Inc., norm@axiomnw.com

Reviewed By:
Feras El-Ghassein
Project Manager

Test Methods: ASTM D6938