

2753 West 31st Street | Chicago, IL 60608 Tel: 773-722-9200 | Fax: 773-722-9201 | pioneerEES.com

Transmitted via Electronic Mail

January 14, 2022

Ms. Tena Seeds Washington State Department of Ecology Toxics Cleanup Program 15700 Dayton Ave N., Shoreline, WA 98133

RE: Quarterly Progress Report: October 1 through December 31, 2021 Time Oil Bulk Terminal Site, Cleanup Site ID #14604 Prospective Purchaser Consent Decree No. 20-2-15215-3 SEA

Dear Ms. Seeds:

Pioneer Engineering & Environmental Services, LLC on behalf of TOC Seattle Terminal 1, LLC submits the attached Quarterly Progress Report for the Time Oil Bulk Terminal Site per Section XII of the Prospective Purchaser Consent Decree between the Washington State Department of Ecology and TOC Seattle Terminal 1, LLC. The quarterly progress report consists of a brief narrative summary of notable activities that occurred during the reporting period and that are anticipated for the upcoming reporting period.

If you have any questions about this report, please contact me at 773-722-9200.

Sincerely,

Kin Hewpel

Kim Hempel Project Coordinator Pioneer Engineering & Environmental Services, LLC

Distribution List: Doug Ciserella and Mike Ciserella, TOC Seattle Terminal 1, LLC Bill Joyce, Joyce Ziker Partners PLLC Reid Carscadden and Jamie Stevens, CRETE Consulting

TIME OIL BULK TERMINAL SITE PROSPECTIVE PURCHASER CONSENT DECREE NO. 20-2-15215-3 SEA QUARTERLY PROGRESS REPORT: OCTOBER 1 THROUGH DECEMBER 31, 2021

This report has been prepared in accordance with the requirements of the Time Oil Bulk Terminal Site Prospective Purchaser Consent Decree (PPCD) between the Washington State Department of Ecology (Ecology) and TOC Seattle Terminal 1, LLC. This progress report provides details on the following: 1) all on site activities; 2) any deviations from required tasks; 3) anticipated problems in meeting schedule or objectives and associated solutions 4) sampling, testing, or other data received; 5) work planned for the upcoming 3-month period; and, 6) deliverables planned for the upcoming 3-month period.

Summary of On-Site Activities Performed During the Reporting Period (PPCD Section XII.A)

Activities completed during this reporting period included the following:

Cleanup Action Construction

On-site cleanup action construction activities continued this quarter and were completed on December 13, 2021 in accordance with the Ecology-approved June 2021 Engineering Design Report (EDR). During this reporting period, cleanup action construction activities included the following:

- Completed excavation and off-site disposal of contaminated soils from the following Cleanup Action Areas (CAAs), in order of completion: CAA-2b and CAA-3. Please note that light non-aqueous phase liquid (LNAPL) was not observed during remediation of CAA-2b; conditions were similar to those observed at CAA-1a, which was previously documented in email correspondence with Ecology between August 9 and 16, 2021.
- Completed in-situ solidification and stabilization (ISS) in CAA-4 (includes CAA-4a and CAA-4b) and placement and compaction of ISS swell material in the swell management area (SMA). ISS performance physical soil samples were collected during the ISS mixing work; laboratory test results for this reporting period are included in Attachment 1 and discussed below.
- Collected confirmation soil samples from each excavation in accordance with the EDR to document the completion of remedial excavations in completed CAAs. A summary of all performance soil samples and copies of laboratory test results will be included in the Remedial Action Completion Report. Laboratory test results for this reporting period are included in Attachment 1 and discussed below.
- Decommissioned well 01MW60 by a licensed driller (ESN Northwest) on November 11, 2021. This well, located within the side slope of the CAA-4 mixing footprint, was decommissioned because the well was inadvertently damaged by the Contractor during ISS mixing.
- Completed the in-situ groundwater treatment injections along the northern boundary of the ASKO parcel, generally north of CAA-5.
- Placed ORC Advanced dry amendments in the northeast and northwest corner of CAA-2b.
- Completed the installation of a groundwater interceptor trench at the ASKO/BNSF property boundary (CAA-4) to capture and treat impacted groundwater migrating within the perched water-bearing zone from the BNSF parcel.
- A small diesel spill occurred on September 3, 2021 adjacent to the southeast edge of CAA-2a when an empty haul truck clipped a concrete vault and punctured the fuel tank. The haul truck immediately stopped and spill response measures were deployed, which included the use of sorbent pads and bins/buckets to capture the leaking diesel fuel. The entire spill area was confined to an area no larger than 6ft by 4ft and no fuel migrated outside of the property. CRETE provided a notice to Ecology (ERTS, tracking 21-3523) on September 3, 2021. All visual impacted soil was excavated on Monday, September 13, 2021. Laboratory

test results for soil samples analyzed following removal of visually impacted soil in this area are included in Attachment 1.

• After cleanup actions were completed in each CAA and the SMA, the areas were returned to a stabilized condition to prepare the site for future development.

Deliverables

Cleanup action construction deliverables included the following:

- Completed cleanup action construction reporting in accordance with city and county permits:
 - Submitted Discharge Monitoring Reports (DMRs) under the Construction Stormwater General Permit (CSGP) WAR 310049 on October 14, 2021 (covering the reporting period of September 2021), November 15, 2021 (covering the reporting period of October 2021), December 15, 2021 (covering the reporting period of November 2021), and January 13, 2022 (covering the reporting period of December 2021).
 - Completed Self-Monitoring Reports (SMRs) under King County Industrial Waste (KCIW) Discharge Authorization 1145-01 on October 7, 2021 (covering the reporting period of September 2021), November 3, 2021 (covering the reporting period of October 2021), December 14, 2021 (covering the reporting period of November 2021), and January 13, 2022 (covering the reporting period of December 2021).

Deviations from Required Tasks (PPCD Section XII.B)

• None.

Anticipated Problems in Meeting Schedule or Objectives and Associated Solutions (PPCD Section XII.C and XII.D)

• There are no anticipated problems in meeting the schedule of deliverables specified in Exhibit D of the PPCD. The schedule of deliverables and activities specified in Table 8.1 of the Cleanup Action Plan (Exhibit C of the PPCD) are currently on track or ahead of schedule.

Sampling, Testing, or Other Data Received (PPCD Section XII.E)

Laboratory data for confirmation samples collected for the remedial excavations, ISS mixing, and stormwater discharge samples were received between September 17 and December 2, 2021. In accordance with Section XII.E, copies of laboratory data packages are provided in Attachment 1 and include the following:

- CAA-2b: Sample delivery groups (SDGs) 110205, 110129, 110112, 110063
- CAA-3: SDGs 111201, 111149, 111170
- CAA-6a: SDG 107507 (amended report from what was submitted in previous progress report)
- Haul Truck Diesel Spill Area: SDG 109219
- King County Stormwater Discharge Sample: SDG 111097
- ISS performance physical sampling from CAA-2a and CAA-4

A summary of these data, and their application to cleanup action implementation, will also be provided in the Remedial Action Completion Report (in preparation). Analytical data for the samples remaining in place after construction completion (e.g., excavation sidewall and base samples) will be uploaded to Ecology's Environmental Information Management system, as required by the PPCD.

Work Planned During the Upcoming Reporting Period (PPCD Section XII.F)

The following work is planned for the 1st Quarter 2022:

• Preparation of the Remedial Acton Completion Report and Long Term Compliance Monitoring Plan.

Deliverables Planned During the Upcoming Reporting Period (PPCD Section XII.G)

The following deliverables are anticipated to be completed during the next quarterly reporting period of January through March 2022:

- Submittal of the Remedial Acton Completion Report
- Submittal of the draft Long Term Compliance Monitoring Plan
- Reporting required per the construction permits, including SMRs under the KCIW Discharge Authorization and DMRs under the Ecology CSGP will continue to be submitted on a monthly basis until the permits are closed out.

Other Pertinent Information, Including Changes in Key Personnel

• On December 20, 2021, Ecology was notified of the change of designated project coordinator. The new project coordinator is Kim Hempel, effective January 1, 2022.

Attachments

• Attachment 1 - Laboratory Data Reports

END QUARTERLY PROGRESS REPORT

ATTACHMENT 1

Laboratory Analytical Reports

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

December 2, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the amended results from the testing of material submitted on July 30, 2021 from the TOC Seattle Terminal 1, F&BI 107507 project. The NWTPH-Gx sample and duplicate results were updated to reflect the reanalysis for inhomogeneity.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Colo

Michael Erdahl Project Manager

Enclosures c: Time Oil Terminal 1 CTC0803R.DOC

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

August 3, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on July 30, 2021 from the TOC Seattle Terminal 1, F&BI 107507 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Colo

Michael Erdahl Project Manager

Enclosures c: Time Oil Terminal 1 CTC0803R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 30, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 107507 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Crete Consulting
107507 -01	CAA6A-Base-04

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/03/21 Date Received: 07/30/21 Project: TOC Seattle Terminal 1, F&BI 107507 Date Extracted: 07/30/21 Date Analyzed: 07/30/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	Gasoline <u>Range</u>	Surrogate (<u>% Recovery)</u> Limit 50-150)
CAA6A-Base-04 107507-01	< 0.02	<5	94
Method Blank 01-1663 MB2	< 0.02	<5	102

ENVIRONMENTAL CHEMISTS

Date of Report: 08/03/21 Date Received: 07/30/21 Project: TOC Seattle Terminal 1, F&BI 107507 Date Extracted: 07/30/21 Date Analyzed: 07/30/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

<u>Sample ID</u> Laboratory ID	Diesel Range (C10-C25)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	Surrogate <u>(% Recovery)</u> (Limit 53-144)
CAA6A-Base-04 107507-01	<50	<250	95
Method Blank 01-1757 MB	<50	<250	97

ENVIRONMENTAL CHEMISTS

Date of Report: 08/03/21 Date Received: 07/30/21 Project: TOC Seattle Terminal 1, F&BI 107507

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 107474-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Gasoline	mg/kg (ppm)	40	41	2

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	92	69-120
Gasoline	mg/kg (ppm)	20	90	71-131

ENVIRONMENTAL CHEMISTS

Date of Report: 08/03/21 Date Received: 07/30/21 Project: TOC Seattle Terminal 1, F&BI 107507

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	107500-01 (Matri	x Spike)					
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet Wt)	\mathbf{MS}	MSD	Criteria	(Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	106	104	64-133	2
Laboratory Code:	Laboratory Contr	ol Samp	le				
			Percent	t			
	Reporting	Spike	Recover	y Accep	tance		
Analyte	Units	Level	LCS	Crite	eria		
Diesel Extended	mg/kg (ppm)	5,000	102	58-1	147		

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Ph. (206) 285-8282	Seattle, WA 98119-2029	3012 16th Avenue West	Friedman & Bruya, Inc.		1		-					L'AABA-BASE-OU	Sample ID			City, State, ZIP Phone	Address	Company Tor Se	Report To K: Javas
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

September 17, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on September 13, 2021 from the TOC Seattle Terminal 1, F&BI 109219 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Cale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC0917R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 13, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 109219 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Crete Consulting</u>
109219 -01	Northeast
109219 -02	South

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/21 Date Received: 09/13/21 Project: TOC Seattle Terminal 1, F&BI 109219 Date Extracted: 09/15/21 Date Analyzed: 09/15/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	Surrogate <u>(% Recovery)</u> (Limit 48-168)
Northeast 109219-01	<50	<250	97
South 109219-02	<50	<250	102
Method Blank	<50	<250	98

ENVIRONMENTAL CHEMISTS

Date of Report: 09/17/21 Date Received: 09/13/21 Project: TOC Seattle Terminal 1, F&BI 109219

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 109219-01 (Matrix Spike) Sample Percent Percent Reporting Spike Result Acceptance RPD Recovery Recovery Analyte Units Level (Wet Wt) MSMSD Criteria (Limit 20) Diesel Extended mg/kg (ppm) 73-135 5,000 <50 118 124 $\mathbf{5}$ Laboratory Code: Laboratory Control Sample Percent Reporting Spike Recovery Acceptance Units Analyte Level LCS Criteria Diesel Extended 5,000 74-139 mg/kg (ppm) 118

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

 ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

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lc - The presence of the analyte is likely due to laboratory contamination.

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vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Ph. (206) 285-82	Seattle, WA 981.	3012 16 th Avenu	Friedman & Bru							-			South	Northeast	Sampl		Phone	City, State, ZIP_	Address	Commany To	Renart To	109219
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

October 7, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on October 4, 2021 from the TOC Seattle Terminal 1, F&BI 110063 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1007R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 4, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 110063 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Crete Consulting</u>
110063 -01	CAA2B-Base-04
110063 -02	CAA2B-Base-04-0.5
110063 -03	CAA2B-Base-04-1

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/21 Date Received: 10/04/21 Project: TOC Seattle Terminal 1, F&BI 110063 Date Extracted: 10/05/21 and 10/06/21 Date Analyzed: 10/05/21 and 10/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery</u>) (Limit 58-139)
CAA2B-Base-04 110063-01 1/10	2,100	ip
CAA2B-Base-04-0.5 110063-02 1/10	410	108
Method Blank 01-1971 MB	<5	98
Method Blank 01-1975 MB	<5	87

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/21 Date Received: 10/04/21 Project: TOC Seattle Terminal 1, F&BI 110063 Date Extracted: 10/05/21 and 10/06/21 Date Analyzed: 10/05/21 and 10/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C10-C25)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	Surrogate <u>(% Recovery)</u> (Limit 53-144)
CAA2B-Base-04 110063-01	11,000	<250	ip
CAA2B-Base-04-0.5 110063-02	3,400	<250	98
Method Blank 01-2272 MB	<50	<250	89
Method Blank 01-2285 MB	<50	<250	96

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/21 Date Received: 10/04/21 Project: TOC Seattle Terminal 1, F&BI 110063

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 1	10053-02 (Duplic	eate)			
		Samp	ole Du	plicate	
	Reporting	Resu	lt R	lesult	RPD
Analyte	Units	(Wet V	Wt) (W	Vet Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<5		<5	nm
Laboratory Code: L	aboratory Contro	ol Sample	e		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	20	100	71-131	—

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/21 Date Received: 10/04/21 Project: TOC Seattle Terminal 1, F&BI 110063

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	110058-01 (Matri	x Spike)					
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet Wt)	\mathbf{MS}	MSD	Criteria	(Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	56	95	97	64-133	2
Laboratory Code:	Laboratory Contr	ol Samp	le				
			Percent	t			
	Reporting	Spike	Recover	y Accep	tance		
Analyte	Units	Level	LCS	Crite	eria		
Diesel Extended	mg/kg (ppm)	5,000	88	58-1	147		

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/21 Date Received: 10/04/21 Project: TOC Seattle Terminal 1, F&BI 110063

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 11	0080-01 (Duplic	ate)			
		Samp	ole Du	plicate	
	Reporting	Resu	lt F	lesult	RPD
Analyte	Units	(Wet V	Wt) (W	/et Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<5		<5	nm
Laboratory Code: La	aboratory Contro	ol Sample	e		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	_
Gasoline	mg/kg (ppm)	20	95	71-131	

ENVIRONMENTAL CHEMISTS

Date of Report: 10/07/21 Date Received: 10/04/21 Project: TOC Seattle Terminal 1, F&BI 110063

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	110063-01 (Matrix	x Spike)					
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet Wt)	MS	MSD	Criteria	(Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	9,400	97	89	73-135	9
Laboratory Code:	Laboratory Contro	ol Sampl	e				
			Percent				
	Reporting	Spike	Recovery	Acceptar	nce		
Analyte	Units	Level	LCS	Criteria	a		
Diesel Extended	mg/kg (ppm)	5,000	100	74-139)		

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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Friedman & Bruya, Inc. 1 3012 16 th Avenue West Seattle, WA 98119-2029 Ph. (206) 285-8282				× • •	-	CA23-545-04-1	CAR-865-04-0.5	CAA2B-BASE-Of	Sample ID	·	City, State, ZIP PhoneEma	110063 Report To <u>K. Teves</u> , T.C. Company <u>Tel Scattle</u>
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

October 11, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on October 6, 2021 from the TOC Seattle Terminal 1, F&BI 110112 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1011R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 6, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 110112 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Crete Consulting</u>
110112 -01	CAA2B-BASE-03
110112 -02	CAA2B-BASE-03-0.5
110112 -03	CAA2B-BASE-03-1

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110112 Date Extracted: 10/06/21 Date Analyzed: 10/07/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery</u>) (Limit 50-150)
CAA2B-BASE-03 110112-01	48	93
Method Blank 01-1973 MB	<5	97

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110112 Date Extracted: 10/06/21 Date Analyzed: 10/06/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

<u>Sample ID</u> Laboratory ID	Diesel Range (C10-C25)	Motor Oil Range (C25-C36)	Surrogate <u>(% Recovery)</u> (Limit 56-165)
CAA2B-BASE-03 110112-01	120	<250	84
Method Blank 01-2284 MB	<50	<250	87

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110112

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: Laboratory Control Sample

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Gasoline	mg/kg (ppm)	20	100	95	60-120	5

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110112

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	110082-01 (Matri	x Spike)								
			Sample	Percent	Percent					
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD			
Analyte	Units	Level	(Wet Wt)	MS	MSD	Criteria	(Limit 20)			
Diesel Extended	mg/kg (ppm)	5,000	<50	90	92	63-146	2			
Laboratory Code: Laboratory Control Sample										
			Percent	5						
	Reporting	Spike	Recover	y Accep	tance					
Analyte	Units	Level	LCS	Crite	eria					
Diesel Extended	mg/kg (ppm)	5,000	88	79-1	144					
ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

 ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

October 11, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on October 6, 2021 from the TOC Seattle Terminal 1, F&BI 110129 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1011R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 6, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 110129 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Crete Consulting</u>
110129 -01	CAA2B-Base-02
110129 -02	CAA2B-Base-02-0.5
110129 -03	CAA2B-Base-02-0.7

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110129 Date Extracted: 10/07/21 Date Analyzed: 10/07/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery</u>) (Limit 50-150)
CAA2B-Base-02 110129-01 1/5	570	ip
Method Blank 01-2289 MB2	<5	101

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110129 Date Extracted: 10/07/21 Date Analyzed: 10/07/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	Diesel Range (C10-C25)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	Surrogate <u>(% Recovery)</u> (Limit 48-168)
CAA2B-Base-02 110129-01	1,700	<250	98
Method Blank 01-2288 MB2	<50	<250	97

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110129

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 1	10119-01 (Duplic	eate)			
		Samp	ole Du	plicate	
	Reporting	Resu	lt R	lesult	RPD
Analyte	Units	(Wet V	Wt) (W	et Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<5		<5	nm
Laboratory Code: I	Laboratory Contro	ol Sample	e		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	20	110	71-131	_

ENVIRONMENTAL CHEMISTS

Date of Report: 10/11/21 Date Received: 10/06/21 Project: TOC Seattle Terminal 1, F&BI 110129

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	110042-46 (Matri	x Spike)									
			Sample	Percent	Percent						
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD				
Analyte	Units	Level	(Wet Wt)	MS	MSD	Criteria	(Limit 20)				
Diesel Extended	mg/kg (ppm)	5,000	64	91	99	64-133	8				
Laboratory Code:	Laboratory Code: Laboratory Control Sample										
			Percent	;							
	Reporting	Spike	Recover	y Accep	tance						
Analyte	Units	Level	LCS	Crite	eria						
Diagol Extended		F 000	00	50 1	147						

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

 ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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n. (206) 283-8282	eatue, WA 98119-2029	UIZ 1 b" Avenue West	riedman & Bruya, Inc.	- - - -							AA26-BASE-07-0.7	4408-FASE-02-0-5	1.4428-BASE-02	Sample ID		PhoneE ₁	City, State, ZIP	Address	Company Tec Scatt	Report To K. Tenes, J.	G
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

October 14, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on October 11, 2021 from the TOC Seattle Terminal 1, F&BI 110205 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1014R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 11, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 110205 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Crete Consulting
110205 -01	CAA2B-BASE-01
110205 -02	CAA2B-BASE-01-0.5

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/14/21 Date Received: 10/11/21 Project: TOC Seattle Terminal 1, F&BI 110205 Date Extracted: 10/12/21 Date Analyzed: 10/12/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery</u>) (Limit 58-139)
CAA2B-BASE-01 110205-01	54	118
Method Blank 01-2297 MB	<5	101

ENVIRONMENTAL CHEMISTS

Date of Report: 10/14/21 Date Received: 10/11/21 Project: TOC Seattle Terminal 1, F&BI 110205 Date Extracted: 10/11/21 Date Analyzed: 10/11/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	Surrogate <u>(% Recovery)</u> (Limit 48-168)
CAA2B-BASE-01 110205-01	250	<250	105
Method Blank 01-2346 MB	<50	<250	93

ENVIRONMENTAL CHEMISTS

Date of Report: 10/14/21 Date Received: 10/11/21 Project: TOC Seattle Terminal 1, F&BI 110205

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 1	10202-01 (Duplic	eate)			
		Samp	ole Du	plicate	
	Reporting	Resu	lt R	esult	RPD
Analyte	Units	(Wet V	Wt) (W	et Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<5		<5	nm
Laboratory Code: L	aboratory Contro	ol Sample	e		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	$\overline{20}$	95	61-153	

ENVIRONMENTAL CHEMISTS

Date of Report: 10/14/21 Date Received: 10/11/21 Project: TOC Seattle Terminal 1, F&BI 110205

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	110180-05 (Matrix	x Spike)					
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet Wt)	\mathbf{MS}	MSD	Criteria	(Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	102	104	73-135	2
Laboratory Code:	Laboratory Contro	ol Sampl	e				
			Percent				
	Reporting	Spike	Recovery	Acceptan	ce		
Analyte	Units	Level	LCS	Criteria	ι		
Diesel Extended	mg/kg (ppm)	5,000	102	74-139			

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Ph. (206) 285-8282	3012 16 th Avenue West Avenue Seattle, WA 98119-2029 Reli	Friedman & Bruya, Inc. Ret										CM213-845E-01-0:5	CAAB-BASE-01	Sample ID		Phone Email	Uity, State, 211	City State 71P	Address	Commany TOC Satt	Report To R Jours J. Stace	110205
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

November 10, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on November 5, 2021 from the TOC Seattle Terminal 1, F&BI 111097 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1110R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 5, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 111097 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Crete Consulting
111097 -01	SW-110521

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097 Date Extracted: NA Date Analyzed: 11/05/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH USING EPA METHOD 150.2

 $\frac{Sample \ ID}{Laboratory \ ID}$

<u>pH</u>

SW-110521 111097-01 9.4

ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097 Date Extracted: NA Date Analyzed: 11/05/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING EPA METHOD 180.1

Results Reported as NTU

Sample ID	Date	Time	<u>Turbidity</u>
Laboratory ID	<u>Sampled</u>	<u>Sampled</u>	
SW-110521 111097-01	11/05/21	10:25	65

Method Blank

< 0.5

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Unito:	SW-110521 11/05/21 11/05/21 11/05/21 Water		Client: Project: Lab ID: Data File: Instrument:	Crete Consulting TOC Seattle Terminal 1, F&BI 111097 111097-01 110513.D GCMS13 WF
Onits.	ug/L (ppb)		Operator.	
~			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	104	85	117
Toluene-d8		100	88	112
4-Bromofluorobenz	ene	95	90	111
		Concentration		
Compounds:		ug/L (ppb)		
Vinyl chloride		< 0.02		
Benzene		1.5		
Toluene		4.3		
1,1,2-Trichloroetha	ne	< 0.5		
Ethylbenzene		3.8		
m,p-Xylene		9.9		
o-Xvlene		7.1		

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Bla	ink	Client:	Crete Consulting
Date Received:	Not Applica	able	Project:	TOC Seattle Terminal 1, F&BI 111097
Date Extracted:	11/05/21		Lab ID:	01-2495 mb
Date Analyzed:	11/05/21		Data File:	110507.D
Matrix:	Water		Instrument:	GCMS13
Units:	ug/L (ppb)		Operator:	WE
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	106	85	117
Toluene-d8		97	88	112
4-Bromofluorobenze	ene	100	90	111
		Concentration		
Compounds:		ug/L (ppb)		
Vinyl chloride		< 0.02		
Benzene		< 0.35		
Toluene		<1		
1,1,2-Trichloroethan	ne	< 0.5		
Ethylbenzene		<1		
m,p-Xylene		<2		
o-Xylene		<1		

ENVIRONMENTAL CHEMISTS

Analysis for Semivolatile Phenols By EPA Method 8270E SIM

Client Sample ID: Date Received: Date Extracted:	SW-110521 11/05/21 11/05/21		Client: Project: Lab ID:	Crete Consulting TOC Seattle Terminal 1, F&BI 111097 111097-01
Date Analyzed:	11/05/21		Data File:	110507.D
Matrix:	Water		Instrument:	GCMS6
Units:	ug/L (ppb)		Operator:	VM
Surrogates: 2-Fluorophenol Phenol-d6 2,4,6-Tribromopher	nol	% Recovery: 28 vo 18 vo 115	Lower Limit: 50 50 50	Upper Limit: 150 150 150
Compounds:		Concentration ug/L (ppb)		
Pentachlorophenol		0.32		

ENVIRONMENTAL CHEMISTS

Analysis for Semivolatile Phenols By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Crete Consulting
Date Received:	Not Applicable	Project:	TOC Seattle Terminal 1, F&BI 111097
Date Extracted:	11/05/21	Lab ID:	01-2561 mb
Date Analyzed:	11/05/21	Data File:	110506.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM
		Lower	Upper
Surrogates:	% Recovery:	Limit:	Limit:
2-Fluorophenol	33 vo	50	150
Phenol-d6	18 vo	50	150
2,4,6-Tribromophene	ol 90	50	150
	Concentration		
Compounds:	ug/L (ppb)		
Pentachlorophenol	< 0.2		

ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097 Date Extracted: 11/05/21 Date Analyzed: 11/08/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR OIL AND GREASE USING EPA METHOD 1664

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	<u>Oil and Grease</u>
SW-110521 111097-01	<3
Method Blank	<3

ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH BY METHOD 150.2

Laboratory Code:	Laboratory Code: 111097-01 (Duplicate)									
	Sample	Duplicate	Relative Percent	Acceptance						
Analyte	Result	Result	Difference	Criteria						
pН	9.4	9.4	0	0-20						

ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING EPA METHOD 180.1

Laboratory Code: 111097-01 (Duplicate)

	· -			Relative	
	Reporting	Sample	Duplicate	Percent	Acceptance
Analyte	Units	Result	Result	Difference	Criteria
Turbidity	NTU	65	65	0	0-20

ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 111097-01 (Matrix Spike)

· · · ·	1 /			Percent	
	Reporting	Spike	Sample	Recovery	Acceptance
Analyte	Units	Level	Result	MS	Criteria
Vinyl chloride	ug/L (ppb)	10	< 0.02	102	16-176
Benzene	ug/L (ppb)	10	1.5	95	50 - 150
Toluene	ug/L (ppb)	10	4.3	107 b	50 - 150
1,1,2-Trichloroethane	ug/L (ppb)	10	< 0.5	95	50 - 150
Ethylbenzene	ug/L (ppb)	10	3.8	100 b	50 - 150
m,p-Xylene	ug/L (ppb)	20	9.9	106 b	50 - 150
o-Xylene	ug/L (ppb)	10	7.1	110 b	50 - 150

Laboratory Code: Laboratory Control Sample

		Percent	Percent		
Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Units	Level	LCS	LCSD	Criteria	(Limit 20)
ug/L (ppb)	10	97	93	70-130	4
ug/L (ppb)	10	96	92	70-130	4
ug/L (ppb)	10	104	101	70-130	3
ug/L (ppb)	10	96	94	70-130	2
ug/L (ppb)	10	96	93	70-130	3
ug/L (ppb)	20	100	97	70-130	3
ug/L (ppb)	10	97	95	70-130	2
	Reporting Units ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb)	Reporting UnitsSpike Levelug/L (ppb)10ug/L (ppb)10	Reporting Units Spike Level Percent Recovery LCS ug/L (ppb) 10 97 ug/L (ppb) 10 96 ug/L (ppb) 10 97	Reporting Units Spike Level Percent Recovery LCS Percent Recovery LCSD ug/L (ppb) 10 97 93 ug/L (ppb) 10 96 92 ug/L (ppb) 10 104 101 ug/L (ppb) 10 96 94 ug/L (ppb) 10 96 93 ug/L (ppb) 10 97 95	Reporting Units Spike Level Percent Recovery LCS Percent Recovery LCSD Acceptance Criteria ug/L (ppb) 10 97 93 70-130 ug/L (ppb) 10 96 92 70-130 ug/L (ppb) 10 104 101 70-130 ug/L (ppb) 10 96 94 70-130 ug/L (ppb) 10 96 93 70-130 ug/L (ppb) 10 97 97-130 ug/L (ppb) 10 97 95 70-130

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ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILE PHENOLS BY EPA METHOD 8270E SIM

Laboratory Code: Laboratory Control Sample

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 30)
Pentachlorophenol	ug/L (ppb)	2.5	97	101	70-130	4

ENVIRONMENTAL CHEMISTS

Date of Report: 11/10/21 Date Received: 11/05/21 Project: TOC Seattle Terminal 1, F&BI 111097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR OIL AND GREASE USING EPA METHOD 1664

Laboratory Code: Laboratory Control Sample

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 11)
Oil and Grease	mg/L (ppm)	40	107	93	78-114	14 vo

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

 ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Ph. (206) 285-8282	Seattle, WA 98119-2029	3012 16th Avenue West	Friedman & Bruya, Inc.									SW-110521	Sample ID		PhoneB	City, State, ZIP	111097 Report To R. Janes J.T. Company TEC Seatt
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		121	K-1/an	INATURE			****					11.5.2021	Date Sampled				Hempel
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		K	CRITE								,	WATER	Sample Type		pecific RLs?	SJ	CHAIN (RS (signati RS (signati TNAME TNAME
		701 HO	CR 1	PRINT NA								AN	NWTPH-Dx	-	- Yes / N		DF CUSI
	d	Ture -	Listy Jo	IME								\mathbf{X}	NWTPH-Gx BTEX EPA 8021 NWTPH-HCID		6		TODY
		····	205 - 620										VOCs EPA 8260 PAHs EPA 8270	ANALYSES		NVOICE T	ME S PO#
		FβL	TE Cons	COMPA	 Sample							XX	PCBs EPA 8082 Pertachloro phenöl	REQUEST		0	20-11
			Hug	YV	received							X X	Nanpolar FoG1 pH, tudidity	ED	□ Other Default: Di	SAMP Archive sa	⊥ Ω TURN, TURN, I Standard XRUSH XRUSH
		11/5/21	11.5.21	DATE	at 4					r.			Note		spose after	LE DISPOS. unples	VWI/AT, of/ AROUND TU AROUND TU turnaround ASAP s authorized
		411	hild	TIME	ă								<u></u> й		30 days	AL	with the second

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

November 12, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on November 9, 2021 from the TOC Seattle Terminal 1, F&BI 111149 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1112R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 9, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 111149 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Crete Consulting
111149 -01	CAA3-SS-04
111149 -02	CAA3-BASE-03

All quality control requirements were acceptable.
ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOC Seattle Terminal 1, F&BI 111149 Date Extracted: 11/10/21 Date Analyzed: 11/10/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery</u>) (Limit 58-139)
CAA3-SS-04 111149-01	21	108
CAA3-BASE-03 111149-02	<5	102
Method Blank 01-2534 MB	<5	100

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOC Seattle Terminal 1, F&BI 111149 Date Extracted: 11/10/21 Date Analyzed: 11/10/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	Diesel Range (C10-C25)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	Surrogate <u>(% Recovery)</u> (Limit 53-144)
CAA3-SS-04 111149-01	67 x	<250	91
CAA3-BASE-03 111149-02	<50	<250	91
Method Blank	<50	<250	91

ENVIRONMENTAL CHEMISTS

Client Sample ID:	CAA3-SS-04		Client:	Crete Consulting
Date Received:	11/09/21		Project:	TOC Seattle Terminal 1, F&BI 111149
Date Extracted:	11/09/21		Lab ID:	111149-01
Date Analyzed:	11/10/21		Data File:	111011.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	WE
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	101	90	109
Toluene-d8		103	89	112
4-Bromofluorobenz	ene	99	84	115
Compounds:	(Concentration mg/kg (ppm)		
Trichloroethene		< 0.02		

ENVIRONMENTAL CHEMISTS

Client Sample ID:	CAA3-BAS	E-03	Client:	Crete Consulting
Date Received:	11/09/21		Project:	TOC Seattle Terminal 1, F&BI 111149
Date Extracted:	11/09/21		Lab ID:	111149-02
Date Analyzed:	11/10/21		Data File:	111012.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppr	n) Dry Weight	Operator:	WE
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	e-d4	98	90	109
Toluene-d8		106	89	112
4-Bromofluorobenz	ene	98	84	115
Compounds:		Concentration mg/kg (ppm)		
Trichloroethene		< 0.02		

ENVIRONMENTAL CHEMISTS

Client Sample ID:	Method Bla	nk	Client:	Crete Consulting
Date Received:	Not Applica	ble	Project:	TOC Seattle Terminal 1, F&BI 111149
Date Extracted:	11/09/21		Lab ID:	01-2571 mb
Date Analyzed:	11/09/21		Data File:	110919.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	93	90	109
Toluene-d8		104	89	112
4-Bromofluorobenze	ene	98	84	115
		Concentration		
Compounds:		mg/kg (ppm)		
Trichloroethene		< 0.02		

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOC Seattle Terminal 1, F&BI 111149

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 1	111177-03 (Duplic	cate)			
		Samp	ole Du	plicate	
	Reporting	Resu	lt R	esult	RPD
Analyte	Units	(Wet V	Wt) (W	et Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<5		<5	nm
Laboratory Code: 1	Laboratory Contro	ol Sample	e		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	$\overline{20}$	105	61-153	—

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOC Seattle Terminal 1, F&BI 111149

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	111155-01 (Matri	x Spike)					
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet Wt)	MS	MSD	Criteria	(Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	8,000	76	65	64-133	16
Laboratory Code:	Laboratory Conti	rol Samp	le				
			Percent	t			
	Reporting	Spike	Recover	y Accep	tance		
Analyte	Units	Level	LCS	Crit	eria		
Diesel Extended	mg/kg (ppm)	5,000	100	58-1	147		

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOC Seattle Terminal 1, F&BI 111149

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 111035-02 (Matrix Spike)

	(inadim Spino)		Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Trichloroethene	mg/kg (ppm)	1	< 0.02	77	75	21-139	3

Laboratory Code: Laboratory Control Sample

····· · · · · · · · · · · · · · · · ·	J I I I I I I I I I I I I I I I I I I I		Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Trichloroethene	mg/kg (ppm)	1	101	63-121

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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Ph. (206) 285-8282	Seattle, WA 98119-2029	2012 ISB Avenue West	5 5 7								CALZ-BASE03	CA13-98-04	Sample ID		Phone]	City, State, ZIP	Address	Report To K. Jones I.	bhill
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

November 16, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on November 10, 2021 from the TOC Seattle Terminal 1, F&BI 111201 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Cale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1116R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 10, 2020 by Friedman & Bruya, Inc. from the Crete Consulting TOC Seattle Terminal 1, F&BI 111201 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Crete Consulting
111201 -01	CAA3-DUP-01
111201 -02	CAA3-SS-01
111201 -03	CAA3-BASE-01
111201 -04	CAA3-DUP-02
111201 -05	CAA3-SS-02
111201 -06	CAA3-BASE-02

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/16/21 Date Received: 11/10/21 Project: TOC Seattle Terminal 1, F&BI 111201 Date Extracted: 11/11/21 Date Analyzed: 11/11/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery</u>) (Limit 58-139)
CAA3-DUP-01 111201-01	<5	100
CAA3-SS-01 111201-02	9.8	104
CAA3-BASE-01 111201-03	66	111
CAA3-DUP-02 111201-04	38	104
CAA3-SS-02 111201-05 1/5	220	107
CAA3-BASE-02 111201-06 1/5	130	103
Method Blank 01-2536 MB	<5	100

ENVIRONMENTAL CHEMISTS

Date of Report: 11/16/21 Date Received: 11/10/21 Project: TOC Seattle Terminal 1, F&BI 111201 Date Extracted: 11/11/21 Date Analyzed: 11/11/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

Sumorato

<u>Sample ID</u> Laboratory ID	Diesel Range (C10-C25)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>(% Recovery)</u> (Limit 53-144)
CAA3-DUP-01 111201-01	<50	<250	95
CAA3-SS-01 111201-02	<50	<250	93
CAA3-BASE-01 111201-03	170	<250	96
CAA3-DUP-02 111201-04	160	<250	92
CAA3-SS-02 111201-05	92	<250	93
CAA3-BASE-02 111201-06	370	<250	92
Method Blank 01-2619 MB	<50	<250	94

ENVIRONMENTAL CHEMISTS

Date of Report: 11/16/21 Date Received: 11/10/21 Project: TOC Seattle Terminal 1, F&BI 111201

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: Laboratory Control Sample

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Gasoline	mg/kg (ppm)	20	105	105	61-153	0

ENVIRONMENTAL CHEMISTS

Date of Report: 11/16/21 Date Received: 11/10/21 Project: TOC Seattle Terminal 1, F&BI 111201

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	111201-01 (Matri	x Spike)							
			Sample	Percent	Percent				
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD		
Analyte	Units	Level	(Wet Wt)	\mathbf{MS}	MSD	Criteria	(Limit 20)		
Diesel Extended	mg/kg (ppm)	5,000	<50	90	90	64-133	0		
Laboratory Code:	Laboratory Code: Laboratory Control Sample								
			Percent	,					
	Reporting	Spike	Recover	y Accept	tance				
Analyte	Units	Level	LCS	Crite	eria				
D: 1 D . 1 1									

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

 ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

					 									• • •						
Ph. (206) 285-8282	Seattle, WA 98119-2029	3012 16th Avenue West	Friedman & Bruya, Inc.					CAA3-BASE-02	CAA3-95-07	CAA3-DUP-07	CAA3-BASE-01	CAA3-55-01	CAA3-DUP-01	Sample ID		Phone KI	City, State, ZIP	Address	Company Toc Scatt	Remart To K Tenes / Tr.
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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

November 12, 2021

Rusty Jones, Project Manager Crete Consulting 16300 Christensen Road, Suite 214 Tukwila, WA 98188

Dear Mr Jones:

Included are the results from the testing of material submitted on November 9, 2021 from the TOCST 1, F&BI 111170 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

ale

Michael Erdahl Project Manager

Enclosures c: TOC Seattle Terminal 1 CTC1112R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 9, 2021 by Friedman & Bruya, Inc. from the Crete Consulting TOCST 1, F&BI 111170 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Crete Consulting
111170 -01	CAA3-SS-03

All quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOCST 1, F&BI 111170 Date Extracted: 11/09/21 Date Analyzed: 11/10/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (<u>% Recovery</u>) (Limit 58-139)
CAA3-SS-03 111170-01 1/10	270	107
Method Blank 01-2531 MB	<5	112

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOCST 1, F&BI 111170 Date Extracted: 11/10/21 Date Analyzed: 11/10/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C10-C25)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	Surrogate <u>(% Recovery)</u> (Limit 53-144)
CAA3-SS-03	<50	<250	94
Method Blank 01-2611 MB2	<50	<250	91

ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received:	CAA3-SS-03 11/09/21 11/09/21		Client: Project: Lab ID:	Crete Consulting TOCST 1, F&BI 111170 111170-01
Date Analyzed:	11/10/21		Data File:	111019.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm) D	ry Weight	Operator :	WE
			Lower	Upper
Surrogates:	%	Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	104	90	109
Toluene-d8		108	89	112
4-Bromofluorobenze	ene	100	84	115
Compounds:	Co m	ncentration g/kg (ppm)		
Trichloroethene		< 0.02		

ENVIRONMENTAL CHEMISTS

Client Sample ID:	Method Blank		Client:	Crete Consulting
Date Received:	Not Applicable		Project:	TOCST 1, F&BI 111170
Date Extracted:	11/09/21		Lab ID:	01-2571 mb
Date Analyzed:	11/09/21		Data File:	110919.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm) Dry	Weight	Operator:	WE
			Lower	Upper
Surrogates:	% F	Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	93	90	109
Toluene-d8		104	89	112
4-Bromofluorobenze	ene	98	84	115
	Cond	centration		
Compounds:	mg/	'kg (ppm)		
Trichloroethene		< 0.02		

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOCST 1, F&BI 111170

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 1	111051-11 (Duplic	eate)			
		Samp	ole Du	plicate	
	Reporting	Resu	lt F	lesult	RPD
Analyte	Units	(Wet V	Wt) (W	/et Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	ng/kg (ppm) <5 <5		nm	
Laboratory Code: I	Laboratory Contro	ol Sample	e		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	$\overline{20}$	85	71-131	—

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOCST 1, F&BI 111170

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	111155-01 (Matri	x Spike)					
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet Wt)	\mathbf{MS}	MSD	Criteria	(Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	8,000	76	65	64-133	16
Laboratory Code:	Laboratory Contr	ol Samp	le				
			Percent	,			
	Reporting	Spike	Recover	Recovery Acceptance			
Analyte	Units	Level	LCS	Crite	eria		
Diesel Extended	mg/kg (ppm)	5,000	100	58-1	147		

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/21 Date Received: 11/09/21 Project: TOCST 1, F&BI 111170

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 111035-02 (Matrix Spike)

	(inadim Spino)		Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Trichloroethene	mg/kg (ppm)	1	< 0.02	77	75	21-139	3

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Trichloroethene	mg/kg (ppm)	1	101	63-121

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

 ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$ - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

h. (206) 285-8282 Received by:	012 16th Avenue West eattle, WA 98119-2029 Relinquished by:	riedman & Bruya, Inc. Relinquished by:									CAAD-25-02 01A-E 11.9.2	Sample ID Lab ID Dat		PhoneEmail	City, State, ZIP	Address	Company Tol Seattle Terminal 1	111170 Report To K. Jones/J. Stevens/K. Hennel
	1	8	 			 					1 120	S.						S
					****	 					340	Time ampled		Project (REMAR	Tare	PROJE	SAMPL
	The Real										501	Sample Type		opecific R	KS	77	CT NAMI	E CHAI
	A A	PRINT									N	# of Jars		Ls - Ye		ļ		N OF
	Right	('NAI								<u> </u>	X	NWTPH-Dx		N / 8			÷	CUS
	4	B				 			····	 	\times	NWTPH-Gx	_	0			10	OI
										<u> </u>		VOCs EPA 826					A.	YO
						 						PAHs EPA 827	ANA					
	RE					 						PCBs EPA 8082	L'XSI		NVO		70	
	12 m	8	Sin			 	_				~	TCE	S RI		<u>CE</u>		#	6
	B	MPA	<u>ip</u>			 							ED BUB		3			2
	E.	R	8			 		-+-					IILS		<u>-</u>	ম্পথ		
			etve			 _		-				······································		Dispc Archi Other	50	RUS ush cl	T Stan	קי
	10.9.2021	DATE		-			_					Νο		se after 30 day. ve Samples `	AMPLE DISPC	H ZH-Heuv harges authoriz	URNAROUND dard Turnarour	A01/6
	TE BER	TIME	•4									tes		50)SAL	ed by:	TIME	of C

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 3008	4							
	<u>r.e. [s.t.</u>]	ENGINE	ERING	Phone: 770-9	938-8233	\square	λ		Tested By	KP/IH				
		Soil		Fax: 770-923	3-8973	\bigtriangledown			Date	10/07/21				
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AAS			Checked By	18				
Client Pr. #			200016			La	ab. PR. #		21136-02-3					
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-				
Sample ID		39047/2-20		Subsample	1		Location		Seattle, WA					
Add. Info	-	-	Mixing/Mo	olding Date	09/27/21			Curing A	Age, Days	10				
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ngth of N	Iolded So	oil-Cement C	ylinders					
				METHOD	В									
		٢Δ			WATER CO	NTENT								
Initial Height	in		5 633	1	Mass of Wet	t Sample	and Tar	e a	1485.6					
Initial Diame	ter. in		2.977		Mass of Drv	Sample	and Tare	e, g e. a	1203.4					
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g		, 0	299.2					
Area, in ²			6.96		Moisture, %				31.2					
Volume, in ³			39.21											
Mass of Sar	nple, g		1187.9											
Wet Density	, pcf		115.4											
Dry Density,	pcf		87.9											
Machine Sp	eed, in/min		0.050	-										
Strain rate, 9	% / min		0.89											
	TEST DATA													
	Load Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583					
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016					
	Balance ID #		1036/1037]				Oven ID	# 758/496					
Maximum Lo	oad at Failure,	lbf			896									
Specimen C	ross-sectional	Area, in ²			6.96 Failure Code 3									
Compressiv	e Strength at F	ailure, psi			129									
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00									
Reported C	ompressive S	trength at Fai	lure, psi		129				Failure Sketo	ch				
- Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F 9	08 as 100% a	nd add, correct	tion per A	STM C42)						
			DESC	RIPTION			,	/						
									$ $ \times $ $					
								Failure Type	e:					
								JI	Cone and S	hear				
		U	SCS (ASTM	D2487: D24	88)		.							
]									
			REM	IARKS										

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084	4							
r	Ê.E. ST.	Engine	ERING	Phone: 770-9	938-8233	\square	λ		Tested By	KP/IH				
		Soil		Fax: 770-923	۱ 8-8973	$\mathbf{\nabla}$			Date	10/25/21				
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com	AAS			Checked By	18				
Client Pr. #			200016			La	ab. PR. #		21136-02-3					
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-				
Sample ID		39047/2-20		Subsample	2		Location		Seattle, WA					
Add. Info	-		Mixing/Mo	olding Date	09/27/21			Curing A	Age, Days	28				
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of M	folded So	il-Cement C	ylinders					
				METHOD	В									
Initial Haight		A	5 504	Т	Mass of Wot	t Sampla			1472.7					
	, III ter in		2 080	-	Mass of Dry	Sample	and Tare	e, y	1472.7					
Height-to-Dia	ameter Ratio		1.88	-	Mass of Tare			, y	302.0					
Area in ²			6.97	-	Moisture %	o, g			31.6					
Volume in^3			30.02		Wolstore, 70				01.0					
Mass of San	nnle a		1175 7	-										
Wet Density	pic, g		114.8	-										
Dry Density.	pcf		87.2											
Machine Spe	eed, in/min		0.050											
Strain rate, 9	% / min		0.89											
	TEST DATA													
	Load Cell ID #	£	11/1015	7			Digita	I Caliper ID	# 17/583					
	Compression	Device ID #	10/1014				Readou	t Device ID	# 10/1016					
	Balance ID #		1036/1037]				Oven ID	# 758/496					
Maximum Lo	oad at Failure, I	bf			2742									
Specimen C	ross-sectional	Area, in ²			6.97			Failure Cod	e 3					
Compressive	e Strength at F	ailure, psi			393									
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00									
Reported C	ompressive S	trength at Fai	lure, psi		393				Failure Skete	ch				
Note 2: * - A d	onversion factor	based on H/D=	1.15 (C.F 9	08 as 100% a	nd add. correct	tion per A	STM C42)						
			DESC	RIPTION			.ee,	/						
									\times					
								Failure Type	K					
									Cone and S	hear				
		U	SCS (ASTM	I D2487: D24	88)		4							
]									
			REN	IARKS										
							<u>.</u>							

		t		TIME	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engi	NEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	10/07/21
				TESTS	S, LLC	Web: <u>ww</u>	w.test-llc.com	<u>n</u>		ACC	SREDITED			Checked By	18
Client Pr. #					200016	•				Lab. PR. #			21136-02	-3	-
Pr. Name					Time Oil Ter	minal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			39047	/2-20		Subs	ample ID	3		Location			Seattle, W	/A	
Add. Info		-		M	ixing/Molding D	ate		09/27/21				Curin	g Age, Days		10
				ASTM D) 5084; Stand Materials	lard Test I Using a F	Method for lexible Wal	Measurem Il Permeam	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous w)		
Initial Sample Data (Before Test) Test Data												Final Data (After Tes	st)		
Height		3.005	lin	7.63	cm Speed			10	1						
Diameter		2.969	in	7.54	cm Board N	lumber		9	1	Average Hei	ght of Samp	le	3.006 in	7.64 cm	
Area		6.92	in²	44.67	cm ² Cell Nu	mber		41	1	Average Dia	meter of Sa	nple	2.970 in	7.54 cm	
Volume		340.92	cm ³	0.0120	ft ³ Flow Pt	Imp Numbe	r	2A	1	Area	6.93	in ²	44.70 cm ²		
Mass		629.4	g	1.39	b Flow Ρι	Imp Rate*		2.24E-04	cm ³ /sec	Volume	341.27	cm ³	0.0121 ft ³	Dry Density	87.6 pcf
Specific Gra	avity	2.700	- (Assume	d)	B - Valı	ie		0.95	1	Mass	642.7	g	1.42 lb	Vol. of Voids	163.80 cm ³
Dry Density	-	87.7	pcf		Cell Pre	essure		95.0	psi		.		·	Vol. of Solids	177.46 cm ³
			J [*]		Back Pr	ressure		90.0	psi					Void Ratio	0.92
	Mois	ture Cont	ent		Confinir	ng (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	99.8 %
Mass of we	t sample &	k tare	629.4	g	Max He	ad		17.59	cm	Mass of wet	sample & ta	re	724.0 g		
Mass of dry	sample &	tare	479.0	g	Min Hea	Head 16.88 cm					sample & ta	е	560.5 g		
Mass of tare	е		0.0	g	Maximu	im Gradient		2.30		Mass of tare			81.5 g		
% Moisture			31.4		Minimur	m Gradient		2.21		% Moisture			34.1		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for	Permeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/07/21	8	5	-	0.25	17.59	2.30	23.1	-	-	-		NA			USCS
10/07/21	8	15	600	0.24	16.88	2.21	23.1	2.22E-06	0.929	2.06E-06				(ASTN	I D2487;2488)
10/07/21	8	25	600	0.25	17.59	2.30	23.1	2.22E-06	0.929	2.06E-06					NA
10/07/21	8	35	600	0.24	16.88	2.21	23.1	2.22E-06	0.929	2.06E-06	*		REMA	RKS	
10/07/21	8	45	600	0.25	17.59	2.30	23.1	2.22E-06	0.929	2.06E-06	*	Bottom	Half of the mold was us	ed for testing.	
10/07/21	8	55	600	0.24	16.88	2.21	23.1	2.22E-06	0.929	2.06E-06	*				
10/07/21	9	5	600	0.25	17.59	2.30	23.1	2.22E-06	0.929	2.06E-06	*				
Reported Average Hydraulic Conductivity*								2.1E-06	cm/sec						
Flow pump	ID #	24	44		Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346		
Thermomet	er ID #	796	/985		Oven ID #	496/758		Board Press	sure Meter	r ID#			571		
Syringe ID #	#	24	45	J				Pore Pressu	ire Meter	ID #			29		
*Constant Rate calculations of	of Flow Syst	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	for Inflow and Calib essure (DP) Readin	rated Graduate gs at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with ac gnificant upward or downward t	ccuracy +/-5%. Flow Pu trend.	imp Rate isused for

		t		TIMEL	Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle X \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/25/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO				Checked By	18
Client Pr. 7					200016					Lab. PR. #			2	21136-02-3		•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/El	evation		-
Sample ID			39047	/2-20		Subs	ample ID	4		Location			5	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	te		09/27/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	rd Test N Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porou w)	s		
Initial Sample Data (Before Test) Test Data									Final Data (After Test)							
Height		3.035	in	7.71 ci	n Speed			10								
Diameter		2.967	in	7.54 ci	n Board Nu	umber		14		Average Heig	ght of Samp	le	3.036 ii	n	7.71 cm	
Area		6.91	in²	44.61 CI	m ² Cell Num	ber		14		Average Dia	meter of Sa	mple	2.968 i	n	7.54 cm	
Volume		343.86	cm ³	0.0121 ft	Flow Pur	np Numbe	r	2a		Area	6.92	in ²	44.64	cm ²		
Mass		635.1	g	1.40 lb	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	344.21	cm ³	0.0122 f	t ³	Dry Density	87.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	645.4	g	1.42	b	Vol. of Voids	165.74 cm ³
Dry Density	,	87.4	pcf		Cell Pres	sure		95.0	psi			-			Vol. of Solids	178.47 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	0.93
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	98.7 %
Mass of we	t sample &	tare	635.1	g	Max Hea	d		205.39	cm	Mass of wet	sample & ta	re	725.8 g	9		
Mass of dry	sample &	tare	481.8	g	Min Head	b		203.99	cm	Mass of dry s	sample & ta	re	562.3	9		
Mass of tar	е		0.0	g	Maximun	Maximum Gradient 26.63							80.5 g	9		
% Moisture			31.8		Minimum	Gradient		26.45		% Moisture			33.9			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	ermeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	N	_	
10/25/21	7	0	-	2.91	204.69	26.54	24.7	-	-	-		NA				USCS
10/25/21	7	10	600	2.90	203.99	26.45	24.7	1.89E-07	0.895	1.69E-07					(ASTN	l D2487;2488)
10/25/21	7	20	600	2.92	205.39	26.63	24.7	1.89E-07	0.895	1.69E-07						NA
10/25/21	7	30	600	2.92	205.39	26.63	24.7	1.88E-07	0.895	1.69E-07	*			REMARK	S	
10/25/21	7	40	600	2.90	203.99	26.45	24.7	1.89E-07	0.895	1.69E-07	*	Bottom	Half of the mo	ld was used	for testing.	
10/25/21	7	50	600	2.92	205.39	26.63	24.7	1.89E-07	0.895	1.69E-07	*					
10/25/21	8	0	600	2.91	204.69	26.54	24.7	1.89E-07	0.895	1.69E-07	*					
				-	Reported	Average	Hydraulic Cor	nductivity*		1.7E-07	cm/sec					
Flow pump ID # 244 Balance ID # 1035/1036 Differential Pressu						Pressure I	Meter ID #			346						
Thermometer ID # 796/985 Oven ID # 496/758					Board Press	ure Meter	ID#			694/459						
Syringe ID a	#	2	45			P	•	Pore Pressu	re Meter	ID #			372			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sar gnificant upward or	mple with accur downward tren	acy +/-5%. Flow Pu d.	imp Rate isused for

Г	Î	TIMELY		1874 Forge S	Street Tucker,	, GA 30	0084							
2	<u>re sr</u>	ENGINE	ERING	Phone: 770-9	938-8233	_			Tested By	KP/IH				
		Soil		Fax: 770-923	8-8973	\sim	$\sqrt{2}$		Date	10/08/21				
L		TESTS, L	LC	Web: <u>www.te</u>	st-llc.com		SHO		Checked By	18				
Client Pr. #			200016				Lab. PR. #		21136-02-4					
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-				
Sample ID		39092/2-27		Subsample	1		Location		Seattle, WA					
Add. Info		-	Mixing/Mo	olding Date	09/28/21	1		Curing A	Age, Days	10				
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ength o	f Molded So	oil-Cement C	ylinders					
				METHOD	В									
	SAMPLE DA	ГА			WATER CO			IINATION						
Initial Heigh	t, in		5.677	Ĩ	Mass of We	et Sam	ple and Tar	e, q	1541.2					
Initial Diame	eter, in		2.980		Mass of Dry	y Sam	ple and Tare	e, g	1245.3					
Height-to-Di	ameter Ratio		1.91		Mass of Tar	re, g		-	336.9					
Area, in ²			6.97		Moisture, %	, D			32.6					
Volume, in ³			39.60											
Mass of Sar	nple, g		1206.6											
Wet Density	, pcf		116.1											
Dry Density,	pct		87.5											
Strain rate	% / min		0.050	-										
otrain rate,	70 / IIIII		0.00											
	TEST DATA													
	Load Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583					
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016					
	Balance ID #		1036/1037]				Oven ID	# 758/496					
Maximum Lo	oad at Failure,	lbf			489									
Specimen C	ross-sectional	Area, in ²			6.97 Failure Code 3									
Compressiv	e Strength at F	ailure, psi			70									
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00									
Reported C	ompressive S	trength at Fai	lure, psi		70				Failure Sket	ch				
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correc	ction pe	er ASTM C42)						
			DESC	RIPTION										
								Failure Type	ə:					
									Cone and S	hear				
		U	SCS (ASTM	D2487: D24	88)									
			DEN	INDKO										
														
	L													
	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084								
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,	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH					
		Soil		Fax: 770-923	3-8973			Date	10/26/21					
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18					
Client Pr. #			200016			Lab. PR. #		21136-02-4						
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-					
Sample ID		39092/2-27		Subsample	2	Location		Seattle, WA						
Add. Info	-	-	Mixing/Mo	olding Date	09/28/21		Curing A	Age, Days	28					
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders						
				METHOD	В									
		Α	F 000	٦	WATER CON		WINATION	1400 5						
Initial Height	i, in tor in		5.662	_	Mass of Wet	Sample and Ta	re, g	1493.5						
Height to Di	ameter Patio		2.973	_	Mass of Tare	Sample and Tar	e, g	200.7						
Aroa in ²			6.04	-	Maisture %	, y		299.7						
Area, in $V_{\rm observed}$ in 3			0.94	-	woisture, %			32.1						
Mass of San	nnle a		1106.0	-										
Wet Density	npie, g		115.0	-										
Dry Density	pcf		87.3	-										
Machine Sp	eed, in/min		0.050	-										
Strain rate, 9	% / min		0.88											
				-										
				TEST	DATA									
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID	# 17/583						
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016						
	Balance ID #		1036/1037]			Oven ID	# 758/496						
Maximum Lo	oad at Failure,	lbf			3126									
Specimen C	ross-sectional	Area, in ²			6.94		Failure Cod	e 3						
Compressiv	e Strength at F	ailure, psi			450									
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00									
Reported C	ompressive S	trength at Fai	lure, psi		450			Failure Skete	ch					
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	2)							
			DESC	RIPTION			,							
							T							
							Failure Type	e:						
								Cone and S	hear					
		U	SCS (ASTM	D2487: D24	88)		-							
]									
			RFM	IARKS										
			1.7010				T							
							-							

		1		TIMEI	LΥ	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u><u>S</u>T.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	10/09/21
			1	Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		ACC	ASHIO			Checked By	18
Client Pr. 7					200016					Lab. PR. #			21136-02	2-4	•
Pr. Name					Time Oil Term	ninal				S. Type	Mo	d	Depth/Elevation		
Sample ID			39092	/2-27		Subs	ample ID	3		Location			Seattle, V	WA	
Add. Info				Mix	king/Molding Da	ite		09/28/21				Curin	g Age, Days		11
				ASTM D	5084; Standa Materials l	urd Test M Jsing a F	Method for lexible Wal	Measureme I Permeam	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity Istant Rate	of Satu e of Flo	w)		
Ir	nitial San	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After Te	est)	
Height	ſ	3.066	in	7.79 c	m Speed			9]						
Diameter		2.954	in	7.50 c	m Board Nu	umber		7		Average Heig	ght of Samp	le	3.067 in	7.79 cm	
Area		6.85	in ²	44.22 C	m ² Cell Num	ıber		14		Average Dia	e meter of Sai	nple	2.954 in	7.50 cm	
Volume	ļ	344.34	cm ³	0.0122 ft	³ Flow Pur	np Numbe	r	4B		Area	6.85	in ²	44.22 cm ²		
Mass	ļ	643.1	g	1.42 lt	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	344.45	cm ³	0.0122 ft ³	Dry Density	88.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	¢		0.95		Mass	651.5	g	1.44 lb	Vol. of Voids	164.59 cm ³
Dry Density	ļ	88.0	pcf		Cell Pres	sure		95.0	psi			-		Vol. of Solids	179.86 cm ³
	-		•		Back Pre	essure		90.0	psi					Void Ratio	0.92
	Moisture Content Confining (Effect					g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	100.8 %
Mass of wet	asample &	tare	643.1	g	Max Hea	۱d		21.81	cm	Mass of wet	sample & ta	re	734.5 g		
Mass of dry	sample &	tare	485.7	g	Min Head	b		21.10	cm	Mass of dry s	sample & ta	re	568.6 g		
Mass of tare	3	ļ	0.0	g	Maximum	n Gradient		2.80		Mass of tare			82.9 g		
% Moisture			32.4		Minimum	Gradient	•	2.71		% Moisture	-		34.2		
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for	r Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (^o C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/09/21	6	20	-	0.30	21.10	2.71	23.2	-	-	-		NA		L I	JSCS
10/09/21	6	30	600	0.31	21.81	2.80	23.2	3.68E-06	0.927	3.41E-06				(ASTM	D2487;2488)
10/09/21	6	40	600	0.31	21.81	2.80	23.2	3.62E-06	0.927	3.35E-06					NA
10/09/21	6	50	600	0.30	21.10	2.71	23.2	3.68E-06	0.927	3.41E-06	*		REMA	ARKS	
10/09/21	7	0	600	0.30	21.10	2.71	23.2	3.74E-06	0.927	3.47E-06	*	Bottom	Half of the mold was u	sed for testing.	
10/09/21	7	10	600	0.31	21.81	2.80	23.2	3.68E-06	0.927	3.41E-06	*				
10/09/21	7	20	600	0.30	21.10	2.71	23.2	3.68E-06	0.927	3.41E-06	*				
					Reported	Average	Hydraulic Cor	nductivity*		3.4E-06	cm/sec				
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985	С)ven ID #	496/758		Board Press	ure Meter	ID #			290		
Syringe ID #	ŧ	10	46			_	_	Pore Pressu	ire Meter	ID #			216		
*Constant Rate calculations of I	of Flow Syste HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	brated Syringe f Differential Pre	or Inflow and Calibra ssure (DP) Readingঃ	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) she	through the	e fully saturated sample with a gnificant upward or downward	ccuracy +/-5%. Flow Pu trend.	mp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	10/26/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02	-4	•
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/Elevation		-
Sample ID			39092	/2-27		Subs	ample ID	4		Location			Seattle, W	/A	
Add. Info		-		Miz	king/Molding Da	te		09/28/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
li li	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (After Tes	st)	
Height		3.032	lin	7.70 c	m Speed			10	1						
Diameter		2.976	in	7.56 c	m Board Nu	ımber		3		Average Hei	ght of Samp	le	3.031 in	7.70 cm	
Area		6.96	in ²	44.88 C	m ² Cell Num	ber		55		Average Dia	meter of Sa	nple	2.977 in	7.56 cm	
Volume		345.61	cm ³	0.0122 ft	Flow Pun	np Numbe	r	4B		Area	6.96	in ²	44.91 cm ²		
Mass		634.5	g	1.40 II	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	345.73	cm ³	0.0122 ft ³	Dry Density	86.3 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value			0.95		Mass	645.2	g	1.42 lb	Vol. of Voids	168.58 cm ³
Dry Density		86.4	pcf		Cell Pres	sure		95.0	psi			-		Vol. of Solids	177.15 cm ³
			-		Back Pre	ssure		90.0	psi					Void Ratio	0.95
	Mois	ture Cont	ent		Confining	(Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent	Saturation	99.0 %
Mass of wet	t sample 8	k tare	634.5	g	Max Hea	d		116.76	cm	Mass of wet	sample & ta	re	718.1 g		
Mass of dry	sample &	tare	478.3	g	Min Head	ł		115.36	cm	Mass of dry	sample & ta	е	551.2 g		
Mass of tare	Э		0.0	g	Maximum	n Gradient		15.17		Mass of tare			72.9 g		
% Moisture			32.7		Minimum	Gradient		14.98		% Moisture			34.9		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for	Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/26/21	7	5	-	1.65	116.06	15.08	24.5	-	-	-		NA		l	JSCS
10/26/21	7	15	600	1.66	116.76	15.17	24.5	3.30E-07	0.899	2.97E-07				(ASTM	D2487;2488)
10/26/21	7	25	600	1.64	115.36	14.98	24.5	3.31E-07	0.899	2.98E-07					NA
10/26/21	7	35	600	1.64	115.36	14.98	24.5	3.33E-07	0.899	2.99E-07	*		REMAI	RKS	
10/26/21	7	45	600	1.65	116.06	15.08	24.5	3.32E-07	0.899	2.99E-07	*	Bottom	Half of the mold was us	ed for testing.	
10/26/21	7	55	600	1.66	116.76	15.17	24.5	3.30E-07	0.899	2.97E-07	*				
10/26/21	8	5	600	1.65	116.06	15.08	24.5	3.30E-07	0.899	2.97E-07	*				
				_	Reported	Average	Hydraulic Co	nductivity*		3.0E-07	cm/sec				
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	sure Meter	· ID #			1041		
Syringe ID #	#	10)46]			-	Pore Pressu	ire Meter	ID #			26/27		
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ited Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sample with ac gnificant upward or downward t	curacy +/-5%. Flow Pu rend.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
,	r.e. s.r.	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/08/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	ŧ	21136-02-4	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID	39093	3/CAA-4 Ex-Situ	ı (5)	Subsample	1	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/28/21		Curing /	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
	SAMPLE DAT	Γ A		-	WATER CON	NTENT DETER	MINATION		
Initial Height	t, in		5.672	_	Mass of Wet	Sample and Ta	are, g	1530.3	
Initial Diame	eter, in		2.978	-	Mass of Dry	Sample and Ta	re, g	1207.2	
Height-to-Di	ameter Ratio		1.90	_	Mass of Tare	e, g		365.7	
Area, in			6.97	_	woisture, %			38.4	
Volume, In ²	nnlo a		39.51	-					
Wet Density	npie, g		1100.0	_					
Dry Density	, pci		81.2						
Machine Sp	eed. in/min		0.050	-					
Strain rate,	% / min		0.88						
,				4					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1952				
Specimen C	ross-sectional	Area, in ²			6.97		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			280				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		280			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	=1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM C4	2)		
			DESC	RIPTION			,		
							1		
							Failure Typ	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)		_		
			REM	IARKS					

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
,	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	۱ 3-8973	$\overline{\mathcal{O}}$	•	Date	10/26/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AASHIC	2	Checked By	18
Client Pr. #			200016			Lab. PR	#	21136-02-4	
Pr. Name		Т	ime Oil Term	inal		S. Ty	pe Mold	Depth/Elev.	-
Sample ID	39093	3/CAA-4 Ex-Situ	(5)	Subsample	2	Locati	on	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/28/21		Curing	Age, Days	28
	ASTM E) 1633: Standa	rd Test Met	hods for Com	pressive Stren	ngth of Moldec	l Soil-Cement (Cylinders	
				METHOD	В				
		٢Δ					RMINATION		
Initial Height	in		5,722	7	Mass of Wet	t Sample and	Tare. a	1471.5	
Initial Diame	ter. in		2.981	1	Mass of Drv	Sample and]	fare. q	1148.2	
Height-to-Di	ameter Ratio		1.92	1	Mass of Tare	e, g		299.1	
Area, in ²			6.98	1	Moisture, %	-		38.1	
Volume, in ³			39.94	1					
Mass of San	nple, g		1176.7						
Wet Density	, pcf		112.2						
Dry Density,	pcf		81.3						
Machine Sp	eed, in/min		0.050	4					
Strain rate, S	% / min		0.87						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	7		Di	uital Caliper ID) # 17/583	
	Compression	Device ID #	10/1014			Rea	dout Device ID) # 10/1016	
	Balance ID #		1036/1037	-			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			5363				
Specimen C	ross-sectional	Area, in ²			6.98		Failure Co	de 3	
Compressive	e Strength at F	ailure, psi			768				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		768			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	008 as 100% a	nd add. correct	tion per ASTM (C42)		
			DESC	RIPTION					
							Failure Typ	be:	
								Cone and S	hear
		U	SCS (AST <mark>N</mark>	1 D2487: D24	188)				
					J				
			REM	/IARKS					

		t		TIMEL	LΥ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	10/09/21
				TESTS.	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		A/ ACC	SREDITED				Checked By	18
Client Pr. a	4				200016					Lab. PR. #			2	1136-02-4		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID		390)93/CAA-4	1 Ex-Situ (5)		Subs	ample ID	3		Location			S	eattle, WA	-	
Add. Info		-		Mix	king/Molding Da	ite		09/28/21				Curir	ig Age, Days			11
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous	5		
I	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	fter Test)		
Height		3.036	in	7.71 c	m Speed			9								
Diameter		2.962	in	7.52 c	m Board Nu	umber		8		Average Heig	ght of Samp	le	3.038 in	1	7.72 cm	
Area		6.89	in²	44.46 CI	m ² Cell Num	nber		33		Average Dia	meter of Sa	mple	2.963 in	1	7.53 cm	
Volume		342.82	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	4A		Area	6.90	in²	44.49 ci	m ²		
Mass		618.8	g	1.36 lb	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	343.27	cm ³	0.0121 ft	3	Dry Density	81.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	624.0	g	1.38 lb)	Vol. of Voids	177.21 cm ³
Dry Density	Density 81.6 pcf Cell Pressure Back Pressure							95.0	psi						Vol. of Solids	166.06 cm ³
	Back Pressure							90.0	psi						Void Ratio	1.07
	Moisture Content Confining (e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	99.1 %
Mass of we	t sample &	tare	618.8	g	Max Hea	d		95.66	cm	Mass of wet	sample & ta	ire	707.9 g			
Mass of dry	sample &	tare	448.3	g	Min Head	d		94.26	cm	Mass of dry s	sample & ta	re	532.3 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		12.40		Mass of tare			84.0 g			
% Moisture			38.0		Minimum	Gradient		12.21		% Moisture			39.2			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water U	Jsed for Pe	rmeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	N		
10/09/21	6	20	-	1.35	94.96	12.31	23.2	-	-	-		NA				USCS
10/09/21	6	30	600	1.36	95.66	12.40	23.2	8.15E-07	0.927	7.56E-07					(ASTN	1 D2487;2488)
10/09/21	6	40	600	1.36	95.66	12.40	23.2	8.12E-07	0.927	7.53E-07						NA
10/09/21	6	50	600	1.34	94.26	12.21	23.2	8.18E-07	0.927	7.58E-07	*			REMARK	S	
10/09/21	7	0	600	1.36	95.66	12.40	23.2	8.18E-07	0.927	7.58E-07	*	Bottom	Half of the mole	d was used	for testing.	
10/09/21	7	10	600	1.36	95.66	12.40	23.2	8.12E-07	0.927	7.53E-07	*					
10/09/21	7	20	600	1.35	94.96	12.31	23.2	8.15E-07	0.927	7.56E-07	*					
	Reported Average Hydraulic Con									7.6E-07	cm/sec					
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048			
Thermomet	ermometer ID # 796/985 Oven ID # 496/758 Board Pressure Meter ID # 290															
Syringe ID a	#	10)47				•	Pore Pressu	ire Meter	ID #			216			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sam gnificant upward or c	nple with accura downward trend	acy +/-5%. Flow Pi d.	ump Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	10/26/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		A	REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-	4	•
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/Elevation		-
Sample ID		390)93/CAA-4	4 Ex-Situ (5)		Subs	ample ID	4		Location			Seattle, W	A	
Add. Info		-		Miz	king/Molding Da	te		09/28/21]		Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
Ir	nitial Sar	nple Dat	a (Befor	e Test)		•	Test Data	a					Final Data (After Tes	t)	
Heiaht		3.049	lin	7.74 c	m Speed			10							
Diameter		2.972	in	7.55 c	m Board Nu	umber		4		Average Hei	ght of Samp	le	3.048 in	7.74 cm	
Area		6.94	in²	44.76 C	m ² Cell Num	ıber		41		Average Dia	meter of Sa	nple	2.973 in	7.55 cm	
Volume		346.61	cm ³	0.0122 ft	³ Flow Pur	np Numbe	r	4A		Area	6.94	in ²	44.79 cm ²		
Mass		620.1	g	1.37 lt	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	346.73	cm ³	0.0122 ft ³	Dry Density	80.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	628.5	g	1.39 lb	Vol. of Voids	180.44 cm ³
Dry Density	-	80.8	pcf		Cell Pres	sure		95.0	psi			J -		Vol. of Solids	166.30 cm ³
			4		Back Pre	ssure		90.0	psi					Void Ratio	1.09
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent	Saturation	99.5 %
Mass of wet	t sample 8	k tare	620.1	g	Max Hea	d		202.58	cm	Mass of wet	sample & ta	re	702.8 g		
Mass of dry	sample &	tare	449.0	g	Min Head	b		199.77	cm	Mass of dry	sample & ta	re	523.3 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		26.17		Mass of tare			74.3 g		
% Moisture			38.1		Minimum	Gradient		25.80		% Moisture			40.0		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for I	Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/26/21	7	5	-	2.88	202.58	26.17	24.5	-	-	-		NA		l	JSCS
10/26/21	7	15	600	2.84	199.77	25.80	24.5	1.92E-07	0.899	1.73E-07				(ASTM	D2487;2488)
10/26/21	7	25	600	2.86	201.17	25.98	24.5	1.93E-07	0.899	1.74E-07					NA
10/26/21	7	35	600	2.86	201.17	25.98	24.5	1.92E-07	0.899	1.73E-07	*		REMAF	RKS	
10/26/21	7	45	600	2.88	202.58	26.17	24.5	1.92E-07	0.899	1.73E-07	*	Bottom	Half of the mold was use	ed for testing.	
10/26/21	7	55	600	2.86	201.17	25.98	24.5	1.92E-07	0.899	1.73E-07	*				
10/26/21	8	5	600	2.87	201.88	26.08	24.5	1.92E-07	0.899	1.73E-07	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		1.7E-07	cm/sec				
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048		
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	ID#			1041		
Syringe ID #	#	10)47				-	Pore Pressu	ire Meter	ID #			26/27		
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ated Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sample with acc gnificant upward or downward tr	curacy +/-5%. Flow Pu rend.	mp Rate isused for

Г	Î	TIMELY		1874 Forge S	Street Tucker,	, GA 30	084			
<u>'</u>	<u>r.e. s.r.</u>	Enginei	ERING	Phone: 770-9	938-8233	\square	Δ		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	\sim			Date	10/09/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com		SHIO		Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-4	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39094/4-72		Subsample	1		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/29/21	1		Curing A	Age, Days	10
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ngth o	f Molded So	oil-Cement C	ylinders	
				METHOD	В					
		TA			WATER CO	NTEN		IINATION		
Initial Height	t, in		5.671	1	Mass of We	et Sam	ple and Tar	e, g	1457.8	
Initial Diame	ter, in		2.975		Mass of Dry	/ Samp	, ble and Tare	e, g	1130.0	
Height-to-Di	ameter Ratio		1.91		Mass of Tar	re, g		-	331.9	
Area, in ²			6.95		Moisture, %)			41.1	
Volume, in ³			39.42							
Mass of Sar	nple, g		1152.0							
Wet Density	, pcf		111.3							
Dry Density,	pcf		78.9	-						
Machine Sp	eed, in/min		0.050	-						
Strain rate, S	% / MIN		0.88							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			610					
Specimen C	ross-sectional	Area, in ²			6.95			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			88					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		88				Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correc	tion pe	r ASTM C42)		
			DESC	RIPTION				, ,		
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)					
			REM	IARKS						

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/27/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-4	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		39094/4-72		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/29/21		Curing A	Age, Days	28
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
		ΓΔ			WATER CON				
Initial Heigh			5 706	1	Mass of Wet	Sample and Ta	re a	1460.8	
Initial Diame	ter, in		2.978	-	Mass of Dry S	Sample and Tar	re, g	1123.5	
Height-to-Di	ameter Ratio		1.92		Mass of Tare	, g	-, 9	305.5	
Area, in ²			6.97		Moisture, %			41.2	
Volume, in ³			39.74						
Mass of Sar	nple, g		1158.9						
Wet Density	, pcf		111.1						
Dry Density,	pcf		78.6						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.88						
				TEST	DATA				
				7				" [
	Load Cell ID #		11/1015	-		Digita	al Caliper ID	# 17/583	
		Device ID #	10/1014	_		Reado		# 10/1016	
	Balance ID #		1030/1037	J			Oven ID	# 756/490	
Maximum Lo	oad at Failure,	lbf			2334				
Specimen C	ross-sectional	Area, in ²			6.97		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			335				
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		335			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	2)		
			DESC	RIPTION					
							Ī		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS					
							l		
							l		

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>S.T.</u>		Engin	IEERING	Phone: 7	70-938-8233			<u>ح</u>	$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	10/09/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		AC	ASHIO			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-4	۱	
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/Elevation		
Sample ID			39094	/4-72		Subs	ample ID	3		Location			Seattle, WA	4	
Add. Info		-		Mi	king/Molding Da	te		09/29/21				Curin	ng Age, Days		10
				ASTM D	5084; Standa Materials L	rd Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	draulic Cor thod D, Cor	nductivity	of Satu e of Flo	urated Porous ow)		
Ir	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a	-				Final Data (After Test	:)	
Height		3.013	lin	7.65 0	m Speed			10	1						
Diameter		2.965	in	7.53 c	m Board Nu	umber		5		Average Hei	oht of Samp	le	3.017 in	7.66 cm	
Area		6.90	in²	44.55	m ² Cell Num	lber		55		Average Dia	meter of Sa	nple	2.955 in	7.51 cm	
Volume		340.91	cm ³	0.0120 f	³ Flow Pun	np Numbe	r	4B		Area	6.86	in ²	44.25 cm ²	L	
Mass		604.4	g	1.33 II	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	339.06	cm ³	0.0120 ft ³	Dry Density	78.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	611.0	g	1.35 lb	Vol. of Voids	180.59 cm ³
Dry Density		78.3	pcf		Cell Pres	sure		95.0	psi			1 .		Vol. of Solids	158.47 cm ³
			•		Back Pre	ssure		90.0	psi					Void Ratio	1.14
	Moisture Content Back Press Confining (I					g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent	Saturation	101.4%
Mass of wet	t sample &	k tare	604.4	g	Max Hea	d		97.77	cm	Mass of wet	sample & ta	re	693.3 g		
Mass of dry	sample &	tare	427.8	g	Min Head	t		95.66	cm	Mass of dry	sample & ta	re	<u>510.2</u> g		
Mass of tare	Э		0.0	g	Maximum	n Gradient		12.76		Mass of tare			82.4 g		
% Moisture			41.3		Minimum	Gradient		12.48		% Moisture			42.8		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for P	Permeability Test	•
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	_	
10/09/21	7	55	-	1.38	97.07	12.67	23.2	-	-	-		NA		ι	JSCS
10/09/21	8	5	600	1.36	95.66	12.48	23.2	4.03E-07	0.927	3.73E-07				(ASTM	D2487;2488)
10/09/21	8	15	600	1.39	97.77	12.76	23.2	4.01E-07	0.927	3.72E-07					NA
10/09/21	8	25	600	1.37	96.37	12.58	23.2	4.00E-07	0.927	3.70E-07	*		REMARI	ĸs	
10/09/21	8	35	600	1.38	97.07	12.67	23.2	4.01E-07	0.927	3.72E-07	*	Bottom	Half of the mold was use	d for testing.	
10/09/21	8	45	600	1.36	95.66	12.48	23.2	4.03E-07	0.927	3.73E-07	*				
10/09/21	8	55	600	1.37	96.37	12.58	23.2	4.04E-07	0.927	3.74E-07	*				
				_	Reported	Average	Hydraulic Co	nductivity*		3.7E-07	cm/sec				
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985		Ven ID #	496/758		Board Press	sure Meter	· ID #			1042		
Syringe ID #	¥	10)46				-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of I	of Flow Syst	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	or Inflow and Calibra	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) she	through the	e fully saturated sample with accu gnificant upward or downward tre	uracy +/-5%. Flow Pu end.	mp Rate isused for

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/27/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	1136-02-4		•
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID			39094	/4-72		Subs	ample ID	4		Location			S	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/29/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous	S		
	nitial San	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	fter Test)		
Height		3.017	in	7.66 ci	m Speed			12								
Diameter		2.966	in	7.53 ci	m Board Nu	umber		1		Average Heig	ght of Samp	le	3.018 ir	ı	7.67 cm	
Area		6.91	in²	44.58 CI	m ² Cell Num	nber		15		Average Dia	meter of Sa	mple	2.967 ir	ı	7.54 cm	
Volume		341.59	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	1B		Area	6.91	in²	44.61 C	m ²	·	
Mass		604.3	g	1.33 lb	Flow Pur	np Rate*		5.60E-05	cm ³ /sec	Volume	341.94	cm ³	0.0121 ft	3	Dry Density	78.1 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	616.4	g	1.36 lt	C	Vol. of Voids	183.53 cm ³
Dry Density	ensity 78.1 pcf C B					sure		95.0	psi			_			Vol. of Solids	158.41 cm ³
	Moisture Content					essure		90.0	psi						Void Ratio	1.16
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	102.8 %
Mass of we	t sample &	tare	604.3	g	Max Hea	ld		150.53	cm	Mass of wet	sample & ta	ire	699.1 g	l		
Mass of dry	sample &	tare	427.7	g	Min Head	d		147.71	cm	Mass of dry s	sample & ta	re	510.4 g	I		
Mass of tar	е		0.0	g	Maximun	n Gradient		19.64		Mass of tare			82.7 g	l		
% Moisture			41.3		Minimum	Gradient	-	19.27		% Moisture	-		44.1			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N		
10/27/21	6	30	-	2.10	147.71	19.27	23.7	-	-	-		NA			l	JSCS
10/27/21	6	40	600	2.12	149.12	19.45	23.7	6.48E-08	0.916	5.94E-08					(ASTM	D2487;2488)
10/27/21	6	50	600	2.11	148.42	19.36	23.7	6.47E-08	0.916	5.93E-08						NA
10/27/21	7	0	600	2.14	150.53	19.64	23.7	6.44E-08	0.916	5.90E-08	*			REMARK	S	
10/27/21	7	10	600	2.13	149.82	19.54	23.7	6.41E-08	0.916	5.87E-08	*	Bottom	Half of the mol	ld was used	for testing.	
10/27/21	7	20	600	2.13	149.82	19.54	23.7	6.42E-08	0.916	5.88E-08	*					
10/27/21	7	30	600	2.12	149.12	19.45	23.7	6.44E-08	0.916	5.90E-08	*					
				•	Reported	Average	Hydraulic Co	nductivity*		5.9E-08	cm/sec					
Flow pump	ID #	2	22	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			942			
Thermomet	ermometer ID # 796/985 Oven ID # 496/758 Board Pressure Meter ID # 64															
Syringe ID a	#	14	41]			•	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no s	e fully saturated sam ignificant upward or o	nple with accura downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
	<u>r.e. [s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	∇D		Date	10/28/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	¥	21136-02-4	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID	39	9095/CAA-4 SP		Subsample	2	Location	ו <u></u>	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/30/21		Curing /	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	Soil-Cement C	Cylinders	
				METHOD	В				
	SAMPLE DA	Α	5.070	٦	WATER CO		MINATION	4450.0	
Initial Height	(, IN stor in		5.678	_	Mass of Wet	Sample and Ta	are, g	1456.0	
Height_to_Di	ameter Patio		2.972	-	Mass of Tare		ie, g	200.1	
Area in ²			6.04		Moisturo %	[,] , y		299.1	
$Volume in^3$			20.20	-	MOISTURE, 70			39.0	
Mass of Sar	nnle a		1158 3						
Wet Density	npie, g		112.0	-					
Dry Density,	pcf		80.2						
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.88						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digi	tal Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			4004				
Specimen C	ross-sectional	Area, in ²			6.94		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			577				
Conversion	Factor for Heig	ht to Diameter	r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		577			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM C4	2)		
			DESC	RIPTION					
							T		
							Failure Typ	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)				
			REM	IARKS					
							7		

		t		TIMEL	.Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle X \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/28/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASH O				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			:	21136-02-4		
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/El	levation		-
Sample ID			39095/CA	A-4 SP		Subs	ample ID	4		Location			9	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	te		09/30/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	rd Test M Jsing a F	/lethod for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porou w)	IS		
	nitial San	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (A	After Test)		
Height		2.991	in	7.60 ci	m Speed			12								
Diameter		2.957	in	7.51 ci	m Board Nu	umber		15		Average Heig	ght of Samp	le	2.992 i	in	7.60 cm	
Area		6.87	in²	44.31 CI	m ² Cell Num	ıber		5		Average Dia	meter of Sa	mple	2.958 i	in	7.51 cm	
Volume		336.60	cm ³	0.0119 ft	³ Flow Pur	np Numbe	r	2B		Area	6.87	in ²	44.34	cm ²		
Mass		606.1	g	1.34 lb	Flow Pur	np Rate*		5.60E-05	cm ³ /sec	Volume	336.94	cm ³	0.0119 1	ft ³	Dry Density	80.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	611.4	g	1.35 I	lb	Vol. of Voids	175.64 cm ³
Dry Density	,	80.7	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	161.30 cm ³
			_		Back Pre	ssure		90.0	psi						Void Ratio	1.09
	Mois	ture Cont	ent	-	Confining	g (Effective) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	100.1 %
Mass of we	t sample &	tare	606.1	g	Max Hea	d		113.25	cm	Mass of wet	sample & ta	re	685.0	g		
Mass of dry	sample &	tare	435.5	g	Min Head	t		112.54	cm	Mass of dry s	sample & ta	re	509.1	g		
Mass of tar	е		0.0	g	Maximun	n Gradient		14.90		Mass of tare			73.6	g		
% Moisture			39.2		Minimum	Gradient		14.81		% Moisture	-		40.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	ermeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	NC	-	
10/28/21	8	20	-	1.60	112.54	14.81	23.3	-	-	-		NA				USCS
10/28/21	8	30	600	1.61	113.25	14.90	23.3	8.50E-08	0.925	7.86E-08					(ASTN	I D2487;2488)
10/28/21	8	40	600	1.60	112.54	14.81	23.3	8.50E-08	0.925	7.86E-08						NA
10/28/21	8	50	600	1.61	113.25	14.90	23.3	8.50E-08	0.925	7.86E-08	*			REMARK	S	
10/28/21	9	0	600	1.60	112.54	14.81	23.3	8.50E-08	0.925	7.86E-08	*	Bottom	Half of the mo	old was used	I for testing.	
10/28/21	9	10	600	1.61	113.25	14.90	23.3	8.50E-08	0.925	7.86E-08	*					
10/28/21	9	20	600	1.60	112.54	14.81	23.3	8.50E-08	0.925	7.86E-08	*					
					Reported	Average I	Hydraulic Cor	nductivity*		7.9E-08	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	ID #			694/459			
Syringe ID a	#	2	46					Pore Pressu	re Meter	ID #			372			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate at the range	d Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sa gnificant upward or	mple with accur r downward tren	acy +/-5%. Flow Ρι d.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	10/30/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-4	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		39130/4-9		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	10/02/21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		٢Δ			WATER CON		ΜΙΝΔΤΙΟΝ		
Initial Heigh			5 656	1	Mass of Wet	Sample and Ta	re a	1511 7	
Initial Diame	ter. in		2.969		Mass of Drv S	Sample and Tar	re, g re. a	1179.3	
Height-to-Di	ameter Ratio		1.91		Mass of Tare	, g	.,0	358.9	
Area, in ²			6.92		Moisture, %			40.5	
Volume, in ³			39.16						
Mass of Sar	nple, g		1154.2						
Wet Density	, pcf		112.3						
Dry Density,	pcf		79.9						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.88						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
				1					
Maximum Lo	bad at Failure,	lbf			913				
Specimen C	ross-sectional	Area, in ²			6.92		Failure Cod	e 3	
Compressiv	e Strength at F	allure, psi			132				
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		132			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	2)		
			DESC	RIPTION			-		
							Failure Type	e:	
		1.14			00)		1	Cone and S	near
		U	505 (ASTM	D2487: D24	100)				
					1				
			REM	IARKS			-		
							l		
ļ									

		î		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	10/30/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. 7					200016					Lab. PR. #			:	21136-02-4		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/E	levation		-
Sample ID			39130)/4-9		Subs	ample ID	4		Location			:	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		10/02/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porou w)	IS		
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (/	After Test)		
Height		3.014	in	7.66 ci	m Speed			10								
Diameter		2.966	in	7.53 ci	m Board Nu	umber		16		Average Heig	ght of Samp	le	3.015	in	7.66 cm	
Area		6.91	in²	44.58 CI	m ² Cell Num	nber		55		Average Dia	meter of Sa	mple	2.967 i	in	7.54 cm	
Volume		341.25	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	2B		Area	6.91	in ²	44.61	cm ²		
Mass		612.0	g	1.35 lb	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	341.60	cm ³	0.0121	ft ³	Dry Density	79.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	616.7	g	1.36	lb	Vol. of Voids	180.09 cm ³
Dry Density	,	79.8	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	161.50 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	1.12
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	100.3 %
Mass of we	t sample &	tare	612.0	g	Max Hea	d		130.83	cm	Mass of wet	sample & ta	ire	697.9	g		
Mass of dry	sample &	tare	436.2	g	Min Head	d		129.43	cm	Mass of dry s	sample & ta	re	517.2	g		
Mass of tar	е		0.0	g	Maximun	n Gradient		17.08		Mass of tare			81.0	g		
% Moisture			40.3		Minimum	n Gradient		16.90		% Moisture			41.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	rmeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	NC	-	
10/30/21	6	35	-	1.85	130.13	16.99	22.7	-	-	-		NA			l	JSCS
10/30/21	6	45	600	1.84	129.43	16.90	22.7	2.96E-07	0.938	2.78E-07					(ASTM	D2487;2488)
10/30/21	6	55	600	1.85	130.13	16.99	22.7	2.96E-07	0.938	2.78E-07						NA
10/30/21	7	5	600	1.86	130.83	17.08	22.7	2.95E-07	0.938	2.76E-07	*			REMARK	S	
10/30/21	7	15	600	1.85	130.13	16.99	22.7	2.95E-07	0.938	2.76E-07	*	Bottom	Half of the mo	old was used	for testing.	
10/30/21	7	25	600	1.85	130.13	16.99	22.7	2.96E-07	0.938	2.77E-07	*					
10/30/21	7	35	600	1.84	129.43	16.90	22.7	2.96E-07	0.938	2.78E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		2.8E-07	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	· ID #			694/459			
Syringe ID a	#	24	46]				Pore Pressu	re Meter	ID #			1104			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Its at steady	orated Syringe for Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a d after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sa gnificant upward or	mple with accur r downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

Г	î	TIMELY		1874 Forge S	Street Tucker,	, GA 30	0084			
1	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233	_	Δ		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\sim	$\sqrt{2}$		Date	11/01/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com		SHO		Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-4	
Pr. Name		Т	ime Oil Term	inal	-		S. Type	Mold	Depth/Elev.	-
Sample ID		39131/4-73		Subsample	2		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	10/04/21	1		Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	nods for Com	pressive Stre	ength o	f Molded So	oil-Cement C	ylinders	
				METHOD	В					
		ГА			WATER CO					
Initial Heigh	t. in		5.555]	Mass of We	et Sam	ple and Tar	e. a	1438.8	
Initial Diame	eter, in		2.941		Mass of Dry	/ Sam	ple and Tare	e, g	1162.9	
Height-to-Di	ameter Ratio		1.89		Mass of Tar	re, g			261.8	
Area, in ²			6.79		Moisture, %	b			30.6	
Volume, in ³			37.74							
Mass of Sar	nple, g		1179.6							
Wet Density	, pcf		119.1							
Dry Density,	pcf		91.1							
Machine Sp	eed, in/min		0.050							
Strain rate,	% / MIN		0.90							
				TEST	DATA					
	I oad Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			52					
Specimen C	ross-sectional	Area, in ²			6.79			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			8					
Conversion	Factor for Heig	ht to Diameter	^r Ratio		1.00					
Reported C	ompressive S	trength at Fai	ilure, psi		8				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correc	ction pe	er ASTM C42)		
			DESC	RIPTION		•		, ,		
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)					
			REM	IARKS						
L										

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	11/01/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			2	1136-02-4		•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Ele	evation		-
Sample ID			39131	/4-73		Subs	ample ID	4		Location			S	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	te		10/04/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous w)	S		
h	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	fter Test)		
Height		3.005	in	7.63 c	m Speed			8								
Diameter		2.931	in	7.44 c	m Board Nu	umber		18		Average Hei	ght of Samp	le	3.006 ir	า	7.64 cm	
Area		6.75	in²	43.53 C	m ² Cell Num	ber		4		Average Dia	meter of Sa	mple	2.932 ir	า	7.45 cm	
Volume		332.25	cm ³	0.0117 ft	³ Flow Pur	np Numbe	r	2A		Area	6.75	in ²	43.56 c	m ²		
Mass		627.3	g	1.38 lt	Flow Pur	np Rate*		8.96E-04	cm ³ /sec	Volume	332.59	cm ³	0.0117 ft	3	Dry Density	90.3 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	630.3	g	1.39 lt	D	Vol. of Voids	154.29 cm ³
Dry Density		90.4	pcf		Cell Pres	sure		95.0	psi						Vol. of Solids	178.30 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	0.87
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	96.5 %
Mass of we	t sample 8	k tare	627.3	g	Max Hea	d		25.32	cm	Mass of wet	sample & ta	re	710.4 g	I		
Mass of dry	sample &	tare	481.4	g	Min Head	d		23.92	cm	Mass of dry s	sample & ta	re	561.5 g	I		
Mass of tare	Э		0.0	g	Maximun	n Gradient		3.32		Mass of tare			80.1 g	l		
% Moisture			30.3		Minimum	Gradient		3.13		% Moisture			30.9			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	rmeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N	_	
11/01/21	7	5	-	0.35	24.62	3.22	21.5	-	-	-		NA			ι	JSCS
11/01/21	7	15	600	0.34	23.92	3.13	21.5	6.47E-06	0.965	6.24E-06					(ASTM	D2487;2488)
11/01/21	7	25	600	0.35	24.62	3.22	21.5	6.47E-06	0.965	6.24E-06						NA
11/01/21	7	35	600	0.35	24.62	3.22	21.5	6.38E-06	0.965	6.15E-06	*			REMARK	S	<u> </u>
11/01/21	7	45	600	0.36	25.32	3.32	21.5	6.29E-06	0.965	6.07E-06	*	Bottom	Half of the mol	ld was used	for testing.	
11/01/21	7	55	600	0.35	24.62	3.22	21.5	6.29E-06	0.965	6.07E-06	*					
11/01/21	8	5	600	0.34	23.92	3.13	21.5	6.47E-06	0.965	6.24E-06	*					
				_	Reported	Average	Hydraulic Co	nductivity*		6.1E-06	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	ure Meter	r ID#			570			
Syringe ID #	¥	2	45	J				Pore Pressu	ire Meter	ID #			779/780			
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through the	e fully saturated san gnificant upward or	nple with accuration downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
,	re st	Engine	ERING	Phone: 770-	938-8233				Tested By	KP/IH
		Sou	Entrito	Eov: 770.020			\sim		Dete	11/06/01
	\bigtriangleup	TESTS I	IC	Fax. 770-923					Date Checked Du	11/06/21
Client Pr #	ſ	1 E515,1	200016	Web. <u>www.te</u>	est-lic.com	ACC	REDITED		21136-02-4	20
Pr Name			Z000 10 Time Oil Termi	inal			S Type	Mold	Denth/Flev	
Sample ID		39486/4-12		Subsample	1		L ocation	Word	Seattle, WA	
Add. Info			Mixing/Mo	olding Date	10/09/	21		Curing A	ge, Days	28
	A STM I	1622. Stand	and Tost Mot	rade for Com	nrossivo St	ronath	of Moldod S	ail Comont C	vlindors	
	ASIMI	71055. Stanua	aru rest wien	ious ior Com	ipi essive si	rengtn	of Molded S	on-cement c	ymnuers	
				METHOD	В]			
		- •								
Initial Height	SAIVIPLE DAI	A	5 604	1	Mass of V	Vet Sar	mnle and Ta	re a	1527.6	
Initial Diame	ter in		2 975	-	Mass of C	rv San	nple and Tar	re, g re a	1211.3	
Height-to-Di	ameter Ratio		1.88		Mass of T	are. a		o, g	363.4	
Area in ²			6.95		Moisture	%			37.3	
Volume in^3			38.95		moistare,	/0			07.0	
Mass of San	nnle a		1166 7							
Wet Density	, pcf		114.1	1						
Dry Density,	pcf		83.1							
Machine Sp	eed, in/min		0.050	1						
Strain rate, 9	% / min		0.89							
				TES	Γ DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	J				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			868	3	ן			
		2				_		Failure Code	e 3	
Specimen C	ross-sectional	Area, In ⁻			6.95	<u>.</u>				
Compressive	e Strength at F	allure, psi	r Datia		120))				
Conversion Demostrad C					1.00				Eailura Chat	ah
Reported C	ompressive S	trength at Fa	lliure, psi	//	125)		-		CN
Note 2: * - A c	conversion factor	based on H/D	=1.15 (C.F9 DESCI	08 as 100% a RIPTION	nd add. cori	rection p	per ASTM C42	2)		
			DLOO					1	\mathbf{X}	
								Failure Type	e	
									Cone and S	hear
		L	ISCS (ASTM	D2487: D24	188)					
					J					
			REM	IARKS						
								J		
L										

		t		Тіме	LY		1874 Forg	je Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engi	NEER	ING	Phone: 77	0-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		\times		Soil			Fax: 770-	923-8973					_			Date	11/06/21
				TEST	S, LLC	1	Web: <u>ww</u>	v.test-llc.com	<u>1</u>			ASHIC Redited)			Checked By	18
Client Pr. #					2	200016					Lab. PR. #				21136-02-4		
Pr. Name					Time	Oil Term	inal				S. Type	Mc	old	Depth	/Elevation		-
Sample ID			39486	/4-12			Subsa	ample ID	2		Location				Seattle, WA	-	
Add. Info		-		N	lixing/Mo	olding Dat	te		10/09/21				Curin	g Age, Days	;		28
				ASTM	D 5084;	Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Porc	ous		
					Mat	erials U	Jsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)			
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)	1	
Height		3.005	in	7.63	cm s	Speed			11								
Diameter		2.968	in	7.54	cm E	Board Nu	ımber		7		Average Heig	ght of Sam	ole	3.006	in	7.64 cm	
Area		6.92	in ²	44.64	cm ² (Cell Num	ber		9		Average Diar	meter of Sa	mple	2.968	in	7.54 cm	
Volume		340.69	cm ³	0.0120	ft ³	Flow Pun	np Number		4B		Area	6.92	in ²	44.64	cm ²		
Mass		622.7	g	1.37	lb F	Flow Pun	np Rate*		1.12E-04	cm ³ /sec	Volume	340.81	cm ³	0.0120	ft ³	Dry Density	82.9 pcf
Specific Gra	avity	2.700	(Assume	d)	E	B - Value	1		0.95		Mass	627.2	g	1.38	lb	Vol. of Voids	173.10 cm ³
Dry Density		82.9	pcf		(Cell Pres	sure		95.0	psi						Vol. of Solids	167.70 cm [°]
	M - !-				E	Back Pre	ssure		90.0	psi						Void Ratio	1.03
M	WOIS	ture Cont	ent	1_	C.	Contining	(Effective) Pressure	5.0	psi		IVIO A A A A A A A A A A A A A A A A A A A	isture Co		٦	Saturation	100.7 %
Mass of wet	sample &	k tare	622.7	g ~	ľ	Min Lloop	a		104.81	cm	Mass of wet	sample & ta	are	711.2	9		
Mass of tar	sample &	lare	452.8	g	ľ	Maximum) Cradient		103.40	cm	Mass of dry s	sample & ta	ire	94 0	9		
% Moisture	-		37.5	9	ľ	Minimum	Gradient		13.73		% Moisture			38.5	9		
TIME	FUNCT	ION	Δt	READING	i H	lead	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wat	er Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi) ((cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIP	ΓΙΟΝ		
11/06/21	6	30	-	1.48	10)4.10	13.63	20.9	-	-	-	1	NA] ,	JSCS
11/06/21	6	40	600	1.47	10)3.40	13.54	20.9	1.85E-07	0.979	1.81E-07					(ASTM	D2487;2488)
11/06/21	6	50	600	1.49	10)4.81	13.73	20.9	1.84E-07	0.979	1.80E-07						NA
11/06/21	7	0	600	1.49	10)4.81	13.73	20.9	1.83E-07	0.979	1.79E-07	*			REMARK	S	
11/06/21	7	10	600	1.48	10	94.10	13.63	20.9	1.83E-07	0.979	1.79E-07	*	Bottom	Half of the r	nold was used	I for testing.	
11/06/21	7	20	600	1.49	10)4.81	13.73	20.9	1.83E-07	0.979	1.79E-07	*					
11/06/21	7	30	600	1.47	10)3.40	13.54	20.9	1.84E-07	0.979	1.80E-07	*					
				7	F	Reported	Average H	Hydraulic Cor	nductivity*		1.8E-07	cm/sec					
Flow pump	ID #	10)43		Balance	ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049	9		
Thermomete	er ID #	796	/985		Oven ID	#	496/758		Board Press	ure Meter	ID#			290			
Syringe ID #	ŧ	10)46]					Pore Pressu	re Meter	ID #			216			
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	orated Syringe	for Inflow a	and Calibrat	ted Graduated	Pipette for outfl	low) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated	sample with accura	acy +/-5%. Flow Pu	np Rate isused for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
r	TE ST	ENGINE	FRING	Phone: 770-0	038-8233				Tested By	KD/IH
					0070		\sim			
	\bigtriangleup	SOIL		Fax: 770-923	3-8973				Date	11/08/21
		TESTS, I	LLC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #		-	200016 Time Oil Termi	inal			Lab. PR. #	Mold	21136-02-4	
Sample ID		39487/4-2		Subsample	1		Jocation	IVIOIU	Seattle WA	-
Add. Info		-	Mixing/Mo	olding Date	10/11/	21	Location	Curing A	ige, Days	28
	ASTM	1(22. Stand	ud Tost Moti	ŭ 1 a da fan Cam		non oth	of Moldod S	ail Comont C		
	ASIML	7 1055: Standa	ard Test Meth	lous for Con	ipressive St	rengtn	of Molded S	on-Cement C	ynnders	
				METHOD	В]			
		гл								
Initial Height	t in		5,581	1	Mass of V	Vet Sar	mole and Ta	re. a	1496.1	
Initial Diame	eter. in		2.969		Mass of D	rv San	nple and Tar	re. a	1210.0	
Height-to-Di	ameter Ratio		1.88	1	Mass of T	are. a		0, 9	298.8	
Area, in ²			6.92	1	Moisture	%			31.4	
Volume. in ³			38.64			,.				
Mass of San	nple. a		1199.2							
Wet Density	, pcf		118.2							
Dry Density,	pcf		89.9	1						
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.90]						
				TES	I DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	J				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			521]			
Chaoiman C	rece continual	Area in ²			0.00			Failure Code	e 3	
Specimen C	o Strongth at E	ailure psi			0.92	2				
Conversion	E Strength at I	allure, psi ht to Diamete	or Patio		1.00	1				
Conversion Benerted C		trongth of Eg			75	,			Eailura Skot	h
Reported C	ompressive 5	trength at Fa	lilure, psi	00	/5			0		ווכ
Note 2: " - A C	conversion factor	based on H/D	DFSCI	08 as 700% a RIPTION	na ada. com	ection p	ber ASTM C4.	2)		
			5200					1	$ $ \times $ $	
								Failure Type	e – – – – – – – – – – – – – – – – – – –	
									Cone and S	hear
		L	ISCS (ASTM	D2487: D24	188)					
					J					
			REM	IARKS						
]		
	L							J		

		t.		TIME	LY		1874 Forg	ge Street Tu	cker, GA 300	84								
	T.E.	I <u>st</u>		Engi	NEER	RING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	
		\times		Soil			Fax: 770-	923-8973					-			Date	11/08/21	
				TESTS	S, LLC	2	Web: <u>ww</u>	w.test-llc.com	1			REDITED]			Checked By	18	
Client Pr. #						200016					Lab. PR. #				21136-02-4		•	
Pr. Name					Time	e Oil Term	inal				S. Type	Mc	old	Depth	/Elevation		-	
Sample ID			39487	7/4-2			Subsa	ample ID	2		Location				Seattle, WA			
Add. Info		-		М	ixing/M	olding Dat	te		10/11/21				Curin	g Age, Days	;		28	
				ASTM [5084	; Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Cor	ductivity	of Satu	rated Porc	ous			
					Ма	terials U	Jsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)			
Height		3.056	in	7.76	cm	Speed			9									
Diameter		2.960	in	7.52	cm	Board Nu	ımber		3		Average Hei	ght of Sam	ole	3.057	in	7.76 cm		
Area		6.88	in²	44.40	cm ²	Cell Num	ber		11		Average Dia	meter of Sa	mple	2.961	in	7.52 cm		
Volume		344.61	cm ³	0.0122	ft ³	Flow Pur	np Number		1B		Area	6.89	in ²	44.43	cm ²			
Mass		653.5	g	1.44	lb	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	344.96	cm ³	0.0122	ft ³	Dry Density	89.7 pcf	i
Specific Gra	avity	2.700	(Assume	d)		B - Value	1		0.95		Mass	659.8	g	1.45	lb	Vol. of Voids	161.40 cm ³	3 1
Dry Density		89.7	pcf			Cell Pres	sure		95.0	psi						Vol. of Solids	183.56 cm ³	3
						Back Pre	ssure		90.0	psi						Void Ratio	0.88	
	Mois	ture Cont	ent	•		Confining	(Effective) Pressure	5.0	psi		Moi	isture Co	ontent	-	Saturation	101.7 %	
Mass of wet	sample 8	k tare	653.5	g		Max Hea	d		44.31	cm	Mass of wet	sample & ta	are	734.1	g			
Mass of dry	sample &	tare	495.6	g		Min Head			43.61	cm	Mass of dry s	sample & ta	ire	569.9	g			
Mass of tare	9		0.0	g		Minimum	Gradient		5.71					74.3	9			
% Moisture			31.9				Gradient	_	5.62		% Moisture	1		33.1				
LIME	FUNCT	ION	Δτ	READING	F	Head	Gradient	Temp.	PERME		(cm/sec)		Note: [Deaired Wat	er Used for Pe	ermeability Test	-	
DATE	HOUR	MIN	(sec)	DP, (psi)	((cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIP	TION	7		
11/08/21	6	40	-	0.62	4	13.61	5.62	21.2	-	-	-		NA			l	JSCS	
11/08/21	6	50	600	0.63	4	4.31	5.71	21.2	1.78E-06	0.972	1.73E-06					(ASTM	D2487;2488)	
11/08/21	7	0	600	0.62	4	13.61	5.62	21.2	1.78E-06	0.972	1.73E-06						NA	
11/08/21	7	10	600	0.63	4	4.31	5.71	21.2	1.78E-06	0.972	1.73E-06	*			REMARK	S		
11/08/21	7	20	600	0.62	4	13.61	5.62	21.2	1.78E-06	0.972	1.73E-06	*	Bottom	Half of the r	nold was used	for testing.		
11/08/21	7	30	600	0.63	4	4.31	5.71	21.2	1.78E-06	0.972	1.73E-06	*						
11/08/21	7	40	600	0.62	4	3.61	5.62	21.2	1.78E-06	0.972	1.73E-06	*			-			
I				-		Reported	Average H	Hydraulic Cor	nductivity*		1.7E-06	cm/sec						
Flow pump	ID #	2	22		Balance	e ID #	1035/1036		Differential F	Pressure I	Meter ID #			942				
Thermomete	er ID #	796	/985		Oven IE	D #	496/758		Board Press	ure Meter	ID#			1041				
Syringe ID #	ŧ	1	41]					Pore Pressu	re Meter	ID #			26/27				
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	orated Svringe	for Inflow	and Calibrat	ted Graduated	d Pipette for outfl	low) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated s	sample with accura	acy +/-5% Flow Pur	no Rate isused for	

		î.		Тіме	LY		1874 Forg	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		Engi	NEEF	RING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	
				Soil			Fax: 770-	923-8973					-			Date	11/22/21	
				TESTS	S, LLO	C	Web: www	w.test-llc.com	1			REDITED				Checked By	18	
Client Pr. #						200016					Lab. PR. #				21136-02-4			
Pr. Name					Time	e Oil Term	inal				S. Type	Mc	old	Depth/I	Elevation		-	
Sample ID			39487	7/4-2			Subs	ample ID	4		Location				Seattle, WA	_		
Add. Info		-		N	lixing/M	lolding Da	te		10/11/21		J		Curin	g Age, Days			42	
				ASTM [D 5084	; Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us			
					Ма	terials L	Jsing a Fl	exible Wal	I Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)			
Height		3.035	in	7.71	cm	Speed			10	1								
Diameter		2.966	in	7.53	cm	Board Nu	umber		6		Average Heig	ght of Sam	ole	3.036	in	7.71 cm		
Area		6.91	in ²	44.58	cm ²	Cell Num	lber		2		Average Dia	meter of Sa	mple	2.967	in	7.54 cm		
Volume		343.63	cm ³	0.0121	ft ³	Flow Pun	np Number		3B		Area	6.91	in ²	44.61	cm ²			
Mass		642.6	g	1.42	lb	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	343.98	cm ³	0.0121	ft ³	Dry Density	88.8 pcf	:
Specific Gra	avity	2.700	(Assume	d)		B - Value	•		0.95		Mass	652.3	g	1.44	lb	Vol. of Voids	162.72 cm ³	3
Dry Density		88.9	pcf			Cell Pres	sure		95.0	psi						Vol. of Solids	181.26 cm ³	3
						Back Pre	ssure		90.0	psi						Void Ratio	0.90	
	Mois	ture Cont	ent	1		Confining	g (Effective) Pressure	5.0	psi		MO	sture Co	ntent	7	Saturation	100.1 %	
Mass of wet	sample &	tare	642.6	g		Max Hea	d		63.31	cm	Mass of wet	sample & ta	are	734.8	9			
Mass of tare	sample &	tare	489.4	g		Maximum) Gradient		02.00 8.21	cm	Mass of tare	sample & ta	ire	571.9 82.5	9			
% Moisture	-		31.3	9		Minimum	Gradient		8.12		% Moisture			33.3	9			
TIME	FUNCT	ION	Δt	READING		Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Wate	er Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP, (psi)		(cm)		T _x (°C)	@ T _x	R _τ	@ 20 °C	1		DESCRIPT	ION	,		
11/22/21	7	5	-	0.90	6	53.31	8.21	18.3	-	-	-	1	NA			ι .	ISCS	
11/22/21	7	15	600	0.89	6	62.60	8.12	18.3	6.15E-07	1.043	6.42E-07	1				(ASTM	D2487;2488)	
11/22/21	7	25	600	0.90	6	63.31	8.21	18.3	6.15E-07	1.043	6.42E-07						NA	
11/22/21	7	35	600	0.89	6	62.60	8.12	18.3	6.15E-07	1.043	6.42E-07	*			REMARK	S		
11/22/21	7	45	600	0.90	6	53.31	8.21	18.3	6.15E-07	1.043	6.42E-07	*	Bottom	Half of the m	nold was used	for testing.		
11/22/21	7	55	600	0.89	6	62.60	8.12	18.3	6.15E-07	1.043	6.42E-07	*						
11/22/21	8	5	600	0.90	6	63.31	8.21	18.3	6.15E-07	1.043	6.42E-07	*						
				-		Reported	Average H	Hydraulic Cor	nductivity*		6.4E-07	cm/sec						
Flow pump	ID #	4	75		Balanc	e ID #	1035/1036		Differential F	Pressure I	Meter ID #			262				
Thermomete	er ID #	796	/985		Oven II	D #	496/758		Board Press	ure Meter	ID#			1042				
Syringe ID #	ŧ	4	90]					Pore Pressu	re Meter	ID #			779/780				
	of Elow Suct	om (Flow Du	mp with Calik	viated Svringe	for Inflow	v and Calibra	ted Graduate	Dipette for outfl	low) is canable to	maintain a (constant rate of inf	low & outflow	through the	fully esturated e	ample with accura	nov +/ 5% Flow Pur	n Pate isused for	

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
,	TE ST	Engine	FRING	Phone: 770-0	038-8233				Tested By	KD/IH
-		Sou			0070		$\langle \Lambda \rangle$			
	\bigtriangleup	SOIL		Fax: 770-923	3-8973				Date	11/09/21
		TESTS, I	LLC	Web: <u>www.te</u>	est-llc.com	ACC			Checked By	18
Client Pr. #		-	200016 Time Oil Termi	inal			Lab. PR. #	Mold	21136-02-4	
Sample ID		39488/4-7		Subsample	1		Jocation	IVIOIU	Seattle WA	-
Add. Info	-		Mixing/Mo	olding Date	10/12/	21	Loodion	Curing A	ge, Days	28
	A STM I	1622. Stand	and Tost Mot	ads for Com	nrossivo St	ronath	of Moldod S	oil Comont C	vlindore	
	ASIMI	71055. Stanua	aru rest wien	ious ior com	ipi essive si	rengtn	of Molded S	on-cement C	ymuers	
				METHOD	В]			
		- •								
Initial Height	SAIVIPLE DAI	A	5 654	1	Mass of W	Vet Sar	mole and Ta	viination rea	1474 4	
Initial Diame	ter, in		2.972	1	Mass of D	rv San	nole and Tar	re, g	1158.3	
Height-to-Di	ameter Ratio		1.90		Mass of T	are. a		o, g	298.3	
Area in ²			6.94	1	Moisture	%			36.8	
Volume in^3			30.22		moistare,	/0			00.0	
Mass of Sar	nple a		1177.5	1						
Wet Density	, pcf		114.4	1						
Dry Density.	pcf		83.6							
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.88							
				TEST	Γ DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	al Caliper ID :	# 17/583	
	Compression	Device ID #	10/1014	1			Reado	ut Device ID :	# 10/1016	
	Balance ID #		1036/1037]				Oven ID a	# 758/496	
Maximum L	ad at Failura	lhf			155		ו			
	Jau at i alluie,				400	,		Failure Code	e 3	
Specimen C	ross-sectional	Area, in ²			6.94	1				
Compressiv	e Strength at F	ailure, psi			66					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure, psi		66				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	rection p	ber ASTM C4	2)		
			DESC	RIPTION				_		
								Failure Type	:	_
		1		D2407- D24	199)]	Cone and S	near
		Ĺ	INI CA) CJU	D2407. D24	+00)					
				<u> </u>	1					
	·		REM	IARKS				7		
	<u></u>							J		
L										

		1		TIME	LY		1874 Forg	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	VEERI	ING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		\times		Soil			Fax: 770-9	923-8973					_			Date	11/09/21
				Tests	, LLC		Web: www	w.test-llc.com	<u>1</u>			ASHIC Redited)			Checked By	18
Client Pr. #					2	200016					Lab. PR. #				21136-02-4		
Pr. Name					Time (Dil Termi	inal				S. Type	Mc	old	Depth/	Elevation		-
Sample ID			39488	3/4-7			Subsa	ample ID	2		Location				Seattle, WA		
Add. Info		-		М	ixing/Mol	lding Dat	te		10/12/21]		Curin	g Age, Days			28
				ASTM D	5084;	Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us		
					Mate	erials U	lsing a Fl	exible Wal	l Permeame	eter (Met	thod D, Con	stant Rat	e of Flo	w)			
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)		
Height		3.079	in	7.82	cm S	Speed			10								
Diameter		2.957	in	7.51	cm B	Board Nu	mber		4		Average Heig	ght of Sam	ole	3.080	in	7.82 cm	
Area		6.87	in ²	44.31	cm ² C	Cell Num	ber		4		Average Diar	meter of Sa	mple	2.958	in	7.51 cm	
Volume		346.50	cm ³	0.0122 1	t ³ F	low Pum	np Number		3A		Area	6.87	in ²	44.34	cm ²		
Mass		635.6	g	1.40 I	b F	low Pum	np Rate*		2.24E-04	cm ³ /sec	Volume	346.85	cm ³	0.0122	ft ³	Dry Density	83.5 pcf
Specific Gra	avity	2.700	(Assume	d)	В	3 - Value			0.95		Mass	642.0	g	1.42	lb	Vol. of Voids	174.86 cm ³
Dry Density		83.6	pcf		С	Cell Press	sure		95.0	psi						Vol. of Solids	171.99 cm [°]
					В	Back Pres	ssure		90.0	psi						Void Ratio	1.02
	Mois	ture Cont	ent	ר	C	Contining	(Effective) Pressure	5.0	psi		MO	isture Co	ontent	1	Saturation	101.6 %
Mass of wet	sample &	k tare	635.6	g	IV N	/lax Head	a I		42.20	cm	Mass of wet	sample & ta	are	727.4	9		
Mass of tar	sample &	lare	464.3	g	IV N	/iin Head	l Gradient		41.50	CIII	Mass of dry s	sample & ta	ire	249.8 85.5	9		
% Moisture	5		36.9	9	N	/inimum	Gradient		5.30		% Moisture			38.3	9		
TIME	FUNCT	ION	Δt	READING	He	ead	Gradient	Temp	PERME	ABII ITY	(cm/sec)		Note [.]	Deaired Wate	er Used for Pr	ermeability Test	
DATE	HOUR	MIN	(sec)	DP. (psi)	(C	cm)	oradion	T_(°C)	@.T.	RT	@ 20 °C			DESCRIPT	ION		
11/09/21	8	5	-	0.60	42	2.20	5.39	20.5	-	-	-		NA] ι	JSCS
11/09/21	8	15	600	0.59	41	.50	5.30	20.5	9.44E-07	0.988	9.33E-07	1				(ASTM	D2487;2488)
11/09/21	8	25	600	0.60	42	2.20	5.39	20.5	9.44E-07	0.988	9.33E-07						NA
11/09/21	8	35	600	0.59	41	.50	5.30	20.5	9.44E-07	0.988	9.33E-07	*			REMARK	s	
11/09/21	8	45	600	0.60	42	2.20	5.39	20.5	9.44E-07	0.988	9.33E-07	*	Bottom	Half of the m	nold was used	d for testing.	
11/09/21	8	55	600	0.59	41	.50	5.30	20.5	9.44E-07	0.988	9.33E-07	*					
11/09/21	9	5	600	0.60	42	2.20	5.39	20.5	9.44E-07	0.988	9.33E-07	*					
					R	Reported	Average H	Hydraulic Cor	nductivity*		9.3E-07	cm/sec					
Flow pump	ID #	4	75		Balance I	ID #	1035/1036		Differential F	Pressure N	Meter ID #			469			
Thermomete	er ID #	796	/985	(Oven ID :	#	496/758		Board Press	ure Meter	· ID #			1041			
Syringe ID #	ŧ	4	91	J					Pore Pressu	re Meter I	D #			26/27	J		
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calik	orated Svringe	for Inflow a	ind Calibrat	ted Graduated	Pipette for outfl	ow) is capable to	maintain a c	constant rate of inf	low & outflow	through the	fully saturated s	ample with accur	acy +/-5% Flow Pur	no Rate isused for

Г	Ť	TIMELY	7	1874 Forge S	Street Tucke	er, GA 3	30084			
I,	r.e. st.	ENGINE	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		Sou		Fax: 770-923	3-8973		\sim		Date	11/10/21
I L	\bigtriangleup	TESTS.I		Web: www.te	est-llc.com	AA	SHID		Checked By	11/10/21
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-4	-
Pr. Name			Time Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39489/4-1		Subsample	1		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	10/13/	21		Curing	Age, Days	28
	ASTM D	1633: Standa	ard Test Metl	nods for Com	pressive St	rength	of Molded So	oil-Cement (Cylinders	
				метнор	B		Ì			
				METHOD	В					
	SAMPLE DAT	Α		_	WATER C	ONTE		MINATION		
Initial Height	t, in		5.570		Mass of W	/et Sar	mple and Ta	re, g	1443.5	
Initial Diame	eter, in		2.972		Mass of D	ry San	ple and Tar	e, g	1104.5	
Height-to-Di	ameter Ratio		1.87	-	Mass of T	are, g			299.3	
Area, in ²			6.94		Moisture,	%			42.1	
Volume, in ³	_		38.64							
Mass of Sar	nple, g		1145.9	-						
Wet Density	, pct		113.0	_						
Machine Sn	pci eed in/min		0.050							
Strain rate.	% / min		0.90							
,				1						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	al Caliper ID) # 17/583	
	Compression	Device ID #	10/1014				Readou	ut Device ID) # 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure, I	bf			236					
Specimen C	ross-sectional	Area in ²			6.04	1		Failure Co	de 3	
Compressiv	e Strength at Fa	ailure nsi			34	r				
Conversion	Eactor for Heid	ht to Diamete	r Ratio		1.00)				
Reported C	ompressive St	trength at Fa	ilure nsi		34	,			Failure Sket	ch
Note 2: * - A	conversion factor	hased on H/D	$=1.15 (C E_{-})$	08 25 100% 2	nd add corr	ection r	or ASTM CA	2)		
NOIG 2 A C		based on mb	DESC	RIPTION		ection		-)		
								Failure Typ	be:	
				D2487· D24	188)			l	Cone and S	near
		, c]					
			DEN							
			KEN					l		

Г	î	TIMELY	7	1874 Forge	Street Tucker,	, GA 3	0084			
	<u>r.e. 1 s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233	_			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\sim	\sim		Date	11/24/21
L		Tests, i	LLC	Web: www.te	est-llc.com	AA	SHID		Checked By	18
Client Pr. #		,	200016			ALL	Lab. PR. #		21136-02-4	_
Pr. Name			Time Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39489/4-1		Subsample	3		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	10/13/21	1		Curing	Age, Days	42
	ASTM D	1633: Standa	ard Test Metl	nods for Com	pressive Stre	ngth o	of Molded So	oil-Cement (Cylinders	
				METHOD	В					
Initial Height Initial Diame Height-to-Di Area, in ² Volume, in ³ Mass of Sar Wet Density Dry Density, Machine Sp Strain rate, ⁶	SAMPLE DAT t, in eter, in ameter Ratio nple, g r, pcf pcf eed, in/min % / min	Ā	5.557 2.969 1.87 6.92 38.47 1139.8 112.9 79.2 0.050 0.90		WATER CC Mass of We Mass of Dry Mass of Tar Moisture, %	DNTEI et San / Sam re, g	NT DETERN nple and Tar ple and Tar	MINATION re, g e, g	1436.8 1098.0 298.4 42.4	
				TEST	DATA					
				-						
	Load Cell ID # Compression Balance ID #	E Device ID #	11/1015 10/1014 1036/1037				Digita Readou	Il Caliper ID It Device ID Oven ID)# 17/583)# 10/1016)# 758/496	
Maximum Lo	oad at Failure, I	bf			505			Failure Coo	de 3	
Specimen C Compressiv	ross-sectional e Strength at Fa	Area, in ² ailure, psi	n Detie		6.92 73					
Conversion	Factor for Heig	nt to Diamete			1.00					- 1-
Note 2: * - A c	conversion factor	based on H/D	allure, psi =1.15 (C.F9	08 as 100% a	nd add. correc	ction p	er ASTM C42	?)		CN
			DESC					Failure Typ	De:	hear
		l	JSCS (ASTM	D2487: D24	188)					licul
			REM	IARKS						
	<u> </u>									

		t	1	TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	11/10/21
				TESTS	, LLC	Web: ww	w.test-llc.com	<u>1</u>			ASHIC Redited)			Checked By	18
Client Pr. 7					200016					Lab. PR. #			2	21136-02-4		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID			39489	9/4-1		Subs	ample ID	2		Location			S	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	ate		10/13/21]		Curin	g Age, Days			28
				ASTM D	5084; Standa Materials l	ard Test I Jsing a F	Method for lexible Wal	Measurem I Permeam	ent of Hy eter (Me	ydraulic Co thod D, Cor	nductivity	of Satu e of Flo	irated Porou w)	S		
Ir	nitial San	nple Dat	a (Befor	e Test)			Test Dat	a	-				Final Data (A	(fter Test)		
Heiaht		3.020	lin	7.67 c	m Speed			8	1							
Diameter		2.962	in	7.52 c	m Board N	umber		2	1	Average Hei	ght of Samp	ole	3.021 ir	า	7.67 cm	
Area		6.89	in ²	44.46 C	m ² Cell Num	nber		17		Average Dia	meter of Sa	mple	2.963 ir	า	7.53 cm	
Volume		341.01	cm ³	0.0120 ft	³ Flow Pur	mp Numbe	r	1B		Area	6.90	in ²	44.49 c	m ²		
Mass		618.8	g	1.36 lk	Flow Pur	mp Rate*		8.96E-04	cm ³ /sec	Volume	341.35	cm ³	0.0121 ft	t ³	Dry Density	79.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	e		0.95		Mass	623.4	g	1.37 II	c	Vol. of Voids	179.93 cm ²
Dry Density	1	79.7	pcf		Cell Pres	ssure		95.0	psi			-	-		Vol. of Solids	161.42 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	1.11
	Moist	ture Cont	ent	-	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	104.2 %
Mass of we	t sample 8	tare	618.8	g	Max Hea	ad		26.73	cm	Mass of wet	sample & ta	are	714.8 g	I		
Mass of dry	sample &	tare	435.7	g	Min Hea	d		26.03	cm	Mass of dry	sample & ta	re	527.3 g	I		
Mass of tar	е		0.0	g	Maximur	n Gradient		3.48		Mass of tare			91.6 g	I		
% Moisture			42.0		Minimum	n Gradient		3.39		% Moisture			43.0			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N		
11/10/21	6	40	-	0.38	26.73	3.48	20.3	-	-	-		NA			L	ISCS
11/10/21	6	50	600	0.37	26.03	3.39	20.3	5.86E-06	0.993	5.82E-06					(ASTM	D2487;2488)
11/10/21	7	0	600	0.38	26.73	3.48	20.3	5.86E-06	0.993	5.82E-06						NA
11/10/21	7	10	600	0.38	26.73	3.48	20.3	5.78E-06	0.993	5.74E-06	*			REMARK	S	
11/10/21	7	20	600	0.37	26.03	3.39	20.3	5.86E-06	0.993	5.82E-06	*	Bottom	Half of the mo	ld was used	I for testing.	
11/10/21	7	30	600	0.38	26.73	3.48	20.3	5.86E-06	0.993	5.82E-06	*					
11/10/21	7	40	600	0.37	26.03	3.39	20.3	5.86E-06	0.993	5.82E-06	*					
		-		-	Reported	Average	Hydraulic Co	nductivity*		5.8E-06	cm/sec					
Flow pump	ID #	2	22	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			942			
Thermomet	ter ID #	796	/985	C	ven ID #	496/758		Board Press	sure Mete	r ID#			64			
Syringe ID a	#	1	41	J				Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	ump with Cali ults at steady	brated Syringe f	or Inflow and Calibr ssure (DP) Reading	ated Graduat	ed Pipette for out e of +/-5%. Perm	tflow) is capable t eation was stopp	to maintain a ed after HC	constant rate of i versus Time (see	nflow & outflow table above) s	through th	e fully saturated sa ignificant upward or	mple with accu r downward tre	ıracy +/-5%. Flow Pเ nd.	imp Rate isused fo

		t	1	TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	,
				Soil		Fax: 770-	923-8973					-			Date	11/24/2	21
				TESTS	, LLC	Web: ww	w.test-llc.com	<u>1</u>			ASHIC Redited				Checked By	18	
Client Pr. ;					200016					Lab. PR. #			2	21136-02-4			
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-	
Sample ID			39489	9/4-1		Subs	ample ID	4		Location			S	Seattle, WA			
Add. Info		-		Mix	ing/Molding Da	ate		10/13/21]		Curin	g Age, Days			42	
				ASTM D	5084; Standa Materials l	ard Test I Jsing a F	Method for lexible Wal	Measurem I Permeam	ent of Hy eter (Me	ydraulic Co thod D, Cor	nductivity	of Satu e of Flo	irated Porou w)	S			
lı	nitial San	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (A	After Test)			
Heiaht		3.100	lin	7.87 c	m Speed			10]								
Diameter		2.970	in	7.54 c	m Board N	umber		20	1	Average Hei	ght of Sam	ble	3.103 ir	n	7.88 cm		
Area		6.93	in ²	44.70 C	m ² Cell Num	nber		13	1	Average Dia	meter of Sa	mple	2.972 ir	n	7.55 cm		
Volume		351.94	cm ³	0.0124 ft	³ Flow Pur	mp Numbe	r	3B		Area	6.94	in ²	44.76 c	cm ²			
Mass		636.4	g	1.40 lk	Flow Pur	mp Rate*		2.24E-04	cm ³ /sec	Volume	352.75	cm ³	0.0125 ft	t ³	Dry Density	78.9 p	pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	e		0.95		Mass	641.5	g	1.41 lk	b	Vol. of Voids	187.57	cm ³
Dry Density	c Gravity 2.700 (Assumed) nsity 79.1 pcf				Cell Pres	ssure		95.0	psi			-	-		Vol. of Solids	165.19 c	cm ³
			_		Back Pre	essure		90.0	psi						Void Ratio	1.14	
	Moist	ture Cont	ent	-	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ntent		Saturation	104.2 %	%
Mass of we	t sample 8	tare	636.4	g	Max Hea	ad		45.02	cm	Mass of wet	sample & ta	are	762.0 g	J			
Mass of dry	sample &	tare	446.0	g	Min Hea	d		40.80	cm	Mass of dry	sample & ta	re	566.5 g]			
Mass of tar	е		0.0	g	Maximur	n Gradient		5.71		Mass of tare			120.5 g	J			
% Moisture			42.7		Minimum	n Gradient		5.18		% Moisture			43.8				
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N			
11/24/21	8	45	-	0.62	43.61	5.53	18.3	-	-	-		NA			L	JSCS	
11/24/21	8	55	600	0.60	42.20	5.35	18.3	9.19E-07	1.043	9.59E-07					(ASTM	D2487;2488)	
11/24/21	9	5	600	0.64	45.02	5.71	18.3	9.05E-07	1.043	9.44E-07						NA	
11/24/21	9	15	600	0.58	40.80	5.18	18.3	9.19E-07	1.043	9.59E-07	*			REMARK	S		
11/24/21	9	25	600	0.60	42.20	5.35	18.3	9.51E-07	1.043	9.92E-07	*	Bottom	Half of the mol	ld was used	for testing.		
11/24/21	9	35	600	0.59	41.50	5.27	18.3	9.43E-07	1.043	9.83E-07	*						
11/24/21	9	45	600	0.59	41.50	5.27	18.3	9.51E-07	1.043	9.92E-07	*						
				-	Reported	Average	Hydraulic Co	nductivity*		9.8E-07	cm/sec						
Flow pump	ID #	4	75	В	alance ID #	1035/1036		Differential I	Pressure I	Meter ID #			262				
Thermomet	ter ID #	796	/985	C	ven ID #	496/758		Board Press	sure Mete	r ID#			783				
Syringe ID ;	#	4	90	J				Pore Pressu	ure Meter	ID #			1054				
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	ump with Cali ults at steady	brated Syringe for Differential Pre	or Inflow and Calibi ssure (DP) Reading	ated Graduat	ed Pipette for ou e of +/-5%. Perm	tflow) is capable eation was stopp	to maintain a ed after HC	a constant rate of i versus Time (see	nflow & outflow table above) s	through th	e fully saturated sa ignificant upward or	imple with accu r downward trei	racy +/-5%. Flow P nd.	ump Rate isused	d for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
r	TE ST	ENGINE	FRING	Phone: 770-0	038-8233				Tested By	KD/IH
-		Sou			330-0233		$\langle \Lambda \rangle$		Tested by	
	\bigtriangleup	SOIL		Fax: 770-923	3-8973				Date	11/11/21
		TESTS, I	LLC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #		-	200016 Time Oil Termi	inal			Lab. PR. #	Mold	21136-02-4	
Sample ID		39490/4-63		Subsample	1		Jocation	IVIOIU	Seattle WA	-
Add. Info		-	Mixing/Ma	olding Date	10/14/	21	Location	Curing A	Age, Days	28
		1(22, Stand	 	u da fan Carr			.e.M.11.16	-il Comort C		
	ASIMI) 1655: Standa	ard Test Meth	loas for Com	ipressive St	rengtn	of Molded S	oll-Cement C	ynnders	
				METHOD	В]			
							-			
Initial Haight		Γ Α	5 577	1	WATER C				1560.0	
	tor in		2 977	1	Mass of D	vel Sai Inv San	nple and Tar	ie, y	1280.3	
Height-to-Di	ameter Ratio		1.87	-	Mass of T	are o		e, y	360.1	
$\Delta rea in2$			6.06	1	Moieture	%			30.5	
V_{0} m^{3}			20 02	1	woisture,	/0			50.5	
Mass of San	nnle a		1202 1	4						
Wet Density	npie, g		118.0	-						
Dry Density	pcf		90.4	1						
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.90	1						
				-						
				TEST	F DATA					
	Load Cell ID #	ŧ	11/1015	1			Diaita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	1			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
							n			
Maximum Lo	oad at Failure,	lbf			551			Eailura Cod		
Specimen C	ross-sectional	Area, in ²			6.96	3			e s	
Compressive	e Strength at F	ailure, psi			79	·				
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure. psi		79	-			Failure Sketo	ch
Note 2: * - A c	conversion factor	based on H/D	=1.15 (C.F 9	08 as 100% a	nd add, corr	rection r	er ASTM C4:	2)		
			DESCI	RIPTION		о о н о н р		-)		
]		
								Failure Type	e:	
								J	Cone and S	hear
		L	ISCS (ASTM	D2487: D24	488) 7					
					J					
			REM	IARKS						
								J		

		1		TIME	LY	1874	Forge Street	Tucker, GA 300)84							
	T.E.	I <u>ST</u>		Engin	EERIN	G Phon	e: 770-938-82	33			$\langle \Lambda \rangle$				Tested By	EB/KP
		X		Soil		Fax: 7	770-923-8973					_			Date	11/11/21
				Tests	, LLC	Web:	www.test-llc.c	<u>om</u>		ACC	ASHIC Rediter]			Checked By	18
Client Pr. #					2000	16				Lab. PR. #				21136-02-4		
Pr. Name					Time Oil T	erminal				S. Type	Мс	bld	Depth/E	Elevation		-
Sample ID			39490	/4-63		S	Subsample ID	2		Location				Seattle, WA		
Add. Info		-		Mi	xing/Molding	g Date		10/14/21]		Curing	Age, Days			28
				ASTM D	5084; Sta	ndard Te	st Method fo	or Measurem	ent of Hy	/draulic Con	ductivity	of Satura	ated Porou	us		
					Materia	ls Using	a Flexible W	all Permeam	eter (Me	thod D, Con	stant Rat	e of Flow	')			
Ir	nitial Sar	nple Dat	a (Befor	e Test)			Test D	ata				Fi	inal Data ((After Test)		
Height		3.070	in	7.80 0	cm Spee	ed		10	1							
Diameter		2.954	in	7.50 0	m Boar	d Number		5		Average Heig	ght of Sam	ple	3.071	in	7.80 cm	
Area		6.85	in ²	44.22	cm ² Cell	Number		2		Average Dia	meter of Sa	ample	2.955	in	7.51 cm	
Volume		344.79	cm ³	0.0122 f	t ³ Flow	Pump Nur	mber	3A		Area	6.86	in ²	44.25	cm ²		<u> </u>
Mass		658.8	g	1.45 I	b Flow	Pump Rat	e*	2.24E-04	cm ³ /sec	Volume	345.13	cm ³	0.0122	ft ³	Dry Density	91.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - V	alue		0.95		Mass	669.5	g	1.48	lb	Vol. of Voids	157.82 cm ³
Dry Density		91.5	pcf		Cell	Pressure		95.0	psi						Vol. of Solids	187.32 cm ³
					Back	Pressure		90.0	psi						Void Ratio	0.84
	Mois	ture Cont	ent	ו	Cont	ining (Effec	ctive) Pressure	e 5.0	psi		MO	Isture Con	tent	1	Saturation	103.8 %
Mass of wet	sample 8	k tare	658.8	9	Max	Head		59.79	cm	Mass of wet	sample & ta	are	751.4	9		
Mass of dry	sample &	tare	505.6	9	iviin i Movi	Head	iont	59.09	cm	Mass of dry s	sample & ta	are	587.7 92.1	9		
% Moisture	5		30.3	9	Minir	num Gradi	ent	7.00	-	% Moisture		F	32.1	y		
	FUNCT		Δt		Head	Gradi	ient Temn	PERME		(cm/sec)		Note: De	aired Wate	r Lised for Pa	ermeability Test	
	HOUR	MIN	(sec)	DP (nsi)	(cm)	Ciadi	T.(°C) @ T	R _T	@ 20 °C		Note: De			criticability 103t	
11/11/21	9	5	-	0.85	59.79	7.6	6 20.3	-	-	-		NA	BEGORA II] .	ISCS
11/11/21	9	15	600	0.84	59.09	7.5	57 20.3	6.64E-07	0.993	6.60E-07					(ASTM	D2487;2488)
11/11/21	9	25	600	0.85	59.79	7.6	6 20.3	6.64E-07	0.993	6.60E-07						NA
11/11/21	9	35	600	0.84	59.09	7.5	57 20.3	6.64E-07	0.993	6.60E-07	*			REMARK	is in the second	
11/11/21	9	45	600	0.85	59.79	7.6	6 20.3	6.64E-07	0.993	6.60E-07	*	Bottom H	lalf of the m	old was used	d for testing.	
11/11/21	9	55	600	0.84	59.09	7.5	57 20.3	6.64E-07	0.993	6.60E-07	*					
11/11/21	10	5	600	0.85	59.79	7.6	6 20.3	6.64E-07	0.993	6.60E-07	*					
					Repo	orted Avera	age Hydraulic (Conductivity*		6.6E-07	cm/sec					
Flow pump	ID #	4	75	E	Balance ID #	1035/1	1036	Differential	Pressure I	Meter ID #			469			
Thermomete	er ID #	796	/985	(Oven ID #	496/7	758	Board Pres	sure Mete	r ID#			1042			
Syringe ID #	ŧ	4	91	J				Pore Press	ure Meter	ID #			779/780			
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	orated Syringe	for Inflow and C	alibrated Grad	duated Pipette for	outflow) is capable to	o maintain a i	constant rate of inf	low & outflow	through the fu	illy saturated sa	mple with accur	acy +/-5% Flow Pun	nn Rate isused for

	•	TIMELY	·	1874 Forge	Street Tuck	er, GA 3	30084			
r	FE ST	ENGINE	FRING	Phone: 770-0	038-8233				Tested By	KD/IH
-		Sou			0070		$\langle \Lambda \rangle$			
	\bigtriangleup	SOIL		Fax: 770-923	3-8973				Date	11/12/21
		TESTS, I	LLC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016 Fime Oil Termi	inal			Lab. PR. #	Mold	21136-02-4	
Sample ID		39491/4-58		Subsample	1		Jocation	IVIOIU	Seattle WA	-
Add. Info		-	Mixing/Mo	olding Date	10/15/	21	Location	Curing A	ge, Days	28
		1(22. Stand		u da fan Carr			.e.M.11.16			
	ASIML) 1655: Standa	ard Test Meth	loas for Com	ipressive St	rengtn	of Molded S	oll-Cement C	yinders	
				METHOD	В					
					<u></u>		•			
Initial Llaight		ГА	E 670	1	WATER C				1501.1	
	tor in		2.073	-	Mass of D	vel Sar	nple and Ta	re, g	1302.0	
	ameter Ratio		2.980		Mass of T	iny Sali are a	ipie anu Tai	e, y	361.5	
$\Delta rea in2$			6.07	1	Moioturo	are, y %			20 6	
$\lambda ea, $			0.97	1	woisture,	70			30.0	
Volume, In	nnlo a		39.57	-						
Wet Density	npie, g		1231.5	-						
Dry Density	pcf		90.7	-						
Machine Spe	eed. in/min		0.050							
Strain rate, 9	% / min		0.88							
				4						
				TEST	Γ DATA					
	I oad Cell ID #	ŧ	11/1015	1			Digita	al Caliper ID :	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID a	# 758/496	
							,			
Maximum Lo	bad at Failure,	lbf			641			Failura Cade		
Specimen C	ross-sectional	Area in ²			6.97	7		Fallure Code	8 3	
Compressive	e Strength at F	ailure, psi			92					
Conversion	Factor for Heig	ht to Diamete	r Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure. psi		92	-			Failure Sket	ch
Note 2: * - A c	conversion factor	hased on H/D	=1 15 (C F - 9	08 as 100% a	nd add corr	rection r	er ASTM C4:	2)		
//0/0 2. //0			DESCI	RIPTION		conon p		-/		
				-				1	\times	
								Failure Type): 	
									Cone and S	hear
		U	ISCS (ASTM	D2487: D24	188) T					
					J					
			REM	IARKS						
				-				1		
								-		

		t		TIME	LY		1874 Forg	ge Street Tu	cker, GA 300	84							
	T.E.	I <u>ST</u>		Engi	NEEI	RING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		X		Soil			Fax: 770-	923-8973					_			Date	11/12/21
				TEST	S, LL	С	Web: www	w.test-llc.com	<u>1</u>			ASHIC Redited)			Checked By	18
Client Pr. #						200016					Lab. PR. #				21136-02-4		
Pr. Name					Time	e Oil Term	inal				S. Type	Mc	old	Depth	/Elevation		-
Sample ID			39491	/4-58			Subs	ample ID	2		Location				Seattle, WA		
Add. Info		-		Ν	lixing/N	lolding Da	te		10/15/21		J		Curin	g Age, Days	3		28
				ASTM	D 5084	; Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Porc	ous		
					Ма	aterials L	Jsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)			
Ir	nitial Sar	mple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)		
Height		3.070	in	7.80	cm	Speed			10]							
Diameter		2.968	in	7.54	cm	Board Nu	umber		9		Average Heig	ght of Sam	ole	3.071	in	7.80 cm	
Area		6.92	in ²	44.64	cm ²	Cell Num	ıber		37		Average Diar	meter of Sa	mple	2.969	in	7.54 cm	
Volume		348.06	cm ³	0.0123	ft ³	Flow Pun	np Number		1A		Area	6.92	in ²	44.67	cm ²		
Mass		656.0	g	1.45	lb	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	348.41	cm ³	0.0123	ft ³	Dry Density	90.1 pcf
Specific Gra	avity	2.700	(Assume	d)		B - Value	:		0.95		Mass	662.8	g	1.46	lb	Vol. of Voids	161.98 cm ³
Dry Density		90.2	pcf			Cell Pres	sure		95.0	psi						Vol. of Solids	186.43 cm ³
	Maia	4				Back Pre	ssure		90.0	psi		Ma				Void Ratio	0.87
Maga of wat			ent	٦_			d (Fluective) Pressure	5.0	psi	Mass of wat	IVIO A Parana	isture Co		٦.	Saturation	98.4 %
Mass of dry			503.2	9			4		52.70	cm	Mass of dry a	sample & ta		729.9 570.5	9		
Mass of tare		laie	0.0	9		Maximum	n Gradient		6 76	CIII	Mass of tare	sample & la	lie	67.3	9		
% Moisture	•		30.4	9		Minimum	Gradient		6.67		% Moisture			31.7	9		
TIME	FUNCT	ION	Δt	READING	6	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wat	er Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (^o C)	@ T _x	R _T	@ 20 °C			DESCRIP	TION	·	
11/12/21	6	10	-	0.75	ļ	52.76	6.76	21.0	-	-	-		NA			i	JSCS
11/12/21	6	20	600	0.74	ļ	52.05	6.67	21.0	7.46E-07	0.976	7.29E-07					(ASTM	D2487;2488)
11/12/21	6	30	600	0.75	ļ	52.76	6.76	21.0	7.46E-07	0.976	7.29E-07						NA
11/12/21	6	40	600	0.74		52.05	6.67	21.0	7.46E-07	0.976	7.29E-07	*			REMARK	S	
11/12/21	6	50	600	0.75	ę	52.76	6.76	21.0	7.46E-07	0.976	7.29E-07	*	Bottom	Half of the I	mold was used	d for testing.	
11/12/21	7	0	600	0.74		52.05	6.67	21.0	7.46E-07	0.976	7.29E-07	*					
11/12/21	7	10	600	0.75	ļ	52.76	6.76	21.0	7.46E-07	0.976	7.29E-07	*					
				-		Reported	Average I	Hydraulic Cor	nductivity*		7.3E-07	cm/sec					
Flow pump	ID #	2	22		Balanc	e ID #	1035/1036		Differential F	Pressure I	Meter ID #			1107			
Thermomete	er ID #	796	/985		Oven I	D #	496/758		Board Press	ure Meter	r ID #			571			
Syringe ID #	ŧ	1.	40	J					Pore Pressu	re Meter	ID #			29			
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calil	brated Syringe	e for Inflow	v and Calibra	ted Graduated	d Pipette for outfl	low) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated	sample with accur	acy +/-5%. Flow Pur	np Rate isused for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
,	re st	Engine	FRING	Phone: 770-	038-8233				Tested By	KD/IH
		Sou			000-0200		\sim			11/10/04
	\bigtriangleup			Fax: 770-923	5-8973				Date	11/13/21
Client Dr. #	1	I ESTS, I	LLC 200016	Web: <u>www.te</u>	est-llc.com	ACC	REDITED		Checked By	18
Pr Name		-	ZUUU 10 Fime Oil Termi	inal			Lap. PR. # S. Type	Mold	21130-02-4 Depth/Elev	
Sample ID		39492/4-44		Subsample	1		Location	IVIOIO	Seattle WA	_
Add. Info	-		Mixing/Mo	olding Date	10/16/	21	Loodion	Curing A	ge, Days	28
	ASTMI	1622. Stand	and Test Met	ada fan Cam	muagaina St	nonath	of Moldod S	ail Comont C	vlindova	
	ASIMI	1055: Stanua	aru Test Meti	lous for Coll	ipressive St	rengtn	of Molded S	on-cement C	ymuers	
				METHOD	В]			
Initial Haight		IA	5 604	1	WAIER C	JONIE			1544.1	
	tor in		2 970	1	Mass of D	vel Sai Inv San	nple and Tar	ie, y	1255.3	
Height-to-Di	ameter Ratio		1.89	-	Mass of T	are o		е, у	334.5	
$\Delta rea in^2$			6.03	1	Moisturo	%			31 /	
V_{0} m^{3}			20.00	1	woisture,	/0			51.4	
Mass of San	nnle a		30.02	-						
Wet Density	npie, y		118.9							
Dry Density	pcf		90.4	1						
Machine Sp	eed. in/min		0.050							
Strain rate, 9	% / min		0.89							
				-						
				TEST	Γ DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	1			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID :	# 758/496	
							n			
Maximum Lo	oad at Failure,	lbf			365)		Eailura Code		
Specimen C	ross-sectional	Area, in ²			6.93	3			5 3	
Compressive	e Strength at F	ailure, psi			53					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure. psi		53	-			Failure Sket	ch
Note 2: * - A c	conversion factor	based on H/D	=1.15 (C.F 9	08 as 100% a	nd add. corr	rection r	er ASTM C4:	2)		
			DESCI	RIPTION		о о н о н р		-)		
								1	\times	
								Failure Type	e:	
									Cone and S	hear
		U	ISCS (ASTM	D2487: D24	488) 7					
					J					
			REM	IARKS						
								l		

		t.		Тіме	ELY		1874 Forg	ge Street Tu	cker, GA 300	84								
	T.E.	I <u>ST</u>		Engi	NEEI	RING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	
		X		Soil			Fax: 770-	923-8973					_			Date	11/13/21	
				Test	S, LL	С	Web: www	w.test-llc.com	<u>l</u>			REDITED)			Checked By	18	
Client Pr. #						200016					Lab. PR. #				21136-02-4			
Pr. Name					Tim	e Oil Term	inal				S. Type	Mc	old	Depth	/Elevation		-	
Sample ID			39492	/4-44			Subsa	ample ID	2		Location				Seattle, WA			
Add. Info		-		Ν	/lixing/N	Iolding Da	te		10/16/21				Curin	g Age, Days	5		28	
				ASTM	D 5084	I; Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Pore	ous			
					Ма	aterials L	Jsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)			
Height		3.038	in	7.72	cm	Speed			10]								
Diameter		2.961	in	7.52	cm	Board Nu	umber		4		Average Heig	ght of Sam	ole	3.039	in	7.72 cm		
Area		6.89	in ²	44.43	cm ²	Cell Num	ıber		37		Average Diar	meter of Sa	mple	2.962	in	7.52 cm		
Volume		342.81	cm ³	0.0121	ft ³	Flow Pun	np Number		2B		Area	6.89	in ²	44.46	cm ²			
Mass		647.1	g	1.43	lb	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	343.16	cm ³	0.0121	ft ³	Dry Density	89.8 pcf	f
Specific Gra	avity	2.700	(Assume	d)		B - Value	9		0.95		Mass	654.3	g	1.44	lb	Vol. of Voids	160.24 cm	1 ³
Dry Density		89.9	pcf			Cell Pres	sure		95.0	psi						Vol. of Solids	182.92 cm	າັ
						Back Pre	ssure		90.0	psi						Void Ratio	0.88	
Mana 46	MOIS	ture Cont	ent	٦		Contining	g (Effective) Pressure	5.0	psi	Mana 4	MOI 	isture Co	ntent	٦.	Saturation	100.1 %	
Mass of wet	sample &	tare	647.1	9		Max Hea	0 4		66.42	cm	Mass of wet	sample & ta	are	738.0	9			
Mass of tar	sample o	lare	493.0	9			J Gradient		8.66	CIII	Mass of tare	sample & la	lie	270.2 84.4	9			
% Moisture			31.0	9		Minimum	Gradient		8.57		% Moisture			32.5	9			
TIME	FUNCT	ION	Δt	READING	3	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wat	ter Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIP	TION	,		
11/13/21	7	5	-	0.95		66.82	8.66	20.5	-	-	-		NA] ,	JSCS	
11/13/21	7	15	600	0.94		66.12	8.57	20.5	5.85E-07	0.988	5.78E-07					(ASTM	D2487;2488)	
11/13/21	7	25	600	0.95		66.82	8.66	20.5	5.85E-07	0.988	5.78E-07						NA	
11/13/21	7	35	600	0.95		66.82	8.66	20.5	5.82E-07	0.988	5.75E-07	*			REMARK	KS .		
11/13/21	7	45	600	0.94		66.12	8.57	20.5	5.85E-07	0.988	5.78E-07	*	Bottom	Half of the	mold was used	d for testing.		
11/13/21	7	55	600	0.95		66.82	8.66	20.5	5.85E-07	0.988	5.78E-07	*						
11/13/21	8	5	600	0.94		66.12	8.57	20.5	5.85E-07	0.988	5.78E-07	*						
I				-		Reported	Average	Hydraulic Cor	nductivity*		5.8E-07	cm/sec		r				
Flow pump	ID #	2	44		Balanc	e ID #	1035/1036		Differential F	Pressure N	Meter ID #			587				
Thermomete	er ID #	796	/985		Oven I	D #	496/758		Board Press	ure Meter	r ID#			1041				
Syringe ID #	ŧ	2	46						Pore Pressu	re Meter	ID #			26/27				
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	brated Syring	e for Inflov	w and Calibra	ted Graduated	d Pipette for outfl	ow) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated	sample with accura	acy +/-5%. Flow Pu	np Rate isused for	

Г	Ť	TIMELY	7	1874 Forge	Street Tucke	er, GA 3	30084			
,	re st	ENGINE	ERING	Phone: 770-9	938-8233				Tested Bv	KP/IH
		Soll		Fax: 770-923	3-8973	\sim	\sim		Date	11/15/21
L	Δ	TESTS.I	LC	Web: www.te	est-llc.com	AA	сяно		Checked By	11/10/21
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-4	
Pr. Name		-	Fime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39493/4-60		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	10/18/2	21		Curing A	Age, Days	28
	ASTM I) 1633: Standa	ard Test Metl	nods for Com	pressive St	rength	of Molded S	oil-Cement C	Cylinders	
					- 	-	1		-	
				METHOD	В					
	SAMPLE DAT	ГА			WATER C	ONTE	NT DETER	VINATION		
Initial Height	t, in		5.658	1	Mass of W	/et Sar	nple and Ta	re, g	1502.7	
Initial Diame	eter, in		2.970		Mass of D	ry San	ple and Tar	e, g	1208.3	
Height-to-Di	ameter Ratio		1.91		Mass of T	are, g		-	303.6	
Area, in ²			6.93		Moisture,	%			32.5	
Volume, in ³			39.20							
Mass of Sar	nple, g		1201.4							
Wet Density	, pcf		116.8	1						
Dry Density,	pcf		88.1							
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.88	J						
				TEST						
	Load Cell ID #	ŧ	11/1015				Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			531					
		A						Failure Cod	e 3	
Specimen C	ross-sectional	Area, in			6.93	i				
Compressiv	e Suengui al F	allure, psi	r Datia		1.00					
					1.00)				. 1.
Reported C	ompressive S	trength at Fa	illure, psi						Failure Sketo	cn
Note 2: * - A c	conversion factor	r based on H/D	=1.15 (C.F9	08 as 100% a DIDTION	nd add. corr	ection p	ber ASTM C4	2)		
			DESC	RIPTION				1		
								Fallure Type	e. Cone and S	hear
	<u> </u>	L	ISCS (ASTM	D2487: D24	188)			1		
]					
			REM	IARKS						
								J		
L										

		1		TIME	LY		1874 Forg	ge Street Tu	cker, GA 300	84							
	T.E.	I <u>st</u>		Engin	VEER	ING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		X		Soil			Fax: 770-9	923-8973					-			Date	11/15/21
				TESTS	, LLC		Web: www	w.test-llc.com	<u>1</u>			SHIC)			Checked By	18
Client Pr. #					2	200016					Lab. PR. #				21136-02-4		
Pr. Name					Time (Oil Termi	inal				S. Type	Мс	old	Depth/	Elevation		-
Sample ID			39493	/4-60			Subsa	ample ID	2		Location				Seattle, WA		
Add. Info		-		М	ixing/Mo	Iding Dat	e		10/18/21				Curin	ig Age, Days			28
				ASTM D	5084;	Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us		
					Mate	erials U	sing a Fl	exible Wal	l Permeame	eter (Met	thod D, Con	stant Rat	e of Flo	w)			
Ir	nitial Sar	mple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test))	
Height		3.043	in	7.73	cm S	Speed			10								
Diameter		2.967	in	7.54	cm E	Board Nu	mber		3		Average Heig	ght of Samp	ble	3.044	in	7.73 cm	
Area		6.91	in ²	44.61	cm ² C	Cell Num	ber		2		Average Diar	neter of Sa	mple	2.968	in	7.54 cm	
Volume		344.77	cm ³	0.0122	t ³ F	-low Pum	np Number		1B		Area	6.92	in ²	44.64	cm ²		
Mass		638.3	g	1.41	b F	-low Purr	np Rate*		2.24E-04	cm ³ /sec	Volume	345.11	cm ³	0.0122	ft ³	Dry Density	87.4 pcf
Specific Gra	avity	2.700	(Assume	d)	E	3 - Value			0.95		Mass	649.4	g	1.43	lb	Vol. of Voids	166.10 cm ³
Dry Density		87.5	pcf		C	Cell Pres	sure		95.0	psi						Vol. of Solids	179.02 cm ³
					E	Back Pres	ssure		90.0	psi		M - 1				Void Ratio	0.93
M	WOIS	ture Cont	ent	1	C	Confining) Pressure	5.0	psi		IVIOI	sture Co		٦	Saturation	100.0 %
Mass of wet		k tare	638.3	g	IN N	Viax Head			76.67	cm	Mass of wet	sample & ta	are	733.0	9		
Mass of tare		lare	463.2	y a		Maximum	n Gradient		10.07	CIII	Mass of tare		lie	84.4	9		
% Moisture			32.1	9	N	Minimum	Gradient		9.92		% Moisture			34.4	9		
TIME	FUNCT	ION	Δt	READING	H	ead	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wate	er Used for Pe	ermeabilitv Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(0	cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPT	ION	5	
11/15/21	7	5	-	1.10	77	7.37	10.01	18.6	-	-	-		NA] ι	JSCS
11/15/21	7	15	600	1.09	76	6.67	9.92	18.6	5.04E-07	1.036	5.22E-07					(ASTM	D2487;2488)
11/15/21	7	25	600	1.10	77	7.37	10.01	18.6	5.04E-07	1.036	5.22E-07						NA
11/15/21	7	35	600	1.09	76	6.67	9.92	18.6	5.04E-07	1.036	5.22E-07	*			REMARK	(S	
11/15/21	7	45	600	1.09	76	6.67	9.92	18.6	5.06E-07	1.036	5.24E-07	*	Bottom	Half of the m	nold was used	d for testing.	
11/15/21	7	55	600	1.10	77	7.37	10.01	18.6	5.04E-07	1.036	5.22E-07	*					
11/15/21	8	5	600	1.10	77	7.37	10.01	18.6	5.01E-07	1.036	5.19E-07	*					
				-	F	Reported	Average H	Hydraulic Cor	nductivity*		5.2E-07	cm/sec					
Flow pump	ID #	2	22		Balance	ID #	1035/1036		Differential F	Pressure N	Meter ID #			942			
Thermomete	er ID #	796	/985	(Oven ID	#	496/758		Board Press	ure Meter	ID #			1041			
Syringe ID #	<i>‡</i>	14	41	J					Pore Pressu	ire Meter I	D #			26/27			
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calik	orated Svringe	for Inflow a	and Calibrat	ed Graduated	Pipette for outfl	ow) is capable to	maintain a c	constant rate of inf	low & outflow	through the	fully saturated s	ample with accur	acy +/-5% Flow Pur	no Rate isused for
	Ť	TIMELY	7	1874 Forge	Street Tucke	er, GA 3	30084										
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,	re st	ENGINE	ERING	Phone: 770-9	938-8233				Tested By	KP/IH							
		Soll		Fax: 770-923	3-8973		\sim		Date	11/16/21							
L	\bigtriangleup	TESTS I	LC	Web: www.te	est-llc.com	AA	SHO		Checked By	11/10/21							
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-4								
Pr. Name		-	Fime Oil Term	inal			S. Type	Mold	Depth/Elev.	-							
Sample ID		39494/4-53		Subsample	1		Location		Seattle, WA								
Add. Info	-	-	Mixing/Mo	olding Date	10/19/	21		Curing A	Age, Days	28							
	ASTM I) 1633: Standa	ard Test Metl	hods for Com	pressive St	rength	of Molded S	oil-Cement C	ylinders								
				METHOD		-	ľ										
				METHOD	В												
	SAMPLE DAT	ГА		_	WATER C	ONTE		MINATION									
Initial Height	t, in		5.588]	Mass of W	/et Sar	mple and Ta	re, g	1484.3								
Initial Diame	eter, in		2.973		Mass of D	ry San	nple and Tar	e, g	1193.3								
Height-to-Di	ameter Ratio		1.88		Mass of T	are, g			307.0								
Area, in ²			6.94		Moisture,	%			32.8								
Volume, in ³			38.79						-								
Mass of Sar	nple, g		1179.7														
Wet Density	, pcf		115.9														
Dry Density,	pcf		87.2														
Machine Sp	eed, in/min		0.050	_													
Strain rate, 9	% / min		0.89	J													
				TEST	DATA												
		+	11/1015	1			Digit	al Caliner ID	# 17/583								
	Compression	r Device ID #	10/1013				Reado	ut Device ID	# 10/1016								
	Balance ID #		1036/1037				Reduce	Oven ID	# 758/496								
				4													
Maximum Lo	oad at Failure,	lbf			820			Eailure Cod	<u> </u>								
Specimen C	ross-sectional	Area, in ²			6.94				c c								
Compressiv	e Strength at F	ailure, psi			118												
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)											
Reported C	ompressive S	trength at Fa	ilure, psi		118				Failure Sketo	ch							
Note 2: * - A d	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	ection p	per ASTM C42	2)									
			DESC	RIPTION													
								Failure Type	e:								
		I		02/87-02/	188)			J	Cone and S	near							
		L L															
			DEN		-												
			KEN	IARNO				1									

		t.		TIME	LY		1874 Forg	ge Street Tu	cker, GA 300	84							
	T.E.	I <u>st</u>		Engi	NEER	RING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		\times		Soil			Fax: 770-	923-8973					-			Date	11/16/21
				TESTS	S, LLC	2	Web: <u>ww</u>	w.test-llc.com	1			REDITE]			Checked By	18
Client Pr. #						200016					Lab. PR. #				21136-02-4		•
Pr. Name					Time	e Oil Term	inal				S. Type	Мс	old	Depth/	Elevation		-
Sample ID			39494	/4-53			Subsa	ample ID	2		Location				Seattle, WA		
Add. Info		-		М	ixing/M	olding Dat	te		10/19/21		J		Curin	g Age, Days			28
				ASTM [5084	; Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Cor	ductivity	of Satu	rated Poro	us		
					Ма	terials U	lsing a Fl	exible Wal	l Permeam	eter (Me	thod D, Con	stant Rat	e of Flo	w)			
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)		
Height		3.005	in	7.63	cm	Speed			10	1							
Diameter		2.957	in	7.51	cm	Board Nu	ımber		3		Average Hei	ght of Sam	ole	3.006	in	7.64 cm	
Area		6.87	in ²	44.31	cm ²	Cell Num	ber		17		Average Dia	meter of Sa	mple	2.958	in	7.51 cm	
Volume	me 338.17 cm ³ 5 632.4 g ific Gravity 2.700 (Assum		cm ³	0.0119	ft ³	Flow Pur	np Number		2A		Area	6.87	in ²	44.34	cm ²		
Mass	s 632.4 g cific Gravity 2.700 (Assum-		g	1.39	lb	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	338.51	cm ³	0.0120	ft ³	Dry Density	88.1 pcf
Specific Gra	ific Gravity 2.700 (Assum Density 88.1 pcf		(Assume	d)		B - Value	!		0.95		Mass	643.1	g	1.42	lb	Vol. of Voids	161.58 cm ³
Dry Density	Density				Cell Pres	sure		95.0	psi						Vol. of Solids	176.93 cm ³	
	Density <u>88.1</u> pcf Moisture Content					Back Pre	ssure		90.0	psi						Void Ratio	0.91
	Moisture Content s of wet sample & tare 632.4		ent	1		Contining	(Effective) Pressure	5.0	psi		MO	isture Co	ntent	7	Saturation	102.4 %
Mass of wet	Density 88.1 pcf Moisture Content 3 of wet sample & tare 632.4 3 of dry sample & tare 477.4		632.4	g		Max Head	a		49.94	cm	Mass of wet	sample & ta	are	727.1	g		
Mass of tar	sample &	lare	477.5	g		Maximum) Gradient		49.24 6.54	cm	Mass of tare	sample & la	ire	201.8 84.3	9		
% Moisture			32.4	9		Minimum	Gradient		6 45		% Moisture			34.6	9		
TIME	FUNCT	ION	Δt	READING	ŀ	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wate	er Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)		(cm)		T _x (°C)	@ T _x	R _τ	@ 20 °C	1		DESCRIPT	ION	· · · · · · · · · · · · · ·	
11/16/21	8	5	-	0.70	4	19.24	6.45	19.6	-	-	-	1	NA] ,	JSCS
11/16/21	8	15	600	0.71	4	19.94	6.54	19.6	7.78E-07	1.010	7.86E-07	1				(ASTM	D2487;2488)
11/16/21	8	25	600	0.70	4	19.24	6.45	19.6	7.78E-07	1.010	7.86E-07	1					NA
11/16/21	8	35	600	0.71	4	19.94	6.54	19.6	7.78E-07	1.010	7.86E-07	*			REMARK	S	
11/16/21	8	45	600	0.70	4	19.24	6.45	19.6	7.78E-07	1.010	7.86E-07	*	Bottom	Half of the n	nold was used	I for testing.	
11/16/21	8	55	600	0.71	4	19.94	6.54	19.6	7.78E-07	1.010	7.86E-07	*					
11/16/21	9	5	600	0.70	4	19.24	6.45	19.6	7.78E-07	1.010	7.86E-07	*					
				-		Reported	Average H	Hydraulic Cor	nductivity*		7.9E-07	cm/sec					
Flow pump	ID #	2	44		Balance	e ID #	1035/1036		Differential F	Pressure I	Meter ID #			346			
Thermomet	er ID #	796	/985]	Oven IE	D #	496/758		Board Press	ure Meter	r ID #			1041			
Syringe ID #	ŧ	2	45]					Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	orated Svringe	for Inflow	and Calibrat	ted Graduated	d Pipette for outfl	ow) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated s	ample with accura	acv +/-5%. Flow Pu	np Rate isused for

Г	Ť	TIMELY	r	1874 Forge	Street Tucke	er, GA 3	30084			
,	re st	Engine	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		Sou		Fax: 770-923	3-8973		\sim		Date	11/17/21
L	Δ	TESTS.I	LC	Web: www.te	est-llc.com	AA	сяно		Checked By	18
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-5	
Pr. Name		7	Fime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39560/4-46		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	10/20/	21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	ard Test Metl	hods for Com	pressive St	rength	of Molded S	oil-Cement C	ylinders	
				METUOD		-	I			
				METHOD	В					
	SAMPLE DAT	ΓA		_	WATER C	ONTE	NT DETER	NINATION		
Initial Height	t, in		5.658]	Mass of W	/et Sar	mple and Ta	re, g	1527.5	
Initial Diame	eter, in		2.968		Mass of D	ry San	nple and Tar	e, g	1262.5	
Height-to-Di	ameter Ratio		1.91		Mass of T	are, g			302.9	
Area, in ²			6.92		Moisture,	%			27.6	
Volume, in ³			39.15						-	
Mass of Sar	nple, g		1226.4]						
Wet Density	, pcf		119.3							
Dry Density,	pcf		93.5							
Machine Sp	eed, in/min		0.050	4						
Strain rate, 9	% / min		0.88							
				TEST	T DATA					
		+	11/1015	1			Digit	al Caliner ID	# 17/583	
	Compression	r Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Reade	Oven ID	# 758/496	
				3						
Maximum Lo	oad at Failure,	lbf			683			Eailure Cod	<u>م</u>	
Specimen C	ross-sectional	Area, in ²			6.92	2			c o	
Compressiv	e Strength at F	ailure, psi			99					
Conversion	Factor for Heig	ht to Diamete	r Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure, psi		99				Failure Sketo	ch
Note 2: * - A d	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	ection p	er ASTM C4	2)		
			DESC	RIPTION				,		
								Failure Type	e:	
									Cone and S	hear
		U	ISCS (ASTM	D2487: D24	188) 1					
]					
			REM	IARKS				1		
	<u> </u>									

		î.		Тіме	LY		1874 Forg	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		Engi	NEER	ING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	1
				Soil			Fax: 770-	923-8973					-			Date	11/17/2	1
				TESTS	S, LLC	2	Web: <u>ww</u>	w.test-llc.com	1			REDITED)			Checked By	18	
Client Pr. #						200016					Lab. PR. #				21136-02-5			
Pr. Name					Time	Oil Term	inal				S. Type	Mc	old	Depth/	Elevation		-	
Sample ID			39560	/4-46			Subsa	ample ID	2		Location				Seattle, WA			
Add. Info		-		M	ixing/Mo	olding Da	te		10/20/21		J		Curin	ng Age, Days			28	
				ASTM [) 5084;	Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us			
					Ma	terials U	lsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)			
Height		3.010	in	7.65	cm	Speed			10	1								
Diameter		2.965	in	7.53	cm	Board Nu	Imber		4		Average Heig	ght of Sam	ole	3.011	in	7.65 cm		
Area		6.90	in ²	44.55	cm ²	Cell Num	ber		41		Average Dia	meter of Sa	mple	2.966	in	7.53 cm		
Volume		340.57	cm ³	0.0120	ft ³	Flow Pun	np Number		2B		Area	6.91	in ²	44.58	cm ²			
Mass	s 648.1 g cific Gravity 2.700 (Assume		1.43	lb	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	340.91	cm ³	0.0120	ft ³	Dry Density	92.9 p	JCf	
Specific Gra	ific Gravity 2.700 (Assume Density 93.0 pcf		d)		B - Value			0.95		Mass	661.7	g	1.46	lb	Vol. of Voids	152.85 c	°m,	
Dry Density	Density 93.0 pcf				Cell Pres	sure		95.0	psi						Vol. of Solids	188.07 c	sm°	
	Density 93.0 pcf Moisture Content					Back Pre	ssure		90.0	psi						Void Ratio	0.81	
Mana 4	Moisture Content s of wet sample & tare 648.1		ent	1		Confining) Pressure	5.0	psi		IVIO A A A A A A A A A A A A A A A A A A A	isture Co		٦	Saturation	100.7 %	⁄₀
Mass of wet	Density 93.0 pcf Moisture Content a of wet sample & tare 648.1 b of dry sample & tare 507.4		648.1	g		Min Hear	a		82.30	cm	Mass of wet	sample & ta	are	744.0	9			
Mass of tare		lare	0.0	y a		Maximum	n Gradient		10.76	CIII	Mass of tare	sample a la	lie	82.8	9			
% Moisture			27.7	9		Minimum	Gradient		10.67		% Moisture			30.3	9			
TIME	FUNCT	ION	Δt	READING	⊢ ⊢	lead	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Wate	er Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (^o C)	@ T _x	R _T	@ 20 °C			DESCRIPT	ION			
11/17/21	8	5	-	1.17	8	2.30	10.76	19.6	-	-	-		NA] ι	JSCS	
11/17/21	8	15	600	1.16	8	1.59	10.67	19.6	4.69E-07	1.010	4.74E-07					(ASTM	D2487;2488)	
11/17/21	8	25	600	1.17	8	2.30	10.76	19.6	4.69E-07	1.010	4.74E-07						NA	
11/17/21	8	35	600	1.16	8	1.59	10.67	19.6	4.69E-07	1.010	4.74E-07	*			REMARK	S		
11/17/21	8	45	600	1.17	8	2.30	10.76	19.6	4.69E-07	1.010	4.74E-07	*	Bottom	Half of the n	nold was used	I for testing.		
11/17/21	8	55	600	1.16	8	1.59	10.67	19.6	4.69E-07	1.010	4.74E-07	*						
11/17/21	9	5	600	1.17	8	2.30	10.76	19.6	4.69E-07	1.010	4.74E-07	*			-			
I				•		Reported	Average I	Hydraulic Cor	nductivity*		4.7E-07	cm/sec						
Flow pump	ID #	2	44		Balance	ID #	1035/1036		Differential F	Pressure I	Meter ID #			587				
Thermomet	er ID #	796	/985		Oven ID) #	496/758		Board Press	ure Meter	ID#			1041				
Syringe ID #	ŧ	2	46						Pore Pressu	re Meter	ID #			26/27]			
	of Flow Such	om (Elow Du	ma with Calik	violated Suringo	for Inflow	and Calibra	tod Craduator	Dipotto for outfl	ow) is canable to	maintain a (constant rate of inf	low & outflow	through the	fully enturated a	ample with accurs	DOV ±/ 5% Elow Dur	nn Poto isusod f	for

Г	Ť	TIMELY	7	1874 Forge	Street Tucke	er, GA 3	30084			
,	re st	ENGINE	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		Soll		Fax: 770-923	3-8973		\sim		Date	11/18/21
	\bigtriangleup	TESTS I	LC	Web: www.te	est-llc.com	AA	SHO		Checked By	11/10/21
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-4	
Pr. Name		-	Time Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39561/4-20		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	10/21/2	21		Curing A	Age, Days	28
	ASTM I) 1633: Standa	ard Test Metl	hods for Com	pressive St	rength	of Molded S	oil-Cement C	ylinders	
				METHOD		-	ľ			
				METHOD	В					
	SAMPLE DAT	ГА			WATER C	ONTE		MINATION		
Initial Height	t, in		5.611]	Mass of W	/et Sar	mple and Ta	re, g	1438.0	
Initial Diame	eter, in		2.981		Mass of D	ry San	nple and Tar	e, g	1135.9	
Height-to-Di	ameter Ratio		1.88		Mass of T	are, g			259.9	
Area, in ²			6.98		Moisture,	%			34.5	
Volume, in ³			39.16						-	
Mass of Sar	nple, g		1179.2]						
Wet Density	, pcf		114.7							
Dry Density,	pcf		85.3							
Machine Sp	eed, in/min		0.050	-						
Strain rate, 9	% / min		0.89							
				TEST	T DATA					
		+	11/1015	1			Digit	al Caliner ID	# 17/583	
	Compression	r Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Reduce	Oven ID	# 758/496	
				3						
Maximum Lo	oad at Failure,	lbf			1602	2		Eailure Cod	<u>م</u>	
Specimen C	ross-sectional	Area, in ²			6.98	3			c o	
Compressiv	e Strength at F	ailure, psi			230					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ailure, psi		230				Failure Sketo	ch
Note 2: * - A d	conversion factor	· based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	ection p	er ASTM C42	2)		
			DESC	RIPTION		,		,		
								Failure Type	e:	
		-	000 /10-					J	Cone and S	hear
		L	ISCS (ASTM	D2487: D24	188) 1					
					1					
			REM	IARKS				1		
								•		

		1		TIMEI	LΥ		1874 Forg	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERIN	NG	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		\times		Soil			Fax: 770-	923-8973					-			Date	11/18/21
				TESTS	, LLC	,	Web: <u>ww</u>	w.test-llc.com	<u>l</u>			REDITED)			Checked By	18
Client Pr. #					200	0016					Lab. PR. #				21136-02-4		1
Pr. Name					Time Oil	l Termir	nal				S. Type	Мс	ld	Depth/	Elevation		-
Sample ID			39561	/4-20			Subsa	ample ID	2		Location				Seattle, WA		
Add. Info		-		Mi	king/Moldi	ing Date	e		10/21/21]		Curing	g Age, Days			28
				ASTM D	5084; St	tandar	d Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us		
					Mater	ials Us	sing a Fl	exible Wal	Permeame	eter (Met	hod D, Con	stant Rat	e of Flov	v)			
II	nitial Sar	nple Dat	a (Before	e Test)				Test Data	a				I	Final Data	(After Test)		
Height		3.065	in	7.79 c	m Spe	eed			12								
Diameter		2.963	in	7.53 c	m Boa	ard Nur	nber		12		Average Heig	ght of Samp	ole	3.066	in	7.79 cm	
Area	incom incom a 6.90 in² ime 346.33 cm³ s 642.5 g cific Gravity 2.700 (Assum)		in ²	44.49 0	m ² Cel	II Numb	ber		13		Average Diar	neter of Sa	mple	2.964	in	7.53 cm	
Volume	346.33 cm ³ s 642.5 g sific Gravity 2.700 (Assum)		cm ³	0.0122 f	³ Flo	w Pum	p Number		2A		Area	6.90	in ²	44.52	cm ²		<u>. </u>
Mass	s 642.5 g cific Gravity 2.700 (Assume		g	1.42 II	p Flo	w Pum	p Rate*		5.60E-05	cm ³ /sec	Volume	346.67	cm ³	0.0122	ft ³	Dry Density	85.9 pcf
Specific Gra	s 642.5 g cific Gravity 2.700 (Assum Density 86.0 pcf		(Assume	d)	В -	Value			0.95		Mass	649.5	g	1.43	lb	Vol. of Voids	169.88 cm ³
Dry Density	cific Gravity 2.700 (Assume Density 86.0 pcf			Cel	II Press	sure		95.0	psi						Vol. of Solids	176.80 cm ³	
	Density 2.700 pcf Moisture Content				Bad	ck Pres	sure		90.0	psi						Void Ratio	0.96
	ecific Gravity 2.700 (Assur Density 86.0 pcf Moisture Content ss of wet sample & tare 642.3 s of dru sample & tare 642.3		ent	1	Co	ntining	(Effective) Pressure	5.0	psi		NOI	sture Co	ntent	1	Saturation	101.3 %
Mass of wet	Z.300 III a 6.90 in ² ume 346.33 cm ³ ss 642.5 g icific Gravity 2.700 (Assu Density 86.0 pcf Moisture Content is of wet sample & tare 642.5 is of wet sample & tare 642.5 is of dry sample & tare 642.5 is of dry sample & tare 642.5 is of tare 0.0 toisture 34.0 TIME FUNCTION Δ t ATE HOUR MIN		642.5	9	Ma	ax Head			52.76	cm	Mass of wet s	sample & ta	are	731.9	9		
Mass of dry	cific Gravity 2.700 (Assu Density 86.0 pcf Moisture Content s of wet sample & tare 642. s of dry sample & tare 477. s of tare 0.0		4//.2	g	IVIII Mo	n Head	Cradiant		52.05 6.77	cm	Mass of dry s	sample & ta	re	559.8	9		
% Moisture	5		34.6	9	Mir	nimum (Gradient		6.68		% Moisture			36.1	9		
TIME	FUNCT	ION	Δt	READING	Hea	ad	Gradient	Temp	PERME	ABILITY	(cm/sec)		Note [.] D	eaired Wate	er Used for Pr	ermeability Test	
DATE	HOUR	MIN	(sec)	DP. (psi)	(cm	n)	ordaloitt	T_(°C)	@.T.	RT	@ 20 °C			DESCRIPT	ION		
11/18/21	9	5	-	0.74	52.0	ý)5	6.68	20.0	-	-	_		NA] ,	JSCS
11/18/21	9	15	600	0.75	52.7	76	6.77	20.0	1.87E-07	1.000	1.87E-07					(ASTM	D2487;2488)
11/18/21	9	25	600	0.74	52.0)5	6.68	20.0	1.87E-07	1.000	1.87E-07						NA
11/18/21	9	35	600	0.75	52.7	76	6.77	20.0	1.87E-07	1.000	1.87E-07	*			REMARK	S S	
11/18/21	9	45	600	0.74	52.0)5	6.68	20.0	1.87E-07	1.000	1.87E-07	*	Bottom	Half of the m	old was used	d for testing.	
11/18/21	9	55	600	0.75	52.7	76	6.77	20.0	1.87E-07	1.000	1.87E-07	*					
11/18/21	10	5	600	0.74	52.0)5	6.68	20.0	1.87E-07	1.000	1.87E-07	*					
					Re	ported	Average H	Hydraulic Cor	nductivity*		1.9E-07	cm/sec					
Flow pump	ID #	24	44	E	alance ID)#	1035/1036		Differential F	Pressure N	/leter ID #			346			
Thermomet	er ID #	796	/985	(Oven ID #		496/758		Board Press	ure Meter	ID #			776			
Syringe ID #	ŧ	24	45	J		-			Pore Pressu	ire Meter I	D #			26/27	J		
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	orated Svringe f	or Inflow and	l Calibrate	ed Graduated	Pipette for outfl	ow) is capable to	maintain a c	constant rate of infl	low & outflow	through the	fully saturated s	ample with accur	acy +/-5% Flow Pur	nn Rate isused for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
,	re st	Engine	FRING	Phone: 770-	038-8233				Tested By	KD/IH
		Sou			000-0200		\sim			11/10/04
	\bigtriangleup			Fax: 770-923	5-8973				Date	11/19/21
Client Dr. #	1	I ESTS, I	LLC 200016	Web: <u>www.te</u>	est-llc.com	ACC	REDITED		Checked By	18
Cliefit Pf. # Pr. Name			ZUUU 16 Fime Oil Termi	inal			Lap. PR. #	Mold	21136-02-5 Depth/Elev	
Sample ID		39562/4-22		Subsample	1		Location	IVIOIU	Seattle WA	-
Add. Info			Mixing/Mo	olding Date	10/22/	21		Curing A	ge, Days	28
	ASTMI	1622. Stand	and Test Met	ada fan Cam	muagaina St	wongth	of Moldod S	oil Comont C	vlindova	
	ASIMI	1055: Stanua	aru Test Meti	lous for Coll	ipressive st	rengtn	of Molded S	on-Cement C	ymuers	
				METHOD	В					
Initial Haight	SAMPLE DA	Γ Α	5.674	1	WATER C				1409.9	
	l, In tor in		3.074	-	Mass of D	vel Sar	nple and Ta	re, g	1408.8	
	ameter Ratio		1 91		Mass of T	iny Sali are a	ipie anu Tai	e, y	208.6	
			6.04	1	Moioturo	are, y %			200.0	
Area, in λ			0.94	-	woisture,	70			33.4	
Mass of Son	nnlo a		39.30	4						
Wet Density	npie, g		1202.2	-						
Dry Density	ncf		87.2	-						
Machine Sp	eed. in/min		0.050							
Strain rate, 9	% / min		0.88							
				-						
				TEST	Γ DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID :	# 758/496	
							ı			
Maximum Lo	bad at Failure,	lbt			2332	2		Eailure Code	3	
Specimen C	ross-sectional	Area, in ²			6.94	1			5 5	
Compressive	e Strength at F	ailure, psi			336	6				
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure, psi		336	;			Failure Skete	ch
Note 2: * - A c	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	rection p	per ASTM C42	2)		
			DESC	RIPTION				_		
								Failure Type	»:	
		1		D2/87· D2/	188)			J	Cone and S	near
		U		D2-101. D24						
					1					
			REM	IARKS				1		
	L							J		
L										

		1		TIME	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	I <u>st</u>		Engin	NEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		X		Soil		Fax: 770-	923-8973					-			Date	11/19/21
				TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	1B
Client Pr. #					200016					Lab. PR. #				21136-02-5		
Pr. Name					Time Oil Ter	minal				S. Type	Mc	old	Depth/	Elevation		-
Sample ID			39562	/4-22		Subs	ample ID	2		Location				Seattle, WA	L .	
Add. Info		-		М	ixing/Molding E	late		10/22/21				Curin	ig Age, Days			28
				ASTM D	5084; Stand	lard Test M	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us		
					Materials	Using a F	lexible Wal	I Permeam	eter (Me	thod D, Con	stant Rat	e of Flo	w)			
lı lı	nitial Sar	mple Dat	a (Befor	e Test)			Test Dat	а					Final Data	(After Test)	
Height		2.964	in	7.53	cm Speed			10]					_		
Diameter		2.963	in	7.53	cm Board I	Number		4		Average Heig	ght of Sam	ole	2.965	in	7.53 cm	
Area	a <u>6.90</u> in ² ime <u>334.91</u> cm ³ s <u>625.1</u> g cific Gravity <u>2.700</u> (Assum		in ²	44.49	cm ² Cell Nu	mber		2		Average Diar	neter of Sa	mple	2.964	in	7.53 cm	
Volume	me <u>334.91</u> cm ³ s <u>625.1</u> g xific Gravity <u>2.700</u> (Assume		cm ³	0.0118	T ³ Flow P	ump Numbe	r	4A		Area	6.90	in ²	44.52	cm ²		a
Mass	s 625.1 g cific Gravity 2.700 (Assume		1.38	b Flow P	ump Rate*		2.24E-04	cm ³ /sec	Volume	335.25	cm ³	0.0118	ft ³	Dry Density	87.0 pcf	
Specific Gra	s <u>625.1</u> g cific Gravity <u>2.700</u> (Assumed Density <u>87.1</u> pcf		d)	B - Val	le		0.95		Mass	632.6	g	1.39	lb	Vol. of Voids	<u>162.17</u> cm ³	
Dry Density	cific Gravity 2.700 (Assumed) Density 87.1 pcf			Cell Pro	essure		95.0	psi						Vol. of Solids	173.08 cm ³	
	Density 2.700 (Assume 87.1 pcf Moisture Content			Back P	ressure		90.0	psi		M - 1				Void Ratio	0.94	
Mana 4	cific Gravity 2.700 (Assume the content of the conten		ent	1	Contini	ng (Effective) Pressure	5.0	psi	NA	IVIO A A A A A A A A A A A A A A A A A A A	sture Co		٦	Saturation	101.9 %
Mass of wet	a 6.90 In ⁻ ume 334.91 cm ³ ss 625.1 g ecific Gravity 2.700 (Assur Density 87.1 pcf Moisture Content so f wet sample & tare 625. is of dry sample & tare 625. is of tare 10.0 toisture 33.7 TIME FUNCTION Δ t		625.1	g		ad		182.88	cm	Mass of wet	sample & ta	are	705.5	9		
Mass of tar	cific Gravity 2.700 (Assultation of the second structure) Density 87.1 pcf Moisture Content s of wet sample & tare 625. s of dry sample & tare 467. s of tare 0.0		407.4	y a	Maxim	au Im Gradient		2/ 28	CIII	Mass of tare	sample & la	lie	540.2 72.8	9		
% Moisture			33.7	9	Minimu	m Gradient		24.10	-	% Moisture			35.4	9		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME		(cm/sec)		Note: [Deaired Wate	er Used for P	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R⊤	@ 20 °C			DESCRIPT	ION	· · · · , · · ·	
11/19/21	9	50	-	2.59	182.18	24.19	22.1	-	-	-		NA] ι	ISCS
11/19/21	10	0	600	2.60	182.88	24.28	22.1	2.08E-07	0.951	1.97E-07					(ASTM	D2487;2488)
11/19/21	10	10	600	2.60	182.88	24.28	22.1	2.07E-07	0.951	1.97E-07						NA
11/19/21	10	20	600	2.59	182.18	24.19	22.1	2.08E-07	0.951	1.97E-07	*			REMAR	<s< td=""><td></td></s<>	
11/19/21	10	30	600	2.58	181.48	24.10	22.1	2.08E-07	0.951	1.98E-07	*	Bottom	Half of the m	nold was used	d for testing.	
11/19/21	10	40	600	2.59	182.18	24.19	22.1	2.08E-07	0.951	1.98E-07	*					
11/19/21	10	50	600	2.59	182.18	24.19	22.1	2.08E-07	0.951	1.98E-07	*			-		
					Report	ed Average I	Hydraulic Cor	nductivity*		2.0E-07	cm/sec					
Flow pump	ID #	10)43	_	Balance ID #	1035/1036		Differential I	Pressure I	Meter ID #			1044/1048			
Thermomet	er ID #	796	/985		Oven ID #	496/758		Board Press	sure Mete	r ID #			1041			
Syringe ID #	¥	10)47	J				Pore Pressu	ure Meter	ID #			26/27]		
*Constant Rate	of Flow Svs	tem (Flow Pu	mp with Calil	orated Syringe	for Inflow and Calib	rated Graduate	d Pipette for outf	low) is capable to	maintain a	constant rate of infl	low & outflow	through the	fully saturated s	ample with accur	acv +/-5%. Flow Pun	np Rate isused for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
,	re st	Engine	ERING	Phone: 770-	938-8233				Tested By	KP/IH
		Sou	Entrito	Eov: 770.020	00000200		\sim		Dete	11/20/21
	\bigtriangleup	TESTS I	IC	Meb: www.te			SHO		Chockod Ry	11/20/21
Client Pr #	[112313,1	200016		551-110.00111	ACC	REDITED		21136-02-5	-0
Pr. Name			Fime Oil Termi	inal			S. Type	Mold	Depth/Elev.	_
Sample ID		39563/4-24		Subsample	1		Location		Seattle, WA	
Add. Info			Mixing/Mo	olding Date	10/23/	21		Curing A	ge, Days	28
	ASTM I) 1633. Standa	ord Tost Mot	ods for Com	nrossivo St	ronath	of Moldod S	ail Comont Cy	vlindore	
		7055. Stanua	in un rest mitti		ipi essive se	rengen	or molaca 5	on-cement C	ymuer s	
				METHOD	В]			
		гл								
Initial Height	f in		5 628	1	Mass of V	Vet Sar	mole and Ta	re a	1473.6	
Initial Diame	ter, in		2.976	1	Mass of D	rv San	nole and Tar	re, g	1188.2	
Height-to-Di	ameter Ratio		1.89	1	Mass of T	are. a		e, g	298.4	
Area, in ²			6.96		Moisture	%			32.1	
Volume in ³			39.15		molotalo,	,0			02.1	
Mass of San	nple, a		1177.9	1						
Wet Density	, pcf		114.6							
Dry Density,	pcf		86.7	1						
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.89]						
				TES	I DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	al Caliper ID ;	# 17/583	
	Compression	Device ID #	10/1014	-			Reado	ut Device ID a	# 10/1016	
	Balance ID #		1036/1037]				Oven ID a	# 758/496	
Maximum Lo	oad at Failure,	lbf			279	7]			
On a simon O		A			0.00	,		Failure Code	e 3	
Specimen C	ross-sectional	Area, In			6.96)				
Conversion	E Strength at F	allure, psi ht to Diamoto	r Datio		402					
Conversion Benerted C		trongth at Ea			1.00)			Eailura Skot	ob
Reported C	ompressive 5	trength at Fa	lilure, psi	00	402			0)		
Note 2: " - A C	conversion factor	based on H/D	DESCI	08 as 700% a RIPTION	na ada. com	ection p	Der ASTM C4.	2)		
				-				1	\times	
								Failure Type		
									Cone and S	hear
		U	ISCS (ASTM	D2487: D24	188) 1					
					J					
			REM	IARKS				_		
	<u> </u>							J		

		t.		TIME	LY		1874 Forg	je Street Tu	cker, GA 300	84								
	T.E.	I <u>ST</u>		Engin	NEERIN	١G	Phone: 77	0-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	
		\mathbf{X}		Soil			Fax: 770-9	923-8973					-			Date	11/20/21	
				TESTS	5, LLC		Web: <u>www</u>	v.test-llc.com	1			REDITED				Checked By	18	
Client Pr. #					200	0016					Lab. PR. #				21136-02-5		•	
Pr. Name					Time Oil	Termi	nal				S. Type	Mc	ld	Depth/I	Elevation		-	
Sample ID			39563	/4-24			Subsa	ample ID	2		Location				Seattle, WA	•		
Add. Info		-		М	ixing/Moldii	ng Date	е		10/23/21		J		Curin	g Age, Days			28	
				ASTM D) 5084; St	tandar	rd Test N	lethod for	Measureme	ent of Hy	draulic Cor	ductivity	of Satu	rated Poro	us			
					Materi	ials U	sing a Fl	exible Wal	l Permeame	eter (Mei	thod D, Con	stant Rat	e of Flo	w)				
Ir	nitial Sar	mple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)			
Height		3.026	in	7.69	cm Spe	eed			11	1								
Diameter		2.967	in	7.54	cm Boa	ard Nur	mber		18		Average Heig	ght of Sam	ble	3.027	in	7.69 cm		
Area		6.91	in ²	44.61	cm ² Cel	ll Numb	ber		55		Average Dia	meter of Sa	mple	2.968	in	7.54 cm		
Volume		342.84	cm ³	0.0121	ft ³ Flo	w Pum	p Number		3A		Area	6.92	in ²	44.64	cm ²			
Mass	is 632.1 g cific Gravity 2.700 (Assum		g	1.39	lb Flo	w Pum	p Rate*		1.12E-04	cm ³ /sec	Volume	343.19	cm ³	0.0121	ft ³	Dry Density	87.0 pcf	
Specific Gra	cific Gravity2.700 (Assum PcfDensity87.1		(Assume	d)	В -	Value			0.95		Mass	644.0	g	1.42	lb	Vol. of Voids	166.01 cm ³	3
Dry Density	Density		pcf		Cel	ll Press	sure		95.0	psi						Vol. of Solids	177.18 cm ³	2
	Moisture Content				Bac	ck Pres	ssure		90.0	psi			- 1			Void Ratio	0.94	
Mana 4	Moisture Content s of wet sample & tare 632.		ent	1	Cor	nfining	(Effective)) Pressure	5.0	psi		IVIO A A A A A A A A A A A A A A A A A A A	sture Co		٦	Saturation	99.8 %	
Mass of wet	Density 87.1 pcf Moisture Content \$ of wet sample & tare 632.1 \$ of dry sample & tare 478.1		632.1	g	Min	x Head	1		184.29	cm	Mass of wet	sample & ta	are	725.0	9			
Mass of tare		lare	478.3	y a	Ma	vimum	Gradient		23.07	CIII	Mass of tare	sample a la	le	81.7	9			
% Moisture			32.2	9	Min	nimum	Gradient		23.88		% Moisture			34.6	9			
TIME	FUNCT	ION	Δt	READING	Hea	d	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wate	er Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm	ı)		T _x (°C)	@ T _x	R _T	@ 20 °C	1		DESCRIPT	ION			
11/20/21	8	5	-	2.62	184.2	29	23.97	21.1	-	-	-		NA			ι ι	JSCS	
11/20/21	8	15	600	2.61	183.5	59	23.88	21.1	1.05E-07	0.974	1.02E-07					(ASTM	D2487;2488)	
11/20/21	8	25	600	2.62	184.2	29	23.97	21.1	1.05E-07	0.974	1.02E-07						NA	
11/20/21	8	35	600	2.61	183.5	59	23.88	21.1	1.05E-07	0.974	1.02E-07	*			REMARK	S		
11/20/21	8	45	600	2.62	184.2	29	23.97	21.1	1.05E-07	0.974	1.02E-07	*	Bottom	Half of the m	nold was used	for testing.		
11/20/21	8	55	600	2.61	183.	59	23.88	21.1	1.05E-07	0.974	1.02E-07	*						
11/20/21	9	5	600	2.62	184.2	29	23.97	21.1	1.05E-07	0.974	1.02E-07	*			-			
		r		7	Rep	ported	Average H	lydraulic Cor	nductivity*		1.0E-07	cm/sec			_			
Flow pump	ID #	4	75		Balance ID	#	1035/1036		Differential F	Pressure I	Meter ID #			469	1			
Thermomet	er ID #	796	/985		Oven ID #		496/758		Board Press	ure Meter	r ID #			570				
Syringe ID #	ŧ	4	91	J					Pore Pressu	re Meter	ID #			779/780				
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	orated Svringe	for Inflow and	Calibrate	ed Graduated	Pinette for outfl	low) is canable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated s	ample with accura	acy +/-5% Flow Pur	nn Rate isused for	

Г	Ŷ	TIMELY	7	1874 Forge	Street Tucke	er, GA 3	30084			
	re st	Engine	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		SOIL		Fax: 770-923	3-8973		\sim		, Date	11/22/21
L	Δ	TESTS.I	LC	Web: www.te	est-llc.com	AA	сяно		Checked By	1112E/EI
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-5	
Pr. Name		٦	Time Oil Termi	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39564/4-26		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	10/25/	21		Curing A	Age, Days	28
	ASTM I) 1633: Standa	ard Test Metl	nods for Com	pressive St	rength	of Molded S	oil-Cement C	ylinders	
				METUOD		-	I			
				METHOD	В					
	SAMPLE DAT	ΓA		_	WATER C	ONTE	NT DETER	MINATION		
Initial Height	t, in		5.637		Mass of W	/et Sar	mple and Ta	re, g	1500.8	
Initial Diame	eter, in		2.971		Mass of D	ry San	nple and Tar	e, g	1211.6	
Height-to-Di	ameter Ratio		1.90		Mass of T	are, g			301.0	
Area, in ²			6.93		Moisture,	%			31.8	
Volume, in ³			39.08						-	
Mass of San	nple, g		1201.4							
Wet Density	, pcf		117.1							
Dry Density,	pcf		88.8							
Machine Sp	eed, in/min		0.050	-						
Strain rate, S	% / min		0.89	J						
				TEST	T DATA					
	l oad Cell ID ±	ŧ	11/1015	1			Digit	al Caliner ID	# 17/583	
	Compression	r Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				rioudo	Oven ID	# 758/496	
				4	·					
Maximum Lo	oad at Failure,	lbf			2367	7		Failure Cod	e 3	
Specimen C	ross-sectional	Area, in ²			6.93	3			c c	
Compressive	e Strength at F	ailure, psi			341					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure, psi		341				Failure Sketo	ch
Note 2: * - A c	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	ection p	per ASTM C4	2)		
			DESC	RIPTION				1		
									\angle	
								Failure Type	e: Oana and O	h
	<u> </u>	I	ISCS (ASTM	D2487 · D24	188)			J	Cone and S	пеаг
		C]					
			REM	IARKS						
								1		
								J		

		t.		Тіме	LY	1874 Fo	orge Street Tu	icker, GA 300	84								
	T.E.	<u>ST.</u>		Engi	NEERING	B Phone:	770-938-8233			\[\] \[\[\] \[\] \[\[\] \[\] \[\] \[\[\] \[\[\] \[\[\] \[\[\[\[$\langle \Lambda \rangle$				Tested By	EB/KP	
		X		Soil		Fax: 77	0-923-8973					-			Date	11/22/21	1
				TESTS	S, LLC	Web: <u>w</u>	ww.test-llc.con	<u>n</u>			REDITE]			Checked By	18	
Client Pr. #					2000	16				Lab. PR. #				21136-02-5		•	
Pr. Name					Time Oil T	erminal				S. Type	Мо	old	Depth/E	Elevation		-	
Sample ID			39564	/4-26		Sub	sample ID	2		Location				Seattle, WA	1		
Add. Info		-		M	ixing/Molding	Date		10/25/21				Curir	g Age, Days			28	
				ASTM [0 5084; Sta	ndard Test	Method for	Measurem	ent of Hy	draulic Cor	ductivity	of Satu	rated Poro	us			
					Materia	s Using a	Flexible Wal	II Permeam	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
l li	nitial Sar	mple Dat	a (Befor	e Test)			Test Dat	a	_				Final Data	(After Test))		
Height		3.039	in	7.72	cm Spee	d		10						•			
Diameter		2.963	in	7.53	cm Board	l Number		19		Average Hei	ght of Sam	ple	3.040	in	7.72 cm		
Area		6.90	in ²	44.49	cm ² Cell N	lumber		41		Average Dia	meter of Sa	imple	2.964	in	7.53 cm		
Volume	343.39 cm s 639.2 g zific Gravity 2.700 (Assume)		cm	0.0121	ft ^o Flow	Pump Numb	er	3B	3,	Area	6.90	in ²	44.52	cm ²			
Mass	639.2 g cific Gravity 2.700 (Assume Density) 88.5 pcf		1.41	ID Flow	Pump Rate*		2.24E-04	cm°/sec	Volume	343.73	cm	0.0121	π-	Dry Density	88.4 pc	ct m ³	
Specific Gra	cific Gravity2.700(AssumeDensity88.5pcf		d)	B - V			0.95	nei	Mass	051.1	9	1.44	ai	Vol. of Solids	103.31 Cl	m ³	
Dry Density	Density 88.5 pcf			Back	Pressure		95.0	psi nsi						Void Ratio	160.45 CI	.11	
	Moisture Content			Confi	nina (Effectiv	(e) Pressure	5.0	psi		Мо	isture Co	ontent		Saturation	100.4 %	'n	
Mass of wet	Moisture Content s of wet sample & tare 639.2		639.2	a	Max	Head	0) 1 10000.0	145.60	cm	Mass of wet	sample & ta	are	736.3	a	Cataration		
Mass of dry	Moisture Content s of wet sample & tare 639. of dry sample & tare 487.1		487.0	g	Min H	lead		144.90	cm	Mass of dry	sample & ta	are	572.4	g			
Mass of tare	Э.		0.0	9	Maxir	num Gradier	nt	18.86		Mass of tare			85.4	g			
% Moisture			31.3		Minin	num Gradien	t	18.77		% Moisture			33.7				
TIME	FUNCT	ION	Δt	READING	Head	Gradier	t Temp.	PERME	EABILITY	(cm/sec)		Note:	Deaired Wate	er Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPT	ION	_		
11/22/21	8	5	-	2.07	145.60	18.86	19.6	-	-	-		NA			l	JSCS	
11/22/21	8	15	600	2.06	144.90	18.77	19.6	2.67E-07	1.010	2.70E-07					(ASTM	D2487;2488)	
11/22/21	8	25	600	2.07	145.60	18.86	19.6	2.67E-07	1.010	2.70E-07						NA	
11/22/21	8	35	600	2.06	144.90	18.77	19.6	2.67E-07	1.010	2.70E-07	*			REMARK	S		
11/22/21	8	45	600	2.07	145.60	18.86	19.6	2.67E-07	1.010	2.70E-07	*	Bottom	Half of the m	old was used	for testing.		
11/22/21	8	55	600	2.06	144.90	18.77	19.6	2.67E-07	1.010	2.70E-07	*						
11/22/21	9	5	600	2.07	145.60	18.86	19.6	2.67E-07	1.010	2.70E-07	*			•			
		r		-	Repo	rted Average	Hydraulic Co	nductivity*		2.7E-07	cm/sec		·				
Flow pump	ID #	4	75		Balance ID #	1035/103	6	Differential I	Pressure I	Meter ID #			262				
Thermomet	er ID #	796	/985	l	Oven ID #	496/75	8	Board Press	sure Meter	r ID#			570				
Syringe ID #	ŧ	4	90]				Pore Pressu	ure Meter	ID #			779/780]			
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	brated Svringe	for Inflow and Ca	librated Gradua	ted Pipette for outf	flow) is capable to	o maintain a d	constant rate of inf	low & outflow	through the	fully saturated sa	ample with accura	acy +/-5% Flow Pur	nn Rate isused fo	or

Г	Ť	TIMELY	7	1874 Forge	Street Tucke	er, GA 3	30084			
	re st	ENGINE	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		SOIL		Fax: 770-923	3-8973		\sim		, Date	11/23/21
L	Δ	TESTS.I		Web: www.te	est-llc.com	AA	сяно		Checked By	11/20/21
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-5	
Pr. Name		-	Time Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39565/4-29		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	10/26/	21		Curing A	Age, Days	28
	ASTM I) 1633: Standa	ard Test Metl	hods for Com	pressive St	rength	of Molded S	oil-Cement C	ylinders	
				METUOD		-	1			
				METHOD	В					
	SAMPLE DAT	ГА			WATER C	ONTE		VINATION		
Initial Height	t, in		5.608]	Mass of W	/et Sar	mple and Ta	re, g	1495.6	
Initial Diame	eter, in		2.976]	Mass of D	ry San	nple and Tar	e, g	1200.0	
Height-to-Di	ameter Ratio		1.88		Mass of T	are, g			298.5	
Area, in ²			6.96		Moisture,	%			32.8	
Volume, in ³			39.01						-	
Mass of San	nple, g		1199.6]						
Wet Density	, pcf		117.2							
Dry Density,	pcf		88.2	1						
Machine Sp	eed, in/min		0.050	4						
Strain rate, S	% / min		0.89]						
				TEST	DATA					
		+	11/1015	1			Digit	al Caliner ID	# 17/583	
	Compression	r Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Reduce	Oven ID	# 758/496	
				1						
Maximum Lo	oad at Failure,	lbf			1408	3		Ecilura Cod	<u> </u>	
Specimen C	ross-sectional	Area. in ²			6.96	5		Fallule Cou	e 3	
Compressiv	e Strength at F	ailure, psi			202					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ailure, psi		202				Failure Sketo	ch
Note 2: * - A c	conversion factor	· based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	ection p	per ASTM C42	2)		
			DESC	RIPTION						
								Failure Type	e:	_
		I		02/87.02/	188)			J	Cone and S	near
		Ĺ]					
					-					
			KEN	IAKKS				1		
								J		

		1		Тіме	LY		1874 Forg	ge Street Tu	cker, GA 300	84							
	T.E.	I <u>st</u>		Engi	NEERI	ING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		X		Soil			Fax: 770-9	923-8973					_			Date	11/23/21
				TESTS	S, LLC		Web: www	w.test-llc.com	<u>1</u>			SHIC]			Checked By	lb
Client Pr. #					2	200016					Lab. PR. #				21136-02-5		
Pr. Name					Time (Oil Termi	inal				S. Type	Mo	old	Depth/	Elevation		-
Sample ID			39565	/4-29			Subsa	ample ID	2		Location				Seattle, WA	\	
Add. Info		-		N	lixing/Mol	Iding Dat	te		10/26/21		J		Curir	ng Age, Days			28
				ASTM I	D 5084; :	Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us		
					Mate	erials U	lsing a Fl	exible Wal	l Permeame	eter (Me	hod D, Con	stant Rat	e of Flo	w)			
li	nitial Sa	mple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test))	
Height		2.988	in	7.59	cm S	Speed			10	1							
Diameter		2.962	in	7.52	cm B	Board Nu	mber		8		Average Heig	ght of Sam	ple	2.989	in	7.59 cm	
Area		6.89	in ²	44.46	cm ² C	Cell Num	ber		15		Average Diar	neter of Sa	mple	2.963	in	7.53 cm	
Volume		337.40	cm ³	0.0119	ft ³ F	low Pum	np Number		4A		Area	6.90	in ²	44.49	cm ²		a
Mass	633.4 g 1.40 fic Gravity 2.700 (Assumed) ensity 88.5 pcf			1.40	lb F	low Pum	np Rate*		2.24E-04	cm ³ /sec	Volume	337.74	cm ³	0.0119	ft ³	Dry Density	88.4 pcf
Specific Gra	ic Gravity2.700(Assumed)ensity88.5pcf			d)	В	3 - Value			0.95		Mass	640.0	g	1.41	lb	Vol. of Voids	<u>160.44</u> cm ³
Dry Density	Density 88.5 pcf				C	Cell Pres	sure		95.0	psi						Vol. of Solids	177.30 cm ³
	Density 88.5 pcf Moisture Content				В	Back Pres	ssure		90.0	psi						Void Ratio	0.90
Mana 4	Moisture Content			1	C .	Contining) Pressure	5.0	psi		MO A A A A A A A A A A A A A A A A A A A	isture Co		٦	Saturation	100.5 %
Mass of wet	Moisture Content is of wet sample & tare 633.4 g			9	IV N	/lax Head			147.01	cm	Mass of wet	sample & ta	are	734.2	9		
Mass of tar	sample &	alare	4/8./	g	IV N	Ann Head	l Gradient		140.31	cm	Mass of dry s	sample & ta	are	04.2	9		
% Moisture	5		32.3	9	N	Ainimum	Gradient		19.30		% Moisture			33.7	9		
TIME	FUNCT	ION	Δt	READING	i He	ead	Gradient	Temp.	PFRMF	ABILITY	(cm/sec)		Note:	Deaired Wate	er Used for P	ermeability Test	
DATE	HOUR	MIN	(sec)	DP. (psi)) (c	cm)	or a different	T _v (°C)	@ T _v	RT	@ 20 °C			DESCRIPT	ION		
11/23/21	7	30	-	2.09	14	, 7.01	19.36	18.3	-	-	-		NA] ι	ISCS
11/23/21	7	40	600	2.08	140	6.31	19.27	18.3	2.61E-07	1.043	2.72E-07					(ASTM	D2487;2488)
11/23/21	7	50	600	2.09	14	7.01	19.36	18.3	2.61E-07	1.043	2.72E-07						NA
11/23/21	8	0	600	2.08	146	6.31	19.27	18.3	2.61E-07	1.043	2.72E-07	*			REMARK	<s< td=""><td></td></s<>	
11/23/21	8	10	600	2.09	14	7.01	19.36	18.3	2.61E-07	1.043	2.72E-07	*	Bottom	Half of the m	nold was used	d for testing.	
11/23/21	8	20	600	2.08	146	6.31	19.27	18.3	2.61E-07	1.043	2.72E-07	*					
11/23/21	8	30	600	2.09	14	7.01	19.36	18.3	2.61E-07	1.043	2.72E-07	*					
					F	Reported	Average H	lydraulic Cor	nductivity*		2.7E-07	cm/sec					
Flow pump	ID #	10)43		Balance	ID #	1035/1036		Differential F	Pressure N	/leter ID #			1044/1048			
Thermomet	er ID #	796	/985		Oven ID	#	496/758		Board Press	sure Meter	ID #			290			
Syringe ID #	<i>‡</i>	10)47	J					Pore Pressu	ire Meter	D #			216			
*Constant Rate	of Flow Svs	tem (Flow Pu	mp with Calib	orated Syringe	for Inflow a	and Calibrat	ted Graduated	d Pipette for outfl	ow) is capable to	maintain a d	constant rate of inf	low & outflow	through the	e fullv saturated s	ample with accur	racv +/-5%. Flow Pun	np Rate isused for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
,	re st	Engine	ERING	Phone: 770-	938-8233				Tested By	KP/IH
		Sou	Entrito	Eov: 770.020			\sim		Dete	11/04/01
	\bigtriangleup	TESTS I	IC	Fax. 770-923			SHO		Date Checked Du	11/24/21
Client Pr #	ſ	1 ES15,1	200016	Web. <u>www.te</u>	est-lic.com	ACC	REDITED		21136-02-5	20
Pr Name			Z000 10 Time Oil Termi	inal			S Type	Mold	Denth/Flev	
Sample ID		39566/4-33		Subsample	1		L ocation	Wold	Seattle, WA	
Add. Info			Mixing/Mo	olding Date	10/27/	21		Curing A	ge, Days	28
	A STM I	1622. Stands	and Tost Mot	rade for Com	nrossivo St	ronath	of Moldod S	ail Comont C	vlindors	
	ASIMI	71055. Stanua	aru rest wien	ious ior Com	ipi essive si	rengtn	of Molded S	on-cement C	ymuers	
				METHOD	В]			
		- •								
Initial Height	SAMPLE DA	A	5 618	1	Mass of M	Vot Sar	mple and Ta		1486.4	
Initial Diame	ter in		2 979		Mass of D	rv San	nple and Tar	ге, у ге п	1188.5	
Height-to-Di	ameter Ratio		1.89	1	Mass of T	are. a		c, g	305.7	
Area in ²			6.97	1	Moisture	%			33.7	
Volume in^3			20.16	1	moisture,	/0			55.7	
Mass of Sar	nnle a		1181 7	1						
Wet Density	npie, g		115.0							
Dry Density	pcf		85.9	1						
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.89	1						
				TEST	F DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID :	# 758/496	
Maximum Lo	oad at Failure.	bf			180	7	ו			
	,	2						Failure Code	e 3	
Specimen C	ross-sectional	Area, in ²			6.97	7				
Compressiv	e Strength at F	allure, psi	- Defie		259)				
Conversion	Factor for Heig	nt to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure, psi		259				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	rection p	per ASTM C42	2)		
	r		DESCI	RIPTION				1		
								F . 1 T		
								Fallure Type	Cone and S	hear
	<u></u>	U	ISCS (ASTM	D2487: D24	188)			1		
			-]					
			REM	IARKS						
								1		
								J		

		t		TIME	LY	1874 For	ge Street Tu	cker, GA 300	84								
	T.E.	I <u>st</u>		Engin	NEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KI	Р
		X		Soil		Fax: 770-	923-8973					-			Date	11/24/2	21
				TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED]			Checked By	18	,
Client Pr. #					200016					Lab. PR. #				21136-02-5			
Pr. Name					Time Oil Ter	minal				S. Type	Mc	old	Depth/	Elevation		-	
Sample ID			39566	/4-33		Subs	ample ID	2		Location				Seattle, WA			
Add. Info		-		М	ixing/Molding D	ate		10/27/21				Curin	ng Age, Days			28	
				ASTM D	5084; Stand	ard Test I	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us			
					Materials	Using a F	lexible Wal	I Permeam	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
l li	nitial Sar	mple Dat	a (Befor	e Test)			Test Dat	а					Final Data	(After Test)			
Height		2.958	in	7.51	cm Speed			10						_			
Diameter		2.969	in	7.54	m Board N	lumber		3		Average Heig	ght of Sam	ole	2.959	in	7.52 cm		
Area		6.92	in ²	44.67	cm ² Cell Nu	mber		37		Average Diar	meter of Sa	mple	2.970	in	7.54 cm		
Volume		335.59	cm³	0.0119	t ³ Flow Pu	Imp Numbe	r	2B		Area	6.93	in ²	44.70	cm ²			1
Mass		616.2	g	1.36	b Flow Pu	Imp Rate*		2.24E-04	cm³/sec	Volume	335.93	cm³	0.0119	ft°	Dry Density	85.5	pcf
Specific Gra	c Gravity 2.700 (Assumed) nsity 85.6 pcf			d)	B - Valu	le		0.95		Mass	625.5	g	1.38	lb	Vol. of Voids	165.38	cm [°]
Dry Density	ensity 85.6 pcf				Cell Pre	ssure		95.0	psi						Vol. of Solids	1/0.55	cm
	Moisture Content				Back Pi	essure		90.0	psi		Moi	isturo Cr	ontont		Void Ratio	0.97	0/
Mass of wo	Moisture Content]_	Commin	ig (Ellective	e) Pressure	5.U 166 71	psi	Mass of work	iviu sampla & tr		705.5	٦	Saturation	99.8	70
Mass of dry	Moisture Content of wet sample & tare 616.2 g			9	Min He	au ad		166.00	cm	Mass of dry s	sample & ta		540.5	9			
Mass of tare	e sampie a	(tare	0.0	9 a	Maximu	m Gradient		22.18	Cill	Mass of tare			80.1	9 a			
% Moisture			33.8	Ĭ	Minimu	m Gradient		22.09		% Moisture			35.8	Ĭ			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Wate	er Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPT	ION			
11/24/21	9	40	-	2.37	166.71	22.18	18.3	-	-	-		NA				JSCS	
11/24/21	9	50	600	2.36	166.00	22.09	18.3	2.26E-07	1.043	2.36E-07					(ASTM	D2487;2488)	-
11/24/21	10	0	600	2.37	166.71	22.18	18.3	2.26E-07	1.043	2.36E-07						NA	
11/24/21	10	10	600	2.36	166.00	22.09	18.3	2.26E-07	1.043	2.36E-07	*			REMARK	S		
11/24/21	10	20	600	2.36	166.00	22.09	18.3	2.27E-07	1.043	2.37E-07	*	Bottom	Half of the m	nold was used	d for testing.		
11/24/21	10	30	600	2.37	166.71	22.18	18.3	2.26E-07	1.043	2.36E-07	*						
11/24/21	10	40	600	2.36	166.00	22.09	18.3	2.26E-07	1.043	2.36E-07	*						
				-	Reporte	d Average I	Hydraulic Cor	nductivity*		2.4E-07	cm/sec						
Flow pump	ID #	24	44		Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587				
Thermomet	er ID #	796	6/985		Oven ID #	496/758		Board Press	sure Meter	ID#			1041				
Syringe ID #	ŧ	24	46	J				Pore Pressu	ire Meter	ID #			26/27				
*Constant Rate	of Flow Svs	tem (Flow Pu	imp with Calil	brated Svringe	for Inflow and Calib	rated Graduate	d Pipette for outf	low) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated s	ample with accura	acv +/-5%. Flow Pu	no Rate isused	d for

Г	Ŷ	TIMELY	7	1874 Forge S	Street Tucke	r, GA 3	0084			
I,	r.e. st.	Engine	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		SOIL		Fax: 770-923	8-8973	\sim	\sim		Date	11/25/21
L	\bigtriangleup	TESTS.	LLC	Web: www.te	est-llc.com	AA	SHID		Checked By	11120121
Client Pr. #		,	200016			ACC	Lab. PR. #		21136-02-5	_
Pr. Name			Time Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39567/4-42		Subsample	1		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	10/28/2	21		Curing	Age, Days	28
	ASTM D) 1633: Stand	ard Test Metl	nods for Com	pressive Str	ength	of Molded So	oil-Cement (Cylinders	
				METHOD	В					
Initial Height Initial Diame Height-to-Di Area, in ² Volume, in ³ Mass of Sar Wet Density Dry Density, Machine Sp Strain rate, 6	SAMPLE DAT t, in eter, in ameter Ratio nple, g t, pcf pcf eed, in/min % / min	ΓA	5.589 2.975 1.88 6.95 38.85 1191.4 116.8 89.5 0.050 0.89		WATER C Mass of W Mass of Dr Mass of Ta Moisture, 9	ONTE ry Sam are, g %	NT DETERN nple and Tar	/IINATION re, g e, g	1492.6 1214.8 303.4 30.5	
				TEST	DATA					
				-						
	Load Cell ID # Compression Balance ID #	[£] Device ID #	11/1015 10/1014 1036/1037				Digita Readou	al Caliper ID ut Device ID Oven ID) # 17/583) # 10/1016) # 758/496	
Maximum Lo	oad at Failure, I	lbf			629			Failure Co	de 3	
Specimen C Compressiv	ross-sectional e Strength at F	Area, in ² ailure, psi			6.95 90					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00					
Reported C	ompressive S	trength at Fa	ailure, psi		90				Failure Sket	ch
Note 2: * - A c	conversion factor	based on H/D	DESC (C.F9	08 as 100% al RIPTION	nd add. corre	ction p	er ASTM C42)		
								Failure Typ	De: Cope and S	hear
		ι	JSCS (ASTM	D2487: D24	88)			I		
					J					
			REM	IARKS				1		
L										

		1		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		\times		Soil		Fax: 770-	923-8973								Date	11/25/21
				TESTS	, LLC	Web: ww	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			2'	1136-02-5		•
Pr. Name					Time Oil Term	ninal				S. Type	Mol	d	Depth/Ele	vation		-
Sample ID			39567	/4-42		Subs	ample ID	2		Location			Se	eattle, WA		
Add. Info		-		Mix	ting/Molding Da	ite		10/28/21]		Curing	Age, Days			28
				ASTM D	5084; Standa	ard Test I	Method for	Measurem	ent of H	ydraulic Cor	nductivity	of Satura	ated Porous	6		
					Materials I	Jsing a F	lexible Wal	l Permeam	eter (Me	thod D, Con	stant Rate	e of Flow	()			
In	itial Sar	nple Dat	a (Before	e Test)			Test Data	a				Fi	inal Data (A	fter Test)		
Height		2.958	in	7.51 c	m Speed			9				_				
Diameter		2.959	in	7.52 c	m Board N	umber		4		Average Heig	ht of Samp	le	2.959 in		7.52 cm	
Area		6.88	in ²	44.37 C	m [∠] Cell Num	nber		15		Average Diar	neter of Sar	nple	2.960 in	2	7.52 cm	
Volume		333.33	cm	0.0118 ft	[°] Flow Pur	np Numbe	r	4A	2	Area	6.88	in ²	44.40 cr	n ⁻		
Mass		624.8	g	1.38 lb	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	333.67	cm°	0.0118 ft°	, ,	Dry Density	89.7 pcf
Specific Gra	c Gravity 2.700 (Assumed) nsity 89.8 pcf				B - Value	9		0.95		Mass	635.9	g	1.40 lb		Vol. of Voids	155.99 cm [°]
Dry Density	ensity 89.8 pcf				Cell Pres	sure		95.0	psi						Vol. of Solids	177.69 cm ⁻
	ensity 89.8 pcf Moisture Content				Back Pre	essure		90.0	psi		Moir	stura Con	tant		Void Ratio	0.88
Mass of wat	Moisture Content					g (Enective	e) Pressure	5.0	psi	Mass of wat	IVIUS				Saturation	100.1 %
Mass of dry	Moisture Content of wet sample & tare 624.8 g of dry sample & tare 479.6 g				Min Hea	4		14.77	cm	Mass of dry s	ample & la		709.4 y			
Mass of tare		alare	0.0	9	Maximur	u n Gradient		1 97	CIII	Mass of tare		C	73.7 g			
% Moisture			30.3	5	Minimum	Gradient		1.87		% Moisture			32.5			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: De	eaired Water L	Jsed for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (^o C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	N		
11/25/21	5	30	-	0.20	14.07	1.87	18.8	-	-	-		NA			ι	JSCS
11/25/21	5	40	600	0.20	14.07	1.87	18.8	5.39E-06	1.030	5.55E-06					(ASTM	D2487;2488)
11/25/21	5	50	600	0.21	14.77	1.97	18.8	5.26E-06	1.030	5.42E-06						NA
11/25/21	6	0	600	0.21	14.77	1.97	18.8	5.13E-06	1.030	5.29E-06	*			REMARK	S	
11/25/21	6	10	600	0.20	14.07	1.87	18.8	5.26E-06	1.030	5.42E-06	*	Bottom H	lalf of the mole	d was used	for testing.	
11/25/21	6	20	600	0.20	14.07	1.87	18.8	5.39E-06	1.030	5.55E-06	*					
11/25/21	6	30	600	0.20	14.07	1.87	18.8	5.39E-06	1.030	5.55E-06	*					
				_	Reported	Average	Hydraulic Cor	nductivity*		5.5E-06	cm/sec	_				
Flow pump I	D #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048			
Thermomete	er ID #	796	/985	С	ven ID #	496/758		Board Press	sure Mete	r ID#			1041			
Syringe ID #	ŧ	10)47	J				Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate	of Flow Syst	tem (Flow Pu	imp with Calil	brated Syringe f	or Inflow and Calibr	ated Graduate	ed Pipette for out	flow) is capable t	o maintain a	constant rate of in	flow & outflow	through the f	fully saturated sam	nple with accur	racy +/-5%. Flow Pu	Imp Rate isused for

Г	Ť	TIMELY	[1874 Forge S	Street Tucke	r, GA 3	0084			
,	ÉEL ST.	ENGINE	EERING	Phone: 770-9	938-8233				Tested Bv	KP/IH
		SOIL		Fax: 770-923	3-8973	\sim	\sim		Date	11/26/21
L	\bigtriangleup	TESTS. I		Web: www.te	est-llc.com	AA	SHID		Checked By	18
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-4	
Pr. Name			Time Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39568/4-32		Subsample	1		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	10/29/2	21		Curing	Age, Days	28
	ASTM D) 1633: Stand	ard Test Metl	ods for Com	pressive Str	ength	of Molded So	oil-Cement (Cylinders	
				METHOD	В					
Initial Height Initial Diame Height-to-Dia	SAMPLE DAT t, in ter, in ameter Ratio	Ā	5.558 2.948 1.89		WATER C Mass of W Mass of Dr Mass of Ta	ONTE et Sar y Sarr are, g	NT DETERN nple and Tar nple and Tar	fination ^r e, g e, g	1444.2 1152.3 283.2	
Area, in ² Volume, in ³ Mass of San Wet Density Dry Density, Machine Spo Strain rate, S	nple, g , pcf pcf eed, in/min % / min		6.83 37.94 1163.0 116.8 87.4 0.050 0.90		Moisture, 9	%			33.6	
				TEST	DATA					
	Load Cell ID # Compression Balance ID #	؛ Device ID #	11/1015 10/1014 1036/1037]			Digita Readou	al Caliper ID ut Device ID Oven ID	0 # 17/583 0 # 10/1016 0 # 758/496	
Maximum Lo	oad at Failure, I	bf			236			Failure Coo	de 3	
Specimen C Compressive	ross-sectional e Strength at F	Area, in ² ailure, psi			6.83 35					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00				_	
Reported C Note 2: * - A c	ompressive Si conversion factor	trength at Fa based on H/D	ailure, psi =1.15 (C.F9 DESC	08 as 100% al RIPTION	35 nd add. corre	ction p	er ASTM C42)	Failure Sketo	ch
								Failure Typ	De:	boar
	L	ι	JSCS (ASTM	D2487: D24	188)			l		πσαι
			REM	IARKS	-					

		t		TIMEI	LΥ	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-		Date	11/26/21
				Tests	, LLC	Web: ww	w.test-llc.com	<u>1</u>						Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-4		
Pr. Name					Time Oil Term	ninal				S. Type	Mol	ld Depth	Elevation		-
Sample ID			39568	/4-32		Subs	ample ID	2		Location		•	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	ate		10/29/21]		Curing Age, Days			28
				ASTM D	5084; Standa	ard Test I	Method for	Measurem	ent of H	vdraulic Cor	nductivity	of Saturated Por	ous		
					Materials I	Jsing a F	lexible Wal	I Permeam	eter (Me	thod D, Con	stant Rate	e of Flow)			
Ir	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a				Final Data	(After Test))	
Height		2.991	in	7.60 c	m Speed			8	1						
Diameter		2.946	in	7.48 c	m Board N	umber		7		Average Heig	ght of Samp	le 2.991	in	7.60 cm	
Area		6.82	in ²	43.98 c	m ² Cell Nun	nber		37		Average Diar	neter of Sar	mple 2.947	in	7.49 cm	
Volume		334.10	cm ³	0.0118 f	³ Flow Pur	mp Numbe	r	4B		Area	6.82	in ² 44.01	cm ²		
Mass		619.3	g	1.37 II	Flow Pur	mp Rate*		8.96E-04	cm ³ /sec	Volume	334.32	cm ³ 0.0118	ft ³	Dry Density	86.7 pcf
Specific Gra	c Gravity 2.700 (Assumed) nsity 86.7 pcf			d)	B - Value	Э		0.95		Mass	627.8	g 1.38	lb	Vol. of Voids	162.27 cm ³
Dry Density	ensity 86.7 pcf				Cell Pres	ssure		95.0	psi					Vol. of Solids	172.05 cm ³
	ensity <u>86.7</u> pct Moisture Content				Back Pre	essure		90.0	psi					Void Ratio	0.94
	Moisture Content			7	Confinin	g (Effective	e) Pressure	5.0	psi		Mois	sture Content	-	Saturation	100.6 %
Mass of wet	Moisture Content of wet sample & tare 619.3 g of dry sample & tare 464.4 g			g	Max Hea	ad		27.43	cm	Mass of wet	sample & ta	re 710.3	g		
Mass of dry	Moisture Content of wet sample & tare 619.3 g of dry sample & tare 464.4 g			g	Min Hea	d O II I		26.73	cm	Mass of dry s	sample & tar	re 547.1	g		
Mass of tare	9		0.0	g	Maximur	n Gradient		3.61	4			82.7	g		
	FUNCT		33.4	DEADING	Minimum	Gradient	Taman	3.52 DEDME				30.1	an l la sal fan Da		
				READING	reau (cm)	Gradient	Temp.						EF USED for PE	ermeability rest	
11/26/21		5	(360)	0.39	26.73	3.52	18.5		IX _T	@ 20 0		NA	IION],	1808
11/20/21	9	15	600	0.30	20.73	3.61	18.5	- 5 71E 06	- 1 039	- 5.03E.06				(ASTM	D2487·2488)
11/26/21	9	25	600	0.39	27.43	3.61	18.5	5.64E-06	1.038	5.85E-06				(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	NA
11/26/21	9	35	600	0.38	26.73	3.52	18.5	5.71E-06	1.038	5.93E-06	*		REMARK	s <u> </u>	
11/26/21	9	45	600	0.38	26.73	3.52	18.5	5.79E-06	1.038	6.01E-06	*	Bottom Half of the r	nold was used	for testing.	
11/26/21	9	55	600	0.39	27.43	3.61	18.5	5.71E-06	1.038	5.93E-06	*				
11/26/21	10	5	600	0.38	26.73	3.52	18.5	5.71E-06	1.038	5.93E-06	*				
	<u>8</u>				Reported	d Average	Hydraulic Cor	nductivity*		5.9E-06	cm/sec				
Flow pump	ID #	10)43] E	alance ID #	1035/1036		Differential I	Pressure	Meter ID #	•	1045/1049)		
Thermomet	er ID #	796	/985] (ven ID #	496/758		Board Press	sure Mete	r ID#		290]		
Syringe ID #	ŧ	10)46]			-	Pore Pressu	ure Meter	ID #		216			
*Constant Rate	of Flow Syst	tem (Flow Pu	imp with Cali	brated Syringe	for Inflow and Calibr	ated Graduate	ed Pipette for out	flow) is capable t	to maintain a	constant rate of ir	flow & outflow	through the fully saturated	sample with accu	ıracy +/-5%. Flow Ρι	Imp Rate isused for

	•	TIMELY	(1874 Forge S	Street Tucke	er, GA 3	0084			
,	ÉE ST	Engine	EERING	Phone: 770-9	938-8233				Tested By	KP/IH
		Sou		Fax: 770-023	2-8073	\sim	\sim		Date	11/27/21
	${ \bigtriangleup }$	TESTS 1		Wob: www.to		AA	SHO		Chaokod By	11/2//21
Client Pr #		112313,1	200016		<u>51-110.00111</u>	ACC	lah PR #		21136-02-4	-0
Pr. Name			Time Oil Term	inal			S. Type	Mold	Depth/Elev.	_
Sample ID		39569/4-31		Subsample	1		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	10/30/2	21		Curing	Age, Days	28
	Δ.	1633. Stand	ard Test Met	ods for Com	nressive Sti	rength	of Molded So	il-Cement (vlinders	
		rooo. Stanu	aru reşt meti	ious ioi com		engen		m-cement c	-ymuers	
				METHOD	В					
Initial Height Initial Diame Height-to-Dia Area, in ² Volume, in ³ Mass of San Wet Density Dry Density, Machine Spo Strain rate, S	SAMPLE DAT ter, in ameter Ratio nple, g , pcf pcf eed, in/min % / min	Ā	5.669 2.965 1.91 6.90 39.14 1207.5 117.5 89.3 0.050 0.88		WATER C Mass of W Mass of D Mass of Ta Moisture, ⁴	CONTE /et Sar ry Sam are, g %	NT DETERN nple and Tar nple and Tar	fination re, g e, g	1480.1 1190.7 275.0 31.6	
				TEST	DATA					
				_						
	Load Cell ID # Compression Balance ID #	E Device ID #	11/1015 10/1014 1036/1037				Digita Readou	al Caliper ID ut Device ID Oven ID	# 17/583 # 10/1016 # 758/496	
Maximum Lo	oad at Failure,	bf			923			Failure Coo	de 3	
Specimen C Compressive	ross-sectional e Strength at F	Area, in ² ailure, psi ht to Diamate	or Dotio		6.90 134)				
					1.00)				. 1.
Reported C	ompressive S	trength at Fa	allure, psi		134					cn
Note 2: * - A c	conversion factor	based on H/D	09 (C.F.=0 DESC	08 as 100% a. RIPTION	nd add. corre	ection p	er ASTM C42)		
				-				Failure Typ	e:	hear
		ι	JSCS (ASTM	D2487: D24	188)			I		
]					
			RFM	IARKS						

		1		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84		$\overline{\Lambda}$					
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		\times		Soil		Fax: 770-	923-8973								Date	11/27/21
				TESTS	, LLC	Web: ww	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			2113	36-02-4		•
Pr. Name					Time Oil Term	inal				S. Type	Mol	d	Depth/Elevat	tion		-
Sample ID			39569	/4-31		Subs	ample ID	2		Location			Seat	tle, WA		
Add. Info		-		Mix	ting/Molding Da	te		10/30/21]		Curing A	Age, Days			28
				ASTM D	5084; Standa	ard Test I	Method for	Measurem	ent of H	ydraulic Cor	nductivity	of Satura	ted Porous			
			<i>(</i>) <i>(</i>	- 0	Materials (Jsing a F		I Permeam	eter (Me	thod D, Con	stant Rate	e of Flow))			
In	iitial Sar	nple Dat	a (Before	e lest)			Test Data	a	1			Fir	nal Data (Afte	r lest)		
Height		2.932	in	7.45 C	m Speed			8				. –		г	7.45	
Diameter		2.952	in in ²	7.50 C	m Board Nu	umber		8		Average Heig	int of Sampl		2.933 in	-	7.45 cm	
Nolumo		0.04	cm ³	44.10 C	³ Elow Dur		r	37		Average Diar		lin ²	2.955 III	L	7.50 Cm	
Mass		622.8	a	1.37	Flow Pur	np Numbe nn Rate*	I	8 96F-04	cm ³ /sec	Volume	329.18	cm ³	0.0116 ft ³		Dry Density	89.8 ncf
Specific Gra	ic Gravity 2.700 (Assumed) ensity 89.8 pcf				B - Value			0.95		Mass	633.5	a	1.40 lb		Vol. of Voids	153.75 cm ³
Drv Density	ic Gravity 2.700 (Assumed) ensity 89.8 pcf				Cell Pres	sure		95.0	psi		00010	<u> </u>			Vol. of Solids	175.43 cm ³
· · · · · · · · · · · · · · · · · · ·	ensity 89.8 pcf Moisture Content				Back Pre	essure		90.0	psi						Void Ratio	0.88
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Conte	ent		Saturation	104.0 %
Mass of wet	Moisture Content of wet sample & tare 622.8 g of drug ample & tare 473.5 g				Max Hea	d		92.15	cm	Mass of wet s	sample & tai	re	715.9 g			
Mass of dry	Moisture Content of wet sample & tare 622.8 g of dry sample & tare 473.5 g of tare 0.0 g				Min Hea	d		91.44	cm	Mass of dry s	ample & tar	e	556.1 g			
Mass of tare	;		0.0	g	Maximur	n Gradient		12.37		Mass of tare			82.6 g			
% Moisture			31.5		Minimum	Gradient		12.27		% Moisture			33.7			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: Dea	aired Water Use	ed for Pe	rmeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
11/26/21	9	5	-	1.31	92.15	12.37	18.5	-	-	-		NA			ι	JSCS
11/26/21	9	15	600	1.30	91.44	12.27	18.5	1.65E-06	1.038	1.71E-06					(ASTM	D2487;2488)
11/26/21	9	25	600	1.31	92.15	12.37	18.5	1.65E-06	1.038	1.71E-06						NA
11/26/21	9	35	600	1.31	92.15	12.37	18.5	1.64E-06	1.038	1.70E-06	*		F	REMARKS	S	
11/26/21	9	45	600	1.30	91.44	12.27	18.5	1.65E-06	1.038	1.71E-06	*	Bottom Ha	alf of the mold w	as used	for testing.	
11/26/21	9	55	600	1.31	92.15	12.37	18.5	1.65E-06	1.038	1.71E-06	*					
11/26/21	10	5	600	1.30	91.44	12.27	18.5	1.65E-06	1.038	1.71E-06	*					
				_	Reported	Average	Hydraulic Cor	nductivity*		1.7E-06	cm/sec					
Flow pump I	D #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #		1	044/1048			
Thermomete	er ID #	796	/985	С	ven ID #	496/758		Board Press	sure Mete	r ID#			290			
Syringe ID #	ŧ	10)47	J				Pore Pressu	ire Meter	ID #			216			
*Constant Rate	of Flow Syst	tem (Flow Pu	imp with Cali	brated Syringe f	or Inflow and Calibr	ated Graduate	ed Pipette for out	flow) is capable t	o maintain a	constant rate of in	flow & outflow	through the fu	Illy saturated sample	with accura	acy +/-5%. Flow Pu	Imp Rate isused for

	•	TIMELY	7	1874 Forge	Street Tuck	er, GA 3	30084			
,	ÉE ST	Engine	ERING	Phone: 770-	938-8233				Tested By	KP/IH
		Sou	Entrito	Eov: 770.020			\sim		Dete	11/20/21
	\bigtriangleup	TESTS I	LC	Fax. 770-923			SHO		Date Observed Dec	11/29/21
Client Pr #		1 E515,1	200016	web: <u>www.te</u>	est-lic.com	ACC	REDITED		21136-02-5	10
Pr Name			Z000 10 Time Oil Termi	inal			S Type	Mold	Denth/Flev	
Sample ID		39570/4-35		Subsample	1		L ocation	Mola	Seattle, WA	_
Add. Info	-		Mixing/Mo	olding Date	11/01/	21		Curing A	ge, Days	28
	A STM F	1622. Stand	and Tost Mot	rade for Com	nrossivo St	ronath	of Moldod S	ail Comont C	vlindors	
	ASIML	7 1055. Stanua	aru rest wien	ious ior Com	ipi essive si	rengtn	of Molded S	on-cement C	ymuers	
				METHOD	В]			
		F A								
Initial Height		IA	5 637	1	Mass of M	Vot Sar	mple and Ta		1517.6	
Initial Diame	ter in		2 977		Mass of D	rv San	nple and Tar	re, y re a	1241.6	
Height-to-Di	ameter Ratio		1.89	1	Mass of T	are. a		c, g	305.4	
Area in ²			6.96	1	Moisture	%			29.5	
Volume in^3			30.24	1	moisture,	70			29.5	
Mass of San	nnle a		1213.0							
Wet Density	npie, g		117.9							
Dry Density	pcf		91.0	1						
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.89							
				-						
				TEST	Γ DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	al Caliper ID ;	# 17/583	
	Compression	Device ID #	10/1014	1			Reado	ut Device ID a	# 10/1016	
	Balance ID #		1036/1037]				Oven ID #	# 758/496	
Maximum Lo	ad at Failure	lhf			113	0	ı			
						•		Failure Code	e 3	
Specimen C	ross-sectional	Area, in ²			6.96	6				
Compressive	e Strength at F	ailure, psi			162	-				
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure, psi		162	2			Failure Skete	ch
Note 2: * - A c	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	rection p	per ASTM C42	2)		
			DESCI	RIPTION				1		
								Fallure Type	Cone and S	hoar
	<u></u>	L	ISCS (ASTM	D2487: D24	188)			J		
		-	,] ´					
			REM	IARKS						
			11					1		
	-							•		

		t.		Тіме	LY		1874 Forg	ge Street Tu	cker, GA 300	84								
	T.E.	I <u>st</u>		Engi	NEER	RING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	
		\mathbf{X}		Soil			Fax: 770-9	923-8973					-			Date	11/29/21	1
				TESTS	S, LLC	2	Web: <u>www</u>	v.test-llc.com	1			REDITED)			Checked By	18	
Client Pr. #						200016					Lab. PR. #				21136-02-5		-	
Pr. Name					Time	e Oil Term	inal				S. Type	Mc	old	Depth	/Elevation		-	
Sample ID			39570	/4-35			Subsa	ample ID	2		Location				Seattle, WA	١		
Add. Info		-		M	ixing/M	olding Da	te		11/01/21				Curin	ig Age, Day	S		28	
				ASTM [0 5084:	: Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Por	ous			
					Ma	, iterials U	Jsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
Ir	nitial Sar	mple Dat	a (Befor	e Test)				Test Data	a					Final Data	ı (After Test)		
Height		2.995	in	7.61	cm	Speed			10									
Diameter		2.960	in	7.52	cm	Board Nu	ımber		7		Average Heig	ght of Sam	ole	2.996	in	7.61 cm		
Area		6.88	in²	44.40	cm ²	Cell Num	ber		2		Average Diar	meter of Sa	mple	2.961	in	7.52 cm		
Volume		337.73	cm ³	0.0119	ft ³	Flow Pun	np Number		4A		Area	6.89	in ²	44.43	cm ²			
Mass		641.0	g	1.41	lb	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	338.07	cm ³	0.0119	ft ³	Dry Density	92.0 p	cf
Specific Gra	Gravity 2.700 (Assumed) sity 91.4 pcf			d)		B - Value			0.95		Mass	657.0	g	1.45	lb	Vol. of Voids	153.49 cr	m³
Dry Density	insity 91.4 pcf					Cell Pres	sure		95.0	psi						Vol. of Solids	184.58 cr	m³
	Moisture Content					Back Pre	ssure		90.0	psi						Void Ratio	0.83	
	Moisture Content			7		Confining	(Effective) Pressure	5.0	psi		Mo	isture Co	ontent	_	Saturation	103.3 %	D
Mass of wet	Moisture Content			g		Max Hea	d		124.50	cm	Mass of wet	sample & ta	are	726.2	g			
Mass of dry	sample &	tare	494.5	g		Min Head	1		123.80	cm	Mass of dry s	sample & ta	are	568.8	g			
Mass of tare	9		0.0	g		Maximum	Gradient		16.36		Mass of tare			74.3	g			
% Moisture			29.6			Minimum	Gradient		16.27		% Moisture			31.8				
TIME	FUNCT	ION	Δt	READING	i F	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Wa	ter Used for P	ermeability Tes	t.	
DATE	HOUR	MIN	(sec)	DP, (psi)	((cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIP	TION	-		
11/29/21	7	5	-	1.77	12	24.50	16.36	18.5	-	-	-		NA				USCS	
11/29/21	7	15	600	1.76	12	23.80	16.27	18.5	3.09E-07	1.038	3.21E-07					(ASTN	1 D2487;2488)	
11/29/21	7	25	600	1.77	12	24.50	16.36	18.5	3.09E-07	1.038	3.21E-07						NA	
11/29/21	7	35	600	1.76	12	23.80	16.27	18.5	3.09E-07	1.038	3.21E-07	*			REMAR	<s< td=""><td></td><td></td></s<>		
11/29/21	7	45	600	1.77	12	24.50	16.36	18.5	3.09E-07	1.038	3.21E-07	*	Bottom	Half of the	mold was use	d for testing.		
11/29/21	7	55	600	1.76	12	23.80	16.27	18.5	3.09E-07	1.038	3.21E-07	*						
11/29/21	8	5	600	1.77	12	24.50	16.36	18.5	3.09E-07	1.038	3.21E-07	*						
				•		Reported	Average I	Hydraulic Cor	nductivity*		3.2E-07	cm/sec						
Flow pump	ID #	10)43		Balance	e ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/104	8			
Thermomet	er ID #	796	/985		Oven IE	D #	496/758		Board Press	ure Meter	r ID #			290				
Syringe ID #	ŧ	10)47]					Pore Pressu	re Meter	ID #			216				
*Constant Rate	of Flow Syst	tem (Flow Pu	mp with Calib	orated Syringe	for Inflow	and Calibra	ted Graduated	d Pipette for outfl	ow) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated	sample with accur	racy +/-5%. Flow Pu	mp Rate isused fo	or

	•	TIMELY		1874 Forge	Street Tuck	er, GA 3	30084			
,	re st	Engine	FRING	Phone: 770-	038-8233				Tested By	KD/IH
		Sou		Faur 770 000	000-0200		\sim			14/00/04
	\bigtriangleup		1.0	Fax: 770-923	5-8973		SHID		Date	11/30/21
Client Dr. #		I ESTS, I	200016	Web: <u>www.te</u>	est-llc.com	ACC	REDITED		Checked By	10
Dr Name			2000 10 Time Oil Termi	inal			Lab. PR. #	Mold	21130-02-5 Depth/Elev	
Sample ID		39571/4-38		Subsample	1		Location	INDIG	Seattle WA	_
Add. Info			Mixing/Mo	olding Date	11/02/	21	Loodion	Curing A	Age, Days	28
		1(22, §4	 	u da fara Carr			.e.M.11.16	-il Comort C		
	ASIMI	1655: Standa	ira Test Meth	loas for Com	ipressive St	rengtn	of Molded S	oll-Cement C	ynnders	
				METHOD	В]			
Initial Haight		Α	E 002	1	WATER C	CONTE	NT DETERM		1450 1	
	tor in		2.992	-	Mass of D	vel Sal	nple and Tar	ie, y	1400.1	
	ameter Ratio		2.900	-	Mass of T	iny Sali are a	ipie anu Tai	e, y	280.0	
Area in ²			6.01	1	Moioture	are, y %			200.0	
			0.91	-	woisture,	70			33.1	
Volume, In	nnlo a		41.40	-						
Wet Density	npie, g		108.5							
Dry Density	ncf		81.2	-						
Machine Sp	eed. in/min		0.050							
Strain rate.	% / min		0.83							
,				1						
				TEST	Γ DATA					
	I oad Cell ID #	ŧ	11/1015	1			Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	•			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
				-						
Maximum Lo	oad at Failure,	lbf			427	,			-	
Specimen C	ross-sectional	Area in ²			6.91	1		Fallure Code	e 3	
Compressive	e Strength at F	ailure psi			62					
Conversion	Eactor for Heig	ht to Diamete	r Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure nsi		62	,			Failure Sket	` h
Noto 2: * A			-1.15/C = 0	08 00 100% 0	nd add cor	raction r	or ASTM CA	2)		
NOLE 2 A C	Conversion lactor	based on h/D	DFSCI	RIPTION	nu auu. con	ection		2)		
			DECO					1		
								Failure Type	K	
									Cone and S	hear
	-	U	SCS (ASTM	D2487: D24	188)			-		
			REM	IARKS						
]		

		î.		TIME	LY		1874 Forg	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		Engi	NEER	RING	Phone: 77	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	
				Soil			Fax: 770-	923-8973					-			Date	11/30/21	
				TESTS	, LLC	2	Web: <u>ww</u>	w.test-llc.com	1			REDITED)			Checked By	18	
Client Pr. #						200016					Lab. PR. #				21136-02-5		•	
Pr. Name					Time	Oil Term	inal				S. Type	Mc	ld	Depth/	Elevation		-	
Sample ID			39571	/4-38			Subsa	ample ID	2		Location				Seattle, WA	_		
Add. Info		-		М	ixing/Mo	olding Da	te		11/02/21		J		Curin	ig Age, Days			28	
				ASTM [5084	; Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us			
					Ma	terials U	Jsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)				
Ir	nitial Sar	nple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)			
Height		2.969	in	7.54	cm	Speed			10	1								
Diameter		2.957	in	7.51	cm	Board Nu	ımber		7		Average Heig	ght of Sam	ole	2.970	in	7.54 cm		
Area		6.87	in ²	44.31	cm ²	Cell Num	ber		15		Average Dia	meter of Sa	mple	2.958	in	7.51 cm		
Volume		334.12	cm ³	0.0118	ft ³	Flow Pun	np Number		3A		Area	6.87	in ²	44.34	cm ²			
Mass		620.1	g	1.37	lb	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	334.46	cm ³	0.0118	ft ³	Dry Density	86.8 pct	;f
Specific Gra	avity	2.700	(Assume	d)		B - Value			0.95		Mass	625.7	g	1.38	lb	Vol. of Voids	162.07 cm	u ₃
Dry Density		86.9	pcf			Cell Pres	sure		95.0	psi						Vol. of Solids	172.39 cm	n°
						Back Pre	ssure		90.0	psi						Void Ratio	0.94	
	Mois	ture Cont	ent	1		Confining	(Effective) Pressure	5.0	psi		MO	sture Co	ontent	1	Saturation	98.9 %	
Mass of wet	sample 8	tare	620.1	g		Max Hea	d		47.13	cm	Mass of wet	sample & ta	are	699.8	g			
Mass of dry	sample &	tare	465.3	g		Maximur	1 Cradiant		45.72	cm	Mass of dry s	sample & ta	re	539.6	g			
% Moisture	5		33.3	9		Minimum	Gradient		6.06		% Moisture			34.4	9			
TIME	FUNCT	ION	Δt	READING		lead	Gradient	Temp.	PFRMF	ABILITY	(cm/sec)		Note: [Deaired Wate	r Used for Pe	ermeability Test		
DATE	HOUR	MIN	(sec)	DP. (psi)	((cm)		T _v (°C)	@ T _v	RT	@ 20 °C			DESCRIPT	ION		-	
11/30/21	7	5	-	0.66	4	6.42	6.15	18.8	-	-	-		NA] ι	JSCS	
11/30/21	7	15	600	0.65	4	5.72	6.06	18.8	8.27E-07	1.030	8.52E-07	1				(ASTM	D2487;2488)	
11/30/21	7	25	600	0.67	4	7.13	6.25	18.8	8.21E-07	1.030	8.46E-07						NA	
11/30/21	7	35	600	0.66	4	6.42	6.15	18.8	8.15E-07	1.030	8.40E-07	*			REMARK	s		
11/30/21	7	45	600	0.66	4	6.42	6.15	18.8	8.21E-07	1.030	8.46E-07	*	Bottom	Half of the m	old was used	for testing.		
11/30/21	7	55	600	0.65	4	5.72	6.06	18.8	8.27E-07	1.030	8.52E-07	*						
11/30/21	8	5	600	0.66	4	6.42	6.15	18.8	8.27E-07	1.030	8.52E-07	*						
				-		Reported	Average H	Hydraulic Cor	nductivity*		8.5E-07	cm/sec						
Flow pump	ID #	4	75		Balance	e ID #	1035/1036		Differential F	Pressure I	Meter ID #			469				
Thermomet	er ID #	796	/985		Oven IE) #	496/758		Board Press	ure Meter	ID#			290				
Syringe ID #	ŧ	4	91	J					Pore Pressu	re Meter	ID #			216	J			
*Constant Pata	of Flow Svet	em (Flow Pu	mp with Calik	vrated Svringe	for Inflow	and Calibra	ted Graduater	Dipatta for outfl	ow) is canable to	maintain a (constant rate of inf	low & outflow	through the	fully enturated e	ample with accura	nov +/ 5% Flow Pur	on Pate isused for	r

	Ť	TIMELY		1874 Forge	Street Tuck	er, GA 3	30084			
,	re st	Engine	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		Sou		Fax: 770-923	3-8973		\sim		Date	11/12/21
L	\bigtriangleup	TESTS I	LC	Web: www.te	est-llc.com	AA	с на		Checked By	18
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-5	
Pr. Name		1	Time Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID	39	572/4-73 Re-M	ix	Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	11/02/	21		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive St	rength	of Molded S	oil-Cement C	ylinders	
				METHOD	- B	0			•	
				WETHOD	В					
	SAMPLE DAT	Γ A		-	WATER C	ONTE	NT DETER	VINATION		
Initial Height	t, in		5.645		Mass of V	/et Sar	mple and Ta	re, g	1483.3	
Initial Diame	eter, in		2.961		Mass of D	ry San	ple and Tar	e, g	1153.5	
Height-to-Di	ameter Ratio		1.91	4	Mass of T	are, g			359.7	
Area, in [∠]			6.89		Moisture,	%			41.5	
Volume, in ³			38.87							
Mass of Sar	nple, g		1125.2							
Wet Density	, pcf		110.3							
Dry Density,	pcf		77.9	4						
Machine Sp	eed, in/min		0.050	4						
Strain rate, S	% / min		0.89]						
				TEST	Γ DATA					
	I oad Cell ID #	ŧ	11/1015	1			Digit	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			273					
Specimen C	ross-sectional	Area, in ²			6.89	9		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			40					
Conversion	Factor for Heig	ht to Diamete	r Ratio		1.00)				
Reported C	ompressive S	trength at Fa	ilure, psi		40				Failure Sketo	ch
Note 2: * - A d	conversion factor	based on H/D	=1.15 (C.F9	08 as 100% a	nd add. corr	ection p	per ASTM C42	2)		
			DESC	RIPTION				1		
									Cone and S	hear
	μ	U	SCS (ASTM	D2487: D24	<u>1</u> 88)			1		
					J					
			REM	IARKS				_		
	ļ							1		

	Ť	TIMELY	7	1874 Forge	Street Tucke	r, GA 3	30084			
,	re st	Engine	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		Sou		Fax: 770-923	3-8973	\sim	\sim		Date	11/30/21
L	\bigtriangleup	TESTS I	LC	Web: www.te	est-lic.com	AA	с на		Checked By	11/00/21
Client Pr. #		12010,1	200016			ACC	Lab. PR. #		21136-02-5	
Pr. Name		٦	Fime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID	39	572/4-73 Re-M	ix	Subsample	2		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	11/02/2	21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	ard Test Metl	hods for Com	pressive Str	ength	of Molded S	oil-Cement C	ylinders	
				METHOD	B					
				METHOD						
	SAMPLE DAT	ΓA		-	WATER C	ONTE	NT DETER	MINATION		
Initial Height	t, in		5.600	_	Mass of W	et Sar	nple and Ta	re, g	1395.9	
Initial Diame	eter, in		2.962	-	Mass of Di	ry San	nple and Tar	re, g	1067.0	
rieignt-to-Di	ameter Ratio		1.89	-	IVIASS OF 1	are, g			280.9	
Area, in ⁻			6.89	_	Moisture, 9	%			41.8	
Volume, in ³			38.59	4						
Mass of Sar	nple, g		1116.7	-						
Dry Donoity	, pcr		77.7	_						
Machine Sn	pci eed in/min		0.050	-						
Strain rate.	% / min		0.89	-						
0.1.0.1.0.00,	, , , , , , , , , , , , , , , , , , , ,		0.00	1						
				TEST	T DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			680					
Specimen C	ross-sectional	Area in ²			6.89			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			99					
Conversion	Factor for Heig	ht to Diamete	er Ratio		1.00					
Reported C	ompressive S	trength at Fa	ilure, psi		99				Failure Skete	ch
Note 2: * _ A	conversion factor	based on H/D	=1 15 (C F - 0	08 as 100% a	nd add corre	ection r	er ASTM C4	2)		
1010 2. 110			DESC	RIPTION				-/		
								Failure Type	e:	
		1		D2487 · D2/	188)			J	Cone and S	near
]					
			RFM	IARKS						
]		
								J		

		1		Тіме	LY		1874 Forg	je Street Tu	cker, GA 300	84							
	T.E.	I <u>st</u>		Engi	NEER	ING	Phone: 77	0-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
		\mathbf{X}		Soil			Fax: 770-9	923-8973					-			Date	11/12/21
				TESTS	S, LLC		Web: www	v.test-llc.com	1			REDITED)			Checked By	1B
Client Pr. #					2	200016					Lab. PR. #				21136-02-5		•
Pr. Name					Time (Oil Termi	inal				S. Type	Mc	old	Depth/I	Elevation		-
Sample ID		:	39572/4-7	3 Re-Mix			Subsa	ample ID	3		Location				Seattle, WA	l l	
Add. Info		-		M	lixing/Mo	lding Dat	te		11/02/21		J		Curin	g Age, Days			10
				ASTM [D 5084;	Standa	rd Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us		
					Mate	erials U	lsing a Fl	exible Wal	l Permeame	eter (Me	thod D, Con	stant Rat	e of Flo	w)			
Ir	nitial Sar	mple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test))	
Height		3.016	in	7.66	cm S	Speed			10]							
Diameter		2.966	in	7.53	cm E	Board Nu	mber		3	1	Average Heig	ght of Sam	ole	3.017	in	7.66 cm	
Area		6.91	in ²	44.58	cm ² C	Cell Num	ber		41		Average Diar	meter of Sa	mple	2.967	in	7.54 cm	
Volume		341.48	cm ³	0.0121	ft ³ F	low Pum	np Number		2A		Area	6.91	in ²	44.61	cm ²		<u></u>
Mass		596.9	g	1.32	lb F	low Pum	np Rate*		2.24E-04	cm ³ /sec	Volume	341.82	cm ³	0.0121	ft ³	Dry Density	77.0 pcf
Specific Gra	avity	2.700	(Assume	d)	E	3 - Value			0.95		Mass	604.7	g	1.33	lb	Vol. of Voids	185.61 cm ³
Dry Density		77.1	pcf		C	Cell Press	sure		95.0	psi						Vol. of Solids	156.21 cm [°]
					E	Back Pres	ssure	_	90.0	psi						Void Ratio	1.19
	Mois	ture Cont	ent	ר	0	Confining	(Effective)) Pressure	5.0	psi		Mo	isture Co	ontent	٦	Saturation	98.6 %
Mass of wet	sample &	k tare	596.9	9	N	/lax Head	d		14.//	cm	Mass of wet	sample & ta	are	675.2	9		
Mass of dry	sample &	tare	421.7	9	N N	Anyimum	l Cradiant		14.07	cm	Mass of dry s	sample & ta	ire	492.3	9		
% Moisture	5		41.5	9	N	/inimum	Gradient		1.95	•	% Moisture			43.4	9		
TIME	FUNCT	ION	Δt	READING		ead	Gradient	Temp	PERME	ABILITY	(cm/sec)		Note [.] I	Deaired Wate	er Used for Pr	ermeability Test	
DATE	HOUR	MIN	(sec)	DP. (psi)	(0	cm)	oradione	T _v (°C)	@.T.	RT	@ 20 °C		11010. 1	DESCRIPT			-
11/12/21	7	5	-	0.20	14	, 1.07	1.84	20.6	-	-	-		NA] ,	JSCS
11/12/21	7	15	600	0.21	14	1.77	1.93	20.6	2.67E-06	0.986	2.63E-06	1				(ASTM	D2487;2488)
11/12/21	7	25	600	0.20	14	1.07	1.84	20.6	2.67E-06	0.986	2.63E-06						NA
11/12/21	7	35	600	0.21	14	1.77	1.93	20.6	2.67E-06	0.986	2.63E-06	*			REMARK	(S	
11/12/21	7	45	600	0.20	14	1.07	1.84	20.6	2.67E-06	0.986	2.63E-06	*	Bottom	Half of the m	old was used	d for testing.	
11/12/21	7	55	600	0.21	14	1.77	1.93	20.6	2.67E-06	0.986	2.63E-06	*					
11/12/21	8	5	600	0.20	14	1.07	1.84	20.6	2.67E-06	0.986	2.63E-06	*					
				-	F	Reported	Average H	lydraulic Cor	nductivity*		2.6E-06	cm/sec					
Flow pump	ID #	24	44		Balance	ID #	1035/1036		Differential F	Pressure I	Meter ID #			346			
Thermomete	er ID #	796	/985		Oven ID	#	496/758		Board Press	sure Meter	· ID #			1041			
Syringe ID #	ŧ	24	45	J					Pore Pressu	ire Meter	D #			26/27	J		
*Constant Rate	of Flow Svs	tem (Flow Pu	mp with Calib	orated Svringe	for Inflow a	and Calibrat	ted Graduated	Pipette for outfl	low) is capable to	maintain a c	constant rate of inf	low & outflow	through the	fully saturated saturated	ample with accur	acv +/-5%. Flow Pu	np Rate isused for

		î		TIMEI	LY	1	874 Forg	e Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERIN	G P	Phone: 77	0-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		F	ax: 770-9	923-8973								Date	11/30/21
				TESTS	, LLC	v	Veb: <u>www</u>	v.test-llc.com	<u>1</u>			ASHIC Rediter]			Checked By	18
Client Pr. #					2000	016					Lab. PR. #				21136-02-5		•
Pr. Name					Time Oil 7	Fermina	al				S. Type	Мс	old	Depth/	Elevation		-
Sample ID			39572/4-7	3 Re-Mix			Subsa	ample ID	4		Location				Seattle, WA		
Add. Info		-		Miz	king/Molding	g Date			11/02/21]		Curin	g Age, Days			28
				ASTM D	5084; Sta	ndard	d Test N	lethod for	Measureme	ent of Hy	draulic Con	ductivity	of Satu	rated Poro	us		
					Materia	als Usi	ing a Fl	exible Wal	l Permeam	eter (Me	thod D, Con	stant Rat	e of Flo	w)			
Ir	nitial Sar	mple Dat	a (Befor	e Test)				Test Data	a					Final Data	(After Test)		
Height		3.065	in	7.79 c	m Spee	ed			10	1							
Diameter		2.958	in	7.51 c	m Boar	rd Num	nber		8	1	Average Heig	ght of Sam	ple	3.066	in	7.79 cm	
Area		6.87	in ²	44.34 C	m ² Cell	Numbe	er		4		Average Diar	meter of Sa	ample	2.959	in	7.52 cm	
Volume		345.16	cm ³	0.0122 ft	³ Flow	Pump	Number		3B	1	Area	6.88	in ²	44.37	cm ²		
Mass		608.2	g	1.34 lt	Flow	Pump	Rate*		2.24E-04	cm ³ /sec	Volume	345.50	cm ³	0.0122	ft ³	Dry Density	77.8 pcf
Specific Gra	vity	2.700	(Assume	d)	B - V	/alue			0.95		Mass	616.6	g	1.36	lb	Vol. of Voids	186.06 cm ³
Dry Density		77.8	pcf		Cell	Pressu	ure		95.0	psi			-		-	Vol. of Solids	159.45 cm ³
					Back	(Press	sure		90.0	psi						Void Ratio	1.17
	Mois	ture Cont	ent	•	Cont	fining (E	Effective) Pressure	5.0	psi		Мо	isture Co	ontent	-	Saturation	100.0 %
Mass of wet	sample &	& tare	608.2	g	Max	Head			60.49	cm	Mass of wet	sample & ta	are	699.5	g		
Mass of dry	sample &	tare	430.3	g	Min	Head			59.79	cm	Mass of dry s	sample & ta	are	513.5	g		
Mass of tare	9		0.0	g	Max	imum G	Gradient		7.77		Mass of tare			83.2	g		
% Moisture			41.3		Minii	mum G	Gradient		7.68		% Moisture			43.2			
TIME	FUNCT	ION	Δt	READING	Head	I G	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Wate	er Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)			T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPT	TION	-	
11/30/21	7	5	-	0.86	60.49)	7.77	18.8	-	-	-		NA			ι ι	JSCS
11/30/21	7	15	600	0.85	59.79)	7.68	18.8	6.54E-07	1.030	6.74E-07					(ASTM	D2487;2488)
11/30/21	7	25	600	0.86	60.49)	7.77	18.8	6.54E-07	1.030	6.74E-07						NA
11/30/21	7	35	600	0.85	59.79)	7.68	18.8	6.54E-07	1.030	6.74E-07	*			REMARK	S	
11/30/21	7	45	600	0.85	59.79)	7.68	18.8	6.58E-07	1.030	6.78E-07	*	Bottom	Half of the n	nold was used	for testing.	
11/30/21	7	55	600	0.86	60.49)	7.77	18.8	6.54E-07	1.030	6.74E-07	*					
11/30/21	8	5	600	0.85	59.79)	7.68	18.8	6.54E-07	1.030	6.74E-07	*					
					Repo	orted A	verage H	lydraulic Cor	nductivity*		6.7E-07	cm/sec					
Flow pump I	ID #	4	75	В	alance ID #	# 1	1035/1036		Differential F	Pressure I	Meter ID #			262			
Thermomete	er ID #	796	/985	C	Oven ID #	4	496/758		Board Press	sure Meter	ID #			290			
Syringe ID #	ŧ	4	90]					Pore Pressu	ire Meter	D #			216			
*Constant Rate	of Flow Svs	tem (Flow Pu	mp with Calib	orated Svringe f	or Inflow and C	alibrated	d Graduated	Pipette for outfl	ow) is capable to	maintain a d	constant rate of inf	low & outflow	through the	fully saturated s	ample with accura	acv +/-5%. Flow Pur	np Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
,	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	08/24/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	ŧ	21136-02-1	
Pr. Name		Т	ime Oil Term	inal	-	S. Туре	e Mold	Depth/Elev.	-
Sample ID		38586/2-42		Subsample	1	Location	1	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/18/21		Curing A	Age, Days	6
	ASTM E) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		ГА					ΜΙΝΑΤΙΟΝ		
Initial Height	in		5 518	7	Mass of Wet	Sample and Ta		1520.5	
Initial Diame	ter in		3 025	-	Mass of Drv S	Sample and Ta	re a	1250.4	
Height-to-Di	ameter Ratio		1.82	-	Mass of Tare	e. a	.e, g	299.1	
Area, in ²			7.19	1	Moisture. %			28.4	
Volume, in ³			39.66		,			·	
Mass of San	nple, g		1224.6	1					
Wet Density	, pcf		117.6						
Dry Density,	pcf		91.6						
Machine Sp	eed, in/min		0.050	4					
Strain rate, S	% / min		0.91						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	-		Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			411				
Specimen C	ross-sectional	Area, in ²			7.19		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			57				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		57			Failure Sket	ch
Note 2: * - A c	onversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add_correcti	on per ASTM C4	2)		
			DESC	RIPTION			_/		
							1		
							Failure Type	e:	
							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	88)				
					J				
			REM	IARKS					
							1		
							Ţ		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. [s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	08/28/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal	-	S. Type	Mold	Depth/Elev.	-
Sample ID		38586/2-42		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/18/21		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Streng	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		٢Δ			WATER CON				
Initial Heigh	t in		5,566	1	Mass of Wet	Sample and Ta	re. a	1534.7	
Initial Diame	ter. in		3.009	1	Mass of Drv S	Sample and Tar	re, a	1264.3	
Height-to-Di	ameter Ratio		1.85		Mass of Tare	, g	-, 3	305.2	
Area, in ²			7.11		Moisture, %			28.2	
Volume, in ³			39.58						
Mass of Sar	nple, g		1231.5						
Wet Density	, pcf		118.5						
Dry Density,	pcf		92.4						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.90						
				TEST	DATA				
		+	11/1015	1		Diait	al Caliner ID	# 17/583	
	Compression	- Device ID #	10/1014	-		Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037			Reado	Oven ID	# 758/496	
				1			0.000.02		
Maximum Lo	bad at Failure,	lbf			776				
Specimen C	ross-sectional	Area, in ²			7.11		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			109				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		109			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	2)		
			DESC	RIPTION			_		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	188) 1				
			REM	IARKS			_		
	L						I		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	r.e. s.r.	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/08/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38586/2-42		Subsample	3	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/18/21		Curing A	lge, Days	21
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Streng	gth of Molded Se	oil-Cement C	ylinders	
				METHOD	В				
lucitical I la imbri		Α	F 400	٦	WATER CON		MINATION	45477	
Initial Height	i, in tor in		5.489	_	Mass of Wet	Sample and Ta	re, g	1517.7	
	ameter Ratio		3.014	-	Mass of Tare		e, y	298.8	
Area in ²			7.13	-	Moisture %	, g		230.0	
$\lambda i c a, in$			20.16	-	woisture, 70			20.5	
Mass of Sar	nnle a		1221 5	-					
Wet Density	npie, g		118.8	-					
Drv Density.	pcf		92.4						
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.91						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Readou	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	J			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1377				
Specimen C	ross-sectional	Area, in ²			7.13		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			193				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		193			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	2)		
			DESC	RIPTION		· · · · ·	/		
							I		
							Failure Type	e:	
							51	Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
					J				
			REM	IARKS					
							Ī		
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	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/15/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com	ASHO		Checked By	18
Client Pr. #			200016			Lab. PR. #	ŧ	21136-02-1	
Pr. Name		Т	ime Oil Term	inal	-	S. Туре	e Mold	Depth/Elev.	-
Sample ID		38586/2-42		Subsample	4	Location	1	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/18/21		Curing /	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	Soil-Cement C	Cylinders	
				METHOD	В				
		TA				NTENT DETER	MINATION		
Initial Height	t, in		5.601		Mass of Wet	Sample and Ta	are, q	1547.2	
Initial Diame	eter, in		3.012		Mass of Dry	Sample and Ta	re, g	1271.8	
Height-to-Di	ameter Ratio		1.86		Mass of Tare	e, g		305.3	
Area, in ²			7.13		Moisture, %			28.5	
Volume, in ³			39.91						
Mass of Sar	nple, g		1244.0						
Wet Density	, pcf		118.7						
Dry Density,	pcf		92.4						
Machine Sp	eed, in/min		0.050						
Strain rate, S	% / MIN		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Diai	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1596				
Specimen C	ross-sectional	Area, in ²			7.13		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			224				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		224			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	2)		
			DESC	RIPTION			,		
							Τ		
							Failure Typ	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS					
							Τ		

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	08/28/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	lb
Client Pr. #					200016					Lab. PR. #			21136-0)2-1	•
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/Elevation		-
Sample ID			38586	/2-42		Subs	ample ID	5		Location			Seattle,	WA	
Add. Info		-		Miz	king/Molding Da	te		08/18/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
lı İr	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (After T	est)	
Height		3.027	in	7.69 c	m Speed			10							
Diameter		3.017	in	7.66 c	m Board Nu	umber		9		Average Hei	ght of Samp	le	3.028 in	7.69 cm	
Area		7.15	in ²	46.12 C	m ² Cell Num	ıber		13		Average Dia	meter of Sa	nple	3.018 in	7.67 cm	
Volume		354.61	cm ³	0.0125 ft	³ Flow Pur	np Numbe	r	4A		Area	7.15	in ²	46.15 cm ²		
Mass		670.0	g	1.48 lt	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	354.96	cm ³	0.0125 ft ³	Dry Density	91.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	677.6	g	1.49 lb	Vol. of Voids	162.22 cm ³
Dry Density		91.6	pcf		Cell Pres	sure		95.0	psi			-		Vol. of Solids	192.74 cm ³
			•		Back Pre	ssure		90.0	psi					Void Ratio	0.84
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent	Saturation	96.9 %
Mass of wet	t sample 8	k tare	670.0	g	Max Hea	d		36.58	cm	Mass of wet	sample & ta	re	760.2 g		
Mass of dry	sample &	tare	520.4	g	Min Head	t		35.87	cm	Mass of dry	sample & ta	е	603.0 g		
Mass of tare	Э		0.0	g	Maximun	n Gradient		4.76		Mass of tare			82.6 g		
% Moisture			28.7		Minimum	Gradient		4.66		% Moisture			30.2		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used fo	or Permeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
08/28/21	7	30	-	0.51	35.87	4.66	25.6	-	-	-		NA			USCS
08/28/21	7	40	600	0.52	36.58	4.76	25.6	1.03E-06	0.877	9.04E-07				(ASTM	1 D2487;2488)
08/28/21	7	50	600	0.51	35.87	4.66	25.6	1.03E-06	0.877	9.04E-07					NA
08/28/21	8	0	600	0.52	36.58	4.76	25.6	1.03E-06	0.877	9.04E-07	*	_	REM	IARKS	
08/28/21	8	10	600	0.52	36.58	4.76	25.6	1.02E-06	0.877	8.95E-07	*	Bottom	Half of the mold was u	used for testing.	
08/28/21	8	20	600	0.51	35.87	4.66	25.6	1.03E-06	0.877	9.04E-07	*				
08/28/21	8	30	600	0.52	36.58	4.76	25.6	1.03E-06	0.877	9.04E-07	*				
				_	Reported	Average	Hydraulic Co	nductivity*		9.0E-07	cm/sec				
Flow pump	ID #	10	43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	-		1044/1048		
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	ure Meter	· ID #			571		
Syringe ID #	#	10	47]			-	Pore Pressu	ire Meter	ID #			29		
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	mp with Cali Its at steady	brated Syringe f Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sample with gnificant upward or downwar	accuracy +/-5%. Flow Pr d trend.	ump Rate isused for

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-		Date	09/15/21
				TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHID	 		Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-1		-
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elevation		-
Sample ID			38586	/2-42		Subs	ample ID	6		Location			Seattle, WA	A	
Add. Info		-		Mi	xing/Molding Da	ite		08/18/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials I	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)		
lı	nitial San	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (After Test)	
Height		2.978	in	7.56 0	m Speed			12	1						
Diameter		3.009	in	7.64	m Board N	umber		5		Average Hei	ght of Samp	le	2.979 in	7.57 cm	
Area		7.11	in²	45.88	cm ² Cell Num	nber		2		- Average Dia	meter of Sa	mple	3.010 in	7.65 cm	
Volume		347.02	cm ³	0.0123 f	t ³ Flow Pur	mp Numbe	r	4A		Area	7.12	in ²	45.91 cm ²	L	
Mass		658.7	g	1.45	b Flow Pur	np Rate*		5.60E-05	cm ³ /sec	Volume	347.37	cm ³	0.0123 ft ³	Dry Density	92.3 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	673.4	g	1.48 lb	Vol. of Voids	157.04 cm ³
Dry Density	,	92.4	pcf		Cell Pres	sure		95.0	psi			-4		Vol. of Solids	190.34 cm ³
			•		Back Pre	essure		90.0	psi					Void Ratio	0.83
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	101.6 %
Mass of we	t sample &	k tare	658.7	g	Max Hea	ıd		52.76	cm	Mass of wet	sample & ta	re	747.0 g		
Mass of dry	sample &	tare	513.6	g	Min Hea	d		52.05	cm	Mass of dry	sample & ta	re	587.6 g		
Mass of tare	е		0.0	g	Maximur	n Gradient		6.97		Mass of tare			74.0 g		
% Moisture			28.3		Minimum	n Gradient		6.88		% Moisture			31.0		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water Used for P	ermeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	_	
09/15/21	8	5	-	0.75	52.76	6.97	24.8	-	-	-		NA			USCS
09/15/21	8	15	600	0.74	52.05	6.88	24.8	1.76E-07	0.893	1.57E-07				(ASTM	I D2487;2488)
09/15/21	8	25	600	0.75	52.76	6.97	24.8	1.76E-07	0.893	1.57E-07					NA
09/15/21	8	35	600	0.74	52.05	6.88	24.8	1.76E-07	0.893	1.57E-07	*		REMARI	KS	
09/15/21	8	45	600	0.75	52.76	6.97	24.8	1.76E-07	0.893	1.57E-07	*	Bottom	Half of the mold was use	d for testing.	
09/15/21	8	55	600	0.74	52.05	6.88	24.8	1.76E-07	0.893	1.57E-07	*				
09/15/21	9	5	600	0.75	52.76	6.97	24.8	1.76E-07	0.893	1.57E-07	*				
				_	Reported	d Average	Hydraulic Co	nductivity*		1.6E-07	cm/sec				
Flow pump	ID #	10)43	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #	_		1044/1048		
Thermomet	er ID #	796	/985	(Oven ID #	496/758		Board Press	sure Meter	· ID #			1042		
Syringe ID #	#	10)47				-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	for Inflow and Calibra ssure (DP) Reading	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow able above) sh	through the	e fully saturated sample with accu gnificant upward or downward tre	uracy +/-5%. Flow Pu nd.	imp Rate isused for
	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084									
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1	Ê.E. ST.	Engine	ERING	Phone: 770-9	938-8233	$ \square $		Tested By	KP/IH						
		Soil		Fax: 770-923	3-8973		•	Date	08/26/21						
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	ASHI		Checked By	18						
Client Pr. #			200016			Lab. PF	ર. #	21136-02-1							
Pr. Name		Т	ime Oil Term	inal		S. T	ype Mold	Depth/Elev.	-						
Sample ID		38622/2-23		Subsample	1	Locat	tion	Seattle, WA							
Add. Info	-		Mixing/Mo	olding Date	08/20/21		Curin	g Age, Days	6						
	ASTM D) 1633: Standa	rd Test Met	hods for Com	pressive Stren	igth of Molde	d Soil-Cement	Cylinders							
				METHOD	В										
		ГА					RMINATION								
Initial Height	in		5 590	7	Mass of Wet	Sample and	Tare a	1511 7							
Initial Diame	ter, in		2.970	-	Mass of Drv	Sample and	Tare, g	1248.5							
Height-to-Dia	ameter Ratio		1.88	-	Mass of Tare	e, g	, g	299.3							
Area, in ²			6.93		Moisture, %			27.7							
Volume, in ³			38.73												
Mass of Sam	nple, g		1213.5												
Wet Density,	, pcf		119.4												
Dry Density,	pcf		93.4	_											
Machine Spe	eed, in/min		0.050												
Strain rate, 9	% / min		0.89												
				TEST	DATA										
	Load Cell ID #	ŧ	11/1015	1		D	iqital Caliper I	D # 17/583							
	Compression	Device ID #	10/1014			Rea	dout Device I	D# 10/1016							
	Balance ID #		1036/1037				Oven I	D# 758/496							
Maximum Lo	ad at Failure, I	lbf			373										
Specimen Ci	ross-sectional	Area, in ²			6.93		Failure Co	ode 3							
Compressive	e Strength at F	ailure, psi			54										
Conversion F	Factor for Heig	ht to Diameter	Ratio		1.00										
Reported Co	ompressive S	trength at Fai	lure, psi		54			Failure Sket	ch						
Note 2: * - A c	onversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM	C42)								
			DESC	RIPTION		,	,								
								\times							
							Failure Ty	/pe:							
								Cone and S	shear						
		U	SCS (ASTN	1 D2487: D24	88)										
					J										
			RFM	/ARKS											
	-						<u> </u>								

	•	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	08/30/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38622/2-23		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/20/21		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		٢Δ			WATER CON				
Initial Heigh	t. in		5.632	1	Mass of Wet	Sample and Ta	re. a	1518.6	
Initial Diame	eter. in		2.975		Mass of Drv S	Sample and Tar	re. a	1256.4	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	, g	-, 5	304.1	
Area, in ²			6.95		Moisture, %			27.5	
Volume, in ³			39.15						
Mass of Sar	nple, g		1216.8						
Wet Density	r, pcf		118.4						
Dry Density,	pcf		92.8						
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	+	11/1015	1		Diait	al Caliner ID	# 17/583	
	Compression	- Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	_		Reduct	Oven ID	# 758/496	
				1			0.0		
Maximum Lo	oad at Failure,	lbf			862				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			124				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		124			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	2)		
			DESC	RIPTION			_		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS			_		
	L						1		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	A 30084			
1	<u>re. sr.</u>	ENGINE	ERING	Phone: 770-9	38-8233			Tested By	KP/IH
		Soil		Fax: 770-923	-8973			Date	09/10/21
L		Tests, l	LC	Web: <u>www.te</u>	st-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38622/2-23	-	Subsample	3	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/20/21		Curing A	ge, Days	21
	ASTM D) 1633: Standa	rd Test Metl	nods for Com	pressive Streng	th of Molded So	oil-Cement Cy	linders	
				METHOD	В				
	SAMPLE DAT	TA			WATER CON		INATION		
Initial Height	t, in		5.603	1	Mass of Wet S	Sample and Tar	e, g	1509.9	
Initial Diame	ter, in		2.977		Mass of Dry S	ample and Tare	e, g	1247.8	
Height-to-Di	ameter Ratio		1.88		Mass of Tare,	g		299.8	
Area, in ²			6.96		Moisture, %			27.6	
Volume, in ³			39.00						
Mass of Sar	nple, g		1212.4						
Wet Density	r, pcf		118.4	-					
Dry Density, Machine Sp	pci eed in/min		92.7						
Strain rate.	% / min		0.89	-					
otrain rate,	,0,7,11111		0.00	1					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digita	I Caliper ID #	¢ 17/583	
	Compression	Device ID #	10/1014			Readou	It Device ID #	# 10/1016	
	Balance ID #		1036/1037				Oven ID #	¢ 758/496	
Maximum Lo	oad at Failure, I	lbf			2298				
Specimen C	ross-sectional	Area, in²			6.96		Failure Code	e 3	
Compressiv	e Strength at F	ailure, psi			330				
Conversion	Factor for Heig	ht to Diameter	r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		330			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42)		
			DESC	RIPTION					
							Failure Type	:	
			000 (107	D0407 DC	20)			Cone and S	hear
		U	SUS (ASTM	D2487: D24	·ၓၓ)				
				L	J				
			RFM	IARKS					
			1.						
	L								
L									

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233	\square	\land		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	V			Date	09/17/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			Lab	o. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38622/2-23		Subsample	4	L	ocation		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/20/21			Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of Mo	olded So	il-Cement C	ylinders	
				METHOD	В					
Initial Llaight		A	E CEA	٦	WATER CO				1510 5	
Initial Height	tor in		5.054 2.072	_	Mass of Wet	Sample a	and Tar	e, g	1519.5	
	ameter Ratio		2.972	-	Mass of Tare			, y	300.9	
Area in ²			6.04	-	Moisture %	5, Y			27.1	
$\lambda i c a, in$			20.22	-	woisture, 70				27.1	
Mass of Sar	nnle a		1224 1	-						
Wet Density	npic, g		118 9	-						
Dry Density.	pcf		93.5	-						
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.88							
				-						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			ļ	Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037	J				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			3159					
Specimen C	ross-sectional	Area, in ²			6.94			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			455					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		455				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per AS	TM C42)		
			DESC	RIPTION			- /	,		
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)		<u> </u>			
]					
			REM	IARKS						
				-			Ī			

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	08/30/21
	<u>[</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	lb.
Client Pr. #					200016					Lab. PR. #			21136-02-	·1	
Pr. Name					Time Oil Term	ninal		-		S. Type	Мо	d	Depth/Elevation		-
Sample ID			38622	/2-23		Subs	ample ID	5		Location			Seattle, W	A	
Add. Info		-		Mi	xing/Molding Da	ite		08/20/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials U	ard Test N Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous w)		
lı	nitial San	nple Dat	a (Befor	e Test)			Test Data	а					Final Data (After Tes	st)	
Height		3.004	in	7.63 0	m Speed			9							
Diameter		2.969	in	7.54 c	m Board Nu	umber		7		Average Hei	ght of Samp	le	3.005 in	7.63 cm	
Area		6.92	in²	44.67 0	m ² Cell Num	nber		14		Average Dia	meter of Sa	nple	2.970 in	7.54 cm	
Volume		340.81	cm ³	0.0120 f	Flow Pur	np Numbe	r	4A		Area	6.93	in²	44.70 cm ²		
Mass		639.2	g	1.41	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	341.15	cm ³	0.0120 ft ³	Dry Density	91.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	653.7	g	1.44 lb	Vol. of Voids	155.34 cm ³
Dry Density	,	91.8	pcf		Cell Pres	sure		95.0	psi					Vol. of Solids	185.81 cm ³
			-		Back Pre	essure		90.0	psi					Void Ratio	0.84
	Mois	ture Cont	ent	_	Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	97.9 %
Mass of we	t sample &	k tare	639.2	g	Max Hea	d		23.92	cm	Mass of wet	sample & ta	re	734.7 g		
Mass of dry	sample &	tare	501.3	g	Min Head	d		23.21	cm	Mass of dry s	sample & ta	re	582.8 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		3.13		Mass of tare			81.5 g		
% Moisture			27.5		Minimum	Gradient		3.04		% Moisture			30.3		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for	Permeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
08/30/21	9	5	-	0.33	23.21	3.04	27.5	-	-	-		NA			USCS
08/30/21	9	15	600	0.34	23.92	3.13	27.5	3.25E-06	0.841	2.73E-06				(ASTM	1 D2487;2488)
08/30/21	9	25	600	0.33	23.21	3.04	27.5	3.25E-06	0.841	2.73E-06					NA
08/30/21	9	35	600	0.34	23.92	3.13	27.5	3.25E-06	0.841	2.73E-06	*		REMAR	RKS	
08/30/21	9	45	600	0.33	23.21	3.04	27.5	3.25E-06	0.841	2.73E-06	*	Bottom	Half of the mold was us	ed for testing.	
08/30/21	9	55	600	0.34	23.92	3.13	27.5	3.25E-06	0.841	2.73E-06	*				
08/30/21	10	5	600	0.33	23.21	3.04	27.5	3.25E-06	0.841	2.73E-06	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		2.7E-06	cm/sec				
Flow pump	ID #	10)43	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #	_		1044/1048		
Thermomet	er ID #	796	/985	0	Oven ID #	496/758		Board Press	ure Meter	r ID #			290		
Syringe ID #	#	10)47]			-	Pore Pressu	ire Meter	ID #			216		
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe	for Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with acc gnificant upward or downward tr	curacy +/-5%. Flow Pเ rend.	ump Rate isused for

		î		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/17/21
				TESTS,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASH O				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	1136-02-1		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID			38622	/2-23		Subs	ample ID	6		Location			Se	eattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		08/20/21				Curin	ng Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test N Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous	5		
	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (A	fter Test)		
Height	eight 3.022 in 7.68 cm Speed 11															
Diameter		2.968	in	7.54 ci	m Board Nu	umber		1		Average Heig	ght of Samp	le	3.023 in	1	7.68 cm	
Area		6.92	in²	44.64 C	m ² Cell Num	nber		11		Average Dia	meter of Sa	mple	2.969 in		7.54 cm	
Volume		342.62	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	1A		Area	6.92	in²	44.67 cr	m ²		
Mass		649.2	g	1.43 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	342.96	cm ³	0.0121 ft ³	3	Dry Density	92.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	664.5	g	1.46 lb)	Vol. of Voids	154.18 cm ³
Dry Density	,	92.8	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	188.78 cm ³
			_		Back Pre	essure		90.0	psi						Void Ratio	0.82
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	100.4 %
Mass of we	t sample &	tare	649.2	g	Max Hea	d		95.66	cm	Mass of wet	sample & ta	re	738.3 g			
Mass of dry	sample &	tare	509.4	g	Min Head	d		94.96	cm	Mass of dry s	sample & ta	re	583.6 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		12.46		Mass of tare			74.2 g			
% Moisture			27.4		Minimum	Gradient		12.37		% Moisture			30.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water L	Jsed for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	N		
09/17/21	11	5	-	1.36	95.66	12.46	25.1	-	-	-		NA			l	JSCS
09/17/21	11	15	600	1.35	94.96	12.37	25.1	2.02E-07	0.887	1.79E-07					(ASTM	D2487;2488)
09/17/21	11	25	600	1.36	95.66	12.46	25.1	2.02E-07	0.887	1.79E-07						NA
09/17/21	11	35	600	1.35	94.96	12.37	25.1	2.02E-07	0.887	1.79E-07	*			REMARK	S	
09/17/21	11	45	600	1.35	94.96	12.37	25.1	2.03E-07	0.887	1.80E-07	*	Bottom	Half of the mole	d was used	for testing.	
09/17/21	11	55	600	1.36	95.66	12.46	25.1	2.02E-07	0.887	1.79E-07	*					
09/17/21	12	5	600	1.35	94.96	12.37	25.1	2.02E-07	0.887	1.79E-07	*					
				1	Reported	Average	Hydraulic Co	nductivity*		1.8E-07	cm/sec					
Flow pump	ID #	2	22	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1107			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	ure Meter	r ID #			64			
Syringe ID a	#	1	40				-	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe f	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a d after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sam gnificant upward or d	ple with accuration	acy +/-5%. Flow Pu d.	mp Rate isused for

	•	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
TÌ	E. ST.	Engine	ERING	Phone: 770-9	938-8233	$ \square $			Tested By	KP/IH
		Soil		Fax: 770-923	-8973				Date	08/28/21
		Tests, l	LC	Web: <u>www.te</u>	st-llc.com	AASH			Checked By	18
Client Pr. #			200016			Lab. F	PR. #		21136-02-1	
Pr. Name		Т	me Oil Term	inal		S.	Туре	Mold	Depth/Elev.	-
Sample ID		38623/2-15		Subsample	1	Loc	cation		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/23/21			Curing A	ge, Days	5
	ASTM D	1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of Mold	led Soil	-Cement C	ylinders	
				METHOD	В					
SA	AMPLE DAT	A			WATER CO		TERMI	NATION		
Initial Height, in	 I		5.608		Mass of Wet	t Sample an	nd Tare	, g	1519.9	
Initial Diameter,	, in		2.985		Mass of Dry	Sample and	d Tare,	g	1258.6	
Height-to-Diame	eter Ratio		1.88		Mass of Tare	e, g			305.8	
Area, in ²			7.00		Moisture, %				27.4	
Volume, in ³			39.25							
Mass of Sample	e, g		1216.5							
Wet Density, po	Cf 4		118.1							
Dry Density, pc	T Lin/min		92.6	_						
Strain rate % /	min		0.050	-						
			0.00							
				TEST	DATA					
Lo	ad Cell ID #		11/1015]		I	Digital	Caliper ID	# 17/583	
Co	ompression	Device ID #	10/1014			Re	eadout	Device ID	# 10/1016	
Ba	alance ID #	<u> </u>	1036/1037]				Oven ID :	# 758/496	
Maximum Load	l at Failure, I	bf			220					
Specimen Cros	s-sectional /	Area, in ²			7.00		F	ailure Code	e 3	
Compressive S	trength at Fa	ailure, psi			31					
Conversion Fac	ctor for Heigl	ht to Diameter	Ratio		1.00					
Reported Com	pressive St	trength at Fai	lure, psi		31				Failure Skete	ch
Note 2: * - A conv	version factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per ASTN	M C42)			
			DESC	RIPTION					\checkmark	
							_			
								anure rype	Cone and S	hear
		U	SCS (ASTM	D2487: D24	.88)					
			(<u> </u>] ´					
			REM	ARKS						
			1.701							
							<u>4</u>			

Г	Ŷ	TIMELY		1874 Forge S	Street Tucker,	, GA 30	0084			
r	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233		$\mathbf{\Lambda}$		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\mathcal{C}	\sim		Date	09/02/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38623/2-15		Subsample	2		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/23/21	1		Curing /	Age, Days	10
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ength o	of Molded So	oil-Cement C	ylinders	
				METHOD	В					
		٢Δ			WATER CO					
Initial Height	in		5 589	1	Mass of We	et Sam	nole and Tar	re a	1510.0	
Initial Diame	ter, in		2.976	-	Mass of Dry	v Sami	ple and Tar	e, g e. a	1247.7	
Height-to-Dia	ameter Ratio		1.88		Mass of Tar	re, g		-, 3	296.8	
Area, in ²			6.96		Moisture. %	, 0			27.6	
Volume, in ³			38.88		,					
Mass of San	nple, g		1215.9							
Wet Density	, pcf		119.1							
Dry Density,	pcf		93.3							
Machine Spe	eed, in/min		0.050							
Strain rate, 9	% / min		0.89							
				TEST	DATA					
		4	11/1015	1			Digita	l Caliner ID	# 17/583	
	Compression	Device ID #	10/1014				Reado	It Device ID	# 10/1016	
	Balance ID #		1036/1037	_			Reduce	Oven ID	# 758/496	
				1				0.01112		
Maximum Lo	bad at Failure, I	bf			785					
Specimen C	ross-sectional	Area, in ²			6.96			Failure Cod	e 3	
Compressive	e Strength at F	ailure, psi			113					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		113				Failure Skete	ch
Note 2: * - A c	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. corred	ction pe	er ASTM C42)		
			DESC	RIPTION						
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
					J					
			REM	IARKS						
	<u>-</u>						<u>.</u>			

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
,	<u>re. sr.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/13/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38623/2-15		Subsample	3	Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/23/21		Curing A	.ge, Days	21
	ASTM D) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		ΓΔ							
Initial Height	t in	A	5 596	1	Mass of Wet	Sample and Ta	re a	1515.8	
Initial Diame	eter, in		2.984		Mass of Dry	Sample and Tar	re, g	1254.3	
Height-to-Di	ameter Ratio		1.88		Mass of Tare	, g		303.7	
Area, in ²			6.99		Moisture, %			27.5	
Volume, in ³			39.13						
Mass of Sar	nple, g		1215.2						
Wet Density	, pcf		118.3	_					
Dry Density,	pcf		92.7	-					
Strain rate	eea, in/min % / min		0.050						
Strain rate,	70 7 11111		0.09						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID ;	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID a	# 10/1016	
	Balance ID #		1036/1037	J			Oven ID a	# 758/496	
Maximum Lo	oad at Failure, I	bf			1891				
Specimen C	ross-sectional	Area, in ²			6.99		Failure Code	e 3	
Compressiv	e Strength at F	ailure, psi			270				
Conversion	Factor for Heig	ht to Diameter	r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		270			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	2)		
			DESC	RIPTION					
							Ī		
							Failure Type	:	
							l	Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
					J				
			RFM	IARKS					
			1.11				T		
	L						L		

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 300)84			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233		$\mathbf{\Sigma}$		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	\sim	\sim		Date	09/20/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38623/2-15		Subsample	4		Location		Seattle, WA	
Add. Info		-	Mixing/Mo	olding Date	08/23/21			Curing A	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Strer	ngth of	Molded So	oil-Cement C	ylinders	
				METHOD	В					
	SAMPLE DA	Α	5 500	٦	WATER CO	NIENI		IINATION	4540.0	
Initial Heigh	i, in tor in		5.583	_	Mass of Wei	t Samp	le and Tar	e, g	1513.9	
Height to Di	ameter Patio		2.984	_	Mass of Tar	Sampi	e and Tare	e, g	301.8	
Aroa in ²			6.00	-	Maisture %	e, y			27.9	
Alea, III Volumo in^3			0.99	-	wosture, %				27.0	
Mass of Sar	nnle a		39.04 1213 3	-						
Wet Density	npie, g		118.4	-						
Dry Density	pcf		92.6	-						
Machine Sp	eed, in/min		0.050	-						
Strain rate,	% / min		0.90							
				-						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	it Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2503					
Specimen C	ross-sectional	Area, in ²			6.99			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			358					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		358				Failure Skete	ch
Note 2 [.] * - A (• conversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add correct	tion ner	ASTM C42)		
Noic 2 A (DESC	RIPTION			A0111 042	/		
							ſ			
								Eailura Typ	K	
								i allule Type	Cone and S	hear
	L	U	SCS (ASTM	D2487: D24	88)					
		Ū.	,]					
					-					
			KEN	UNRINO			ı			

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	-923-8973								Date	09/02/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		AC	REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			2	1136-02-1		•
Pr. Name					Time Oil Term	ninal				S. Type	Mo	d	Depth/Ele	evation		-
Sample ID			38623	/2-15		Subs	ample ID	5		Location			S	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	ite		08/23/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials U	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)	S		
li	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	а					Final Data (A	(fter Test)		
Heiaht		3.009	lin	7.64 c	m Speed			10								
Diameter		2.967	in	7.54 c	m Board Nu	umber		1		Average Hei	ght of Samp	le	3.010 ir	า	7.65 cm	
Area		6.91	in ²	44.61 C	m ² Cell Num	nber		37		Average Dia	meter of Sa	nple	2.968 ir	า	7.54 cm	
Volume		340.92	cm ³	0.0120 ft	Flow Pur	np Numbe	r	1B		Area	6.92	in ²	44.64 C	m ²		
Mass		651.2	g	1.44	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	341.26	cm ³	0.0121 ft	3	Dry Density	93.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	659.9	g	1.45 lt	D	Vol. of Voids	151.93 cm ³
Dry Density	,	93.5	pcf		Cell Pres	sure		95.0	psi			-			Vol. of Solids	189.32 cm ³
			-		Back Pre	essure		90.0	psi						Void Ratio	0.80
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent		Saturation	97.9 %
Mass of we	t sample &	k tare	651.2	g	Max Hea	ld		51.35	cm	Mass of wet	sample & ta	re	738.0 g	I		
Mass of dry	sample &	tare	511.1	g	Min Head	d		50.64	cm	Mass of dry	sample & ta	re	589.3 g	I		
Mass of tare	е		0.0	g	Maximun	n Gradient		6.72		Mass of tare			78.2 g	l		
% Moisture			27.4		Minimum	Gradient		6.62		% Moisture			29.1			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N	_	
09/02/21	7	20	-	0.72	50.64	6.62	25.2	-	-	-		NA			ι	JSCS
09/02/21	7	30	600	0.73	51.35	6.72	25.2	7.52E-07	0.885	6.66E-07					(ASTM	D2487;2488)
09/02/21	7	40	600	0.72	50.64	6.62	25.2	7.52E-07	0.885	6.66E-07						NA
09/02/21	7	50	600	0.72	50.64	6.62	25.2	7.58E-07	0.885	6.71E-07	*			REMARK	S	
09/02/21	8	0	600	0.73	51.35	6.72	25.2	7.52E-07	0.885	6.66E-07	*	Bottom	Half of the mol	ld was used	for testing.	
09/02/21	8	10	600	0.73	51.35	6.72	25.2	7.47E-07	0.885	6.61E-07	*					
09/02/21	8	20	600	0.72	50.64	6.62	25.2	7.52E-07	0.885	6.66E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		6.7E-07	cm/sec					
Flow pump	ID #	2	22	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			942			
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	sure Meter	· ID #			64			
Syringe ID #	#	14	41				-	Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated san gnificant upward or	nple with accuration downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	09/20/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02	2-1	
Pr. Name					Time Oil Term	inal				S. Type	Мо	ld	Depth/Elevation		-
Sample ID			38623	/2-15		Subs	ample ID	6		Location			Seattle, V	VA	
Add. Info		-		Miz	king/Molding Da	te		08/23/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)		
h	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	а					Final Data (After Te	st)	
Height		2.980	in	7.57 c	m Speed			11							
Diameter		2.968	in	7.54 c	m Board Nu	umber		5		Average Hei	ght of Samp	le	2.981 in	7.57 cm	
Area		6.92	in²	44.64 C	m ² Cell Num	ıber		13		Average Dia	meter of Sa	mple	2.969 in	7.54 cm	
Volume		337.86	cm ³	0.0119 ft	Flow Pun	np Numbe	r	4A		Area	6.92	in ²	44.67 cm ²		
Mass		643.0	g	1.42 II	Flow Pun	np Rate*		1.12E-04	cm ³ /sec	Volume	338.20	cm ³	0.0119 ft ³	Dry Density	93.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	654.8	g	1.44 lb	Vol. of Voids	150.75 cm ³
Dry Density	,	93.4	pcf		Cell Pres	sure		95.0	psi					Vol. of Solids	187.45 cm ³
					Back Pre	ssure		90.0	psi					Void Ratio	0.80
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	98.6 %
Mass of we	t sample 8	k tare	643.0	g	Max Hea	d		141.38	cm	Mass of wet	sample & ta	re	718.9 g		
Mass of dry	sample &	tare	505.8	g	Min Head	t		140.68	cm	Mass of dry	sample & ta	re	570.3 g		
Mass of tare	е		0.0	g	Maximum	n Gradient		18.67		Mass of tare			64.5 g		
% Moisture			27.1		Minimum	Gradient	-	18.58		% Moisture	_		29.4		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water Used for	Permeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/20/21	8	5	-	2.01	141.38	18.67	25.5	-	-	-		NA			JSCS
09/20/21	8	15	600	2.00	140.68	18.58	25.5	1.35E-07	0.879	1.18E-07				(ASTM	D2487;2488)
09/20/21	8	25	600	2.01	141.38	18.67	25.5	1.35E-07	0.879	1.18E-07					NA
09/20/21	8	35	600	2.00	140.68	18.58	25.5	1.35E-07	0.879	1.18E-07	*		REMA	RKS	
09/20/21	8	45	600	2.01	141.38	18.67	25.5	1.35E-07	0.879	1.18E-07	*	Bottom	Half of the mold was us	sed for testing.	
09/20/21	8	55	600	2.00	140.68	18.58	25.5	1.35E-07	0.879	1.18E-07	*				
09/20/21	9	5	600	2.01	141.38	18.67	25.5	1.35E-07	0.879	1.18E-07	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		1.2E-07	cm/sec				
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048		
Thermomet	er ID #	796	/985	0	Ven ID #	496/758		Board Press	sure Meter	· ID #			1042		
Syringe ID #	#	10)47]			-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pre	or Inflow and Calibra	ated Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sample with a gnificant upward or downward	ccuracy +/-5%. Flow Pu trend.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
	<u>r.e. [s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	1 3-8973			Date	08/29/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. a	#	21136-02-1	
Pr. Name		Т	ime Oil Term	inal	-	S. Type	e Mold	Depth/Elev.	-
Sample ID		38624/2-40		Subsample	1	Location	ר 	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/24/21		Curing /	Age, Days	5
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	igth of Molded S	Soil-Cement C	Cylinders	
				METHOD	В				
		ГА					ΜΙΝΑΤΙΟΝ		
Initial Height	t in		5 584	Ĩ	Mass of Wet	Sample and Ta	are a	1480.3	
Initial Diame	ter, in		2.950	-	Mass of Drv	Sample and Ta	re, g	1198.2	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g	, g	303.4	
Area, in ²			6.83		Moisture, %			31.5	
Volume, in ³			38.17						
Mass of Sar	nple, g		1179.1						
Wet Density	, pcf		117.7						
Dry Density,	pcf		89.4						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.90						
				TEST	DATA				
	I oad Cell ID #	ŧ	11/1015	1		Diai	tal Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	-		Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			412				
Specimen C	ross-sectional	Area, in ²			6.83		Failure Coc	de 3	
Compressiv	e Strength at F	ailure, psi			60				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		60			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM C4	(2)		
			DESC	RIPTION		·	,		
							Τ		
							Failure Typ	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)				
			REM	IARKS					
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Г	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
r	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	۱ 8-8973	∇	\sim		Date	09/03/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			Lab). PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		5	S. Туре	Mold	Depth/Elev.	-
Sample ID		38624/2-40		Subsample	2	Lo	ocation		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/24/21			Curing A	Age, Days	10
	ASTM D) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	ngth of Mo	olded So	il-Cement C	ylinders	
				METHOD	В					
		ΓΔ					FTERM			
Initial Height			5 619	1	Mass of Wet	t Sample a	and Tar		1527 3	
Initial Diame	ter in		2 974		Mass of Drv	Sample a	nd Tare	e, g e a	1243.9	
Height-to-Dia	ameter Ratio		1.89	1	Mass of Tare	e. a		, 9	336.3	
Area, in ²			6.95		Moisture %	-, 5			31.2	
Volume in ³			39.03						01.2	
Mass of San	nple. a		1193.3	1						
Wet Density	, pcf		116.5							
Dry Density,	pcf		88.7	1						
Machine Spe	eed, in/min		0.050							
Strain rate, 9	% / min		0.89							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			F	Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037	J				Oven ID	# 758/496	
Maximum Lo	oad at Failure, I	bf			804					
Specimen C	ross-sectional	Area, in ²			6.95			Failure Cod	e 3	
Compressive	e Strength at F	ailure, psi			116					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		116				Failure Sketo	ch
Note 2 [.] * - A c	• onversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add_correct	tion ner A.S	TM C42)		
//0/0 2. //0			DFSC	RIPTION			1101012)			
								Eailura Typ		
									Cone and S	hear
	L	U	SCS (ASTM	D2487: D24	88)					
		0	(•]					
					-					
			KEN	бллы						

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
,	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/14/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38624/2-40	-	Subsample	3	Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/24/21		Curing Ag	ge, Days	21
	ASTM D) 1633: Standa	rd Test Metl	nods for Com	pressive Streng	gth of Molded So	oil-Cement Cy	linders	
				METHOD	В				
		ΓΔ							
Initial Height	t in	A	5 552	1	Mass of Wet	Sample and Tai		1467.2	
Initial Diame	eter, in		2.975	1	Mass of Drv S	Sample and Tar	e, g	1186.4	
Height-to-Di	ameter Ratio		1.87	1	Mass of Tare	, g		306.0	
Area, in ²			6.95	1	Moisture, %	-		31.9	
Volume, in ³			38.59						
Mass of Sar	nple, g		1170.5						
Wet Density	, pcf		115.5						
Dry Density,	pcf		87.6						
Machine Sp	eed, in/min		0.050						
Strain rate,	76 / 111111		0.90]					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID #	ŧ 17/583	
	Compression	Device ID #	10/1014			Readou	ut Device ID #	# 10/1016	
	Balance ID #		1036/1037]			Oven ID #	ŧ 758/496	
Maximum Lo	oad at Failure, I	bf			1541				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Code	3	
Compressiv	e Strength at F	ailure, psi			222				
Conversion	Factor for Heig	ht to Diameter	^r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		222			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	?)		
			DESC	RIPTION					
								\checkmark	
							Failure Type:	:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88) 1				
					J				
			REM	IARKS					
									
	L								
L									

Г	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	∇			Date	09/21/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			Lab	. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal			S. Туре	Mold	Depth/Elev.	-
Sample ID		38624/2-40		Subsample	4	Lo	ocation		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/24/21			Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of Mo	lded So	il-Cement C	ylinders	
				METHOD	В					
		٢Δ			WATER COL		FTFRM	ΙΙΝΔΤΙΟΝ		
Initial Height	t in		5.611]	Mass of Wet	t Sample a	and Tar	e. a	1605.1	
Initial Diame	ter, in		2.980		Mass of Dry	Sample a	nd Tare	e, g	1319.4	
Height-to-Di	ameter Ratio		1.88		Mass of Tare	e, g		<i>,</i> 0	416.5	
Area, in ²			6.97		Moisture, %	-			31.6	
Volume, in ³			39.13							
Mass of Sar	nple, g		1189.9							
Wet Density	, pcf		115.8							
Dry Density,	pcf		87.9							
Machine Sp	eed, in/min		0.050	-						
Strain rate, S	% / MIN		0.89							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	-		F	Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2068					
Specimen C	ross-sectional	Area, in ²			6.97			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			297					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		297				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per AS	TM C42)		
			DESC	RIPTION		·	,			
							ľ			
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
			REM	IARKS						

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP	
				Soil		Fax: 770-	923-8973								Date	09/03/21	
	<u> </u>			TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		A A C C	SREDITED				Checked By	18	
Client Pr. #					200016					Lab. PR. #			21	1136-02-1			
Pr. Name					Time Oil Term	ninal				S. Type	Mo	d	Depth/Ele	evation		-	
Sample ID			38624	/2-40		Subs	ample ID	5		Location			Se	eattle, WA			
Add. Info		-		Mi	xing/Molding Da	ite		08/24/21				Curin	g Age, Days			10	
				ASTM D	5084; Standa Materials U	ard Test N Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous w)	5			
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (A	fter Test)			
Height		3.013	lin	7.65	m Speed			10									
Diameter		2.960	in	7.52 0	m Board Nu	umber		4		Average Hei	aht of Samp	le	3.014 in	1	7.66 cm		
Area		6.88	in²	44.40	m ² Cell Num	nber		43		Average Dia	meter of Sa	mple	2.961 in	1	7.52 cm		
Volume		339.76	cm ³	0.0120 f	Flow Pur	np Numbe	r	3B		Area	6.89	in ²	44.43 cr	m ²	<u> </u>		
Mass		632.2	g	1.39 II	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	340.10	cm ³	0.0120 ft ³	3	Dry Density	88.0 pc	f
Specific Gra	avity	2.700	- (Assume	d)	B - Value	9		0.95		Mass	638.0	g	1.41 lb	1	Vol. of Voids	162.36 cr	n ³
Dry Density	-	88.1	pcf		Cell Pres	sure		95.0	psi				·		Vol. of Solids	177.74 cr	n ³
			1 -		Back Pre	essure		90.0	psi						Void Ratio	0.91	
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent		Saturation	97.4 %	
Mass of we	t sample &	tare	632.2	g	Max Hea	id		48.53	cm	Mass of wet	sample & ta	re	713.5 g			·	
Mass of dry	sample &	tare	479.6	g	Min Head	d		47.83	cm	Mass of dry s	sample & ta	re	555.5 g				
Mass of tare	Э		0.0	g	Maximun	n Gradient		6.34		Mass of tare			75.9 g				
% Moisture			31.8		Minimum	Gradient		6.25		% Moisture			32.9				
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water L	Jsed for Pe	rmeability Tes	t.	_
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	N	_		ļ
09/03/21	11	5	-	0.69	48.53	6.34	25.1	-	-	-		NA				USCS	
09/03/21	11	15	600	0.68	47.83	6.25	25.1	8.01E-07	0.887	7.11E-07					(ASTN	I D2487;2488)	
09/03/21	11	25	600	0.69	48.53	6.34	25.1	8.01E-07	0.887	7.11E-07						NA	
09/03/21	11	35	600	0.68	47.83	6.25	25.1	8.01E-07	0.887	7.11E-07	*			REMARK	S		
09/03/21	11	45	600	0.69	48.53	6.34	25.1	8.01E-07	0.887	7.11E-07	*	Bottom	Half of the mole	d was used	for testing.		
09/03/21	11	55	600	0.68	47.83	6.25	25.1	8.01E-07	0.887	7.11E-07	*						
09/03/21	12	5	600	0.69	48.53	6.34	25.1	8.01E-07	0.887	7.11E-07	*]
				_	Reported	Average	Hydraulic Cor	nductivity*		7.1E-07	cm/sec						
Flow pump	ID #	47	75	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262				
Thermomet	er ID #	796	/985		Oven ID #	496/758		Board Press	sure Meter	r ID#			1041				
Syringe ID #	#	49	90]			-	Pore Pressu	ire Meter	ID #			26/27				
*Constant Rate calculations of	of Flow Syst	em (Flow Pu TP 977) resu	mp with Cali Ilts at steady	brated Syringe	for Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sam gnificant upward or d	ple with accuration	acy +/-5%. Flow Pu d.	imp Rate isused fo	r

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	-923-8973								Date	09/21/21
	<u> </u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #				21136-02-1		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/E	levation		-
Sample ID			38624	/2-40		Subs	ample ID	6		Location			:	Seattle, WA		
Add. Info		-		Mi	king/Molding Da	ite		08/24/21]		Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porou w)	IS		
Iı	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (After Test)		
Heiaht		3.010	lin	7.65 c	m Speed			11								
Diameter		2.971	in	7.55 c	m Board Nu	umber		18		Average Hei	ght of Samp	le	3.011	in	7.65 cm	
Area		6.93	in²	44.73 C	m ² Cell Num	nber		37		Average Dia	meter of Sa	mple	2.972	in	7.55 cm	
Volume		341.95	cm ³	0.0121 ft	Flow Pur	np Numbe	r	3A		Area	6.94	in ²	44.76	cm ²		
Mass		632.1	g	1.39 II	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	342.29	cm ³	0.0121	ft ³	Dry Density	87.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	; ;		0.95		Mass	638.4	g	1.41	lb	Vol. of Voids	164.53 cm ³
Dry Density		87.6	pcf		Cell Pres	sure		95.0	psi			J -			Vol. of Solids	177.77 cm ³
	I		4		Back Pre	essure		90.0	psi						Void Ratio	0.93
	Moist	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	96.3 %
Mass of we	t sample &	k tare	632.1	g	Max Hea	ld		126.61	cm	Mass of wet	sample & ta	re	711.7	g		
Mass of dry	sample &	tare	479.9	g	Min Head	d		125.21	cm	Mass of dry	sample & ta	re	553.3	g		
Mass of tare	е		0.0	g	Maximun	n Gradient		16.56		Mass of tare			73.4	g		
% Moisture			31.7		Minimum	Gradient		16.37		% Moisture			33.0			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	ЛС	_	
09/21/21	8	40	-	1.79	125.91	16.46	25.7	-	-	-		NA			ι	JSCS
09/21/21	8	50	600	1.79	125.91	16.46	25.7	1.52E-07	0.875	1.33E-07					(ASTM	D2487;2488)
09/21/21	9	0	600	1.78	125.21	16.37	25.7	1.52E-07	0.875	1.33E-07						NA
09/21/21	9	10	600	1.80	126.61	16.56	25.7	1.52E-07	0.875	1.33E-07	*			REMARK	S	
09/21/21	9	20	600	1.79	125.91	16.46	25.7	1.52E-07	0.875	1.33E-07	*	Bottom	Half of the mo	old was used	for testing.	
09/21/21	9	30	600	1.80	126.61	16.56	25.7	1.52E-07	0.875	1.33E-07	*					
09/21/21	9	40	600	1.79	125.91	16.46	25.7	1.52E-07	0.875	1.33E-07	*					
				-	Reported	Average	Hydraulic Co	nductivity*		1.3E-07	cm/sec					
Flow pump	ID #	4	75	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			469			
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	ure Meter	ID#			570			
Syringe ID #	#	4	91	J				Pore Pressu	ire Meter	ID #			779/780			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow able above) sh	through the owed no sig	e fully saturated sa gnificant upward o	imple with accur r downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
,	r.e. st.	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	08/30/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38690/2-45		Subsample	1	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/25/21		Curing A	Age, Days	5
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		F A							
Initial Height	SAIVIFLE DAI		5 586	7	Mass of Wet	Sample and Ta		1474.0	
Initial Diame	ter in		2 977	-	Mass of Dry S	Sample and Tai	re, y re a	1184.8	
Height-to-Di	ameter Ratio		1.88		Mass of Tare		C, g	299.5	
Area. in ²			6.96		Moisture. %	, 9		32.7	
Volume, in ³			38.88						
Mass of Sar	nple, g		1178.9						
Wet Density	, pcf		115.5						
Dry Density,	pcf		87.0						
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.90						
				TEST	DATA				
	Load Cell ID #	t	11/1015	1		Diait	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014	-		Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
				3					
Maximum Lo	bad at Failure,	lbt			373	<u> </u>	Failura Cad	~ <u> </u>	
Specimen C	ross-sectional	Area, In-			6.96		Fallure Cod	e 3	
Compressiv	e Strength at F	allure, psi			54				
Conversion	Factor for Heig	nt to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		54			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C4	2)		
	r		DESC	RIPTION			7		
							Failure Type	e: Cons and C	haar
	L	110		1 D2487. D24	188)		1		near
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	·		REN	IARKS			т		
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	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/04/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38690/2-45		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/25/21		Curing A	lge, Days	10
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Streng	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		ГА							
Initial Height	t in		5 628	7	Mass of Wet	Sample and Ta	re a	1539.2	
Initial Diame	ter in		2.982	-	Mass of Dry S	Sample and Tar	e.α	1249.2	
Height-to-Di	ameter Ratio		1.89	-	Mass of Tare	, g	-, 9	360.1	
Area, in ²			6.98	1	Moisture, %	-		32.6	
Volume, in ³			39.31						
Mass of Sar	nple, g		1182.0						
Wet Density	, pcf		114.6						
Dry Density,	pcf		86.3	_					
Machine Sp	eed, in/min		0.050						
Strain rate,	76 / 11111		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	ſ		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	·			Oven ID :	# 758/496	
Maximum Lo	oad at Failure,	lbf			815				
Specimen C	ross-sectional	Area, in ²			6.98		Failure Code	e 3	
Compressiv	e Strength at F	ailure, psi			117				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		117			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	2)		
			DESC	RIPTION		-			
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	188)				
				L	J				
			REM	IARKS					
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	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. st.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/15/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	£	21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38690/2-45		Subsample	3	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/25/21		Curing A	Age, Days	21
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		F.A.							
Initial Height			5 617	7	Mass of Wet			1486.6	
	ter in		2 974	-	Mass of Dry	Sample and Ta	re d	1400.0	
Height-to-Di	ameter Ratio		1 89	-	Mass of Tare		ie, g	303.8	
Area in ²			6.95	-	Moisture %	·, 9		32.5	
Volume in^3			30.02	-	Wolsture, 70			02.0	
Mass of Sar	nple a		1184 7	-					
Wet Density	. pcf		115.7	-					
Dry Density,	pcf		87.2	-					
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	'			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1555				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			224				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		224			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C4	2)		
			DESC	RIPTION			,		
							T		
							Failure Type	e:	
							51	Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	88)				
			REM	IARKS					
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	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/22/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	<i>±</i>	21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID		38690/2-45		Subsample	4	Location	۱	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/25/21		Curing /	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
		٢Δ			WATER COM		MINATION		
Initial Heigh	t in		5,752	1	Mass of Wet	Sample and Ta	are, a	1516.0	
Initial Diame	eter, in		2.974		Mass of Dry	Sample and Ta	re, g	1218.4	
Height-to-Di	ameter Ratio		1.93		Mass of Tare	e, g		313.2	
Area, in ²			6.95		Moisture, %	-		32.9	
Volume, in ³			39.96						
Mass of Sar	nple, g		1204.3						
Wet Density	, pcf		114.8						
Dry Density,	pcf		86.4						
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.87						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Diai	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2299				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			331				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		331			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	2)		
			DESC	RIPTION			,		
							T		
							Failure Typ	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS					
							Τ		

		î		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973			<u> </u>					Date	09/04/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			SHID				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	21136-02-1		•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/El	levation		-
Sample ID			38690	/2-45		Subs	ample ID	5		Location			ç	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	te		08/25/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	lethod for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porou w)	IS		
I	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	After Test)		
Heiaht		3.031	lin	7.70 c	m Speed			10	1							
Diameter		2.969	in	7.54 c	m Board Nu	umber		6		Average Hei	oht of Samp	le	3.032 i	in	7.70 cm	
Area		6.92	in ²	44.67 C	m ² Cell Num	nber		33		Average Dia	meter of Sa	nple	2.970 i	in	7.54 cm	
Volume		343.87	cm ³	0.0121 ft	Flow Pur	np Numbe	r	3A		Area	6.93	in ²	44.70	cm ²		
Mass		628.3	g	1.39 II	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	344.22	cm ³	0.0122	ft ³	Dry Density	85.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	634.1	g	1.40 I	lb	Vol. of Voids	168.99 cm ³
Dry Density	/	85.8	pcf		Cell Pres	sure		95.0	psi			J -			Vol. of Solids	175.23 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	0.96
	Mois	ture Cont	ent		Confining	g (Effective) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	95.3 %
Mass of we	t sample 8	tare	628.3	g	Max Hea	d		31.65	cm	Mass of wet	sample & ta	re	715.2	g		
Mass of dry	sample &	tare	472.9	g	Min Head	b		30.95	cm	Mass of dry s	sample & ta	re	554.3	g		
Mass of tar	е		0.0	g	Maximun	n Gradient		4.11		Mass of tare			81.4	g		
% Moisture			32.9		Minimum	Gradient		4.02		% Moisture			34.0			
TIME	FUNCT	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: D	Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	ON		
09/04/21	10	5	-	0.44	30.95	4.02	25.3	-	-	-		NA			ι	JSCS
09/04/21	10	15	600	0.45	31.65	4.11	25.3	1.23E-06	0.883	1.09E-06					(ASTM	D2487;2488)
09/04/21	10	25	600	0.44	30.95	4.02	25.3	1.23E-06	0.883	1.09E-06						NA
09/04/21	10	35	600	0.45	31.65	4.11	25.3	1.23E-06	0.883	1.09E-06	*			REMARK	S	
09/04/21	10	45	600	0.44	30.95	4.02	25.3	1.23E-06	0.883	1.09E-06	*	Bottom	Half of the mo	old was used	I for testing.	
09/04/21	10	55	600	0.45	31.65	4.11	25.3	1.23E-06	0.883	1.09E-06	*					
09/04/21	11	5	600	0.44	30.95	4.02	25.3	1.23E-06	0.883	1.09E-06	*					
				_	Reported	Average	Hydraulic Co	nductivity*		1.1E-06	cm/sec					
Flow pump	ID #	4	75	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			469			
Thermomet	ter ID #	796	/985	0	Ven ID #	496/758		Board Press	ure Meter	r ID#			1042			
Syringe ID a	#	49	91	J				Pore Pressu	ire Meter	ID #			779/780			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Cali Ilts at steady	brated Syringe f Differential Pre	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sa gnificant upward or	mple with accur downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEL	.Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/22/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASH O	ļ			Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	1136-02-1		
Pr. Name					Time Oil Term	inal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID			38690	/2-45		Subs	ample ID	6		Location			S	Seattle, WA	-	
Add. Info		-		Mix	ing/Molding Da	te		08/25/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials L	rd Test N Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous	S		
I	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	(fter Test		
Height		2.998	in	7.61 ci	m Speed											
Diameter		in	7.55 ci	m Board Nu	umber		Average Heig	ght of Samp	le	2.999 ir	า	7.62 cm				
Area		6.93	in²	44.73 CI	m ² Cell Num	ıber		17		Average Dia	meter of Sa	mple	2.972 ir	ı	7.55 cm	
Volume		340.59	cm ³	0.0120 ft	³ Flow Pur	np Numbe	r	2A		Area	6.94	in²	44.76 C	m ²		
Mass		626.1	g	1.38 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	340.93	cm ³	0.0120 ft	3	Dry Density	86.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	638.2	g	1.41 lt	C	Vol. of Voids	165.41 cm ³
Dry Density	,	86.8	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	175.52 cm ³
			_		Back Pre	essure		90.0	psi						Void Ratio	0.94
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	99.3 %
Mass of we	t sample &	tare	626.1	g	Max Hea	d		136.46	cm	Mass of wet	sample & ta	ire	723.6 g	I		
Mass of dry	sample &	tare	473.9	g	Min Head	b		135.76	cm	Mass of dry s	sample & ta	re	559.3 g	I		
Mass of tar	е		0.0	g	Maximun	n Gradient		17.91		Mass of tare			85.4 g	l		
% Moisture			32.1		Minimum	Gradient		17.82		% Moisture			34.7			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water	Used for Pe	ermeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N	_	
09/22/21	10	20	-	1.94	136.46	17.91	25.5	-	-	-		NA			l	JSCS
09/22/21	10	30	600	1.93	135.76	17.82	25.5	1.40E-07	0.879	1.23E-07					(ASTM	D2487;2488)
09/22/21	10	40	600	1.94	136.46	17.91	25.5	1.40E-07	0.879	1.23E-07						NA
09/22/21	10	50	600	1.93	135.76	17.82	25.5	1.40E-07	0.879	1.23E-07	*			REMARK	S	
09/22/21	11	0	600	1.94	136.46	17.91	25.5	1.40E-07	0.879	1.23E-07	*	Bottom	Half of the mol	ld was used	for testing.	
09/22/21	11	10	600	1.93	135.76	17.82	25.5	1.40E-07	0.879	1.23E-07	*					
09/22/21	11	20	600	1.94	136.46	17.91	25.5	1.40E-07	0.879	1.23E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		1.2E-07	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	" ID #			1041			
Syringe ID a	#	24	45				-	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no s	e fully saturated san ignificant upward or	nple with accur downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
,	r.e. s.r.	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973		•	Date	08/31/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PF	R. #	21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Ty	/pe Mold	Depth/Elev.	-
Sample ID		38697/2-7	-	Subsample	1	Locat	ion	Seattle, WA	
Add. Info			Mixing/Mo	olding Date	08/26/21		Curing	Age, Days	5
	ASTM E) 1633: Standa	rd Test Met	hods for Com	pressive Stren	igth of Molde	l Soil-Cement	Cylinders	
				METHOD	В				
		ΓΔ					RMINATION		
Initial Height		~	5 595	7	Mass of Wet	Sample and	Tare a	1542.4	
Initial Diame	ter in		2.977	-	Mass of Drv	Sample and	Tare, g	1225.5	
Height-to-Di	ameter Ratio		1.88	-	Mass of Tare	e, g		305.7	
Area, in ²			6.96	1	Moisture, %	-		34.5	
Volume, in ³			38.94						
Mass of Sar	nple, g		1237.2						
Wet Density	, pcf		121.0						
Dry Density,	pcf		90.0	_					
Machine Sp	eed, in/min		0.050	4					
Strain rate, S	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	Ł	11/1015	1		Di	aital Caliper II	C # 17/583	
	Compression	Device ID #	10/1014			Rea	dout Device II	D # 10/1016	
	Balance ID #		1036/1037				Oven I) # 758/496	
Maximum Lo	oad at Failure,	bf			249				
Specimen C	ross-sectional	Area, in ²			6.96		Failure Co	de 3	
Compressiv	e Strength at F	ailure, psi			36				
Conversion	Factor for Heig	ht to Diameter	^r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		36			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per ASTM	C42)		
			DESC	RIPTION			,		
							Failure Ty	pe:	
								Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	188) 1				
				L	J				
			REM	IARKS					

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/05/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38697/2-7		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/26/21		Curing A	Age, Days	10
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
le iti al I la inda		Α	E 070	٦	WATER CON		WINATION	4500.7	
Initial Heigh	(, IN stor in		5.6/3	_	Mass of Wet	Sample and Ta	re, g	1583.7	
Height to Di	ameter Patio		2.975	_	Mass of Tare	Sample and Tar	e, g	1205.0	
Aroa in ²			6.05	-	Maisture %	, y		24.1	
Alea, III Volumo in^3			0.90	-	woisture, %			34.1	
Mass of Sar	nnle a		1253.3	-					
Wet Density	npie, g		1200.0	-					
Dry Density	ncf		90.2	-					
Machine Sp	eed. in/min		0.050	-					
Strain rate,	% / min		0.88						
,				1					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1086				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			156				
Conversion	Factor for Heig	ht to Diameter	. Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		156			Failure Sket	ch
Noto 2: * A		based on U/D-	1 15 (C E 0	08 00 100% 0	nd add corrocti	on por ASTM CA	21		
NOLE 2 A C		based on h/D-	DESC			on per ASTM C42	2)		
			DLSC				T		
							Failure Type	e: Cono and S	boor
	L	1.14		D2487. D24	88)		1		illai
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					1				
	r		REM	IARKS			T		
							L		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
,	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/16/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38697/2-7		Subsample	3	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/26/21		Curing A	lge, Days	21
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		ГЛ					MINATION		
Initial Height	t in		5 686	Т	Mass of Wet	Sample and Ta		1576.4	
Initial Diame	ter in		2 987	-	Mass of Drv S	Sample and Tar	re a	1250.5	
Height-to-Di	ameter Ratio		1.90	1	Mass of Tare	. a	o, g	306.9	
Area, in ²			7.01		Moisture. %			34.5	
Volume, in ³			39.84	1	,				
Mass of Sar	nple, g		1272.7	1					
Wet Density	, pcf		121.7						
Dry Density,	pcf		90.4						
Machine Sp	eed, in/min		0.050	_					
Strain rate, 9	% / min		0.88						
				TEST	DATA				
	I oad Cell ID #	ŧ	11/1015	1		Digiti	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure	lbf			2933	_			
Specimen C	ross-sectional	Area, in ²			7.01		Failure Code	e 3	
Compressiv	e Strength at F	ailure, psi			419				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure. psi		419			Failure Sket	ch
	conversion factor	hased on H/D=	1 15 (C E - 0	108 as 100% a	nd add correcti	on per ASTM CA	2)		
NOIC 2 A C			DESC	RIPTION			-)		
							1	\times	
							Failure Type		
							i anaio i jpe	Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	88)		-		
			REM	IARKS					
							T		
							l		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
,	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/23/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-1	
Pr. Name		Т	ime Oil Term	inal	-	S. Type	Mold	Depth/Elev.	-
Sample ID		38697/2-7		Subsample	4	Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/26/21		Curing A	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		ΓΔ							
Initial Height		~	5 748	1	Mass of Wet	Sample and Ta	re a	1583.3	
Initial Diame	ter. in		2.983		Mass of Drv S	Sample and Tar	re, g re. a	1255.3	
Height-to-Di	ameter Ratio		1.93		Mass of Tare	, g	-, 5	299.6	
Area, in ²			6.99		Moisture, %			34.3	
Volume, in ³			40.17						
Mass of San	nple, g		1286.8						
Wet Density	, pcf		122.0						
Dry Density,	pcf		90.8						
Machine Sp	eed, in/min		0.050						
Strain rate, S	% / min		0.87						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014	-		Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
Marinerum		1 .4		-	2205				
Specimen C		Area in ²			5365		Failure Cod		
Compressiv	o Strongth at E				0.99	ł		0	
Conversion	E Strength at 1	alluie, psi ht to Diamotor	Datio		404				
Penorted C		trongth at Fai			1.00			Failura Skot	ch
Neto 2: * A			145 (OF 0	00 100% -			2)		
Note 2: " - A C	conversion factor	based on H/D=	DESC	08 as 100% a RIPTION	na ada. correcti	on per ASTM C42	2)		
			DLOO				T	\times	
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)		-		
			REM	IARKS					
							I		

		î		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle X \rangle$			Tested By	/ EB/KP
				Soil		Fax: 770-	-923-8973							Date	09/05/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked E	By 18
Client Pr. 7					200016					Lab. PR. #			21136-	-02-1	•
Pr. Name					Time Oil Term	ninal				S. Type	Мо	d	Depth/Elevatio	'n	-
Sample ID			38697	7/2-7		Subs	ample ID	5		Location			Seattle	e, WA	
Add. Info		-		Mix	ing/Molding Da	ite		08/26/21				Curir	ng Age, Days		10
				ASTM D	5084; Standa Materials l	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous ow)		
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (After	Test)	
Height		2.147	in	5.45 ci	m Speed			9							
Diameter		2.995	in	7.61 ci	m Board Nu	umber		3		Average Heig	ght of Samp	le	2.148 in	5.46 cm	
Area		7.05	in²	45.45 CI	m ² Cell Num	nber		13		Average Dia	meter of Sa	mple	2.996 in	7.61 cm	
Volume		247.87	cm ³	0.0088 ft	³ Flow Pur	np Numbe	r	1A		Area	7.05	in ²	45.48 cm ²		
Mass		458.3	g	1.01 lb	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	248.15	cm ³	0.0088 ft ³	Dry Density	86.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	460.1	g	1.01 lb	Vol. of Void	s 121.55 cm ³
Dry Density	ensity 86.0 pcf				Cell Pres	sure		95.0	psi					Vol. of Solid	ls 126.60 cm ³
					Back Pre	essure		90.0	psi					Void Ratio	0.96
	Mois	ture Cont	ent	_	Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	97.3 %
Mass of we	t sample &	tare	458.3	g	Max Hea	d		19.70	cm	Mass of wet	sample & ta	re	534.0 g		
Mass of dry	sample &	tare	341.6	g	Min Hea	d		18.99	cm	Mass of dry s	sample & ta	re	415.8 g		
Mass of tar	е		0.0	g	Maximun	n Gradient		3.61		Mass of tare			74.2 g		
% Moisture			34.2		Minimum	Gradient		3.48		% Moisture			34.6		
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Used	for Permeability T	est.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/05/21	8	5	-	0.28	19.70	3.61	25.6	-	-	-		NA			USCS
09/05/21	8	15	600	0.27	18.99	3.48	25.6	2.78E-06	0.877	2.44E-06				(AS	TM D2487;2488)
09/05/21	8	25	600	0.28	19.70	3.61	25.6	2.78E-06	0.877	2.44E-06					NA
09/05/21	8	35	600	0.27	18.99	3.48	25.6	2.78E-06	0.877	2.44E-06	*		REI	MARKS	
09/05/21	8	45	600	0.28	19.70	3.61	25.6	2.78E-06	0.877	2.44E-06	*	Bottom	Half of the mold was	s used for testing.	
09/05/21	8	55	600	0.27	18.99	3.48	25.6	2.78E-06	0.877	2.44E-06	*				
09/05/21	9/05/21 9 5 600 0.28			19.70	3.61	25.6	2.78E-06	0.877	2.44E-06	*					
					Reported	Average	Hydraulic Co	nductivity*		2.4E-06	cm/sec				
Flow pump	ow pump ID # 22 Ba					1035/1036		Differential F	Pressure I	Meter ID #			1107		
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	r ID #			1041		
Syringe ID a	Syringe ID # 140						-	Pore Pressu	re Meter	ID #			26/27		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sample wit ignificant upward or downwa	th accuracy +/-5%. Flow ard trend.	Pump Rate isused for

		î		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/23/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			211	36-02-1		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Eleva	ation		-
Sample ID			38697	7/2-7		Subs	ample ID	6		Location			Sea	attle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		08/26/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous w)			
	nitial San	nple Dat	a (Befor	e Test)		-	Test Data	a					Final Data (Afte	er Test)		
Height		3.024	in	7.68 ci	m Speed			11								
Diameter		2.969	in	7.54 ci	m Board Nu	umber		3		Average Heig	ght of Samp	le	3.025 in	ſ	7.68 cm	
Area		6.92	in²	44.67 CI	m ² Cell Num	nber		55		Average Dia	meter of Sa	mple	2.970 in	F	7.54 cm	
Volume		343.08	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	2B		Area	6.93	in²	44.70 cm ²	2		
Mass		655.3	g	1.44 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	343.42	cm ³	0.0121 ft ³		Dry Density	88.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	655.3	g	1.44 lb	,	Vol. of Voids	163.00 cm ³
Dry Density	ensity 88.6 pcf				Cell Pres	sure		95.0	psi			_		,	Vol. of Solids	180.43 cm ³
					Back Pre	essure		90.0	psi					,	Void Ratio	0.90
	Mois	ture Cont	ent	-	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	103.2 %
Mass of we	t sample &	tare	655.3	g	Max Hea	d		114.65	cm	Mass of wet	sample & ta	ire	740.5 g			
Mass of dry	sample &	tare	487.3	g	Min Head	d		113.95	cm	Mass of dry s	sample & ta	re	572.3 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		14.92		Mass of tare			85.0 g			
% Moisture			34.5		Minimum	Gradient		14.83		% Moisture			34.5			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Us	ed for Per	meability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
09/23/21	10	20	-	1.63	114.65	14.92	25.4	-	-	-		NA			I	USCS
09/23/21	10	30	600	1.62	113.95	14.83	25.4	1.68E-07	0.881	1.48E-07					(ASTM	I D2487;2488)
09/23/21	10	40	600	1.63	114.65	14.92	25.4	1.68E-07	0.881	1.48E-07						NA
09/23/21	10	50	600	1.62	113.95	14.83	25.4	1.68E-07	0.881	1.48E-07	*			REMARKS	8	
09/23/21	11	0	600	1.63	114.65	14.92	25.4	1.68E-07	0.881	1.48E-07	*	Bottom	Half of the mold w	was used	for testing.	
09/23/21	11	10	600	1.63	114.65	14.92	25.4	1.68E-07	0.881	1.48E-07	*					
09/23/21	0/23/21 11 20 600 1.62				113.95	14.83	25.4	1.68E-07	0.881	1.48E-07	*					
					Reported	Average	Hydraulic Cor	nductivity*		1.5E-07	cm/sec					
Flow pump	low pump ID # 244 Ba					1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	hermometer ID # 796/985 Ov					496/758		Board Press	ure Meter	r ID #			1041			
Syringe ID a	Syringe ID # 246						-	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sample gnificant upward or dow	e with accura wnward trend	icy +/-5%. Flow Pu I.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 3008	34			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233	\square	$\mathbf{\nabla}$		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\bigtriangledown			Date	09/04/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AAS			Checked By	18
Client Pr. #			200016			La	ab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38731/2-1		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/30/21			Curing A	Age, Days	5
	ASTM D) 1633: Standa	rd Test Metl	nods for Com	pressive Stre	ngth of N	Aolded So	il-Cement C	ylinders	
				METHOD	В					
		гл					DETERM			
Initial Height	t in		5 699	1	Mass of Wet	t Sample	and Tar		1477 4	
Initial Diame	ter in		2 972		Mass of Drv	Sample	and Tare	e, g e a	1214.5	
Height-to-Di	ameter Ratio		1.92	1	Mass of Tare	e. a		, 9	303.0	
Area, in ²			6.94		Moisture %	-, 3			28.8	
Volume. in ³			39.54							
Mass of Sar	nple. a		1177.3	1						
Wet Density	, pcf		113.4							
Dry Density,	pcf		88.0	1						
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.88							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure, I	lbf			73					
Specimen C	ross-sectional	Area, in ²			6.94			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			11					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		11				Failure Sketo	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per A	ASTM C42)		
			DESC	RIPTION		,	,			
							ſ			
								Failure Type	<u>،</u> الاست	
									Cone and S	hear
	•	U	SCS (ASTM	D2487: D24	188)		<u> </u>			
]					
			RFM	IARKS						
				-						

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	Ê.E. ST.	Engine	ERING	Phone: 770-9	938-8233	$ \square $			Tested By	KP/IH
		Soil		Fax: 770-923	۱ 8-8973	\sim	2		Date	09/09/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com	AASH			Checked By	18
Client Pr. #			200016			Lab. F	PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. '	Туре	Mold	Depth/Elev.	-
Sample ID		38731/2-1		Subsample	2	Loc	ation		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/30/21			Curing A	Age, Days	10
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	igth of Mold	ed Soi	l-Cement C	ylinders	
				METHOD	В					
		- A								
Initial Height		A	5 634	7	Mass of Wet	Sample an	d Tare		1502.1	
Initial Diame	, III ter in		2 975	-	Mass of Dry	Sample and	u Tare	, у а	1234.5	
Height-to-Dia	ameter Ratio		1.89	-	Mass of Tare		i Turc	, 9	303.0	
Area in ²			6.95		Moisture %	, g			28.7	
Volume in^3			39.16		moletare, /				20.7	
Mass of San	nole, a		1201.3	-						
Wet Density	. pcf		116.9	-						
Dry Density,	pcf		90.7							
Machine Spe	eed, in/min		0.050							
Strain rate, %	% / min		0.89							
				_						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]		[Digital	Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Re	eadout	Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure, I	bf			324					
Specimen C	ross-sectional	Area, in ²			6.95		F	ailure Cod	e 3	
Compressive	e Strength at F	ailure, psi			47					
Conversion I	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		47				Failure Skete	ch
Note 2: * - A c	onversion factor	based on H/D=	1.15 (C.F 9	08 as 100% a	nd add. correct	tion per ASTM	A C42)			
			DESC	RIPTION			,			
									$ $ \times $ $	
							F	ailure Type	e. Karala a	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
]					
			REM	IARKS						
				-						
							•			

Г	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	$\overline{\mathcal{A}}$			Date	09/20/21
L		TESTS, L	LC	Web: <u>www.te</u>	st-llc.com	AASH			Checked By	18
Client Pr. #			200016			Lab.	. PR. #		21136-02-2	
Pr. Name		Т	ïme Oil Term	inal		S	5. Туре	Mold	Depth/Elev.	-
Sample ID		38731/2-1	-	Subsample	3	Lo	ocation		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/30/21			Curing A	ge, Days	21
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ngth of Mol	lded Soi	il-Cement Cy	linders	
				METHOD	В					
								_		
		ГА		-	WATER CO	NTENT DE	ETERM	INATION		1
Initial Height	t, in Itan in		5.603	_	Mass of We	et Sample a	ind lare	e, g	1549.8	
Height to Di	eter, in amotor Patio		2.979	-	Mass of Dry	Sample ar	nd Tare	, g	1284.3	
Aroo in ²			1.00	-		e, g			359.9	
Area, in $V_{\rm olume}$ in ³			0.97	-	woisture, %	1			28.7	
Mass of Sar	nnlo a		39.05	-						
Wet Density	npie, g		116.2							
Dry Density	pcf		90.3							
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.89							
				-						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015				Digital	Caliper ID #	# 17/583	
	Compression	Device ID #	10/1014			F	Readout	t Device ID #	# 10/1016	
	Balance ID #		1036/1037					Oven ID #	# 758/496	
Maximum Lo	oad at Failure,	lbf			674					
Specimen C	ross-sectional	Area, in ²			6.97		F	ailure Code	e 3	
Compressiv	e Strength at F	ailure, psi			97					
Conversion	Factor for Heig	ht to Diamete	r Ratio		1.00					
Reported C	ompressive S	trength at Fa	ilure, psi		97				Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	=1.15 (C.F9	08 as 100% a	nd add. correc	tion per AST	TM C42)			
			DESC	RIPTION		,	,			
									\mathbf{X}	
							F	ailure Type	:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
			REM	IARKS						
L										

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/27/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	<i>‡</i>	21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID		38731/2-1		Subsample	4	Location	۱	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	08/30/21		Curing	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	Soil-Cement C	Cylinders	
				METHOD	В				
		гл					ΜΙΝΑΤΙΟΝ		
Initial Heigh	JANNIFLE DAT		5 641	1	Mass of Wet	Sample and Ta		1503 5	
Initial Diame	ter in		2.976		Mass of Drv	Sample and Ta	re. a	1235.5	
Height-to-Di	ameter Ratio		1.90		Mass of Tare	e, g	, g	302.0	
Area, in ²			6.96		Moisture, %			28.7	
Volume, in ³			39.24						
Mass of Sar	nple, g		1204.1						
Wet Density	, pcf		116.9						
Dry Density,	pcf		90.8						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Diai	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
	and at Eathura	1.4		-	050				
Specimen C		Area in ²			930		Failure Coo		
Compressiv	e Strength at E				0.90				
Conversion	E Strength at I	allure, psi ht to Diamotor	Datio		1.00				
Benerted C		trongth at Eai			127			Eailura Skot	ch
Reported C	ompressive 3		iure, psi		137				
Note 2: * - A 6	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a. DIDTION	nd add. correct	ion per ASTM C4	2)		
			DESC	RIFTION			Т		
							railure ryp	Cone and S	hear
	L	U	SCS (ASTM	D2487: D24	88)		4		
			, <u> </u>] ´				
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	-		KEN	IAKNO			Т		
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J									

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/09/21
	<u> </u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	lB
Client Pr. #					200016	-				Lab. PR. #			2	21136-02-2		-
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/El	evation		-
Sample ID			38731	1/2-1		Subs	ample ID	5		Location			5	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	te		08/30/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials L	rd Test N Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity Istant Rate	of Satu e of Flo	rated Porou w)	S		
lı	nitial San	nple Dat	a (Befor	e Test)			Test Dat	а					Final Data (A	After Test)		
Height		3.081	in	7.83 c	m Speed			10]							
Diameter		2.959	in	7.52 c	m Board Nu	umber		1		Average Hei	ght of Samp	le	3.082 i	n	7.83 cm	
Area		6.88	in ²	44.37 C	m ² Cell Num	ıber		15		Average Dia	meter of Sa	nple	2.960 ii	n	7.52 cm	
Volume		347.19	cm ³	0.0123 ft	³ Flow Pur	np Numbe	r	1B		Area	6.88	in ²	44.40	cm ²		
Mass		652.2	g	1.44 lk	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	347.54	cm ³	0.0123 f	t ³	Dry Density	91.3 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	664.7	g	1.47	b	Vol. of Voids	159.27 cm ³
Dry Density	91.4 pcf				Cell Pres	sure		95.0	psi			-			Vol. of Solids	188.27 cm ³
	ensity 91.4 pct				Back Pre	ssure		90.0	psi						Void Ratio	0.85
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent		Saturation	98.2 %
Mass of wet	t sample &	k tare	652.2	g	Max Hea	d		53.46	cm	Mass of wet	sample & ta	re	746.9 g	J		
Mass of dry	sample &	tare	508.4	g	Min Head	b		52.76	cm	Mass of dry	sample & ta	re	590.5	J		
Mass of tare	Э		0.0	g	Maximun	n Gradient		6.83		Mass of tare			82.1 g)		
% Moisture			28.3		Minimum	Gradient		6.74		% Moisture			30.8			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	N	_	
09/09/21	9	20	-	0.76	53.46	6.83	25.3	-	-	-		NA			ι	JSCS
09/09/21	9	30	600	0.75	52.76	6.74	25.3	7.44E-07	0.883	6.57E-07					(ASTM	D2487;2488)
09/09/21	9	40	600	0.76	53.46	6.83	25.3	7.44E-07	0.883	6.57E-07						NA
09/09/21	9	50	600	0.76	53.46	6.83	25.3	7.39E-07	0.883	6.53E-07	*			REMARK	S	
09/09/21	10	0	600	0.75	52.76	6.74	25.3	7.44E-07	0.883	6.57E-07	*	Bottom	Half of the mo	ld was used	for testing.	
09/09/21	10	10	600	0.76	53.46	6.83	25.3	7.44E-07	0.883	6.57E-07	*					
09/09/21	10	20	600	0.75	52.76	6.74	25.3	7.44E-07	0.883	6.57E-07	*					
				_	Reported	Average	Hydraulic Co	nductivity*		6.6E-07	cm/sec					
Flow pump	ow pump ID # 22 Ba					1035/1036		Differential F	Pressure I	Meter ID #			942			
Thermomet	Thermometer ID # 796/985 Oven ID #							Board Press	sure Meter	ID #			64			
Syringe ID # 141							-	Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of I	of Flow Syst	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sar gnificant upward or	nple with accur downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		î		TIMEI	LΥ	1874 For	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233			<u>ح</u>	$\langle \Lambda \rangle$				Tested By	EB/K	٢P
				Soil		Fax: 770-	923-8973					-			Date	09/27/	/21
	<u>(</u>			Tests	, LLC	Web: ww	w.test-llc.com	<u>n</u>			ASHIC Redited)			Checked By	18	8
Client Pr. 7	4				200016					Lab. PR. #	E			21136-02-2		•	
Pr. Name					Time Oil Term	ninal				S. Type	Mo	ld	Depth/E	Elevation		-	
Sample ID			3873 <i>′</i>	1/2-1		Subs	ample ID	6		Location				Seattle, WA			
Add. Info		-		Miz	king/Molding Da	ate		08/30/21				Curin	g Age, Days			28	
				ASTM D	5084; Standa Materials l	ard Test M Jsing a F	lethod for lexible Wal	Measurem Il Permeam	ent of Hy eter (Me	/draulic Coi thod D, Cor	nductivity Istant Rat	of Satu e of Flo	rated Poro w)	us			
h	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	а					Final Data	(After Test))		
Height		3.009	in	7.64 c	m Speed			11	1								
Diameter		2.975	in	7.56 c	m Board N	umber		18		Average Hei	ght of Samp	ole	3.010	in	7.65 cm		
Area		6.95	in²	44.85 C	m ² Cell Num	nber		14		Average Dia	meter of Sa	mple	2.976	in	7.56 cm		
Volume		342.76	cm ³	0.0121 ft	Flow Pur	mp Number	r	2B		Area	6.96	in ²	44.88	cm ²			
Mass		634.2	g	1.40 lk	Flow Pur	mp Rate*		1.12E-04	cm ³ /sec	Volume	343.10	cm ³	0.0121	ft ³	Dry Density	89.3	pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	e		0.95		Mass	644.3	g	1.42	lb	Vol. of Voids	161.15	cm ³
Dry Density	ensity 89.8 pcf				Cell Pres	ssure		95.0	psi			-		4	Vol. of Solids	181.95	cm ³
	Jensity 89.8 pci				Back Pre	essure		90.0	psi						Void Ratio	0.89	
	Moisture Content				Confining	g (Effective) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	95.0	%
Mass of we	t sample 8	tare	634.2	g	Max Hea	ad		57.68	cm	Mass of wet	sample & ta	are	727.9	g			
Mass of dry	sample &	tare	493.1	g	Min Hea	d		56.98	cm	Mass of dry	sample & ta	re	574.3	g			
Mass of tar	е		0.0	g	Maximur	n Gradient		7.54		Mass of tare			81.2	g			
% Moisture			28.6		Minimum	n Gradient		7.45		% Moisture			31.1				
TIME	FUNCT	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wate	er Used for Pe	ermeability Tes	st.	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPT	ION	_		
09/27/21	8	30	-	0.81	56.98	7.45	24.5	-	-	-		NA				USCS	
09/27/21	8	40	600	0.82	57.68	7.54	24.5	3.33E-07	0.899	2.99E-07					(ASTN	M D2487;2488))
09/27/21	8	50	600	0.81	56.98	7.45	24.5	3.33E-07	0.899	2.99E-07						NA	
09/27/21	9	0	600	0.82	57.68	7.54	24.5	3.33E-07	0.899	2.99E-07	*			REMARK	(S		_
09/27/21	9	10	600	0.81	56.98	7.45	24.5	3.33E-07	0.899	2.99E-07	*	Bottom	Half of the m	old was used	d for testing.		
09/27/21	9	20	600	0.82	57.68	7.54	24.5	3.33E-07	0.899	2.99E-07	*						
09/27/21	9	30	600	0.81	56.98	7.45	24.5	3.33E-07	0.899	2.99E-07	*						
						d Average I	Hydraulic Co	nductivity*		3.0E-07	cm/sec						
Flow pump	low pump ID # 244 Balance ID #					1035/1036		Differential I	Pressure I	Meter ID #			587				
Thermomet	hermometer ID # 796/985 Oven ID # 496/758 Bo						Board Press	sure Meter	· ID #			570					
Syringe ID a	yringe ID # 246							Pore Pressu	ire Meter	ID #			779/780				
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra	ated Graduate s at the range	d Pipette for out of +/-5%. Perme	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow table above) sh	through the	e fully saturated s	ample with accur or downward tren	racy +/-5%. Flow P nd.	ump Rate isuse	ed for	
Г	t	TIMELY		1874 Forge S	Street Tucker,	GA 30	084										
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<u>'</u>	<u>r.e. s.r.</u>	Enginei	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH							
		Soil		Fax: 770-923	8-8973	\sim	\sim		Date	09/05/21							
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18							
Client Pr. #			200016				Lab. PR. #		21136-02-2								
Pr. Name		Т	ime Oil Term	inal	_		S. Type	Mold	Depth/Elev.	-							
Sample ID		38732/2-43		Subsample	1		Location		Seattle, WA								
Add. Info	-		Mixing/Mo	olding Date	08/31/21			Curing A	Age, Days	5							
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Strei	ngth of	f Molded So	oil-Cement C	ylinders								
				METHOD	В												
		A			WATER CO												
Initial Height	t, in		5.614	1	Mass of We	t Sam	ple and Tar	e, q	1480.6								
Initial Diame	ter, in		2.973		Mass of Dry	' Samp	le and Tare	e, g	1195.3								
Height-to-Di	ameter Ratio		1.89		Mass of Tar	e, g		-	310.1								
Area, in ²			6.94		Moisture, %				32.2								
Volume, in ³			38.97														
Mass of Sar	nple, g		1171.1														
Wet Density	, pcf		114.5														
Dry Density,	pcf		86.5	-													
Machine Sp	eed, in/min		0.050	-													
Strain rate, S	% / MIN		0.89														
				TEST	DATA												
	Load Cell ID #	ŧ	11/1015]			Digita	l Caliper ID	# 17/583								
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016								
	Balance ID #		1036/1037]				Oven ID	# 758/496								
Maximum Lo	oad at Failure,	lbf			522												
Specimen C	ross-sectional	Area, in ²			6.94			Failure Cod	e 3								
Compressiv	e Strength at F	ailure, psi			75												
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00												
Reported C	ompressive S	trength at Fai	lure, psi		75				Failure Sket	ch							
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correc	tion per	r ASTM C42	')									
			DESC	RIPTION				, ,									
								Failure Type	e:								
									Cone and S	hear							
		U	SCS (ASTM	D2487: D24	88)												
			REM	IARKS													

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/10/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38732/2-43		Subsample	2	Location		Seattle, WA	
Add. Info		-	Mixing/Mo	olding Date	08/31/21		Curing A	Age, Days	10
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Streng	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
	SAMPLE DA	Α	5.040	٦	WATER CON		MINATION		
Initial Height	i, IN Itor in		5.616	-	Mass of Wet	Sample and Ta	re, g	1465.5	
Height to Di	ameter Patio		2.908	_	Mass of Tare		e, g	207.1	
Aroa in ²			6.02	-	Maisture %	, y		297.1	
Alea, III Volumo in^3			0.92	-	woisture, %			32.0	
Mass of Sar	nnle a		30.00 1171 /	-					
Wet Density	npie, g		11/ 1.4	-					
Dry Density	pcf		86.6	-					
Machine Sp	eed, in/min		0.050	-					
Strain rate, 9	% / min		0.89						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			858				
Specimen C	ross-sectional	Area, in ²			6.92		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			124				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure. psi		124			Failure Sket	ch
	conversion factor	based on H/D=	1 15 (C E - 0	08 as 100% a	nd add correcti	on per ASTM CA	2)		
Note 2 A C		based on the	DESC				-)		
			DLOO				T	\checkmark	
							Failule Type	cone and S	hear
	L		SCS (ASTM	D2487: D24	188)		1		
		0]				
					-				
			KEN	NAKNO			T		
							l		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
,	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/21/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38732/2-43	1	Subsample	3	Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	08/31/21		Curing A	lge, Days	21
	ASTM D) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		ΓΔ			WATER COM		MINATION		
Initial Height	t. in		5.622	1	Mass of Wet	Sample and Ta	re. a	1525.1	
Initial Diame	eter, in		2.974		Mass of Dry	Sample and Tar	e, g	1238.3	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g		360.1	
Area, in ²			6.95		Moisture, %			32.7	
Volume, in ³			39.05						
Mass of Sar	nple, g		1176.2						
Wet Density	r, pcf		114.7	-					
Dry Density, Machine Sp	pci eed in/min		86.5						
Strain rate.	% / min		0.89	-					
,	, , , , , , , , , , , , , , , , , , , ,		0.00	J					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digita	al Caliper ID :	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID ;	# 758/496	
Maximum Lo	oad at Failure, I	bf			2102				
Specimen C	ross-sectional	Area, in²			6.95		Failure Code	e 3	
Compressiv	e Strength at F	ailure, psi			303				
Conversion	Factor for Heig	ht to Diameter	r Ratio		1.00				
Reported C	ompressive S	trength at Fa	ilure, psi		303			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	=1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	2)		
	r		DESC	RIPTION			7		
								\angle	
							⊢allure Type	Cone and S	hear
			SCS (ASTM	D2487: D24	88)		l		ncai
		U]				
			DEN		-				
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	L						L		

	•	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
,	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
	X	Soil		Fax: 770-923	3-8973			Date	09/28/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	<i>±</i>	21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Туре	e Mold	Depth/Elev.	-
Sample ID		38732/2-43		Subsample	4	Location	۱	Seattle, WA	
Add. Info		-	Mixing/Mo	olding Date	08/31/21		Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	Soil-Cement C	ylinders	
				METHOD	В				
		ГЛ					ΜΙΝΑΤΙΟΝ		
Initial Height	t in		5.554	7	Mass of Wet	Sample and Ta	are. a	1515.8	
Initial Diame	eter, in		2.983	-	Mass of Dry S	Sample and Ta	re, g	1229.7	
Height-to-Di	ameter Ratio		1.86	1	Mass of Tare	e, g	<i>,</i> ,	359.8	
Area, in ²			6.99		Moisture, %			32.9	
Volume, in ³			38.82						
Mass of Sar	nple, g		1158.3						
Wet Density	, pcf		113.7	_					
Dry Density,	pcf		85.5	_					
Strain rate	eea, in/min % / min		0.050	-					
Strain rate,	70 7 11111		0.90						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2207				
Specimen C	ross-sectional	Area, in ²			6.99		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			316				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		316			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	2)		
			DESC	RIPTION					
							Failure Type	e:	
			000 (1077)		100)			Cone and S	hear
		U	SUS (ASTN	D2487: D24	юð) 1				
					J				
			REN	IARKS					

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/10/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		AC	ASHIO				Checked By	18
Client Pr. #					200016					Lab. PR. #			:	21136-02-2		
Pr. Name					Time Oil Term	inal				S. Type	Мо	ld	Depth/El	levation		-
Sample ID			38732	/2-43		Subs	ample ID	5		Location			,	Seattle, WA		
Add. Info		-		Mix	king/Molding Da	te		08/31/21]		Curin	g Age, Days			10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porou w)	IS		
Ir	nitial Sar	nple Dat	a (Befor	e Test)		•	Test Data	a					Final Data (A	After Test)		
Height		3 073	lin	7.81 c	m Speed			10	1							
Diameter		2.959	in	7.52 c	m Board Nu	umber		19		Average Hei	oht of Same	le	3.074 i	in	7.81 cm	
Area		6.88	in ²	44.37 C	m ² Cell Num	iber		13		Average Dia	meter of Sa	mple	2.960 i	in	7.52 cm	
Volume		346.29	cm ³	0.0122 ft	³ Flow Pun	no Numbe	r	2B		Area	6.88	lin ²	44.40	cm ²		
Mass		635.0	q	1.40 lk	Flow Pun	np Rate*		2.24E-04	cm ³ /sec	Volume	346.64	cm ³	0.0122	ft ³	Dry Density	86.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	• •		0.95		Mass	648.9	a	1.43	lb	Vol. of Voids	168.83 cm ³
Dry Density		86.5	pcf	,	Cell Pres	sure		95.0	psi			_ _			Vol. of Solids	177.81 cm ³
	l		1.		Back Pre	ssure		90.0	psi						Void Ratio	0.95
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	100.0 %
Mass of wet	t sample &	k tare	635.0	g	Max Hea	d	,	102.70	cm	Mass of wet	sample & ta	re	735.6	g		·
Mass of dry	sample &	tare	480.1	g	Min Head	t		101.99	cm	Mass of dry	sample & ta	re	566.8	g		
Mass of tare	Э		0.0	g	Maximum	n Gradient		13.15		Mass of tare			86.7	g		
% Moisture			32.3		Minimum	Gradient		13.06		% Moisture			35.2			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	ermeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	NC		
09/10/21	8	5	-	1.46	102.70	13.15	25.7	-	-	-		NA				JSCS
09/10/21	8	15	600	1.45	101.99	13.06	25.7	3.85E-07	0.875	3.37E-07					(ASTM	D2487;2488)
09/10/21	8	25	600	1.46	102.70	13.15	25.7	3.85E-07	0.875	3.37E-07						NA
09/10/21	8	35	600	1.45	101.99	13.06	25.7	3.85E-07	0.875	3.37E-07	*			REMARK	S	
09/10/21	8	45	600	1.46	102.70	13.15	25.7	3.85E-07	0.875	3.37E-07	*	Bottom	Half of the mo	old was used	for testing.	
09/10/21	8	55	600	1.45	101.99	13.06	25.7	3.85E-07	0.875	3.37E-07	*					
09/10/21	9	5	600	1.46	102.70	13.15	25.7	3.85E-07	0.875	3.37E-07	*					
				_	Reported	Average	Hydraulic Cor	nductivity*		3.4E-07	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure N	Meter ID #			587			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	ID #			570			
Syringe ID #	#	24	46	J				Pore Pressu	Ire Meter	ID #			779/780			
*Constant Rate calculations of I	of Flow Syst	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	nflow & outflow able above) sh	through the	e fully saturated sa gnificant upward or	mple with accur r downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	09/28/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASH O			Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			21136-0)2-2	•
Pr. Name					Time Oil Term	ninal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38732	/2-43		Subs	ample ID	6		Location			Seattle,	WA	
Add. Info		-		Mix	ing/Molding Da	ite		08/31/21				Curir	ng Age, Days		28
				ASTM D	5084; Standa Materials L	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous w)		
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (After T	est)	
Height		3.022	in	7.68 ci	m Speed			12							
Diameter		2.972	in	7.55 ci	m Board Nu	umber		11		Average Heig	ght of Samp	le	3.023 in	7.68 cm	
Area		6.94	in²	44.76 CI	m ² Cell Num	nber		2		Average Dia	meter of Sa	mple	2.973 in	7.55 cm	
Volume		343.54	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	1A		Area	6.94	in ²	44.79 cm ²		
Mass		625.8	g	1.38 lb	Flow Pur	np Rate*		5.60E-05	cm ³ /sec	Volume	343.89	cm ³	0.0121 ft ³	Dry Density	84.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	630.8	g	1.39 lb	Vol. of Voids	171.38 cm ³
Dry Density	,	85.6	pcf		Cell Pres	sure		95.0	psi					Vol. of Solids	172.50 cm ³
					Back Pre	essure		90.0	psi					Void Ratio	0.99
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	96.3 %
Mass of we	t sample &	tare	625.8	g	Max Hea	d		167.41	cm	Mass of wet	sample & ta	re	702.8 g		
Mass of dry	sample &	tare	471.3	g	Min Head	d		166.71	cm	Mass of dry s	sample & ta	re	535.8 g		
Mass of tar	е		0.0	g	Maximun	n Gradient		21.80		Mass of tare			64.5 g		
% Moisture			32.8		Minimum	Gradient		21.71		% Moisture			35.4		
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Used for	or Permeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/29/21	7	5	-	2.38	167.41	21.80	26.1	-	-	-		NA			USCS
09/29/21	7	15	600	2.37	166.71	21.71	26.1	5.75E-08	0.867	4.99E-08				(ASTN	1 D2487;2488)
09/29/21	7	25	600	2.38	167.41	21.80	26.1	5.75E-08	0.867	4.99E-08					NA
09/29/21	7	35	600	2.37	166.71	21.71	26.1	5.75E-08	0.867	4.99E-08	*		REM	IARKS	
09/29/21	7	45	600	2.38	167.41	21.80	26.1	5.75E-08	0.867	4.99E-08	*	Bottom	Half of the mold was	used for testing.	
09/29/21	7	55	600	2.37	166.71	21.71	26.1	5.75E-08	0.867	4.99E-08	*				
09/29/21	8	5	600	2.38	167.41	21.80	26.1	5.75E-08	0.867	4.99E-08	*				
					Reported	Average	Hydraulic Co	nductivity*		5.0E-08	cm/sec				
Flow pump	ID #	2	22	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1107		
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	r ID #			776		
Syringe ID a	#	14	40				-	Pore Pressu	re Meter	ID #			26/27		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sample with gnificant upward or downwar	accuracy +/-5%. Flow P rd trend.	ump Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. [s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/11/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38741/2-41		Subsample	1	Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/01/21		Curing A	Age, Days	10
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		- 4							
Initial Haight		A	5 5 5 5	٦	WATER CON			1464 5	
	t, 111 Notor in		0.000 2.074		Mass of Dry	Sample and Ta	ie, y o a	1404.5	
	ameter Ratio		2.974	-	Mass of Tara		e, y	303.4	
Area in ²			6.05	-	Maisture %	, y		41.2	
$\lambda i e a$, in $\lambda o lumo i n^3$			29.50	-	woisture, 70			41.5	
Mass of Sar	nnle a		1164 3	-					
Wet Density	npic, g		114.9	-					
Dry Density	pcf		81.3	-					
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.90						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			646				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			93				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		93			Failure Skete	ch
Note 2 [.] * - A (onversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add_correcti	on per ASTM C4	2)		
//010 2. // (DESC	RIPTION			-/		
							T		
							Failule Type	e. Cone and S	hear
	L	11	SCS (ASTM	D2487· D24	88)		1		
]				
			KEN	NAKKS			T		
	L						1		
J									

Г	Î	TIMELY		1874 Forge S	Street Tucker,	GA 30	084			
2	<u>r.e. st.</u>	Engine	ERING	Phone: 770-9	938-8233	\square	Δ		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	\sim			Date	09/29/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com		SH O		Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38741/2-41		Subsample	2		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/01/21			Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ngth of	f Molded So	oil-Cement C	ylinders	
				METHOD	В					
	SAMPLE DAT	ΓA			WATER CO	NTEN		IINATION		
Initial Height	t, in		5.660	1	Mass of Wet	t Sam	ple and Tar	e, g	1485.7	
Initial Diame	eter, in		2.979		Mass of Dry	Samp	ble and Tare	e, g	1136.3	
Height-to-Di	ameter Ratio		1.90		Mass of Tare	e, g			298.5	
Area, in ²			6.97		Moisture, %				41.7	
Volume, in ³			39.45							
Mass of Sar	nple, g		1188.8							
Wet Density	, pcf		114.8							
Dry Density,	pcf		81.0	_						
Machine Sp	eed, in/min		0.050							
Strain rate,	76 / 11111	l	0.00]						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2280					
Specimen C	ross-sectional	Area, in ²			6.97			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			327					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		327				Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion pe	r ASTM C42)		
			DESC	RIPTION				, ,		
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
					J					
			REM	IARKS						

		î		TIMEI	LΥ	1874 For	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233			<u>ح</u>	$\langle \Lambda \rangle$				Tested By	EB/K	Р
				Soil		Fax: 770-	923-8973								Date	09/11/2	21
	(Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>n</u>		AC	ASH O				Checked By	18	,
Client Pr. #	4				200016					Lab. PR. #	ŧ			21136-02-2			
Pr. Name					Time Oil Term	ninal				S. Type	e Mo	ld	Depth/E	Elevation		-	
Sample ID			38741	/2-41		Subs	ample ID	3		Location	1			Seattle, WA			
Add. Info		-		Miz	king/Molding Da	ate		09/01/21				Curin	g Age, Days			10	
				ASTM D	5084; Standa Materials l	ard Test <mark>N</mark> Using a F	lethod for lexible Wal	Measurem Il Permeam	ent of Hy eter (Me	/draulic Coi thod D, Cor	nductivity	of Satu e of Flo	rated Poro	us			
II	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	а					Final Data (After Test)			
Height		3.029	in	7.69 c	m Speed			9	1								
Diameter		2.968	in	7.54 c	m Board N	umber		5		Average Hei	ght of Samp	le	3.030	in	7.70 cm		
Area		6.92	in²	44.64 C	m ² Cell Num	nber		13		Average Dia	meter of Sa	mple	2.969	in	7.54 cm		
Volume		343.41	cm ³	0.0121 ft	Flow Pur	mp Numbe	r	4B		Area	6.92	in ²	44.67	cm ²			
Mass		625.0	g	1.38 lt	Flow Pur	mp Rate*		4.48E-04	cm ³ /sec	Volume	343.76	cm ³	0.0121	ft ³	Dry Density	80.3	pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	Э		0.95		Mass	628.0	g	1.38	lb	Vol. of Voids	179.83	cm ³
Dry Density	/	80.4	pcf		Cell Pres	ssure		95.0	psi						Vol. of Solids	163.93	cm ³
			-		Back Pre	essure		90.0	psi						Void Ratio	1.10	
	Mois	ture Cont	ent		Confining	g (Effective) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	103.1	%
Mass of we	t sample 8	tare	625.0	g	Max Hea	ad		15.47	cm	Mass of wet	sample & ta	ire	726.6	g			
Mass of dry	sample &	tare	442.6	g	Min Hea	d		14.07	cm	Mass of dry	sample & ta	re	541.2	g			
Mass of tare	е		0.0	g	Maximur	n Gradient		2.01		Mass of tare	!		98.6	g			
% Moisture			41.2		Minimum	n Gradient		1.83		% Moisture			41.9				
TIME	FUNCT	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wate	r Used for Pe	ermeability Tes	t.	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTI	ON	_		
09/11/21	7	10	-	0.20	14.07	1.83	23.6	-	-	-		NA				USCS	
09/11/21	7	20	600	0.21	14.77	1.92	23.6	5.35E-06	0.918	4.92E-06					(ASTN	1 D2487;2488)	_
09/11/21	7	30	600	0.21	14.77	1.92	23.6	5.23E-06	0.918	4.80E-06						NA	j
09/11/21	7	40	600	0.22	15.47	2.01	23.6	5.10E-06	0.918	4.69E-06	*			REMARK	S		_
09/11/21	7	50	600	0.21	14.77	1.92	23.6	5.10E-06	0.918	4.69E-06	*	Bottom	Half of the m	old was used	I for testing.		
09/11/21	8	0	600	0.22	15.47	2.01	23.6	5.10E-06	0.918	4.69E-06	*						
09/11/21	8	10	600	0.21	14.77	1.92	23.6	5.10E-06	0.918	4.69E-06	*						
					Reported	d Average I	Hydraulic Co	nductivity*		4.7E-06	cm/sec						
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential I	Pressure I	Meter ID #	_		1045/1049				
Thermomet	ter ID #	796	/985	c	Ven ID #	496/758		Board Press	sure Meter	· ID #			1042				
Syringe ID #	#	10)46]				Pore Pressu	ire Meter	ID #			779/780				
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	imp with Calil lts at steady	brated Syringe f Differential Pres	or Inflow and Calibra	ated Graduate s at the range	d Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow table above) sh	through the owed no sig	e fully saturated significant upward o	ample with accur or downward tren	acy +/-5%. Flow Pu	ump Rate isuse	d for

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u><u><u>s</u></u></u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	09/29/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASH O				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			21	136-02-2		
Pr. Name					Time Oil Term	inal				S. Type	Мо	ld	Depth/Elev	vation		-
Sample ID			38741	/2-41		Subs	ample ID	4		Location			Se	attle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/01/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous w)			
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (Af	ter Test)		
Heiaht		2.921	lin	7.42 ci	m Speed			11								
Diameter		2.969	in	7.54 ci	m Board Nu	umber		8		Average Hei	ght of Samp	le	2.922 in	Ĩ	7.42 cm	
Area		6.92	in²	44.67 CI	m ² Cell Num	nber		5		Average Dia	meter of Sa	mple	2.970 in		7.54 cm	
Volume		331.39	cm ³	0.0117 ft	³ Flow Pur	np Numbe	r	4A		Area	6.93	in ²	44.70 cm	1 ²		
Mass		612.6	g	1.35 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	331.73	cm ³	0.0117 ft ³		Dry Density	81.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	613.0	g	1.35 lb		Vol. of Voids	171.21 cm ³
Dry Density	,	81.6	pcf		Cell Pres	sure		95.0	psi			-			Vol. of Solids	160.52 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	1.07
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	104.9 %
Mass of we	t sample &	tare	612.6	g	Max Hea	ld		113.95	cm	Mass of wet	sample & ta	re	695.6 g			<u></u>
Mass of dry	sample &	tare	433.4	g	Min Head	d		112.54	cm	Mass of dry s	sample & ta	re	516.0 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		15.35		Mass of tare			82.6 g			
% Moisture			41.3		Minimum	Gradient		15.16		% Moisture			41.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water U	sed for Pe	rmeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	l		
09/29/21	7	5	-	1.62	113.95	15.35	25.2	-	-	-		NA				USCS
09/29/21	7	15	600	1.61	113.25	15.26	25.2	1.64E-07	0.885	1.45E-07					(ASTM	I D2487;2488)
09/29/21	7	25	600	1.62	113.95	15.35	25.2	1.64E-07	0.885	1.45E-07						NA
09/29/21	7	35	600	1.61	113.25	15.26	25.2	1.64E-07	0.885	1.45E-07	*			REMARKS	S	
09/29/21	7	45	600	1.62	113.95	15.35	25.2	1.64E-07	0.885	1.45E-07	*	Bottom	Half of the mold	was used	for testing.	
09/29/21	7	55	600	1.61	113.25	15.26	25.2	1.64E-07	0.885	1.45E-07	*					
09/29/21	8	5	600	1.60	112.54	15.16	25.2	1.65E-07	0.885	1.46E-07	*					
				<u>_</u>	Reported	Average	Hydraulic Co	nductivity*		1.5E-07	cm/sec					
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	· ID #			290			
Syringe ID a	#	10)47]			-	Pore Pressu	re Meter	ID #			216			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Its at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated samp gnificant upward or do	ble with accura	acy +/-5%. Flow Pเ d.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
,	<u>re. sr</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/09/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38742/2-36	1	Subsample	1	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/02/21		Curing A	Age, Days	7
	ASTM D) 1633: Standa	rd Test Metl	ods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		га							
Initial Height	t in		5 645	1	Mass of Wet	Sample and Ta	re a	1481.5	
Initial Diame	ter. in		2.965		Mass of Drv S	Sample and Tar	re, g	1202.3	
Height-to-Di	ameter Ratio		1.90	1	Mass of Tare	, g		304.0	
Area, in ²			6.90	1	Moisture, %			31.1	
Volume, in ³			38.98						
Mass of Sar	nple, g		1179.2						
Wet Density	, pcf		115.3	-					
Dry Density,	pct		87.9	-					
Strain rate	eed, in/min % / min		0.050	-					
otrain rate,	70 / 11111		0.00	1					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
Maximum Lo	oad at Failure, I	lbf			729				
Specimen C	ross-sectional	Area, in ²			6.90		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			106				
Conversion	Factor for Heig	ht to Diamete	r Ratio		1.00				
Reported C	ompressive S	trength at Fa	ilure, psi		106			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	=1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	2)		
			DESC	RIPTION			_		
							Failure Type	e:	
			000 (407)	D0407 D04	00)		l	Cone and S	hear
		U	อบอ (ASTM	D2487: D24	(80)				
					J				
			REM	IARKS					
							Ī		
	L						1		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
,	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/12/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38742/2-36		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/02/21		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В	_			
	_								
	SAMPLE DAT	ГА		٦	WATER CON		MINATION		
Initial Height	i, in		5.678	-	Mass of Wet	Sample and Ta	re, g	1489.2	
Initial Diame	ter, in		2.979	_	Mass of Dry S	Sample and Tar	e, g	1205.0	
Height-to-Di	ameter Ratio		1.91	_	Mass of Tare	, g		305.7	
Area, In			6.97	_	Moisture, %			31.6	
Volume, In ²	anla a		39.58	_					
Mass of San	npie, g		1180.9	_					
Dry Density	, pci		114.3	_					
Machine Sn	pci eed in/min		0.050	-					
Strain rate	% / min		0.000	-					
otrain rate,	, , , , , , , , , , , , , , , , , , , ,		0.00	1					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure	lbf			1302	_			
Specimen C	ross-sectional	Area, in ²			6.97		Failure Cod	e 3	
Compressiv	e Strength at F	ailure nsi			187				
Conversion	Eactor for Heig	ht to Diameter	Patio		1.00				
Benerted C		trongth at Eai			1.00	_		Eailura Skot	ob
Reported C	ompressive 5	irengin al Fai	iure, psi		107				
Note 2: * - A c	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	2)		
			DESC	RIPTION			T		
							Failure Type	e:	
					100)		l	Cone and S	near
		U	SUS (ASTM	D2487: D24	188)				
				L	1				
			REM	IARKS					
	L						L		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
<u>'</u>	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	∇D		Date	09/30/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-2	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38742/2-36		Subsample	3	Location		Seattle, WA	
Add. Info		-	Mixing/Mo	olding Date	09/02/21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		ГА					ΜΙΝΑΤΙΟΝ		
Initial Height			5 675	7	Mass of Wet	Sample and Ta		1481 1	
Initial Diame	ter in		2 976	-	Mass of Drv	Sample and Tai	re a	1200.0	
Height-to-Di	ameter Ratio		1.91	-	Mass of Tare	e angle and ra	0, 9	305.3	
Area, in ²			6.96	1	Moisture. %			31.4	
Volume, in ³			39.47		,			·	
Mass of Sar	nple, g		1178.4	1					
Wet Density	, pcf		113.7						
Dry Density,	pcf		86.5						
Machine Sp	eed, in/min		0.050	4					
Strain rate, 9	% / min		0.88						
				TEST	DATA				
	I oad Cell ID #	ŧ	11/1015	1		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	-		Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2603				
Specimen C	ross-sectional	Area, in ²			6.96		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			374				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		374			Failure Sket	ch
Note 2 [.] * - A (onversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add_correcti	ion per ASTM C4	2)		
			DESC	RIPTION			_/		
				-			1	\times	
							Failure Type	e:	
							Ji-	Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	188)		_		
			REM	IARKS					
]		
							1		

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	09/12/21
	<u> </u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02	2-2	-
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38742	/2-36		Subs	ample ID	4		Location			Seattle, \	WA	
Add. Info		-		Miz	king/Molding Da	te		09/02/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
li	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Data	a					Final Data (After Te	est)	
Heiaht		2.992	lin	7.60 c	m Speed			9							
Diameter		2.961	in	7.52 c	m Board Nu	umber		6		Average Hei	ght of Samp	le	2.993 in	7.60 cm	
Area		6.89	in ²	44.43 C	m ² Cell Num	ıber		37		Average Dia	meter of Sa	nple	2.962 in	7.52 cm	
Volume		337.62	cm ³	0.0119 ft	³ Flow Pur	np Numbe	r	4A		Area	6.89	in ²	44.46 cm ²		
Mass		621.6	g	1.37 lt	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	337.96	cm ³	0.0119 ft ³	Dry Density	87.6 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	e		0.95		Mass	630.3	g	1.39 lb	Vol. of Voids	162.30 cm ³
Dry Density	,	87.7	pcf		Cell Pres	sure		95.0	psi			-		Vol. of Solids	175.67 cm ³
			-		Back Pre	essure		90.0	psi					Void Ratio	0.92
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	96.1 %
Mass of we	t sample &	k tare	621.6	g	Max Hea	d		42.91	cm	Mass of wet	sample & ta	re	711.1 g		
Mass of dry	sample &	tare	474.3	g	Min Head	b		42.20	cm	Mass of dry	sample & ta	е	555.1 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		5.64		Mass of tare			80.8 g		
% Moisture			31.1		Minimum	Gradient		5.55		% Moisture			32.9		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used fo	r Permeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/12/21	8	5	-	0.60	42.20	5.55	24.1	-	-	-		NA			USCS
09/12/21	8	15	600	0.61	42.91	5.64	24.1	1.80E-06	0.908	1.63E-06				(ASTN	I D2487;2488)
09/12/21	8	25	600	0.60	42.20	5.55	24.1	1.80E-06	0.908	1.63E-06					NA
09/12/21	8	35	600	0.61	42.91	5.64	24.1	1.80E-06	0.908	1.63E-06	*		REMA	ARKS	<u>_</u>
09/12/21	8	45	600	0.60	42.20	5.55	24.1	1.80E-06	0.908	1.63E-06	*	Bottom	Half of the mold was u	ised for testing.	
09/12/21	8	55	600	0.61	42.91	5.64	24.1	1.80E-06	0.908	1.63E-06	*				
09/12/21	9	5	600	0.60	42.20	5.55	24.1	1.80E-06	0.908	1.63E-06	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		1.6E-06	cm/sec				
Flow pump	ID #	10)43	B	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	-		1044/1048		
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	" ID #			1042		
Syringe ID #	#	10)47]			-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with a gnificant upward or downward	accuracy +/-5%. Flow Pu I trend.	imp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		ENGIN	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/30/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			211	136-02-2		•
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/Eleva	ation		-
Sample ID			38742	/2-36		Subs	ample ID	5		Location			Sea	attle, WA		
Add. Info		-		Miz	king/Molding Da	te		09/02/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)			
li	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Data	a					Final Data (Aft	er Test)		
Heiaht		2.922	lin	7.42 c	m Speed			10	1							
Diameter		2.976	in	7.56 c	m Board Nu	umber		11		Average Hei	ght of Samp	le	2.923 in		7.42 cm	
Area		6.96	in ²	44.88 C	m ² Cell Num	ıber		13		Average Dia	meter of Sa	nple	2.937 in		7.46 cm	
Volume		333.07	cm ³	0.0118 ft	Flow Pur	np Numbe	r	1B		Area	6.77	in ²	43.71 cm ²	2		
Mass		599.4	g	1.32 II	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	324.51	cm ³	0.0115 ft ³		Dry Density	87.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	e		0.95		Mass	615.4	g	1.36 lb		Vol. of Voids	155.67 cm ³
Dry Density	,	85.4	pcf		Cell Pres	sure		95.0	psi			-			Vol. of Solids	168.84 cm ³
			-		Back Pre	essure		90.0	psi						Void Ratio	0.92
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent		Saturation	102.5 %
Mass of we	t sample 8	k tare	599.4	g	Max Hea	d		66.82	cm	Mass of wet	sample & ta	re	696.8 g			
Mass of dry	sample &	tare	455.8	g	Min Head	b		66.12	cm	Mass of dry	sample & ta	re	537.3 g			
Mass of tare	е		0.0	g	Maximun	n Gradient		9.00		Mass of tare			81.5 g			
% Moisture			31.5		Minimum	Gradient		8.91		% Moisture			35.0			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Us	sed for Pe	rmeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		_	
09/30/21	7	20	-	0.95	66.82	9.00	24.1	-	-	-		NA			ι	JSCS
09/30/21	7	30	600	0.94	66.12	8.91	24.1	5.72E-07	0.908	5.20E-07					(ASTM	D2487;2488)
09/30/21	7	40	600	0.95	66.82	9.00	24.1	5.72E-07	0.908	5.20E-07						NA
09/30/21	7	50	600	0.94	66.12	8.91	24.1	5.72E-07	0.908	5.20E-07	*			REMARKS	S	
09/30/21	8	0	600	0.95	66.82	9.00	24.1	5.72E-07	0.908	5.20E-07	*	Bottom	Half of the mold	was used	for testing.	
09/30/21	8	10	600	0.94	66.12	8.91	24.1	5.72E-07	0.908	5.20E-07	*					
09/30/21	8	20	600	0.95	66.82	9.00	24.1	5.72E-07	0.908	5.20E-07	*					
				_	Reported	Average	Hydraulic Cor	nductivity*		5.2E-07	cm/sec					
Flow pump	ID #	2	22	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	_		942			
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	sure Meter	· ID #			776			
Syringe ID #	#	14	41]			-	Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pre	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sample gnificant upward or dov	e with accura wnward trend	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/12/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com		•	Checked By	18
Client Pr. #			200016			Lab. PR.	#	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Typ	e Mold	Depth/Elev.	-
Sample ID		38765/2-4		Subsample	1	Locatio	n	Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/02/21		Curing	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded	Soil-Cement (Cylinders	
				METHOD	В				
		ΓΔ			WATER COM		MINATION		
Initial Heigh	t in		5,560	1	Mass of Wet	Sample and T	are. a	1483.0	
Initial Diame	eter. in		2.967		Mass of Drv	Sample and Ta	are. a	1205.3	
Height-to-Di	ameter Ratio		1.87		Mass of Tare	e, g	., 3	305.1	
Area, in ²			6.91		Moisture, %			30.8	
Volume, in ³			38.44						
Mass of Sar	nple, g		1182.7						
Wet Density	, pcf		117.2						
Dry Density,	pcf		89.5						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.90						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digi	tal Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Read	out Device ID	# 10/1016	
	Balance ID #		1036/1037			, tout	Oven ID	# 758/496	
				1	r				
Maximum Lo	bad at Failure,	bf			121				
Specimen C	ross-sectional	Area, in ²			6.91		Failure Coo	de 3	
Compressiv	e Strength at F	allure, psi			18				
Conversion	Factor for Heig	ht to Diameter	r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		18			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	42)		
			DESC	RIPTION			-		
							Failure Typ	e:	h
	L	1.16		02407.004	88)			Cone and S	near
		0.	000 (AOTM						
					1				
			REM	IARKS			Т		
	L						_1		
L									

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	A 30084			
,	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/30/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal	-	S. Type	Mold	Depth/Elev.	-
Sample ID		38765/2-4		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/02/21		Curing A	.ge, Days	28
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Streng	gth of Molded Se	oil-Cement Cy	ylinders	
				METHOD	В				
		ГА			WATER CON		AINATION		
Initial Height	t in		5 698	Г	Mass of Wet S	Sample and Ta	re a	1502.3	
Initial Diame	eter. in		2.979	-	Mass of Drv S	Sample and Tar	e. a	1221.0	
Height-to-Di	ameter Ratio		1.91		Mass of Tare,	g		299.6	
Area, in ²			6.9 ⁷		Moisture, %			30.5	
Volume, in ³			39.71						
Mass of Sar	nple, g		1205.0						
Wet Density	, pcf		115.6	_					
Dry Density,	pcf		88.5	_					
Strain rate	eea, in/min % / min		0.050	-					
Strain rate,	70 7 11111		0.00						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID ;	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID a	# 10/1016	
	Balance ID #		1036/1037				Oven ID a	# 758/496	
Maximum Lo	oad at Failure,	lbf			616				
Specimen C	ross-sectional	Area, in ²			6.97		Failure Code	e 3	
Compressiv	e Strength at F	ailure, psi			88				
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		88			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	<u>2)</u>		
			DESC	RIPTION					
							Failure Type	:	
							l	Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	188) 1				
					J				
			RFN	ARKS					
							ľ		
	L						L		
L									

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/12/21
				TESTS,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			21	1136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID			38765	5/2-4		Subs	ample ID	3		Location			Se	eattle, WA		
Add. Info		-		Mix	ing/Molding Da	ate		09/02/21				Curir	ng Age, Days			10
				ASTM D	5084; Standa Materials l	ard Test <mark>N</mark> Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous	5		
	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (Al	fter Test)		
Height		2.992	in	7.60 c	m Speed			10								
Diameter		2.925	in	7.43 c	m Board Nu	umber		3		Average Heig	ght of Samp	le	2.993 in		7.60 cm	
Area		6.72	in²	43.35 C	m ² Cell Num	nber		55		Average Dia	meter of Sa	mple	2.926 in		7.43 cm	
Volume		329.46	cm ³	0.0116 ft	³ Flow Pur	mp Numbe	r	1B		Area	6.72	in ²	43.38 cm	m²		
Mass		632.4	g	1.39 lb	Flow Pur	mp Rate*		2.24E-04	cm ³ /sec	Volume	329.80	cm ³	0.0116 ft ³	3	Dry Density	91.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	629.6	g	1.39 lb		Vol. of Voids	150.68 cm ³
Dry Density	nsity 91.6 pcf				Cell Pres	ssure		95.0	psi			_			Vol. of Solids	179.12 cm ³
	Moisture Content				Back Pre	essure		90.0	psi						Void Ratio	0.84
	Moisture Content				Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture C	ontent		Saturation	96.9 %
Mass of we	t sample &	tare	632.4	g	Max Hea	ad		45.72	cm	Mass of wet	sample & ta	ire	712.3 g			
Mass of dry	sample &	tare	483.7	g	Min Hea	d		45.02	cm	Mass of dry s	sample & ta	re	566.3 g			
Mass of tare	е		0.0	g	Maximun	n Gradient		6.01		Mass of tare			82.6 g			
% Moisture			30.7		Minimum	n Gradient		5.92		% Moisture			30.2			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water L	Jsed for Pe	rmeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	N		
09/12/21	7	20	-	0.65	45.72	6.01	23.8	-	-	-		NA			l	JSCS
09/12/21	7	30	600	0.64	45.02	5.92	23.8	8.65E-07	0.914	7.91E-07					(ASTM	D2487;2488)
09/12/21	7	40	600	0.65	45.72	6.01	23.8	8.65E-07	0.914	7.91E-07						NA
09/12/21	7	50	600	0.64	45.02	5.92	23.8	8.65E-07	0.914	7.91E-07	*			REMARKS	S	
09/12/21	8	0	600	0.65	45.72	6.01	23.8	8.65E-07	0.914	7.91E-07	*	Bottom	Half of the mole	d was used	for testing.	
09/12/21	8	10	600	0.64	45.02	5.92	23.8	8.65E-07	0.914	7.91E-07	*					
09/12/21	8	20	600	0.65	45.72	6.01	23.8	8.65E-07	0.914	7.91E-07	*					
				-	Reported	d Average	Hydraulic Co	nductivity*		7.9E-07	cm/sec					
Flow pump	ID #	2	22	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			942			
Thermometer ID # 796/985 Oven ID # 496/758 Board Pressure Meter ID # 1041																
Syringe ID #	#	1	41]			•	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Its at steady	brated Syringe for Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a d after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no s	e fully saturated sam	ple with accuration	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	09/30/21
	<u>(</u>			TESTS,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked B	y 1 8
Client Pr. 7					200016					Lab. PR. #			21136-	-02-3	•
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elevation	n	-
Sample ID			38765	5/2-4		Subs	ample ID	4		Location			Seattle	e, WA	
Add. Info		-		Mix	ing/Molding Da	ate		09/02/21				Curir	ng Age, Days		28
				ASTM D	5084; Standa Materials l	ard Test <mark>I</mark> Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous ow)		
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After 1	Test)	
Height		2.954	in	7.50 c	m Speed			10							
Diameter		2.960	in	7.52 ci	m Board Nu	umber		12		Average Heig	ght of Samp	le	2.955 in	7.51 cm	
Area		6.88	in²	44.40 C	m ² Cell Num	nber		41		Average Dia	meter of Sa	mple	2.961 in	7.52 cm	
Volume		333.11	cm ³	0.0118 ft	³ Flow Pur	mp Numbe	r	1A		Area	6.89	in ²	44.43 cm ²		
Mass		620.9	g	1.37 lb	Flow Pur	mp Rate*		2.24E-04	cm ³ /sec	Volume	333.45	cm ³	0.0118 ft ³	Dry Density	89.2 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	630.7	g	1.39 lb	Vol. of Voids	156.92 cm ³
Dry Density	nsity 89.2 pcf				Cell Pres	ssure		95.0	psi					Vol. of Solid	s 176.53 cm ³
	Moisture Content				Back Pre	essure		90.0	psi					Void Ratio	0.89
	Moisture Content				Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	98.2 %
Mass of we	t sample &	tare	620.9	g	Max Hea	ad		52.76	cm	Mass of wet	sample & ta	re	703.7 g		
Mass of dry	sample &	tare	476.4	g	Min Hea	d		52.05	cm	Mass of dry s	sample & ta	re	549.7 g		
Mass of tar	е		0.0	g	Maximun	n Gradient		7.03		Mass of tare			73.3 g		
% Moisture			30.3		Minimum	n Gradient		6.93		% Moisture			32.3		
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Used	for Permeability Te	st.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/30/21	7	20	-	0.75	52.76	7.03	24.1	-	-	-		NA			USCS
09/30/21	7	30	600	0.74	52.05	6.93	24.1	7.22E-07	0.908	6.56E-07				(AST	M D2487;2488)
09/30/21	7	40	600	0.75	52.76	7.03	24.1	7.22E-07	0.908	6.56E-07					NA
09/30/21	7	50	600	0.74	52.05	6.93	24.1	7.22E-07	0.908	6.56E-07	*		REI	MARKS	
09/30/21	8	0	600	0.75	52.76	7.03	24.1	7.22E-07	0.908	6.56E-07	*	Bottom	Half of the mold was	s used for testing.	
09/30/21	8	10	600	0.74	52.05	6.93	24.1	7.22E-07	0.908	6.56E-07	*				
09/30/21	8	20	600	0.75	52.76	7.03	24.1	7.22E-07	0.908	6.56E-07	*				
				•	Reported	d Average	Hydraulic Cor	nductivity*		6.6E-07	cm/sec				
Flow pump	ID #	2	22	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1107		
Thermomet	Thermometer ID # 796/985 Oven ID # 496/758 Board Pressure Meter ID # 776														
Syringe ID a	#	1	40]			•	Pore Pressu	re Meter	ID #			26/27		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sample with ignificant upward or downwa	h accuracy +/-5%. Flow ard trend.	Pump Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. [s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/13/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	<i>‡</i>	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID		38766/2-46		Subsample	1	Location	1	Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/03/21		Curing	Age, Days	10
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	Soil-Cement (Cylinders	
				METHOD	В				
	SAMPLE DA	Α	5.040	٦	WATER CON		MINATION		
Initial Height	t, in		5.610	_	Mass of Wet	Sample and Ta	are, g	1490.2	
Initial Diame	eter, In		2.979	_	Mass of Dry	Sample and Ta	re, g	1207.0	
			1.00	-		, y		305.9	
Alea, III			0.97	-	woisture, %			31.4	
Volume, In	nnlo a		39.10	_					
Wet Density	npie, y		115.6	-					
Dry Density	ncf		88.0	-					
Machine Sp	eed. in/min		0.050	-					
Strain rate,	% / min		0.89						
,				1					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digi	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum I (oad at Failure.	lbf			487				
Specimen C	ross-sectional	Area. in ²			6.97		Failure Coo	le 3	
Compressiv	e Strength at F	ailure psi			70				
Conversion	Eactor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai			70	-		Failure Sket	ch
		the sector at the	1 1 5 (O F O	00 100% -			201		
Note 2: - A 0	conversion factor	based on H/D=	0.7.13 (C.F9	08 as 100% a DIDTION	na ada. correcti	ion per ASTM C4	2)		
			DLGC				7		
							- · · -		
							Failure Typ	e: Conclored S	boor
	L	11		D2487. D24	88)		L		
		0.		02407.024					
					1				
			REN	IARKS			т		
	L								

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	, GA 30	084			
r	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233		$\mathbf{\Delta}$		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	\bigcirc	\sim		Date	10/01/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38766/2-46		Subsample	2		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/03/21	1		Curing /	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ength of	f Molded So	oil-Cement C	ylinders	
				METHOD	В					
		۲۵			WATER CO					
Initial Height	in		5.588	1	Mass of We	et Sam	ole and Tar	re. a	1484.0	
Initial Diame	ter. in		2.971		Mass of Drv	/ Samp	le and Tar	e, g e. a	1203.3	
Height-to-Dia	ameter Ratio		1.88		Mass of Tar	re, g		, J	305.8	
Area, in ²			6.93		Moisture, %				31.3	
Volume, in ³			38.74							
Mass of San	nple, g		1180.6							
Wet Density	, pcf		116.1							
Dry Density,	pcf		88.4							
Machine Spe	eed, in/min		0.050	-						
Strain rate,	% / min		0.89							
				TEST	DATA					
	Load Cell ID #	£ I	11/1015	1			Digita	l Caliner ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
Maximum Lo	ad at Failure I	bf		-	1501					
Specimen C	ross-sectional	Area in ²			6.93			Failure Cod	e 3	
Compressive	e Strength at F	ailure nsi			217					
Conversion	Eactor for Heig	ht to Diameter	Ratio		1 00					
Reported C	ompressive St	trongth at Fai	luro nei		217				Failure Sketr	ch
Note 2: * A c		heed on U/D-	1 1 5 (O F O	00 100% -		tion no.	~ A O TM O 40			511
Note 2 A C		based on n/D-	DESC	RIPTION	nu auu. conec	lion pei	ASTN 042)		
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
					J					
			REM	IARKS						
	<u> </u>									

		t		TIMEL	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/13/21
	<u> </u>			TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #				21136-02-3		
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/E	levation		-
Sample ID			38766	/2-46		Subs	ample ID	3		Location				Seattle, WA		
Add. Info		-		Mix	king/Molding Da	te		09/03/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porou w)	IS		
lı İr	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (After Test)		
Height		3.038	lin	7.72 c	m Speed			10	1							
Diameter		2.975	in	7.56 c	m Board Nu	umber		4		Average Hei	ght of Samp	le	3.039	in	7.72 cm	
Area		6.95	in²	44.85 C	m ² Cell Num	nber		33		Average Dia	meter of Sa	nple	2.976	in	7.56 cm	
Volume		346.06	cm ³	0.0122 ft	³ Flow Pur	np Numbe	r	2B		Area	6.96	in ²	44.88	cm ²		
Mass		634.7	g	1.40 lk	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	346.41	cm ³	0.0122	ft ³	Dry Density	87.1 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	645.0	g	1.42	lb	Vol. of Voids	167.29 cm ³
Dry Density		87.2	pcf		Cell Pres	sure		95.0	psi			J -			Vol. of Solids	179.12 cm ³
	I		4		Back Pre	essure		90.0	psi						Void Ratio	0.93
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	96.5 %
Mass of wet	t sample &	k tare	634.7	g	Max Hea	d		28.84	cm	Mass of wet	sample & ta	re	729.7	g		
Mass of dry	sample &	tare	483.7	g	Min Head	b		27.43	cm	Mass of dry	sample & ta	re	568.3	g		
Mass of tare	е		0.0	g	Maximun	n Gradient		3.74		Mass of tare			84.6	g		
% Moisture			31.2		Minimum	Gradient		3.55		% Moisture			33.4			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: D	Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	ЛС	_	
09/13/21	7	40	-	0.40	28.14	3.65	23.3	-	-	-		NA			ι	JSCS
09/13/21	7	50	600	0.39	27.43	3.55	23.3	1.39E-06	0.925	1.28E-06					(ASTM	D2487;2488)
09/13/21	8	0	600	0.40	28.14	3.65	23.3	1.39E-06	0.925	1.28E-06						NA
09/13/21	8	10	600	0.39	27.43	3.55	23.3	1.39E-06	0.925	1.28E-06	*			REMARK	S	
09/13/21	8	20	600	0.41	28.84	3.74	23.3	1.37E-06	0.925	1.27E-06	*	Bottom	Half of the mo	old was used	for testing.	
09/13/21	8	30	600	0.40	28.14	3.65	23.3	1.35E-06	0.925	1.25E-06	*					
09/13/21	8	40	600	0.41	28.84	3.74	23.3	1.35E-06	0.925	1.25E-06	*					
				_	Reported	Average	Hydraulic Co	nductivity*		1.3E-06	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	_		587			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	r ID#			1041			
Syringe ID #	#	24	46				-	Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sa gnificant upward o	imple with accur r downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/01/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016	-				Lab. PR. #			2	21136-02-3		-
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/El	evation		-
Sample ID			38766	/2-46		Subs	ample ID	4		Location			S	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	te		09/03/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porou w)	S		
h	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (A	After Test)		
Height		2.958	in	7.51 c	m Speed			11]							
Diameter		2.966	in	7.53 c	m Board Nu	umber		14		Average Hei	ght of Samp	le	2.959 ii	n	7.52 cm	
Area		6.91	in ²	44.58 C	m ² Cell Num	ıber		2		Average Dia	meter of Sa	nple	2.967 ii	n	7.54 cm	
Volume		334.91	cm ³	0.0118 ft	³ Flow Pur	np Numbe	r	3A		Area	6.91	in ²	44.61	cm ²		
Mass		624.5	g	1.38 lt	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	335.25	cm ³	0.0118 f	t ³	Dry Density	88.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	631.4	g	1.39 II	b	Vol. of Voids	159.35 cm ³
Dry Density	,	88.4	pcf		Cell Pres	sure		95.0	psi			-			Vol. of Solids	175.90 cm ³
			-		Back Pre	ssure		90.0	psi						Void Ratio	0.91
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	98.2 %
Mass of we	t sample 8	k tare	624.5	g	Max Hea	d		81.59	cm	Mass of wet	sample & ta	re	702.7 g	J		
Mass of dry	sample &	tare	474.7	g	Min Head	b		80.89	cm	Mass of dry	sample & ta	re	546.3 g	J		
Mass of tare	е		0.0	g	Maximun	n Gradient		10.86		Mass of tare			71.6 g)		
% Moisture			31.6		Minimum	Gradient		10.76		% Moisture			32.9			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	N	_	
10/01/21	10	50	-	1.15	80.89	10.76	24.2	-	-	-		NA			ι	JSCS
10/01/21	11	0	600	1.16	81.59	10.86	24.2	2.32E-07	0.906	2.10E-07					(ASTM	D2487;2488)
10/01/21	11	10	600	1.15	80.89	10.76	24.2	2.32E-07	0.906	2.10E-07						NA
10/01/21	11	20	600	1.16	81.59	10.86	24.2	2.32E-07	0.906	2.10E-07	*			REMARK	S	
10/01/21	11	30	600	1.15	80.89	10.76	24.2	2.32E-07	0.906	2.10E-07	*	Bottom	Half of the mo	ld was used	for testing.	
10/01/21	11	40	600	1.16	81.59	10.86	24.2	2.32E-07	0.906	2.10E-07	*					
10/01/21	11	50	600	1.15	80.89	10.76	24.2	2.32E-07	0.906	2.10E-07	*					
				_	Reported	Average	Hydraulic Cor	nductivity*		2.1E-07	cm/sec					
Flow pump	ID #	4	75	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	_		469			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	· ID #			694/459			
Syringe ID #	#	49	91				-	Pore Pressu	ire Meter	ID #			372			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra	ated Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sar gnificant upward or	nple with accur downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/17/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	ŧ	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID		38789/2-47		Subsample	1	Location	1	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/07/21		Curing /	Age, Days	10
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
		ГА					ΜΙΝΑΤΙΟΝ		
Initial Height	t in		5 657	Ĩ	Mass of Wet	Sample and Ta		1497 0	
Initial Diame	ter, in		2.967	-	Mass of Dry	Sample and Ta	re, a	1216.5	
Height-to-Di	ameter Ratio		1.91		Mass of Tare	e, g	, 5	304.9	
Area, in ²			6.91		Moisture, %			30.8	
Volume, in ³			39.11						
Mass of Sar	nple, g		1194.4						
Wet Density	, pcf		116.3						
Dry Density,	pcf		88.9						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.88						
				TEST	DATA				
	I oad Cell ID #	ŧ	11/1015	1		Diai	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	-		Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			485				
Specimen C	ross-sectional	Area, in ²			6.91		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			70				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		70			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	2)		
			DESC	RIPTION			/		
							1		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS					
							1		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	10/05/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-lic.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38789/2-47		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/07/21		Curing A	Age, Days	28
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Streng	gth of Molded S	oil-Cement C	cylinders	
				METHOD	В				
		- 4							
Initial Haight		A	E 651	٦	WATER CON	Somple and To		1549 E	
Initial Heigh	l, In tor in		2.060	_	Mass of Dry S	Sample and Tar	re, g	1046.0	
	ameter Ratio		2.909	-	Mass of Tare		e, y	350.0	
Aroa in ²			6.02	-	Moisturo %	, 9		20.4	
$\lambda i e a$, in $\lambda o lumo i n^3$			20.12	-	woisture, 70			50.4	
Mass of Sar	nnle a		1100 A	-					
Wet Density	npic, g		115.9	_					
Dry Density	pcf		88.8	-					
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.88						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1180				
Specimen C	ross-sectional	Area, in ²			6.92		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			170				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		170			Failure Skete	ch
Note 2 [.] * - A (onversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add correctio	on per ASTM C4:	2)		
//010 2. // (DESC	RIPTION			-/		
							T	\mathbf{X}	
							Fallule Type	cone and S	hear
	L		SCS (ASTM	D2487· D24	88)		1		
]				
			DEN						
	-		KEN	CANAN			I		
	L						1		

		t		TIMEL	Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle X \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	09/17/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. 7					200016					Lab. PR. #			:	21136-02-3		
Pr. Name					Time Oil Term	inal				S. Type	Мо	ld	Depth/E	levation		-
Sample ID			38789	/2-47		Subs	ample ID	3		Location			ę	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	te		09/07/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	lethod for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porou w)	IS		
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (/	After Test)		
Height		3.019	in	7.67 ci	n Speed			9								
Diameter		2.972	in	7.55 ci	n Board Nu	umber		16		Average Heig	ght of Samp	le	3.020	in	7.67 cm	
Area		6.94	in²	44.76 CI	n ² Cell Num	ıber		55		Average Dia	meter of Sa	mple	2.973 i	in	7.55 cm	
Volume		343.20	cm ³	0.0121 ft	Flow Pur	np Numbe	r	2A		Area	6.94	in ²	44.79	cm ²		
Mass		631.1	g	1.39 lb	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	343.55	cm ³	0.0121	ft ³	Dry Density	87.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	639.5	g	1.41	lb	Vol. of Voids	164.60 cm ³
Dry Density	nsity 87.8 pcf				Cell Pres	sure		95.0	psi						Vol. of Solids	178.94 cm ³
					Back Pre	ssure		90.0	psi						Void Ratio	0.92
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	95.0 %
Mass of we	t sample &	tare	631.1	g	Max Hea	d		28.84	cm	Mass of wet	sample & ta	re	720.3	g		
Mass of dry	sample &	tare	483.0	g	Min Head	t		28.14	cm	Mass of dry s	sample & ta	re	564.0	g		
Mass of tar	е		0.0	g	Maximun	n Gradient		3.76		Mass of tare			81.0	g		
% Moisture			30.7		Minimum	Gradient		3.67		% Moisture			32.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	ermeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	NC	-	
09/17/21	8	5	-	0.41	28.84	3.76	25.1	-	-	-		NA			L L	JSCS
09/17/21	8	15	600	0.40	28.14	3.67	25.1	2.69E-06	0.887	2.39E-06					(ASTM	D2487;2488)
09/17/21	8	25	600	0.41	28.84	3.76	25.1	2.69E-06	0.887	2.39E-06						NA
09/17/21	8	35	600	0.40	28.14	3.67	25.1	2.69E-06	0.887	2.39E-06	*			REMARK	S	
09/17/21	8	45	600	0.41	28.84	3.76	25.1	2.69E-06	0.887	2.39E-06	*	Bottom	Half of the mo	old was used	I for testing.	
09/17/21	8	55	600	0.40	28.14	3.67	25.1	2.69E-06	0.887	2.39E-06	*					
09/17/21	9	5	600	0.41	28.84	3.76	25.1	2.69E-06	0.887	2.39E-06	*					
				•	Reported	Average	Hydraulic Co	nductivity*		2.4E-06	cm/sec					
Flow pump	pump ID # 244 Balance ID # 1035/1036 Different									Meter ID #			346			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	r ID #			694/459			
Syringe ID a	#	24	45					Pore Pressu	ire Meter	ID #			1104			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Its at steady	brated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sa gnificant upward or	imple with accur r downward tren	acy +/-5%. Flow Pu d.	imp Rate isused for

		t		TIMEL	.Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/05/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. 7					200016					Lab. PR. #			21	136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elev	vation		-
Sample ID			38789	/2-47		Subs	ample ID	4		Location			Se	attle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/07/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous ow)			
II	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (Af	ter Test)		
Height		3.032	in	7.70 ci	m Speed			10								
Diameter		2.964	in	7.53 ci	m Board Nu	umber		24		Average Heig	ght of Samp	le	3.033 in	Ī	7.70 cm	
Area		6.90	in²	44.52 CI	m ² Cell Num	nber		5		Average Dia	meter of Sa	mple	2.965 in		7.53 cm	
Volume		342.83	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	2B		Area	6.90	in²	44.55 cm	1 ²		
Mass		631.0	g	1.39 lb	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	343.17	cm ³	0.0121 ft ³		Dry Density	88.2 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	646.7	g	1.43 lb		Vol. of Voids	163.44 cm ³
Dry Density	nsity 88.3 pcf				Cell Pres	sure		95.0	psi			_			Vol. of Solids	179.73 cm ³
	Moisture Content				Back Pre	essure		90.0	psi						Void Ratio	0.91
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	98.8 %
Mass of we	t sample &	tare	631.0	g	Max Hea	ld		103.40	cm	Mass of wet	sample & ta	ire	729.0 g			
Mass of dry	sample &	tare	485.2	g	Min Head	d		101.99	cm	Mass of dry s	sample & ta	re	567.6 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		13.42		Mass of tare			82.4 g			
% Moisture			30.0		Minimum	Gradient	T	13.24		% Moisture			33.3			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water U	sed for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
10/05/21	7	40	-	1.45	101.99	13.24	24.3	-	-	-		NA			l	USCS
10/05/21	7	50	600	1.47	103.40	13.42	24.3	3.77E-07	0.904	3.41E-07					(ASTM	I D2487;2488)
10/05/21	8	0	600	1.45	101.99	13.24	24.3	3.77E-07	0.904	3.41E-07						NA
10/05/21	8	10	600	1.46	102.70	13.33	24.3	3.79E-07	0.904	3.42E-07	*			REMARKS	S	
10/05/21	8	20	600	1.47	103.40	13.42	24.3	3.76E-07	0.904	3.40E-07	*	Bottom	h Half of the mold	was used	for testing.	
10/05/21	8	30	600	1.45	101.99	13.24	24.3	3.77E-07	0.904	3.41E-07	*					
10/05/21	8	40	600	1.46	102.70	13.33	24.3	3.79E-07	0.904	3.42E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		3.4E-07	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	r ID #			1033			
Syringe ID a	#	24	46				•	Pore Pressu	re Meter	ID #			1106			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no s	e fully saturated samp ignificant upward or do	ble with accura	acy +/-5%. Flow Pu d.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
<u>'</u>	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/18/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	L.	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38790/2-24		Subsample	1	Location		Seattle, WA	
Add. Info			Mixing/Mo	olding Date	09/08/21		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
					_				
	SAMPLE DAT	A		-	WATER CON		MINATION		
Initial Height	t, in		5.629	4	Mass of Wet	Sample and Ta	ire, g	1495.9	
Unitial Diame	eter, IN		2.9/1	-	Mass of Dry S	Sample and Tai	re, g	1218.2	
Height-to-Di	ameter Ratio		1.89	_	Mass of Tare	e, g		305.8	
Area, in			6.93	_	Moisture, %			30.4	
Volume, In ²	oplo a		39.02	-					
Wet Density	npie, g		1195.1	_					
Dry Density	, pci		89.4	_					
Machine Sp	eed. in/min		0.050	-					
Strain rate,	% / min		0.89						
,				1					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	bf			639				
Specimen C	ross-sectional	Area, in ²			6.93		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			92				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		92			Failure Sket	ch
Note 2: * - A d	- conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C4	2)		
			DESC	RIPTION			,		
							T		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTN	D2487: D24	188)		_		
			REM	IARKS					
]		
							Ţ		

Г	t	TIMELY		1874 Forge S	Street Tucker,	, GA 30	0084			
r	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233		Δ		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	\sim	$\sqrt{2}$		Date	10/06/21
L		TESTS, L	LC	Web: <u>www.te</u>	st-llc.com		SHO		Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38790/2-24		Subsample	2		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/08/21	1		Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ength o	of Molded So	oil-Cement C	ylinders	
				METHOD	В					
		٢Δ			WATER CO					
Initial Height	in		5 653	Ĩ	Mass of We	et Sam	ole and Tar		1511.9	
Initial Diame	ter. in		2.981		Mass of Drv	/ Sami	ple and Tar	e, g e. a	1230.4	
Height-to-Di	ameter Ratio		1.90		Mass of Tar	re, g		-, 3	305.8	
Area, in ²			6.98		Moisture, %	5			30.4	
Volume, in ³			39.45							
Mass of San	nple, g		1207.4							
Wet Density	, pcf		116.6							
Dry Density,	pcf		89.3							
Machine Spe	eed, in/min		0.050							
Strain rate, 9	% / min		0.88							
				TEST	DATA					
	I oad Cell ID #	ŧ	11/1015	1			Digita	l Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum I o	oad at Failure.	lbf			2744					
Specimen C	ross-sectional	Area, in ²			6.98			Failure Cod	e 3	
Compressive	e Strength at F	ailure. psi			393				<u></u>	
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure. psi		393				Failure Sket	ch
Note 2: * - A c	conversion factor	based on H/D=	1 15 (C E _ 0	08 as 100% a	nd add correc	tion ne	or ASTM CA2	9		
Note 2 A C	Conversion lactor	based on the	DFSC	RIPTION)		
								Failure Type	K	
									Cone and S	hear
	•	U	SCS (ASTM	D2487: D24	88)					
]					
			REM	IARKS						
							I			

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle X \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/18/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			:	21136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	d	Depth/E	levation		-
Sample ID			38790	/2-24		Subs	ample ID	3		Location			:	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/08/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials l	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porou w)	IS		
Iı	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (/	After Test)		
Height		3.013	in	7.65 ci	m Speed			9								
Diameter		2.962	in	7.52 ci	m Board Nu	umber		15		Average Heig	ght of Samp	le	3.014	in	7.66 cm	
Area		6.89	in²	44.46 CI	m ² Cell Num	nber		17		Average Dia	meter of Sa	mple	2.963 i	in	7.53 cm	
Volume		340.22	cm ³	0.0120 ft	³ Flow Pur	np Numbe	r	2B		Area	6.90	in ²	44.49	cm ²		
Mass		631.3	g	1.39 lb	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	340.56	cm ³	0.0120	ft ³	Dry Density	88.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	641.6	g	1.41	lb	Vol. of Voids	161.13 cm ³
Dry Density	nsity 88.8 pcf				Cell Pres	sure		95.0	psi						Vol. of Solids	179.44 cm ³
	Meioture Content				Back Pre	essure		90.0	psi						Void Ratio	0.90
	Mois	ture Cont	ent	_	Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	97.5 %
Mass of we	t sample &	tare	631.3	g	Max Hea	d		46.42	cm	Mass of wet	sample & ta	re	723.3	g		
Mass of dry	sample &	tare	484.4	g	Min Hea	d		45.72	cm	Mass of dry s	sample & ta	re	566.2	g		
Mass of tare	е		0.0	g	Maximun	n Gradient		6.06		Mass of tare			81.8	g		
% Moisture			30.3		Minimum	Gradient		5.97		% Moisture			32.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	ermeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	NC	-	
09/18/21	8	10	-	0.65	45.72	5.97	25.3	-	-	-		NA			I	USCS
09/18/21	8	20	600	0.66	46.42	6.06	25.3	1.67E-06	0.883	1.48E-06					(ASTM	I D2487;2488)
09/18/21	8	30	600	0.65	45.72	5.97	25.3	1.67E-06	0.883	1.48E-06						NA
09/18/21	8	40	600	0.66	46.42	6.06	25.3	1.67E-06	0.883	1.48E-06	*			REMARK	S	
09/18/21	8	50	600	0.65	45.72	5.97	25.3	1.67E-06	0.883	1.48E-06	*	Bottom	Half of the mo	old was used	for testing.	
09/18/21	9	0	600	0.66	46.42	6.06	25.3	1.67E-06	0.883	1.48E-06	*					
09/18/21	9	10	600	0.65	45.72	5.97	25.3	1.67E-06	0.883	1.48E-06	*					
				1	Reported	Average	Hydraulic Co	nductivity*		1.5E-06	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	r ID #			694/459			
Syringe ID #	#	2	46				-	Pore Pressu	re Meter	ID #			372			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sa gnificant upward or	imple with accur r downward tren	acy +/-5%. Flow Pu d.	Imp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	10/06/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02	2-3	
Pr. Name					Time Oil Term	ninal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38790	/2-24		Subs	ample ID	4		Location			Seattle, \	NA	
Add. Info		-		Miz	king/Molding Da	ite		09/08/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
Ir	nitial Sar	nple Dat	a (Befor	e Test)		•	Test Dat	a					Final Data (After Te	est)	
Height		3.013	lin	7.65	m Speed			11							
Diameter		2.969	in	7.54	m Board Nu	umber		7		Average Hei	oht of Samp	le	3.014 in	7.66 cm	
Area		6.92	in²	44.67 C	m ² Cell Num	nber		33		Average Dia	meter of Sa	nple	2.970 in	7.54 cm	
Volume		341.83	cm ³	0.0121 ft	Flow Pur	np Numbe	r	2A		Area	6.93	in ²	44.70 cm ²		
Mass		631.9	g	1.39 II	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	342.17	cm ³	0.0121 ft ³	Dry Density	88.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	643.9	g	1.42 lb	Vol. of Voids	162.43 cm ³
Dry Density		88.6	pcf		Cell Pres	sure		95.0	psi			J -		Vol. of Solids	179.74 cm ³
	I		4		Back Pre	essure		90.0	psi					Void Ratio	0.90
	Moist	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	97.6 %
Mass of wet	t sample &	k tare	631.9	g	Max Hea	d		185.70	cm	Mass of wet	sample & ta	re	725.8 g		
Mass of dry	sample &	tare	485.3	g	Min Head	d		184.99	cm	Mass of dry	sample & ta	re	567.2 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		24.26		Mass of tare			81.9 g		
% Moisture			30.2		Minimum	Gradient		24.16		% Moisture			32.7		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used fo	r Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/06/21	8	5	-	2.64	185.70	24.26	23.1	-	-	-		NA		l	JSCS
10/06/21	8	15	600	2.63	184.99	24.16	23.1	1.04E-07	0.929	9.62E-08				(ASTM	D2487;2488)
10/06/21	8	25	600	2.64	185.70	24.26	23.1	1.04E-07	0.929	9.62E-08					NA
10/06/21	8	35	600	2.63	184.99	24.16	23.1	1.04E-07	0.929	9.62E-08	*		REMA	ARKS	
10/06/21	8	45	600	2.64	185.70	24.26	23.1	1.04E-07	0.929	9.62E-08	*	Bottom	Half of the mold was u	ised for testing.	
10/06/21	8	55	600	2.63	184.99	24.16	23.1	1.04E-07	0.929	9.62E-08	*				
10/06/21	9	5	600	2.64	185.70	24.26	23.1	1.04E-07	0.929	9.62E-08	*				
				_	Reported	Average	Hydraulic Co	nductivity*		9.6E-08	cm/sec				
Flow pump	ID #	24	44] E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346		
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	sure Meter	r ID#			290		
Syringe ID #	#	24	45				-	Pore Pressu	ire Meter	ID #			216		
*Constant Rate calculations of I	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with a gnificant upward or downward	accuracy +/-5%. Flow Pu I trend.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/19/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38854/2-32		Subsample	1	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/09/21		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Streng	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		٢Δ			WATER CON				
Initial Heigh	t. in		5.567]	Mass of Wet	Sample and Ta	re. a	1507.2	
Initial Diame	eter, in		2.962		Mass of Dry S	Sample and Tar	re, g	1209.3	
Height-to-Di	ameter Ratio		1.88		Mass of Tare,	, g	<i>,</i> 0	358.6	
Area, in ²			6.89		Moisture, %	-		35.0	
Volume, in ³			38.36						
Mass of Sar	nple, g		1151.0						
Wet Density	, pcf		114.3						
Dry Density,	pcf		84.6						
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.90						
				TEST	DATA				
	I oad Cell ID #	ŧ	11/1015	1		Diait	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			560				
Specimen C	ross-sectional	Area, in ²			6.89		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			81				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		81			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	2)		
			DESC	RIPTION			,		
							Ī		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS					
							T		
							l		

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/07/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38854/2-32		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/09/21		Curing A	Age, Days	28
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В	_			
		- •							
le iti al I la inda		Α	E 00E	٦	WATER CON			4457.0	
Initial Heigh	(, IN stor in		5.635	_	Mass of Wet	Sample and Ta	re, g	1457.3	
Height to Di	ameter Patio		2.975	_	Mass of Tare		e, g	208.6	
Aroa in ²			6.05	-	Maisture %	, y		290.0	
Alea, III Volumo in^3			0.90	-	woisture, %			35.2	
Mass of Sar	nnle a		1160 3	-					
Wet Density	npie, g		112.8	-					
Dry Density	pcf		83.5	-					
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.89						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2866				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			412				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		412			Failure Skete	ch
Note 2 [.] * - A (onversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add_correcti	on per ASTM C4:	2)		
//010 2. //1			DFSC	RIPTION			-/		
							Ī		
							Eailura Type	K	
							r anure rype	Cone and S	hear
	L	U	SCS (ASTM	D2487: D24	88)		L		
			DEN						
			REIV				ī		
	L						I		

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					_			Date	09/19/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			21	136-02-3		-
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elev	ation		-
Sample ID			38854	/2-32		Subs	ample ID	3		Location			Sea	attle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/09/21				Curir	ng Age, Days			10
				ASTM D	5084; Standa Materials L	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous			
Iı	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (Aft	er Test)		
Height		2.992	in	7.60 ci	m Speed			9								
Diameter		2.971	in	7.55 ci	m Board Nu	umber		3		Average Heig	ght of Samp	le	2.993 in	[7.60 cm	
Area		6.93	in²	44.73 CI	m ² Cell Num	nber		2		Average Dia	meter of Sa	mple	2.972 in		7.55 cm	
Volume		339.91	cm ³	0.0120 ft	³ Flow Pur	np Numbe	r	2A		Area	6.94	in ²	44.76 cm	2		
Mass		612.2	g	1.35 lb	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	340.25	cm ³	0.0120 ft ³		Dry Density	83.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	617.7	g	1.36 lb		Vol. of Voids	172.58 cm ³
Dry Density	nsity 83.1 pcf				Cell Pres	sure		95.0	psi			_			Vol. of Solids	167.67 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	1.03
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	95.6 %
Mass of we	t sample &	tare	612.2	g	Max Hea	d		41.50	cm	Mass of wet	sample & ta	ire	699.5 g			
Mass of dry	sample &	tare	452.7	g	Min Head	d		40.09	cm	Mass of dry s	sample & ta	re	534.5 g			
Mass of tare	е		0.0	g	Maximun	n Gradient		5.46		Mass of tare			81.8 g			
% Moisture			35.2		Minimum	Gradient		5.27		% Moisture			36.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Us	sed for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
09/19/21	8	5	-	0.58	40.80	5.37	25.1	-	-	-		NA			I	JSCS
09/19/21	8	15	600	0.57	40.09	5.27	25.1	1.88E-06	0.887	1.67E-06					(ASTM	D2487;2488)
09/19/21	8	25	600	0.59	41.50	5.46	25.1	1.87E-06	0.887	1.65E-06						NA
09/19/21	8	35	600	0.58	40.80	5.37	25.1	1.85E-06	0.887	1.64E-06	*			REMARKS	6	
09/19/21	8	45	600	0.59	41.50	5.46	25.1	1.85E-06	0.887	1.64E-06	*	Bottom	Half of the mold	was used	for testing.	
09/19/21	8	55	600	0.58	40.80	5.37	25.1	1.85E-06	0.887	1.64E-06	*					
09/19/21	9	5	600	0.59	41.50	5.46	25.1	1.85E-06	0.887	1.64E-06	*					
				1	Reported	Average	Hydraulic Co	nductivity*		1.6E-06	cm/sec					
Flow pump	pump ID # 244 Balance ID # 1035/1036 Differen									Meter ID #			346			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	r ID#			1041			
Syringe ID #	#	2	45				•	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sampl gnificant upward or do	le with accura wnward trend	acy +/-5%. Flow Pu d.	imp Rate isused for

		î		TIMEL	.Υ	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-		Date	10/07/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO			Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			21136-02	2-3	•
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elevation		-
Sample ID			38854	/2-32		Subs	ample ID	4		Location			Seattle, V	VA	
Add. Info		-		Mix	ing/Molding Da	ite		09/09/21				Curir	ng Age, Days		28
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous ow)		
	nitial San	nple Dat	a (Befor	e Test)		-	Test Data	a					Final Data (After Te	st)	
Height		3.027	in	7.69 ci	m Speed			11							
Diameter		2.971	in	7.55 ci	m Board Nu	umber		8		Average Heig	ght of Samp	le	3.028 in	7.69 cm	
Area		6.93	in²	44.73 CI	m ² Cell Num	nber		15		Average Dia	meter of Sa	mple	2.972 in	7.55 cm	
Volume		343.88	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	1A		Area	6.94	in²	44.76 cm ²		
Mass		618.6	g	1.36 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	344.23	cm ³	0.0122 ft ³	Dry Density	83.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	633.3	g	1.40 lb	Vol. of Voids	174.62 cm ³
Dry Density	nsity 83.1 pcf				Cell Pres	sure		95.0	psi			-		Vol. of Solids	169.60 cm ³
			_		Back Pre	essure		90.0	psi					Void Ratio	1.03
	Mois	ture Cont	ent	-	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	100.4 %
Mass of we	t sample &	tare	618.6	g	Max Hea	ld		203.99	cm	Mass of wet	sample & ta	re	710.4 g		
Mass of dry	sample &	tare	458.0	g	Min Head	d		203.28	cm	Mass of dry s	sample & ta	re	535.0 g		
Mass of tar	е		0.0	g	Maximun	n Gradient		26.52		Mass of tare			77.0 g		
% Moisture			35.1		Minimum	Gradient	-	26.43		% Moisture	-		38.3		
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Used for	Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/07/21	7	5	-	2.90	203.99	26.52	23.4	-	-	-		NA		U	JSCS
10/07/21	7	15	600	2.89	203.28	26.43	23.4	9.45E-08	0.923	8.72E-08				(ASTM	D2487;2488)
10/07/21	7	25	600	2.90	203.99	26.52	23.4	9.45E-08	0.923	8.72E-08					NA
10/07/21	7	35	600	2.89	203.28	26.43	23.4	9.45E-08	0.923	8.72E-08	*		REMA	RKS	
10/07/21	7	45	600	2.89	203.28	26.43	23.4	9.47E-08	0.923	8.73E-08	*	Bottom	Half of the mold was us	sed for testing.	
10/07/21	7	55	600	2.90	203.99	26.52	23.4	9.45E-08	0.923	8.72E-08	*				
10/07/21	8	5	600	2.89	203.28	26.43	23.4	9.45E-08	0.923	8.72E-08	*				
				1	Reported	Average	Hydraulic Cor	nductivity*		8.7E-08	cm/sec				
Flow pump	w pump ID # 22 Balance ID # 1035/1036								Pressure I	Meter ID #			1107		
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	· ID #			290		
Syringe ID a	#	1	40				-	Pore Pressu	re Meter	ID #			216		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sample with a ignificant upward or downward	ccuracy +/-5%. Flow Pu trend.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 300)84			
,	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233		$\mathbf{\Sigma}$		Tested By	KP/IH
		Soil		Fax: 770-923	-8973	\bigcirc	\sim		Date	09/20/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			I	Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38855/2-32(2)		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/10/21			Curing A	Age, Days	10
	ASTM E	0 1633: Standa	rd Test Metl	nods for Com	pressive Strer	ngth of	Molded So	oil-Cement C	ylinders	
				METHOD	В					
						I				
	SAMPLE DAT	Γ Α		-	WATER CO	NTENT		IINATION		
Initial Height	t, in		5.541		Mass of Wet	t Samp	le and Tar	re, g	1456.1	
Initial Diame	ter, in		2.960		Mass of Dry	Sample	e and lare	e, g	1190.3	
Height-to-Di	ameter Ratio		1.87	-	Mass of Tare	e, g			261.7	
Area, In			6.88	-	Moisture, %				28.6	
Volume, in [°]			38.13	4						
Mass of San	npie, g		1197.3	-						
Wet Density	, pct		119.6	-						
Machine Sp	pci and in/min		93.0	4						
Strain rate	% / min		0.000							
Otrain rate,	<i>70 / 11</i>		0.00	1						
				TEST	DATA					
	I oad Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
				-	ŕ					
Maximum Lo	bad at Failure,	lbf			224					
Specimen C	ross-sectional	Area, in ²			6.88			Failure Cod	e 3	
Compressive	e Strength at F	ailure, psi			33					
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		33				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per	ASTM C42)		
			DESC	RIPTION						
								Failure Type	e:	
								51	Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
			REN	IARKS						
Г	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
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r	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\sim	\sim		Date	10/08/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			Lab	. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		5	S. Type	Mold	Depth/Elev.	-
Sample ID	:	38855/2-32(2)		Subsample	2	Lo	ocation		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/10/21			Curing A	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Strer	ngth of Mo	olded So	il-Cement C	ylinders	
				METHOD	В					
	SAMPLE DAT	Γ Α		-	WATER CO	NTENT D	ETERM	INATION		
Initial Height	i, in		5.641	_	Mass of Wet	t Sample a	and Tar	e, g	1511.9	
Initial Diame	ter, in		2.970	_	Mass of Dry	Sample a	nd Tare	e, g	1242.6	
Height-to-Dia	ameter Ratio		1.90	-	Mass of Tare	e, g			306.9	
Area, In			6.93	-	Moisture, %				28.8	
Volume, In ²	anla a		39.08	_						
Wass of San	npie, g		1200.5	-						
Dry Density	, pci		01.3	-						
Machine Sn	poi and in/min		0.050							
Strain rate	% / min		0.000	-						
		I	0.00	_						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	7			Digita	l Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			F	Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure	lbf			1124					
Specimen C	ross-sectional	Area, in ²			6.93			Failure Cod	e 3	
Compressive	e Strength at F	ailure nsi			162					
Conversion	Eactor for Heig	ht to Diamotor	Datio		1.00					
Conversion		trongth of Eai			1.00				Eailura Skot	ob
Reported C	ompressive 3	liengin al Fai	iure, psi		102					
Note 2: * - A c	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per AS	TM C42))		
			DESC	RIPTION						
								Failure Type	e:	
					100)				Cone and S	near
		U:	505 (ASTM	DZ487: DZ4	100 <i>)</i>					
					1					
			REM	IARKS						
	<u> </u>									

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	09/20/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		AC	ASHIO			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-0	2-3	
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38855/2	2-32(2)		Subs	ample ID	3		Location			Seattle,	WA	
Add. Info		-		Miz	king/Molding Da	te		09/10/21]		Curin	g Age, Days		10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
Iı	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After Te	est)	
Heiaht		2.957	lin	7.51 c	m Speed			9	1						
Diameter		2.929	in	7.44 c	m Board Nu	umber		4		Average Hei	oht of Same	le	2.958 in	7.51 cm	
Area		6.74	in ²	43.47 C	m ² Cell Num	ber		37		Average Dia	meter of Sa	mple	2.930 in	7.44 cm	
Volume		326.50	cm ³	0.0115 ft	³ Flow Pur	no Numbe	r	2A		Area	6.74	lin ²	43.50 cm ²		
Mass		629.8	q	1.39 lk	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	326.83	cm ³	0.0115 ft ³	Dry Density	93.9 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	, ,		0.95		Mass	634.4	q	1.40 lb	Vol. of Voids	144.71 cm ³
Dry Density		93.8	pcf	,	Cell Pres	sure		95.0	psi			70		Vol. of Solids	182.12 cm ³
	l		1.		Back Pre	essure		90.0	psi					Void Ratio	0.79
	Moist	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	98.6 %
Mass of we	t sample &	k tare	629.8	g	Max Hea	d	,	54.87	cm	Mass of wet	sample & ta	re	714.0 g		
Mass of dry	sample &	tare	490.8	g	Min Head	b		54.16	cm	Mass of dry	sample & ta	re	571.6 g		
Mass of tare	e		0.0	g	Maximun	n Gradient		7.30		Mass of tare			80.8 g		
% Moisture			28.3		Minimum	Gradient		7.21		% Moisture			29.0		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used fo	or Permeability Test	<u>.</u>
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/20/21	9	5	-	0.78	54.87	7.30	25.5	-	-	-		NA			JSCS
09/20/21	9	15	600	0.77	54.16	7.21	25.5	1.42E-06	0.879	1.25E-06				(ASTM	D2487;2488)
09/20/21	9	25	600	0.78	54.87	7.30	25.5	1.42E-06	0.879	1.25E-06]				NA
09/20/21	9	35	600	0.78	54.87	7.30	25.5	1.41E-06	0.879	1.24E-06	*		REM	ARKS	
09/20/21	9	45	600	0.77	54.16	7.21	25.5	1.42E-06	0.879	1.25E-06	*	Bottom	Half of the mold was u	used for testing.	
09/20/21	9	55	600	0.78	54.87	7.30	25.5	1.42E-06	0.879	1.25E-06	*				
09/20/21	10	5	600	0.77	54.16	7.21	25.5	1.42E-06	0.879	1.25E-06	*				
					Reported	Average	Hydraulic Cor	nductivity*		1.2E-06	cm/sec				
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346		
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	sure Meter	r ID#			1041		
Syringe ID #	#	24	45					Pore Pressu	ire Meter	ID #			26/27		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	mp with Cali Ilts at steady	brated Syringe f	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	nflow & outflow able above) sh	through the owed no sig	e fully saturated sample with a gnificant upward or downward	accuracy +/-5%. Flow Pu d trend.	imp Rate isused for

		î		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	10/08/21
	<u>(</u>			TESTS,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. 7					200016					Lab. PR. #			211	36-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Eleva	ation		-
Sample ID			38855/2	2-32(2)		Subs	ample ID	4		Location			Sea	attle, WA		
Add. Info		-		Mix	ing/Molding Da	ate		09/10/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials l	ard Test <mark>N</mark> Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous w)			
	nitial San	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (Afte	er Test)		
Height		2.999	in	7.62 c	m Speed			10								
Diameter		2.964	in	7.53 c	m Board Nu	umber		22		Average Heig	ght of Samp	le	3.000 in	Г	7.62 cm	
Area		6.90	in²	44.52 C	m ² Cell Num	nber		41		Average Dia	meter of Sa	mple	2.965 in	ľ	7.53 cm	
Volume		339.10	cm ³	0.0120 ft	³ Flow Pur	mp Numbe	r	2B		Area	6.90	in²	44.55 cm ²	2		
Mass		639.3	g	1.41 lb	Flow Pur	mp Rate*		2.24E-04	cm ³ /sec	Volume	339.44	cm ³	0.0120 ft ³	I	Dry Density	91.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	e		0.95		Mass	646.5	g	1.43 lb	Ň	Vol. of Voids	155.27 cm ³
Dry Density	ensity 91.5 pcf				Cell Pres	ssure		95.0	psi			_		Ň	Vol. of Solids	184.17 cm ³
	Moisture Content				Back Pre	essure		90.0	psi					Ň	Void Ratio	0.84
	Mois	ture Cont	ent	_	Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	9	Saturation	96.1 %
Mass of we	t sample &	tare	639.3	g	Max Hea	ad		45.02	cm	Mass of wet	sample & ta	ire	720.6 g			
Mass of dry	sample &	tare	497.1	g	Min Hea	d		44.31	cm	Mass of dry s	sample & ta	re	571.4 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		5.91		Mass of tare			74.3 g			
% Moisture			28.6		Minimum	n Gradient		5.82		% Moisture			30.0			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Use	ed for Per	meability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
10/08/21	10	5	-	0.63	44.31	5.82	22.5	-	-	-		NA			I	USCS
10/08/21	10	15	600	0.63	44.31	5.82	22.5	8.65E-07	0.942	8.15E-07					(ASTM	D2487;2488)
10/08/21	10	25	600	0.64	45.02	5.91	22.5	8.58E-07	0.942	8.08E-07						NA
10/08/21	10	35	600	0.63	44.31	5.82	22.5	8.58E-07	0.942	8.08E-07	*		I	REMARKS	;	
10/08/21	10	45	600	0.64	45.02	5.91	22.5	8.58E-07	0.942	8.08E-07	*	Bottom	Half of the mold v	was used f	for testing.	
10/08/21	10	55	600	0.63	44.31	5.82	22.5	8.58E-07	0.942	8.08E-07	*					
10/08/21	11	5	600	0.64	45.02	5.91	22.5	8.58E-07	0.942	8.08E-07	*					
	Reported Average Hydraulic Conductin									8.1E-07	cm/sec					
Flow pump ID # 244 Balance ID # 1035/1036 Differential Pressure Meter ID #										587						
Thermomet	nermometer ID # 796/985 Oven ID # 496/758 Board Pressure Meter ID # 777															
Syringe ID a	#	24	46				•	Pore Pressu	re Meter	ID #			1054			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sample gnificant upward or dow	e with accuration	cy +/-5%. Flow Pu	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
	<u>r.e. [s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	۱ 3-8973			Date	09/21/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR.	#	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Тур	e Mold	Depth/Elev.	-
Sample ID		38873/2-25		Subsample	1	Locatio	n	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/11/21		Curing	Age, Days	10
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded	Soil-Cement (Cylinders	
				METHOD	В				
		٢Δ			WATER COL		MINATION		
Initial Height			5 697	1	Mass of Wet	Sample and T	are o	1519 7	
Initial Diame	ter. in		2.979	-	Mass of Drv	Sample and Ta	are. a	1240.3	
Height-to-Di	ameter Ratio		1.91		Mass of Tare	e, g		299.0	
Area, in ²			6.97		Moisture, %			29.7	
Volume, in ³			39.71		,				
Mass of Sar	nple, g		1222.0						
Wet Density	, pcf		117.2						
Dry Density,	pcf		90.4						
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.88						
				TEST	DATA				
		+	11/1015	1		Dia	tal Calinar ID	# 17/583	
	Compression	- Device ID #	10/1014	-		Read	out Device ID	# 17/303 # 10/1016	
	Balance ID #		1036/1037			Read	Oven ID	# 758/496	
				1					
Maximum Lo	oad at Failure,	lbf			740				
Specimen C	ross-sectional	Area, in ²			6.97		Failure Coo	de 3	
Compressiv	e Strength at F	ailure, psi			106				
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		106			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM C	42)		
			DESC	RIPTION					
							T		
							Failure Typ	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS					

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/09/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com	ASHO		Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal	-	S. Type	Mold	Depth/Elev.	-
Sample ID		38873/2-25		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/11/21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Streng	gth of Molded Se	oil-Cement C	ylinders	
				METHOD	В				
		٢Δ			WATER CON		ΔΙΝΔΤΙΟΝ		
Initial Height	t in		5,636	1	Mass of Wet	Sample and Ta	re. a	1506.4	
Initial Diame	ter. in		2.975		Mass of Drv S	Sample and Tar	e. a	1231.5	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	, g	., 0	304.0	
Area, in ²			6.95		Moisture. %	-		29.6	
Volume, in ³			39.18						
Mass of Sar	nple, g		1206.6						
Wet Density	, pcf		117.3						
Dry Density,	pcf		90.5						
Machine Sp	eed, in/min		0.050	-					
Strain rate, 9	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
Maximum Lo	oad at Failure	lbf			2580				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	e 3	
Compressiv	e Strength at F	ailure psi			371				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00	<u> </u>			
Reported C	ompressive S	trength at Fai	lure nsi		371			Failure Sket	ch
Noto 2: * A		based on U/D-	1 15 (C E 0	08 00 100% 0	nd add correctiv	n por ASTM CA	וכ		511
NOLE 2 A C	onversion lactor	based on n//	DFSC	RIPTION			-)		
			5200				Ī		
							Failure Type	K	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)		L		
]				
			RFM	IARKS					
				-			ľ		

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			т	Fested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/21/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Cł	hecked By	1B
Client Pr. #					200016	-				Lab. PR. #			2113	6-02-3		
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevati	ion		-
Sample ID			38873	/2-25		Subs	ample ID	3		Location			Seattl	le, WA		
Add. Info		-		Miz	king/Molding Da	te		09/11/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)			
li	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (After	[.] Test)		
Heiaht		3.006	lin	7.64 c	m Speed			10	1							
Diameter		2.976	in	7.56 c	m Board Nu	umber		19	1	Average Hei	ght of Samp	le	3.007 in	7.	.64 cm	
Area		6.96	in ²	44.88 C	m ² Cell Num	ıber		14	1	Average Dia	meter of Sa	mple	2.977 in	7.	.56 cm	
Volume		342.65	cm ³	0.0121 ft	Flow Pur	np Numbe	r	3B	1	Area	6.96	in ²	44.91 cm ²			
Mass		633.0	g	1.40 II	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	342.99	cm ³	0.0121 ft ³	Dry	/ Density	89.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95	1	Mass	642.8	g	1.42 lb	Vol	I. of Voids	161.85 cm ³
Dry Density		89.1	pcf		Cell Pres	sure		95.0	psi			-		Vol	I. of Solids	181.14 cm ³
			-		Back Pre	ssure		90.0	psi					Voi	id Ratio	0.89
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Sat	turation	95.0 %
Mass of we	t sample 8	k tare	633.0	g	Max Hea	d		120.28	cm	Mass of wet	sample & ta	re	727.3 g			
Mass of dry	sample &	tare	489.0	g	Min Head	t		119.58	cm	Mass of dry	sample & ta	re	573.6 g			
Mass of tare	Э		0.0	g	Maximun	n Gradient		15.75		Mass of tare			84.6 g			
% Moisture			29.4		Minimum	Gradient		15.66		% Moisture			31.4			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used	d for Perme	eability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
09/21/21	7	5	-	1.71	120.28	15.75	25.7	-	-	-		NA			ι	ISCS
09/21/21	7	15	600	1.70	119.58	15.66	25.7	3.18E-07	0.875	2.78E-07					(ASTM	D2487;2488)
09/21/21	7	25	600	1.71	120.28	15.75	25.7	3.18E-07	0.875	2.78E-07						NA
09/21/21	7	35	600	1.70	119.58	15.66	25.7	3.18E-07	0.875	2.78E-07	*		RI	EMARKS		
09/21/21	7	45	600	1.71	120.28	15.75	25.7	3.18E-07	0.875	2.78E-07	*	Bottom	Half of the mold wa	as used for	testing.	
09/21/21	7	55	600	1.70	119.58	15.66	25.7	3.18E-07	0.875	2.78E-07	*					
09/21/21	8	5	600	1.71	120.28	15.75	25.7	3.18E-07	0.875	2.78E-07	*					
				_	Reported	Average	Hydraulic Co	nductivity*		2.8E-07	cm/sec					
Flow pump	ID #	4	75	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262			
Thermomet	er ID #	796	/985	0	Ven ID #	496/758		Board Press	sure Meter	ID#			570			
Syringe ID #	#	4	90	J				Pore Pressu	ire Meter	ID #			779/780			
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow able above) sh	through the owed no sig	e fully saturated sample w gnificant upward or down	vith accuracy + ward trend.	⊧/-5%. Flow Pu	mp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	10/09/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02	-3	•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38873	/2-25		Subs	ample ID	4		Location			Seattle, V	/Α	
Add. Info		-		Miz	king/Molding Da	te		09/11/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous w)		
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After Te	st)	
Height		3.012	in	7.65 c	m Speed			12]						
Diameter		2.970	in	7.54 c	m Board Nu	umber		7		Average Hei	ght of Samp	le	3.013 in	7.65 cm	
Area		6.93	in²	44.70 C	m ² Cell Num	ıber		2		Average Dia	meter of Sa	nple	2.971 in	7.55 cm	
Volume		341.95	cm ³	0.0121 ft	³ Flow Pun	np Numbe	r	4B		Area	6.93	in ²	44.73 cm ²		
Mass		633.2	g	1.40 II	Flow Pun	np Rate*		5.60E-05	cm ³ /sec	Volume	342.29	cm ³	0.0121 ft ³	Dry Density	89.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	647.4	g	1.43 lb	Vol. of Voids	160.62 cm ³
Dry Density		89.5	pcf		Cell Pres	sure		95.0	psi					Vol. of Solids	181.68 cm ³
					Back Pre	ssure		90.0	psi					Void Ratio	0.88
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	97.7 %
Mass of wet	t sample 8	k tare	633.2	g	Max Hea	d		173.74	cm	Mass of wet	sample & ta	re	729.5 g		
Mass of dry	sample &	tare	490.6	g	Min Head	t		172.33	cm	Mass of dry s	sample & ta	re	572.6 g		
Mass of tare	e		0.0	g	Maximum	n Gradient		22.70		Mass of tare			82.0 g		
% Moisture			29.1		Minimum	Gradient		22.52		% Moisture			32.0		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for	Permeability Test	•
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/09/21	7	10	-	2.47	173.74	22.70	22.7	-	-	-		NA		ι	JSCS
10/09/21	7	20	600	2.45	172.33	22.52	22.7	5.54E-08	0.938	5.19E-08				(ASTM	D2487;2488)
10/09/21	7	30	600	2.45	172.33	22.52	22.7	5.56E-08	0.938	5.21E-08					NA
10/09/21	7	40	600	2.46	173.04	22.61	22.7	5.55E-08	0.938	5.20E-08	*		REMA	RKS	
10/09/21	7	50	600	2.45	172.33	22.52	22.7	5.55E-08	0.938	5.20E-08	*	Bottom	Half of the mold was us	ed for testing.	
10/09/21	8	0	600	2.47	173.74	22.70	22.7	5.54E-08	0.938	5.19E-08	*				
10/09/21	8	10	600	2.45	172.33	22.52	22.7	5.54E-08	0.938	5.19E-08	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		5.2E-08	cm/sec				
Flow pump	ID #	10	43	E	alance ID #	1035/1036		Differential F	Pressure I	/leter ID #			1045/1049		
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	sure Meter	ID #			290		
Syringe ID #	#	10	46]			-	Pore Pressu	ire Meter	D #			216		
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	mp with Calil Ilts at steady	brated Syringe f Differential Pre	or Inflow and Calibra	ated Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with ac gnificant upward or downward	ccuracy +/-5%. Flow Pu trend.	mp Rate isused for

	•	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/23/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	#	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID		38874/2-16		Subsample	1	Location	ו	Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/13/21		Curing	Age, Days	10
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	Soil-Cement (Cylinders	
				METHOD	В				
		- •							
le iti al I la inda		A	F 000	٦	WATER CON		MINATION	4544.0	
Initial Heigh	t, IN		5.660	_	Mass of Wet	Sample and Ta	are, g	1541.2	
Height to Di	ameter Patio		2.979	_	Mass of Tare	Sample and Ta	re, g	207.0	
Aroa in ²			6.07	-	Maisture %	, y		237.0	
Alea, III Volumo in^3			0.97	-	woisture, %			27.0	
Mass of Sar	mplo a		39.45	_					
Wet Density	npie, y		1240.7	-					
Dry Density	pcf		94.7	-					
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.88						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digi	tal Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			895				
Specimen C	ross-sectional	Area, in ²			6.97		Failure Coo	de 3	
Compressiv	e Strength at F	ailure, psi			128				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure. psi		128			Failure Sket	ch
Note 2: * A	conversion factor	based on H/D-	1 15 (C E 0	08 25 100% 2	nd add correcti	ion per ASTM CA	(2)		
Note 2 A C	Conversion lactor	based on h/D-	DESC	00 as 100% a RIPTION	nu auu. conecu	on per ASTNI C4	-2)		
			DLSC				Т		
							Fallure Typ	e. Cone and S	hoar
	L	11	SCS (ASTM	D2487· D24	88)		1		
		0.		. 52 701 . 024]				
	-		REM	IARKS			т		
	L						4		
J									

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
	<u>r.e. [s.t.</u>]	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/11/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	E	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Туре	Mold	Depth/Elev.	-
Sample ID		38874/2-16		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/13/21		Curing /	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
	_								
	SAMPLE DAT	ГА		٦	WATER CO		MINATION		
Initial Height	i, in		5.661	-	Mass of Wet	Sample and Ta	ire, g	1534.1	
Initial Diame	eter, In Amotor Patio		2.974		Mass of Dry	Sample and Tal	re, g	1270.5	
Aroo in ²			1.90	-	Maiatura 0/	, y		297.2	
Alea, III Volumo in^3			0.90	-	woisture, %			27.1	
Mass of Sar	nnle a		39.32 1230 5						
Wet Density	npie, g		1209.0	-					
Dry Density	pcf		94.4	-					
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.88						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	J			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2589				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			373				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		373			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM C4	2)		
			DESC	RIPTION		,	,		
							T		
							Failure Typ	e:	
							, , , , , , , , , , , , , , , , , , , ,	Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
					J				
			REM	IARKS					
							Ţ		
							Ţ		

		î		TIMEI	LΥ	1874 For	ge Street Tu	cker, GA 300	84								
	T.E.	<u>ST.</u>		ENGIN	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KF	P
				Soil		Fax: 770-	923-8973								Date	09/23/2	21
	(Tests	, LLC	Web: ww	w.test-llc.com	<u>n</u>		A	ASHIO				Checked By	18	
Client Pr. 7	4				200016					Lab. PR. #	ŧ			21136-02-3		•	
Pr. Name					Time Oil Term	ninal				S. Type	Mo	ld	Depth/E	Elevation		-	
Sample ID			38874	/2-16		Subs	ample ID	3		Location				Seattle, WA			
Add. Info		-		Miz	king/Molding Da	ate		09/13/21				Curin	g Age, Days			10	
				ASTM D	5084; Standa Materials I	ard Test M Using a F	lethod for lexible Wal	Measurem Il Permeam	ent of Hy eter (Me	/draulic Coi thod D, Cor	nductivity	of Satu e of Flo	irated Poro w)	us			
h	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	а					Final Data (After Test)			
Height		3.008	in	7.64 c	m Speed			9	1								
Diameter		2.968	in	7.54 c	m Board N	umber		18		Average Hei	ght of Samp	le	3.009	in	7.64 cm		
Area		6.92	in ²	44.64 C	m ² Cell Nun	nber		5		Average Dia	meter of Sa	mple	2.969	in	7.54 cm		
Volume		341.03	cm ³	0.0120 ft	Flow Pur	mp Numbe	r	4B		Area	6.92	in ²	44.67	cm ²			
Mass		652.1	g	1.44 lt	Flow Pur	mp Rate*		4.48E-04	cm ³ /sec	Volume	341.38	cm ³	0.0121	ft ³	Dry Density	93.7	pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	е		0.95		Mass	659.2	g	1.45	lb	Vol. of Voids	151.42	cm ³
Dry Density	/	93.8	pcf		Cell Pres	ssure		95.0	psi						Vol. of Solids	189.95	cm ³
			-		Back Pre	essure		90.0	psi						Void Ratio	0.80	
	Mois	ture Cont	ent		Confining	g (Effective) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	96.6	%
Mass of we	t sample 8	tare	652.1	g	Max Hea	ad		21.10	cm	Mass of wet	sample & ta	ire	740.5	g			
Mass of dry	sample &	tare	512.8	g	Min Hea	d		20.40	cm	Mass of dry	sample & ta	re	594.2	g			
Mass of tar	е		0.0	g	Maximur	m Gradient		2.76		Mass of tare			81.4	g			
% Moisture			27.2		Minimum	n Gradient		2.67		% Moisture			28.5				
TIME	FUNCT	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Wate	r Used for Pe	ermeability Tes	t.	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTI	ON	_		
09/23/21	8	5	-	0.29	20.40	2.67	25.4	-	-	-		NA				USCS	
09/23/21	8	15	600	0.30	21.10	2.76	25.4	3.69E-06	0.881	3.26E-06					(ASTN	1 D2487;2488)	
09/23/21	8	25	600	0.29	20.40	2.67	25.4	3.69E-06	0.881	3.26E-06						NA	1
09/23/21	8	35	600	0.30	21.10	2.76	25.4	3.69E-06	0.881	3.26E-06	*			REMARK	S		
09/23/21	8	45	600	0.29	20.40	2.67	25.4	3.69E-06	0.881	3.26E-06	*	Bottom	Half of the m	old was used	I for testing.		
09/23/21	8	55	600	0.30	21.10	2.76	25.4	3.69E-06	0.881	3.26E-06	*						
09/23/21	9	5	600	0.29	20.40	2.67	25.4	3.69E-06	0.881	3.26E-06	*						
				_	Reported	d Average I	Hydraulic Co	nductivity*		3.3E-06	cm/sec						
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	_		1045/1049				
Thermomet	ter ID #	796	/985	c	Oven ID #	496/758		Board Press	sure Mete	r ID#			570				
Syringe ID a	#	10)46					Pore Pressu	ire Meter	ID #			779/780				
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	imp with Calil ults at steady	brated Syringe f Differential Pre	or Inflow and Calibration (DP) Reading	ated Graduate s at the range	d Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow table above) sh	through the owed no sig	e fully saturated s gnificant upward o	ample with accur or downward tren	racy +/-5%. Flow P nd.	ump Rate isused	d for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/11/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	lb.
Client Pr. #					200016					Lab. PR. #			2	21136-02-3		•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Ele	evation		-
Sample ID			38874	/2-16		Subs	ample ID	4		Location			S	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	te		09/13/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porou: w)	S		
lı	nitial San	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (A	After Test)		
Height		3.037	in	7.71 c	m Speed			12								
Diameter		2.973	in	7.55 c	m Board Nu	umber		8		Average Hei	ght of Samp	le	3.038 ir	n	7.72 cm	
Area		6.94	in²	44.79 C	m ² Cell Num	ıber		55		Average Dia	meter of Sa	nple	2.974 ir	n	7.55 cm	
Volume		345.48	cm ³	0.0122 ft	³ Flow Pun	np Numbe	r	2B		Area	6.95	in ²	44.82	cm ²		
Mass		659.2	g	1.45 lk	Flow Pun	np Rate*		5.60E-05	cm ³ /sec	Volume	345.83	cm ³	0.0122 ff	t ³	Dry Density	93.6 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	671.4	g	1.48 II	b	Vol. of Voids	153.75 cm ³
Dry Density	,	93.7	pcf		Cell Pres	sure		95.0	psi						Vol. of Solids	192.07 cm ³
					Back Pre	ssure		90.0	psi						Void Ratio	0.80
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ntent		Saturation	99.4 %
Mass of wet	t sample &	k tare	659.2	g	Max Hea	d		186.40	cm	Mass of wet	sample & ta	re	752.8 g)		
Mass of dry	sample &	tare	518.6	g	Min Head	t		185.70	cm	Mass of dry s	sample & ta	re	600.0 g)		
Mass of tare	е		0.0	g	Maximum	n Gradient		24.16		Mass of tare			81.4 g	J		
% Moisture			27.1		Minimum	Gradient	-	24.06		% Moisture	-		29.5			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N	_	
10/11/21	6	30	-	2.64	185.70	24.06	22.1	-	-	-		NA			ι	JSCS
10/11/21	6	40	600	2.65	186.40	24.16	22.1	5.18E-08	0.951	4.93E-08					(ASTM	D2487;2488)
10/11/21	6	50	600	2.64	185.70	24.06	22.1	5.18E-08	0.951	4.93E-08						NA
10/11/21	7	0	600	2.65	186.40	24.16	22.1	5.18E-08	0.951	4.93E-08	*			REMARK	S	
10/11/21	7	10	600	2.65	186.40	24.16	22.1	5.17E-08	0.951	4.92E-08	*	Bottom	Half of the mo	ld was used	for testing.	
10/11/21	7	20	600	2.64	185.70	24.06	22.1	5.18E-08	0.951	4.93E-08	*					
10/11/21	7	30	600	2.65	186.40	24.16	22.1	5.18E-08	0.951	4.93E-08	*					
				-	Reported	Average	Hydraulic Co	nductivity*		4.9E-08	cm/sec					
Flow pump	ID #	24	44	B	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	r ID #			290			
Syringe ID #	#	24	46				-	Pore Pressu	ire Meter	ID #			216			
*Constant Rate calculations of I	of Flow Syst	tem (Flow Pu STP 977) resu	imp with Cali	brated Syringe f	or Inflow and Calibra ssure (DP) Readings	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sar gnificant upward or	nple with accur downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/24/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38893/2-2		Subsample	1	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/14/21		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		٢Δ			WATER CON				
Initial Heigh	t in		5.633	1	Mass of Wet	Sample and Ta	re. a	1506.5	
Initial Diame	eter. in		2.960		Mass of Drv S	Sample and Tar	re, g re. a	1222.4	
Height-to-Di	ameter Ratio		1.90		Mass of Tare	, g	.,0	299.0	
Area, in ²			6.88		Moisture, %			30.8	
Volume, in ³			38.76						
Mass of Sar	nple, g		1211.7						
Wet Density	, pcf		119.1						
Dry Density,	pcf		91.0						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Diait	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
				1					
Maximum Lo	bad at Failure,	lbf			333				
Specimen C	ross-sectional	Area, in ²			6.88		Failure Cod	e 3	
Compressiv	e Strength at F	allure, psi			48	<u> </u>			
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		48			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C4	2)		
			DESC	RIPTION			-		
							Failure Type	e:	_
		1.14			00)		1	Cone and S	near
		U	505 (ASTM	D2487: D24	100)				
					1				
	·		REM	IARKS			-		
	L						L		
L									

Г	Î	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
	<u>r.e. st.</u>	ENGINE	ERING	Phone: 770-9	938-8233	Δ		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	10/12/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-Ilc.com			Checked By	18
Client Pr. #			200016			Lab. PR.	#	21136-02-3	
Pr. Name		Т	ime Oil Term	inal	_	S. Typ	e Mold	Depth/Elev.	-
Sample ID		38893/2-2		Subsample	2	Locatio	n	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/14/21		Curing	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	Soil-Cement C	Cylinders	
				METHOD	В				
	SAMPLE DAT	ſA			WATER CO				
Initial Heigh	t. in		5.675	7	Mass of Wet	Sample and Ta	are. a	1482.3	
Initial Diame	eter, in		2.973	_	Mass of Dry	Sample and Ta	ire, q	1197.5	
Height-to-Di	ameter Ratio		1.91		Mass of Tare	e, g		261.8	
Area, in ²			6.94		Moisture, %			30.4	
Volume, in ³			39.40						
Mass of Sar	nple, g		1223.8	1					
Wet Density	, pcf		118.3						
Dry Density,	pcf		90.7						
Machine Sp	eed, in/min		0.050	_					
Strain rate,	% / min		0.88	J					
				TEST	DATA				
	l oad Cell ID #	ŧ	11/1015	7		Digi	tal Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	out Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure.	lbf			2131				
Specimen C	ross-sectional	Area, in ²			6.94		Failure Coo	le 3	
Compressiv	e Strength at F	ailure, psi			307				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		307			Failure Sket	ch
Noto 2: * A		based on U/D-	1 15 (C E 0	08 00 100% 0	nd add correct	ion por ASTM C	(2)		
Note 2 A C	conversion factor	based on n/D-	DESC	RIPTION			r <i>z)</i>		
	r		DL00				Т	\checkmark	
							Eailura Tun		
							Fallule Typ	Cone and S	hear
	L	U	SCS (ASTM	D2487: D24	88)				
]				
			REM	IARKS					
							7		
	L						_		
ļ									

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	09/24/21
	<u> </u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02	2-3	
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38893	3/2-2		Subs	ample ID	3		Location			Seattle, V	VA	
Add. Info		-		Miz	king/Molding Da	te		09/14/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After Te	st)	
Height		3.027	in	7.69 c	m Speed			9							
Diameter		2.964	in	7.53 c	m Board Nu	umber		7		Average Hei	ght of Samp	le	3.028 in	7.69 cm	
Area		6.90	in ²	44.52 C	m ² Cell Num	ıber		15		Average Dia	meter of Sa	nple	2.965 in	7.53 cm	
Volume		342.26	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	4B		Area	6.90	in ²	44.55 cm ²		
Mass		644.9	g	1.42 lk	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	342.61	cm ³	0.0121 ft ³	Dry Density	90.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	648.9	g	1.43 lb	Vol. of Voids	159.57 cm ³
Dry Density	isity 90.1 pcf				Cell Pres	sure		95.0	psi			-		Vol. of Solids	183.04 cm ³
	Mojeture Content				Back Pre	ssure		90.0	psi					Void Ratio	0.87
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	96.9 %
Mass of wet	t sample &	k tare	644.9	g	Max Hea	d		20.40	cm	Mass of wet	sample & ta	re	730.6 g		
Mass of dry	sample &	tare	494.2	g	Min Head	t		18.99	cm	Mass of dry	sample & ta	е	575.9 g		
Mass of tare	Э		0.0	g	Maximun	n Gradient		2.65		Mass of tare			81.7 g		
% Moisture			30.5		Minimum	Gradient		2.47		% Moisture			31.3		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for	Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/24/21	7	5	-	0.28	19.70	2.56	24.5	-	-	-		NA		l	JSCS
09/24/21	7	15	600	0.27	18.99	2.47	24.5	4.00E-06	0.899	3.60E-06				(ASTM	D2487;2488)
09/24/21	7	25	600	0.29	20.40	2.65	24.5	3.93E-06	0.899	3.53E-06					NA
09/24/21	7	35	600	0.28	19.70	2.56	24.5	3.86E-06	0.899	3.47E-06	*		REMA	RKS	
09/24/21	7	45	600	0.28	19.70	2.56	24.5	3.93E-06	0.899	3.53E-06	*	Bottom	Half of the mold was us	sed for testing.	
09/24/21	7	55	600	0.27	18.99	2.47	24.5	4.00E-06	0.899	3.60E-06	*				
09/24/21	8	5	600	0.28	19.70	2.56	24.5	4.00E-06	0.899	3.60E-06	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		3.5E-06	cm/sec				
Flow pump	ID #	10	43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	· ID #			290		
Syringe ID #	#	10	46]			-	Pore Pressu	ire Meter	ID #			216		
*Constant Rate calculations of I	of Flow Syst	tem (Flow Pu TP 977) resu	mp with Cali Its at steady	brated Syringe f Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with a gnificant upward or downward	ccuracy +/-5%. Flow Pu trend.	mp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	10/12/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-3	3	-
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38893	3/2-2		Subs	ample ID	4		Location			Seattle, WA	A	
Add. Info		-		Miz	king/Molding Da	te		09/14/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)		
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After Test	.)	
Height		3.019	in	7.67 c	m Speed			11]						
Diameter		2.969	in	7.54 c	m Board Nu	umber		18		Average Hei	ght of Samp	le	3.019 in	7.67 cm	
Area		6.92	in ²	44.67 C	m ² Cell Num	ıber		14		Average Dia	meter of Sa	mple	2.970 in	7.54 cm	
Volume		342.51	cm ³	0.0121 ft	Flow Pur	np Numbe	r	4B		Area	6.93	in ²	44.70 cm ²		
Mass		643.9	g	1.42	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	342.74	cm ³	0.0121 ft ³	Dry Density	90.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	650.2	g	1.43 lb	Vol. of Voids	159.62 cm ³
Dry Density		90.1	pcf		Cell Pres	sure		95.0	psi			-		Vol. of Solids	183.12 cm ³
			-		Back Pre	essure		90.0	psi					Void Ratio	0.87
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	97.6 %
Mass of wet	t sample 8	k tare	643.9	g	Max Hea	d		166.00	cm	Mass of wet	sample & ta	re	732.7 g		
Mass of dry	sample &	tare	494.5	g	Min Head	b		164.60	cm	Mass of dry	sample & ta	re	576.9 g		
Mass of tare	Э		0.0	g	Maximun	n Gradient		21.65		Mass of tare			82.4 g		
% Moisture			30.2		Minimum	Gradient		21.46		% Moisture			31.5		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for P	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/12/21	7	20	-	2.35	165.30	21.56	21.6	-	-	-		NA		ι	JSCS
10/12/21	7	30	600	2.36	166.00	21.65	21.6	1.16E-07	0.962	1.12E-07				(ASTM	D2487;2488)
10/12/21	7	40	600	2.34	164.60	21.46	21.6	1.16E-07	0.962	1.12E-07					NA
10/12/21	7	50	600	2.35	165.30	21.56	21.6	1.16E-07	0.962	1.12E-07	*		REMARI	KS	<u> </u>
10/12/21	8	0	600	2.35	165.30	21.56	21.6	1.16E-07	0.962	1.12E-07	*	Bottom	Half of the mold was use	d for testing.	
10/12/21	8	10	600	2.34	164.60	21.46	21.6	1.16E-07	0.962	1.12E-07	*				
10/12/21	8	20	600	2.36	166.00	21.65	21.6	1.16E-07	0.962	1.12E-07	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		1.1E-07	cm/sec				
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	sure Meter	· ID #			570		
Syringe ID #	#	10)46				-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow able above) sh	through the	e fully saturated sample with accu gnificant upward or downward tre	uracy +/-5%. Flow Pu end.	mp Rate isused for

	•	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/25/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR.	#	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Typ	e Mold	Depth/Elev.	-
Sample ID		38894/2-17		Subsample	1	Locatio	n	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/15/21		Curing	Age, Days	10
	ASTM I) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	Soil-Cement (Cylinders	
				METHOD	В				
		ΓΔ			WATER COM		MINATION		
Initial Heigh	t in		5 661	1	Mass of Wet	Sample and Ta	are a	1541.0	
Initial Diame	ter. in		2.985	1	Mass of Dry	Sample and Ta	ire. a	1273.4	
Height-to-Di	ameter Ratio		1.90		Mass of Tare	e, g	, 9	305.6	
Area, in ²			7.00	1	Moisture, %	2		27.7	
Volume, in ³			39.62		,				
Mass of Sar	nple, g		1238.1	1					
Wet Density	, pcf		119.1						
Dry Density,	pcf		93.2						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.88						
				TEST	DATA				
		+	11/1015	1		Digi	tal Caliner ID	# 17/583	
	Compression	- Device ID #	10/1014	-		Read	ut Device ID	# 10/1016	
	Balance ID #		1036/1037			Reduc	Oven ID	# 758/496	
			1000,1001	1			over 15	100,100	
Maximum Lo	oad at Failure,	lbf			528				
Specimen C	ross-sectional	Area, in ²			7.00		Failure Coo	de 3	
Compressiv	e Strength at F	ailure, psi			75				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		75			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	12)		
			DESC	RIPTION					
							Failure Typ	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
					l				
			REM	IARKS					
							Ţ		
	L						-4		
L									

Г	î	TIMELY		1874 Forge S	Street Tucker,	GA 300	84			
2	<u>r.e. st.</u>	Engine	ERING	Phone: 770-9	938-8233		\wedge		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	V			Date	10/13/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			L	_ab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal	_		S. Type	Mold	Depth/Elev.	-
Sample ID		38894/2-17		Subsample	2		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/15/21			Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Strer	ngth of I	Molded So	oil-Cement C	ylinders	
				METHOD	В					
		ГА			WATER CO	NTENT		IINATION		
Initial Height	t, in		5.641		Mass of Wet	t Sampl	le and Tar	e, g	1532.0	
Initial Diame	ter, in		2.979		Mass of Dry	Sample	e and Tare	e, g	1265.0	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g		-	306.9	
Area, in ²			6.97		Moisture, %				27.9	
Volume, in ³			39.32							
Mass of Sar	nple, g		1228.0							
Wet Density	, pcf		119.0							
Dry Density,	pcf		93.0							
Machine Sp	eed, in/min		0.050	-						
Strain rate,	% / min		0.89							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	1			Diaita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	-			Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
Maximum L	oad at Failure	lhf			2557					
Specimen C	ross-sectional	Area in ²			6.97			Failure Cod	e 3	
Compressiv	e Strength at F	ailure nsi			367					
Conversion	Eactor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai			367				Eailure Sket	ch
Neto 0. * Au			a 45 (0 5 0	00 4000/ -		<i>t</i> :	A OTH O 40			
Note 2: " - A C	conversion factor	based on H/D=	0.F9 DESC	08 as 100% a. RIPTION	na ada. correct	tion per J	ASTM C42)		
			DLGC				T			
								rallule Type	Cone and S	hear
	L		SCS (ASTM	D2487 [.] D24	88)		I			
		0								
			DEN		_					
	r									
	L									
L										

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/25/21
	<u> </u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			2	1136-02-3		•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Ele	evation		-
Sample ID			38894	/2-17		Subs	ample ID	3		Location			S	eattle, WA		
Add. Info		-		Miz	king/Molding Da	te		09/15/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous w)	6		
h	nitial San	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	fter Test)		
Height		2.984	in	7.58 c	m Speed			9	1							
Diameter		2.973	in	7.55 c	m Board Nu	umber		5	1	Average Hei	ght of Samp	le	2.985 ir	ı	7.58 cm	
Area		6.94	in²	44.79 C	m ² Cell Num	ber		5	1	Average Dia	meter of Sa	nple	2.974 ir	ı	7.55 cm	
Volume		339.45	cm ³	0.0120 ft	³ Flow Pur	np Numbe	r	3B	1	Area	6.95	in ²	44.82 C	m²		
Mass		644.0	g	1.42 lk	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	339.79	cm ³	0.0120 ft	3	Dry Density	92.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95	1	Mass	655.5	g	1.45 lt)	Vol. of Voids	152.59 cm ³
Dry Density	,	92.9	pcf		Cell Pres	sure		95.0	psi						Vol. of Solids	187.21 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	0.82
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	98.3 %
Mass of we	t sample &	k tare	644.0	g	Max Hea	d		21.10	cm	Mass of wet	sample & ta	re	719.8 g			
Mass of dry	sample &	tare	505.3	g	Min Head	d		20.40	cm	Mass of dry s	sample & ta	re	569.8 g			
Mass of tare	е		0.0	g	Maximun	n Gradient		2.78		Mass of tare			64.5 g			
% Moisture			27.4		Minimum	Gradient	-	2.69		% Moisture	-		29.7			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	rmeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N		
09/25/21	8	5	-	0.30	21.10	2.78	24.8	-	-	-		NA			ι	JSCS
09/25/21	8	15	600	0.29	20.40	2.69	24.8	3.65E-06	0.893	3.26E-06					(ASTM	D2487;2488)
09/25/21	8	25	600	0.30	21.10	2.78	24.8	3.65E-06	0.893	3.26E-06						NA
09/25/21	8	35	600	0.29	20.40	2.69	24.8	3.65E-06	0.893	3.26E-06	*	b		REMARK	S	
09/25/21	8	45	600	0.30	21.10	2.78	24.8	3.65E-06	0.893	3.26E-06	*	Bottom	Half of the mol	d was used	for testing.	
09/25/21	8	55	600	0.30	21.10	2.78	24.8	3.59E-06	0.893	3.21E-06	*					
09/25/21	9	5	600	0.29	20.40	2.69	24.8	3.65E-06	0.893	3.26E-06	*					
				_	Reported	Average	Hydraulic Co	nductivity*		3.2E-06	cm/sec					
Flow pump	ID #	4	75	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	r ID#			1042			
Syringe ID #	#	4	90	J				Pore Pressu	ire Meter	ID #			779/780			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sam gnificant upward or o	nple with accuration downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEL	.Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/13/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. 7					200016					Lab. PR. #			21	136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elev	vation		-
Sample ID			38894	/2-17		Subs	ample ID	4		Location			Se	eattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/15/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials L	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous			
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (Af	ter Test)		
Height		2.992	in	7.60 ci	m Speed			11								
Diameter		2.968	in	7.54 ci	m Board Nu	umber		18		Average Heig	ght of Samp	le	2.993 in		7.60 cm	
Area		6.92	in²	44.64 CI	m ² Cell Num	nber		17		Average Dia	meter of Sa	mple	2.969 in		7.54 cm	
Volume		339.22	cm ³	0.0120 ft	³ Flow Pur	np Numbe	r	1A		Area	6.92	in ²	44.67 cm	n ²		
Mass		646.6	g	1.43 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	339.56	cm ³	0.0120 ft ³		Dry Density	93.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	654.2	g	1.44 lb		Vol. of Voids	151.09 cm ³
Dry Density	nsity 93.5 pcf				Cell Pres	sure		95.0	psi			_			Vol. of Solids	188.47 cm ³
	Moisture Content				Back Pre	essure		90.0	psi						Void Ratio	0.80
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	96.2 %
Mass of we	t sample &	tare	646.6	g	Max Hea	d		121.69	cm	Mass of wet	sample & ta	ire	730.8 g			
Mass of dry	sample &	tare	508.5	g	Min Head	d		120.98	cm	Mass of dry s	sample & ta	re	585.6 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		16.01		Mass of tare			77.1 g			
% Moisture			27.2		Minimum	Gradient		15.91		% Moisture			28.6			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water U	Ised for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	1		
10/13/21	7	5	-	1.73	121.69	16.01	21.7	-	-	-		NA			l	JSCS
10/13/21	7	15	600	1.72	120.98	15.91	21.7	1.57E-07	0.960	1.51E-07					(ASTM	D2487;2488)
10/13/21	7	25	600	1.73	121.69	16.01	21.7	1.57E-07	0.960	1.51E-07						NA
10/13/21	7	35	600	1.72	120.98	15.91	21.7	1.57E-07	0.960	1.51E-07	*			REMARKS	S	
10/13/21	7	45	600	1.73	121.69	16.01	21.7	1.57E-07	0.960	1.51E-07	*	Bottom	Half of the mold	l was used	for testing.	
10/13/21	7	55	600	1.72	120.98	15.91	21.7	1.57E-07	0.960	1.51E-07	*					
10/13/21	8	5	600	1.73	121.69	16.01	21.7	1.57E-07	0.960	1.51E-07	*					
	Reported Average Hydraulic Conductivity									1.5E-07	cm/sec					
Flow pump	w pump ID # 22 Balance ID # 1035/1036 Different									Meter ID #			1107			
Thermomet	Thermometer ID # 796/985 Oven ID # 496/758 Board Pressure Meter ID # 570															
Syringe ID a	#	1	40]			•	Pore Pressu	re Meter	ID #			779/780			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated samp gnificant upward or de	ple with accura ownward trend	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	09/26/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	E	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		38895/2-5		Subsample	1	Location	1	Seattle, WA	
Add. Info		-	Mixing/Mo	olding Date	09/16/21		Curing /	Age, Days	10
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
		ГА					ΜΙΝΑΤΙΟΝ		
Initial Height	in		5 694	1	Mass of Wet	Sample and Ta		1506 1	
Initial Diame	ter in		2 975	-	Mass of Dry	Sample and Ta	re a	1209.8	
Height-to-Di	ameter Ratio		1.91		Mass of Tare	e a	, g	298.4	
Area, in ²			6.95		Moisture %	, 9		32.5	
Volume. in ³			39.58					01.0	
Mass of San	nple. a		1210.2						
Wet Density	, pcf		116.5						
Dry Density,	pcf		87.9						
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.88						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure, I	lbf			727				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			105				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		105			Failure Skete	ch
Note 2 [.] * - A c	• conversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add_correcti	ion per ASTM C4	2)		
1000 2. 710			DESC	RIPTION			_)		
							Ţ	\times	
							Failure Typ	<u>a</u> .	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)		1		
			,]				
			REM	IARKS					
			1.11				Ϊ		
							-		

	t	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
,	<u>r.e. st.</u>	Engine	ERING	Phone: 770-9	938-8233		\land		Tested By	KP/IH
		Soil		Fax: 770-923	8-8973				Date	10/14/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			Lab	b. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		38895/2-5		Subsample	2	L	ocation		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/16/21		L	Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of Mo	olded So	il-Cement C	ylinders	
				METHOD	В					
	SAMPLE DAT	ΓA				NTENT D	ETERM	IINATION		
Initial Height	t, in		5.659	1	Mass of Wet	t Sample	and Tar	e, g	1501.8	
Initial Diame	ter, in		2.978	1	Mass of Dry	Sample a	and Tare	e, g	1207.5	
Height-to-Di	ameter Ratio		1.90		Mass of Tare	e, g		-	305.2	
Area, in ²			6.97		Moisture, %				32.6	
Volume, in ³			39.42							
Mass of San	nple, g		1198.6							
Wet Density	, pcf		115.8							
Dry Density,	pcf		87.3	_						
Machine Sp	eed, in/min		0.050	-						
Strain rate, S	% / MIN		0.88							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	7			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	1			Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037					Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			3146					
Specimen C	ross-sectional	Area, in ²			6.97			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			452					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		452				Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per AS	STM C42)		
			DESC	RIPTION			,			
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
					J					
			REM	IARKS						
							_			

		t		TIMEL	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	09/26/21
	<u>(</u>			TESTS	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-3	}	•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			38895	5/2-5		Subs	ample ID	3		Location			Seattle, WA	4	
Add. Info		-		Mix	king/Molding Da	te		09/16/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
li li	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (After Test	:)	
Height		3.009	lin	7.64 c	m Speed			9	1						
Diameter		2.962	in	7.52 c	m Board Nu	umber		8		Average Hei	ght of Samp	le	3.010 in	7.65 cm	
Area		6.89	in²	44.46 C	m ² Cell Num	ıber		2		Average Dia	meter of Sa	nple	2.963 in	7.53 cm	
Volume		339.77	cm ³	0.0120 ft	³ Flow Pun	np Numbe	r	4B		Area	6.90	in²	44.49 cm ²		
Mass		632.6	g	1.39 lb	Flow Pun	np Rate*		4.48E-04	cm ³ /sec	Volume	340.11	cm ³	0.0120 ft ³	Dry Density	87.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	641.5	g	1.41 lb	Vol. of Voids	162.79 cm ³
Dry Density	-	87.9	pcf		Cell Pres	sure		95.0	psi			J -		Vol. of Solids	177.32 cm ³
	Moisture Content				Back Pre	ssure		90.0	psi					Void Ratio	0.92
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	100.0 %
Mass of wet	t sample 8	k tare	632.6	g	Max Hea	d		29.54	cm	Mass of wet	sample & ta	re	722.7 g		
Mass of dry	sample &	tare	478.7	g	Min Head	t		28.84	cm	Mass of dry	sample & ta	е	560.0 g		
Mass of tare	е		0.0	g	Maximum	n Gradient		3.86		Mass of tare			81.3 g		
% Moisture			32.1		Minimum	Gradient		3.77		% Moisture			34.0		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for F	Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
09/26/21	7	5	-	0.42	29.54	3.86	25.0	-	-	-		NA		ι	JSCS
09/26/21	7	15	600	0.41	28.84	3.77	25.0	2.64E-06	0.889	2.35E-06				(ASTM	D2487;2488)
09/26/21	7	25	600	0.42	29.54	3.86	25.0	2.64E-06	0.889	2.35E-06					NA
09/26/21	7	35	600	0.41	28.84	3.77	25.0	2.64E-06	0.889	2.35E-06	*		REMAR	KS	
09/26/21	7	45	600	0.42	29.54	3.86	25.0	2.64E-06	0.889	2.35E-06	*	Bottom	Half of the mold was use	d for testing.	
09/26/21	7	55	600	0.41	28.84	3.77	25.0	2.64E-06	0.889	2.35E-06	*				
09/26/21	8	5	600	0.42	29.54	3.86	25.0	2.64E-06	0.889	2.35E-06	*				
				_	Reported	Average	Hydraulic Co	nductivity*		2.3E-06	cm/sec				
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	-		1045/1049		
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	ure Meter	r ID #			290		
Syringe ID #	#	10)46]			-	Pore Pressu	ire Meter	ID #			216		
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with according to the same of	uracy +/-5%. Flow Pu end.	mp Rate isused for

		î		TIMEL	Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	-923-8973								Date	10/14/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			21	136-02-3		
Pr. Name					Time Oil Term	inal				S. Type	Мо	ld	Depth/Elev	vation		-
Sample ID			38895	5/2-5		Subs	ample ID	4		Location			Se	attle, WA		
Add. Info		-		Mix	ing/Molding Da	te		09/16/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous w)			
	nitial San	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (Aft	ter Test)		
Height		3.034	in	7.71 ci	n Speed			11								
Diameter		2.974	in	7.55 ci	n Board Nu	umber		12		Average Heig	ght of Samp	le	3.035 in		7.71 cm	
Area		6.95	in²	44.82 CI	m ² Cell Num	ber		41		Average Dia	meter of Sa	mple	2.975 in		7.56 cm	
Volume		345.37	cm ³	0.0122 ft	Flow Pur	np Numbe	r	3B		Area	6.95	in²	44.85 cm	1 ²		
Mass		638.0	g	1.41 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	345.72	cm ³	0.0122 ft ³		Dry Density	87.1 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	645.5	g	1.42 lb		Vol. of Voids	167.03 cm ³
Dry Density	nsity 87.1 pcf				Cell Pres	sure		95.0	psi			_			Vol. of Solids	178.68 cm ³
	Moisture Content				Back Pre	essure		90.0	psi						Void Ratio	0.93
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	97.6 %
Mass of we	Moisture Content				Max Hea	d		155.45	cm	Mass of wet	sample & ta	ire	719.6 g			
Mass of dry	sample &	tare	482.3	g	Min Head	b		153.34	cm	Mass of dry s	sample & ta	re	556.6 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		20.17		Mass of tare			74.3 g			
% Moisture			32.3		Minimum	Gradient		19.89		% Moisture			33.8			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water Us	sed for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
10/14/21	9	5	-	2.20	154.75	20.07	21.4	-	-	-		NA			l	JSCS
10/14/21	9	15	600	2.19	154.04	19.98	21.4	1.25E-07	0.967	1.21E-07					(ASTM	D2487;2488)
10/14/21	9	25	600	2.20	154.75	20.07	21.4	1.25E-07	0.967	1.21E-07						NA
10/14/21	9	35	600	2.18	153.34	19.89	21.4	1.25E-07	0.967	1.21E-07	*	_		REMARKS	S	
10/14/21	9	45	600	2.19	154.04	19.98	21.4	1.25E-07	0.967	1.21E-07	*	Bottom	Half of the mold	was used	for testing.	
10/14/21	9	55	600	2.20	154.75	20.07	21.4	1.25E-07	0.967	1.21E-07	*					
10/14/21	10	5	600	2.21	155.45	20.17	21.4	1.24E-07	0.967	1.20E-07	*					
	Reported Aver							nductivity*		1.2E-07	cm/sec					
Flow pump	ID #	4	75	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	· ID #			776			
Syringe ID a	#	4	90				-	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated samp gnificant upward or do	le with accura	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	09/27/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	<i>‡</i>	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	e Mold	Depth/Elev.	-
Sample ID		38896/2-9		Subsample	1	Location	۱	Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/17/21		Curing	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	Soil-Cement C	Cylinders	
				METHOD	В				
		ΓΔ					ΜΙΝΑΤΙΟΝ		
Initial Heigh	t in	~	5 593	1	Mass of Wet	Sample and Ta	are a	1516.3	
Initial Diame	ter. in		2.963		Mass of Drv	Sample and Ta	re. a	1245.6	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g	, g	299.8	
Area, in ²			6.90		Moisture, %			28.6	
Volume, in ³			38.57						
Mass of Sar	nple, g		1218.9						
Wet Density	, pcf		120.4						
Dry Density,	pcf		93.6						
Machine Sp	eed, in/min		0.050						
Strain rate,	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Diai	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
				1					
Maximum Lo	bad at Failure,	bf			639				
Specimen C	ross-sectional	Area, in ²			6.90		Failure Coc	le 3	
Compressiv	e Strength at F	allure, psi			93				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		93			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	2)		
	r		DESC	RIPTION			-		
							Failure Typ	e:	h
	L	1.16		02407.004	88)		1	Cone and S	near
		0.	503 (A31M	DZ401. DZ4					
					1				
			REM	IARKS			-		
	L						1		
L									

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/15/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal	-	S. Type	Mold	Depth/Elev.	-
Sample ID		38896/2-9		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/17/21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Streng	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
		٢Δ			WATER CON		ΜΙΝΔΤΙΟΝ		
Initial Heigh			5 623	1	Mass of Wet	Sample and Ta	re a	1519 1	
Initial Diame	ter. in		2.969	-	Mass of Drv S	Sample and Tar	re, g re. a	1248.0	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	, g	.,0	298.8	
Area, in ²			6.92		Moisture, %	•		28.6	
Volume, in ³			38.93						
Mass of Sar	nple, g		1222.6						
Wet Density	, pcf		119.6						
Dry Density,	pcf		93.0						
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.89						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2206				
Specimen C	ross-sectional	Area, in ²			6.92		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			319				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		319			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correctio	on per ASTM C42	2)		
			DESC	RIPTION		,	,		
							T		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
					J				
			REM	IARKS					
]		
							1		

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	09/27/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			2	21136-02-3		
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/El	evation		-
Sample ID			38896	6/2-9		Subs	ample ID	3		Location			S	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	te		09/17/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porou w)	S		
h	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (A	After Test)		
Height		3.056	in	7.76 c	m Speed			9								
Diameter		2.955	in	7.51 c	m Board Nu	umber		7		Average Hei	ght of Samp	le	3.057 ii	n	7.76 cm	
Area		6.86	in²	44.25 C	m ² Cell Num	ber		33		Average Dia	meter of Sa	nple	2.956 ii	n	7.51 cm	
Volume		343.45	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	3B		Area	6.86	in ²	44.28	cm ²		
Mass		657.3	g	1.45 lk	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	343.79	cm ³	0.0121 f	t ³	Dry Density	92.6 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	663.0	g	1.46 II	b	Vol. of Voids	154.83 cm ³
Dry Density	,	92.6	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	188.97 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	0.82
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ntent		Saturation	98.7 %
Mass of we	t sample 8	k tare	657.3	g	Max Hea	d		22.51	cm	Mass of wet	sample & ta	re	726.7 g)		
Mass of dry	sample &	tare	509.9	g	Min Head	b		21.10	cm	Mass of dry s	sample & ta	re	574.0 g)		
Mass of tare	е		0.0	g	Maximun	n Gradient		2.90		Mass of tare			64.1 g	J		
% Moisture			28.9		Minimum	Gradient		2.72		% Moisture			29.9			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water	Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	N	_	
09/27/21	7	5	-	0.31	21.81	2.81	24.5	-	-	-		NA			ι	JSCS
09/27/21	7	15	600	0.32	22.51	2.90	24.5	3.55E-06	0.899	3.19E-06					(ASTM	D2487;2488)
09/27/21	7	25	600	0.31	21.81	2.81	24.5	3.55E-06	0.899	3.19E-06						NA
09/27/21	7	35	600	0.32	22.51	2.90	24.5	3.55E-06	0.899	3.19E-06	*			REMARK	S	
09/27/21	7	45	600	0.30	21.10	2.72	24.5	3.60E-06	0.899	3.24E-06	*	Bottom	Half of the mo	ld was used	for testing.	
09/27/21	7	55	600	0.31	21.81	2.81	24.5	3.66E-06	0.899	3.29E-06	*					
09/27/21	8	5	600	0.32	22.51	2.90	24.5	3.55E-06	0.899	3.19E-06	*					
				_	Reported	Average	Hydraulic Cor	nductivity*		3.2E-06	cm/sec					
Flow pump	ID #	4	75	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	ure Meter	ID#			290			
Syringe ID #	#	4	90	J				Pore Pressu	ire Meter	ID #			216			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sar gnificant upward or	nple with accur downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/15/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		AC	REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #				21136-02-3		
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/E	levation		-
Sample ID			38896	6/2-9		Subs	ample ID	4		Location			:	Seattle, WA		
Add. Info		-		Miz	king/Molding Da	te		09/17/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porou w)	IS		
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After Test)		
Height		3.047	in	7.74 c	m Speed			12	1							
Diameter		2.956	in	7.51 c	m Board Nu	ımber		3		Average Hei	ght of Samp	le	3.048	in	7.74 cm	
Area		6.86	in ²	44.28 C	m ² Cell Num	ber		33		Average Dia	meter of Sa	nple	2.957	in	7.51 cm	
Volume		342.67	cm ³	0.0121 ft	Flow Pun	np Numbe	r	3B		Area	6.87	in ²	44.31	cm ²		
Mass		657.9	g	1.45	Flow Pun	np Rate*		5.60E-05	cm ³ /sec	Volume	343.01	cm ³	0.0121	ft ³	Dry Density	93.2 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value			0.95		Mass	670.0	g	1.48	lb	Vol. of Voids	153.27 cm ³
Dry Density		93.3	pcf		Cell Pres	sure		95.0	psi			-			Vol. of Solids	189.74 cm ³
			-		Back Pre	ssure		90.0	psi						Void Ratio	0.81
	Mois	ture Cont	ent		Confining	(Effective	e) Pressure	5.0	psi		Mois	sture Co	ontent		Saturation	102.9 %
Mass of wet	t sample &	k tare	657.9	g	Max Hea	d		115.36	cm	Mass of wet	sample & ta	re	754.1	g		
Mass of dry	sample &	tare	512.3	g	Min Head	ł		114.65	cm	Mass of dry	sample & ta	re	596.4	g		
Mass of tare	е		0.0	g	Maximum	n Gradient		14.90		Mass of tare			84.1	g		
% Moisture			28.4		Minimum	Gradient		14.81		% Moisture			30.8			
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: D	Deaired Water	⁻ Used for Pe	ermeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	NC	_	
10/15/21	9	5	-	1.64	115.36	14.90	22.7	-	-	-		NA				JSCS
10/15/21	9	15	600	1.63	114.65	14.81	22.7	8.51E-08	0.938	7.98E-08					(ASTM	D2487;2488)
10/15/21	9	25	600	1.64	115.36	14.90	22.7	8.51E-08	0.938	7.98E-08						NA
10/15/21	9	35	600	1.63	114.65	14.81	22.7	8.51E-08	0.938	7.98E-08	*	2		REMARK	S	
10/15/21	9	45	600	1.64	115.36	14.90	22.7	8.51E-08	0.938	7.98E-08	*	Bottom	Half of the mo	old was used	I for testing.	
10/15/21	9	55	600	1.64	115.36	14.90	22.7	8.48E-08	0.938	7.95E-08	*					
10/15/21	10	5	600	1.63	114.65	14.81	22.7	8.51E-08	0.938	7.98E-08	*					
				-	Reported	Average	Hydraulic Cor	nductivity*		8.0E-08	cm/sec					
Flow pump	ID #	4	75	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262			
Thermomet	er ID #	796	/985	0	Ven ID #	496/758		Board Press	sure Meter	r ID#			1041			
Syringe ID #	¥	4	90	J				Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ited Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sa gnificant upward o	ample with accur r downward tren	acy +/-5%. Flow Pu id.	mp Rate isused for

Г	Î	TIMELY		1874 Forge S	Street Tucker,	GA 30	084			
<u>'</u>	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973	\sim	\sim		Date	10/01/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com		SH O		Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal	_		S. Type	Mold	Depth/Elev.	-
Sample ID		39007/2-33		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/21/21			Curing A	Age, Days	10
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Strei	ngth of	f Molded So	oil-Cement C	ylinders	
				METHOD	В					
		ГА			WATER CO	NTEN		IINATION		
Initial Height	t, in		5.684	1	Mass of We	t Sam	ple and Tar	e, g	1498.5	
Initial Diame	ter, in		2.980		Mass of Dry	Samp	, ole and Tare	e, g	1198.9	
Height-to-Di	ameter Ratio		1.91		Mass of Tar	e, g		-	301.3	
Area, in ²			6.97		Moisture, %				33.4	
Volume, in ³			39.64							
Mass of Sar	nple, g		1199.2							
Wet Density	, pcf		115.2							
Dry Density,	pcf		86.4	-						
Machine Sp	eed, in/min		0.050							
Strain rate, S	% / MIN		0.88							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1110					
Specimen C	ross-sectional	Area, in ²			6.97			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			159					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		159				Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion pe	r ASTM C42)		
			DESC	RIPTION				, ,		
								Failure Type	e:	
								51	Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
					l					
			REM	IARKS						

ENGINEERING SOL Phone: 770-938-8233 Wet: www.testle.com Test By Defe With Units21 Client Pr. # Pr. Name 2001723 Wet: www.testle.com Wet: wwww		•	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
Soll Fax: 770-923-8973 Date Torschult Client Pr. #		<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
TESTS, LLC Web: WWW.L08X-BLC.com Accentro Cnecked By Client Pr. # 200016 Lab. PR. # 21136-02-3 Sample ID 39007/2-33 Subbample 2 Add. Info			Soil		Fax: 770-923	3-8973			Date	10/19/21
Client Pr. # 200016 Lab. PR. # 21136-02-3 Sample ID 39007/2-33 Subsample 2 S. Type Mold Depth/Ewv. - Add. Info - Mbing/Molding Date 00/21/21 Location Seattle, WA Add. Info - Mbing/Molding Date 00/21/21 Location Seattle, WA Add. Info - Mbing/Molding Date 00/21/21 Location Seattle, WA Add. Info - - Mbing/Molding Date 00/21/21 Location Seattle, WA Add. Info - - Mbing/Molding Date 00/21/21 Location Seattle, WA Add. Info - - Mbing/Molding Date 00/21/21 Location Seattle, WA Add. Info - - Mbing/Molding Date 00/21/21 Location Seattle, WA Add. Info - - - Mass of Sample, 9 10/2016 Sample, 9 10/2016 33.3 Values of Sample, g 112/101 Mass of Sample, and Tare, g Mass of Sample, 9 10/2016 33.3 Values of Sample, g 115.4 0.050 - Mass of Carl Sample, 9 Digital Caliper ID # 10/2016 Dy Density, pcf 86.5 0	L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Pr. Name Time OI Terminal S. Type Mold Depth/Elex. - Add. Info Mixing/Molding Date 03/21/21 Ucotion Curing Age. Days 28 ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cytinders METHOD B WATER CONTENT DETERMINATION Initial Piameter, in 2.975 Height-to-Diameter Ratio 6.96 Area, in ² 0.926 Volume, in ³ 39.64 Wate Density, pcf 1157.4 Dry Density, pcf 1154.4 Balance ID # 11/1015 Compressive Device ID # 11/1015 Compressive Device ID # 11/1015 Strain rate, % / min 0.088 Maximum Load at Failure, pdf 33746 Specimen Cross-sectional Area, in ² 339 Conversion Factor for Height to Diameter Ratio 339 Reported Compressive Strength at Failure, psi 339 Maximum Load at Failure, pdf 3746 Specimen Cross-section factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) Failure Type: Cone	Client Pr. #			200016			Lab. PR. #		21136-02-3	
Sample ID 39007/2.33 Subsample 2 Location Seattle, WA Add. Info Mixing/Molding Date 00/21/21 Location Curing Age, Days 28 ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders METHOD B WATER CONTENT DETERMINATION Initial Height, in 5.702 Initial Height, in 5.702 Initial Diameter, in Mass of Sample and Tare, g Mass of Sample, and Tare, g Moisture, % VOLUME Sample and Tare, g Mass of Sample, g VOLUME Sample and Tare, g Mass of Sample, g VOLUME Sample and Tare, g Mass of Sample, g VOLUME Sample and Tare, g Mass of Sample, g VOLUME Sample Colspan="2">Sample, g VOLUME Sample Colspan="2">Sample, g VOLUME Sample Colspan="2">Sample, g VOLUME Sample Colspan="2">Sample, g VOLUME Sample Sample, g Samp	Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Add. Info . Mixing/Molding Date 09/21/21 Curing Age, Days 28 ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders METHOD B Numerical Methods for Compressive Strength of Molded Soil-Cement Cylinders METHOD B SAMPLE DATA WATER CONTENT DETERMINATION Mass of Wet Sample and Tare, g 1507.5 Height-to-Diameter Ratio 1.92 Mass of Sorgel and Tare, g 1500.3 Youme, in ³ 39.64 Mass of Sample and Tare, g 12010.3 Wate Density, pcf 1154.4 Mass of Sample and Tare, g 1300.4 Machine Speed, Infmin 0.0500 Moisture, % Bigetal Caliper ID # 1708.3 Bache ID # 111011 EST DATA Digital Caliper ID # 171783 Maximum Load at Failure, bif Strain rate, % / min 0.088 Failure Code 3 Maximum Load at Failure, bif Strain rate, size for Mreight to Diameter Ratio Strain Strain Failure Code 3 Note 2: * - A conversion factor based on HD=1.15 (C.F908 as 100% and ad. correction per ASTM C42) Failure Stretch Cone and Shear USCS (ASTM D2487: D2488) Con	Sample ID		39007/2-33		Subsample	2	Location		Seattle, WA	
ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders METHOD B WATER CONTENT DETERMINATION Initial Height, In 5.702 Initial Diameter, In 1.92 Height-to-Diameter Ratio 6.95 Area, In ² 0.96 Volume, In ³ 30.64 Mass of Sample, g 1201.0 Wot Density, pcf 115.4 Dry Density, pcf 86.5 Machine Speed, InrMin 0.056 Strain rate, % / min 11/1015 Digital Caliper ID # 11/1016 Overn ID # 11/1016 Oses 11/1016 Overn ID # 10/1016 Overn ID # 10.00 Strain r	Add. Info	-	-	Mixing/Mo	olding Date	09/21/21		Curing A	Age, Days	28
METHOD B SAMPLE DATA ATTER CONTENT DETERMINATION Initial Height, in 5.702 Initial Diameter, in 5.702 Height-to-Diameter Ratio 6.95 Area, in ³ 39.64 Mass of Sample, g 115.4 Submeter Ratio 6.95 Mass of Sample, g 115.4 Dry Density, pdf 6.85 Machine Speed, In/min 0.056 Strain rate, % / min 0.056		ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
SAMPLE DATA WATER CONTENT DETERMINATION Initial Height. in Height-to-Diameter Ratio 1.92 0.95 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98					METHOD	В				
SAMPLE DATA WATER CONTENT DETERMINATION Initial Height I, in 5.702 Initial Height I, Dameter, in 1.92 Height I-DDiameter Ratio 1.92 Area, in ² 33.64 Mass of Sample, g 1201.0 Wet Density, pcf 115.4 Mass of Sample, g 1201.0 Wet Density, pcf 115.4 Dry Density, pcf 86.5 Machine Speed, in/min 0.050 Strain rate, % / min 0.050 Strain rate, % / min 0.050 Strain rate, % / min 11/1015 Compression Device ID # 11/1015 Compression Device ID # 11/1014 Compressive Strength at Failure, psi 3746 Conversion Factor For Height to Diameter Ratio 539 Reported Compressive Strength at Failure, psi 539 Note 2: * - A conversion factor based on H/D=1.15 (C.F S08 as 100% and add. correction per ASTM C42) Failure Sketch USCS (ASTM D2487: D2488) Failure Type: Cone and Shear USCS (ASTM D2487: D2488) Failure Type: Cone and Shear										
Initial Height, in		SAMPLE DAT	ГА		٦	WATER CON		MINATION		
Initial Diameter, In Mass of Dary Sample and Lare, g Height-to-Diameter Ratio Area, in ² Volume, in ³ Mass of Sample, g Wet Density, pcf Machine Speed, in/min Load Cell ID # Load Cell ID # Load Cell ID # Load Cell ID # Compression Device ID # 11/1015 Compression Device ID # 10/1014 1036/1037 TEST DATA Load Cell ID # Compression Device ID # 10/1014 Balance ID # Compression Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION RemARKS RemARKS	Initial Heigh	t, in		5.702	-	Mass of Wet	Sample and Ta	re, g	1507.5	
Image: Inter-Order Ratio 1.32 Mass of Table, g 30.94 Volume, in ³ 39.64 33.3 Mass of Sample, g 12010 Wet Density, pcf 86.5 Machine Speed, in/min 0.080 Strain rate, % / min 0.88 TEST DATA Load Cell ID # 11/1015 Compression Device ID # 10/1014 1036/1037 Oven ID # Maximum Load at Failure, lbf 3746 Specimen Cross-sectional Area, in ² 0.95 Compressive Strength at Failure, psi 3746 Conversion Factor for Height to Diameter Ratio 1.00 Failure Ratio Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) USCS (ASTM D2487: D2488) REMARKS	Initial Diame	eter, in		2.975	_	Mass of Dry S	Sample and Tar	e, g	1208.0	
Area, in 0.95 Moisture, % 33.3 Mass of Sample, g 1201.0 115.4 Wet Density, pcf 115.4 0.050 Dry Density, pcf 86.5 0.050 Machine Speed, in/min 0.88 11/1015 Strain rate, % / min 0.88 11/1014 Load Cell ID # 11/1015 Compression Device ID # 11/1015 10/1014 Balance ID # 11/1014 0.88 Maximum Load at Failure, lbf 3746 Section Cross-sectional Area, in ² Compressive Strength at Failure, psi 6.95 Failure Code 3 Conversion Factor for Height to Diameter Ratio 1.00 539 Failure Sketch Note 2: * - A conversion factor based on H/D=1.15 (CF:-908 as 100% and add. correction per ASTM C42) Failure Type: Cone and Shear USCS (ASTM D2487: D2488) Image: Cone and Shear Cone and Shear REMARKS Image: Cone and Shear Image: Cone and Shear	Height-to-Di	ameter Ratio		1.92	_	Mass of Tare	, g		309.4	
Volume, in Mass of Sample, g Mess of Sample, g Wet Density, pcf Dry Density, pcf Machine Speed, in/min Load Cell ID # Load Cell ID # 11/1015 Balance ID # Maximum Load at Failure, lbf Specimen Cross-sectional Area, in ² Compressive Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Maximum Load at Conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Reported Compressive Strength at Failure, psi Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Reported Compressive Strength at Failure, psi Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Reported Compressive Strength at Failure, psi REMARKS	Area, in			6.95	_	Moisture, %			33.3	
Mass of Salingle, g Wet Density, pcf Dry Density, pcf Machine Speed, in/min Strain rate, % / min	Volume, In ²	wala a		39.64	_					
We Density, pcf 113.4 Day Density, pcf 88.5 Machine Speed, in/min 0.050 Strain rate, % / min 0.88 TEST DATA Load Cell ID # Load Cell ID # 11/1015 Compression Device ID # 11/1014 Balance ID # 10/1014 Naximum Load at Failure, lbf 3746 Specimen Cross-sectional Area, in ² 6.95 Compressive Strength at Failure, psi 6.95 Conversion Factor for Height to Diameter Ratio 10.0 Reported Compressive Strength at Failure, psi 539 Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) Failure Sketch USCS (ASTM D2487: D2488) Gone and Shear USCS (ASTM D2487: D2488) Cone and Shear	Mass of Sar	npie, g		1201.0	_					
Dry Density, pdf 00.50 Strain rate, % / min 0.050 Strain rate, % / min 0.050 TEST DATA Load Cell ID # Load Cell ID # 11/1015 Compression Device ID # 10/1014 Balance ID # 10/1014 Observed Compressive Strength at Failure, psi 3746 Conversion Factor for Height to Diameter Ratio 539 Reported Compressive Strength at Failure, psi 539 Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) Failure Sketch USCS (ASTM D2487: D2488) Failure Type: Cone and Shear	Dry Density	, pci		115.4 86.5	_					
Strain coped, mining 0.000 Strain cate, % / min 0.000 Strain rate, % / min 0.000 TEST DATA Load Cell ID # 11/1015 Compression Device ID # 11/1014 Balance ID # 10/1014 Digital Caliper ID # 11/1016 Specimen Cross-sectional Area, in ² Over ID # Compressive Strength at Failure, psi 3746 Conversion Factor for Height to Diameter Ratio Failure Code 3 Reported Compressive Strength at Failure, psi 539 Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) Failure Sketch USCS (ASTM D2487: D2488) Image: Come and Shear REMARKS Image: Come and Shear	Machine Sn	pci eed in/min		0.050	-					
TEST DATA Load Cell ID # Load Cell ID # Compression Device ID # 11/1015 Balance ID # 10/1014 Maximum Load at Failure, Ibf Balance ID # Specimen Cross-sectional Area, in ² 0.95 Compressive Strength at Failure, psi 3746 Compressive Strength at Failure, psi 6.95 Conversion Factor for Height to Diameter Ratio 539 Reported Compressive Strength at Failure, psi Failure Code 3 Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) Failure Type: Conce and Shear USCS (ASTM D2487: D2488) REMARKS REMARKS	Strain rate	% / min		0.000	-					
TEST DATA Load Cell ID # Compression Device ID # 11/1015 10/1014 1036/1037 Digital Caliper ID # 17/583 Readout Device ID # Maximum Load at Failure, Ibf Specimen Cross-sectional Area, in ² Compressive Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi 3746 6.95 539 Failure Code 3 Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) Failure Type: Cone and Shear	otrain rato,	,		0.00	1					
Load Cell ID # Compression Device ID # Balance ID # 11/1015 10/1014 1036/1037 Digital Caliper ID # 10/1016 Needout Device ID # 10/1016 Oven ID # Maximum Load at Failure, lbf Specimen Cross-sectional Area, in ² Compressive Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi Distribution factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Sketch Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) Cone and Shear					TEST	DATA				
Compression Device ID # 10/1014 Balance ID # 10/1014 1036/1037 Readout Device ID # 10/1016 Oven ID # 758/496 Maximum Load at Failure, lbf Specimen Cross-sectional Area, in ² Compressive Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi Note 2: *- A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION USCS (ASTM D2487: D2488) REMARKS		Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID	# 17/583	
Balance ID # 1036/1037 Oven ID # 758/496 Maximum Load at Failure, lbf 3746 6.95 Failure Code 3 Compressive Strength at Failure, psi 539 Failure Code 3 Conversion Factor for Height to Diameter Ratio 1.00 539 Failure Sketch Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) Failure Type: Failure Type: USCS (ASTM D2487: D2488) Failure Type: Cone and Shear REMARKS REMARKS Failure Type: Cone and Shear		Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
Maximum Load at Failure, lbf Specimen Cross-sectional Area, in ² Compressive Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS		Balance ID #		1036/1037]			Oven ID	# 758/496	
Specimen Cross-sectional Area, in ² Compressive Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS	Maximum L	oad at Failure.	lbf			3746	_			
Compressive Strength at Failure, psi Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS	Specimen C	ross-sectional	Area. in ²			6.95		Failure Cod	e 3	
Conversion Factor for Height to Diameter Ratio Reported Compressive Strength at Failure, psi Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS	Compressiv	e Strength at F	ailure psi			539				
Note 2: *- A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) Failure Sketch Failure Sketch USCS (ASTM D2487: D2488) REMARKS	Conversion	Eactor for Heig	ht to Diameter	Ratio		1 00				
Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS	Reported C	ompressive S	trongth at Fai			539			Eailure Sket	ch
Note 2: * - A conversion factor based on H/D=1.15 (C.F908 as 100% and add. correction per ASTM C42) DESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS	Reported C	ompressive 5				559		-		
JESCRIPTION Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS	Note 2: * - A (conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a DIDTION	nd add. correcti	on per ASTM C42	2)		
Failure Type: Cone and Shear REMARKS		F		DESC	RIPTION			T		
Failure Type: Cone and Shear REMARKS										
Failure Type: Cone and Shear USCS (ASTM D2487: D2488) REMARKS										
USCS (ASTM D2487: D2488) REMARKS								Failure Type	e: Oana and O	h
REMARKS					00407.004	100\		<u>l</u>	Cone and S	near
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	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/01/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASH O				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			21	136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elev	vation		-
Sample ID			39007	/2-33		Subs	ample ID	3		Location			Se	eattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/21/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials l	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous w)			
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (Af	ter Test)		
Height		3.051	in	7.75 ci	m Speed			10								
Diameter		2.971	in	7.55 ci	m Board Nu	umber		7		Average Heig	ght of Samp	le	3.052 in		7.75 cm	
Area		6.93	in²	44.73 CI	m ² Cell Num	nber		15		Average Dia	meter of Sa	mple	2.972 in		7.55 cm	
Volume		346.61	cm ³	0.0122 ft	³ Flow Pur	np Numbe	r	4A		Area	6.94	in ²	44.76 cm	1 ²		
Mass		637.4	g	1.41 lb	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	346.95	cm ³	0.0123 ft ³		Dry Density	86.2 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	644.4	g	1.42 lb		Vol. of Voids	169.46 cm ³
Dry Density	Density 86.2 pcf Cell Pressure							95.0	psi						Vol. of Solids	177.49 cm ³
	Back Pressure							90.0	psi						Void Ratio	0.95
	Mois	ture Cont	ent	_	Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	97.5 %
Mass of we	t sample &	tare	637.4	g	Max Hea	d		74.56	cm	Mass of wet	sample & ta	re	728.6 g			
Mass of dry	sample &	tare	479.0	g	Min Hea	d		73.86	cm	Mass of dry s	sample & ta	re	563.5 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		9.62		Mass of tare			84.5 g			
% Moisture			33.1		Minimum	Gradient		9.53		% Moisture			34.5			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water U	sed for Pe	rmeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	I	l	
10/01/21	7	5	-	1.05	73.86	9.53	24.6	-	-	-		NA				USCS
10/01/21	7	15	600	1.06	74.56	9.62	24.6	5.23E-07	0.897	4.69E-07					(ASTN	I D2487;2488)
10/01/21	7	20	300	1.05	73.86	9.53	24.6	5.23E-07	0.897	4.69E-07						NA
10/01/21	7	25	300	1.06	74.56	9.62	24.6	5.23E-07	0.897	4.69E-07	*			REMARKS	S	
10/01/21	7	30	300	1.05	73.86	9.53	24.6	5.23E-07	0.897	4.69E-07	*	Bottom	Half of the mold	l was used	for testing.	
10/01/21	7	35	300	1.06	74.56	9.62	24.6	5.23E-07	0.897	4.69E-07	*					
10/01/21	7	40	300	1.05	73.86	9.53	24.6	5.23E-07	0.897	4.69E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		4.7E-07	cm/sec					
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	· ID #			290			
Syringe ID a	#	10)47]			•	Pore Pressu	re Meter	ID #			216			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra soure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated samp gnificant upward or do	ole with accura ownward trend	acy +/-5%. Flow Pu d.	imp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>S.T.</u>		Engin	IEERING	Phone: 7	70-938-8233			<u>ح</u>	$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	10/19/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		AC	ASHID			Checked By	18
Client Pr. #		_	_	_	200016	• _			_	Lab. PR. #			21136-02-3	3	•
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/Elevation		
Sample ID			39007	/2-33		Subs	ample ID	4		Location			Seattle, WA	4	
Add. Info		-		Miz	king/Molding Da	te		09/21/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity Istant Rate	of Satu e of Flo	rated Porous w)		
Ir	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	а					Final Data (After Test	t)	
Height		3.019	in	7.67 c	m Speed			11]						
Diameter		2.973	in	7.55 c	m Board Nu	umber		5		Average Hei	ght of Samp	le	3.020 in	7.67 cm	
Area		6.94	in ²	44.79 C	m ² Cell Num	ber		41		Average Dia	e meter of Sai	nple	2.974 in	7.55 cm	
Volume		343.43	cm ³	0.0121 ft	Flow Pur	np Numbe	r	4A		Area	6.95	in ²	44.82 cm ²	<u> </u>	
Mass		631.3	g	1.39 II	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	343.78	cm ³	0.0121 ft ³	Dry Density	86.1 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	636.4	g	1.40 lb	Vol. of Voids	168.18 cm ³
Dry Density		86.2	pcf		Cell Pres	sure		95.0	psi			-		Vol. of Solids	175.60 cm ³
			-		Back Pre	essure		90.0	psi					Void Ratio	0.96
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	96.5 %
Mass of wet	t sample &	k tare	631.3	g	Max Hea	d		51.35	cm	Mass of wet	sample & ta	re	712.3 g		
Mass of dry	sample &	tare	474.2	g	Min Head	b		49.94	cm	Mass of dry	sample & ta	е	550.0 g		
Mass of tare	e		0.0	g	Maximun	n Gradient		6.69		Mass of tare			75.8 g		
% Moisture			33.1		Minimum	Gradient	-	6.51		% Moisture	_		34.2		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for F	Permeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/19/21	7	10	-	0.72	50.64	6.60	22.6	-	-	-		NA		l	JSCS
10/19/21	7	20	600	0.72	50.64	6.60	22.6	3.79E-07	0.940	3.56E-07				(ASTM	D2487;2488)
10/19/21	7	30	600	0.73	51.35	6.69	22.6	3.76E-07	0.940	3.53E-07					NA
10/19/21	7	40	600	0.71	49.94	6.51	22.6	3.79E-07	0.940	3.56E-07	*		REMAR	KS	<u> </u>
10/19/21	7	50	600	0.72	50.64	6.60	22.6	3.81E-07	0.940	3.58E-07	*	Bottom	Half of the mold was use	ed for testing.	
10/19/21	8	0	600	0.71	49.94	6.51	22.6	3.81E-07	0.940	3.58E-07	*				
10/19/21	8	10	600	0.73	51.35	6.69	22.6	3.79E-07	0.940	3.56E-07	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		3.6E-07	cm/sec				
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048		
Thermomet	er ID #	796	/985	C	Ven ID #	496/758		Board Press	sure Meter	· ID #			1042		
Syringe ID #	#	10)47				-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of I	of Flow Syst	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sample with acc gnificant upward or downward tre	uracy +/-5%. Flow Pu end.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
	<u>r.e. [s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	10/02/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	E	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Туре	Mold	Depth/Elev.	-
Sample ID		39008/2-13		Subsample	1	Location	l	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/22/21		Curing /	Age, Days	10
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
		٢Δ			WATER CO		ΜΙΝΑΤΙΟΝ		
Initial Heigh	t in		5.658	1	Mass of Wet	Sample and Ta	are. a	1522.7	
Initial Diame	eter. in		2.978		Mass of Drv	Sample and Ta	re. a	1239.8	
Height-to-Di	ameter Ratio		1.90		Mass of Tare	e, g		298.9	
Area, in ²			6.97		Moisture, %			30.1	
Volume, in ³			39.41						
Mass of Sar	nple, g		1225.8						
Wet Density	, pcf		118.5						
Dry Density,	pcf		91.1						
Machine Sp	eed, in/min		0.050	-					
Strain rate,	% / min		0.88						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digit	al Caliner ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
				3					
Maximum Lo	bad at Failure,	lbt Area in ²			884		Failura Cad		
Specimen C		Area, m			6.97		Failure Coo	ie s	
Compressiv	e Strengtn at F	allure, psi	Datia		127				
Conversion	Factor for Heig	nt to Diameter	Ratio		1.00	_			
Reported C	ompressive S	trength at Fai	lure, psi		127			Failure Sket	cn
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM C4	2)		
			DESC	RIPTION			т		
							Failure Typ	e: Concord S	haar
	L	11		1 D2/87· D2/	88)		T	Cone and S	near
		0.		02-01.024					
					1				
			REM	IARKS			т		
	L						T		
L									

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	۱ 8-8973	\sim	2		Date	10/20/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AASH			Checked By	18
Client Pr. #			200016			Lab.	PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S.	Туре	Mold	Depth/Elev.	-
Sample ID		39008/2-13		Subsample	2	Loc	ation		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/22/21			Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	ngth of Mold	led So	il-Cement C	ylinders	
				METHOD	В					
				_		<u>I</u>				
		A	5 0 5 0	1	WATER CO			INATION		
Initial Height	t, in Itan in		5.653	-	Mass of Wet	Sample an	nd Iar	e, g	1514.3	
Initial Diame	eter, In amotor Potio		2.976	-	Mass of Dry	Sample and	d Tare	e, g	1232.5	
			1.90	4		e, y			290.0	
Alea, III			0.90	4	wosture, %				30.2	
Volume, In	nnlo a		39.3Z	-						
Wet Density	npie, g		118 1							
Dry Density	pcf		90.7							
Machine Sp	eed, in/min		0.050							
Strain rate,	% / min		0.88	1						
				-						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Re	eadou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2604					
Specimen C	ross-sectional	Area, in ²			6.96		I	Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			374					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		374				Failure Skete	ch
- Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F 9	08 as 100% a	nd add. correct	tion per ASTI	M C42))		
			DESC	RIPTION			,			
									\times	
								Failure Type	e. Karala a	
									Cone and S	hear
	-	U	SCS (ASTM	D2487: D24	88)		4			
			RFM	IARKS						

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-		Date	10/02/21
				TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHID	 		Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-3	3	
Pr. Name					Time Oil Term	ninal		<u> </u>		S. Type	Mo	ld	Depth/Elevation		-
Sample ID			39008	/2-13		Subs	ample ID	3		Location			Seattle, W	4	
Add. Info		-		Mi	xing/Molding Da	ite		09/22/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials l	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)		
Ir	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (After Test	t)	
Height		2.957	lin	7.51 0	m Speed			10	1						
Diameter		2.969	in	7.54 0	m Board Nu	umber		8		Average Hei	ght of Samp	le	2.958 in	7.51 cm	
Area		6.92	in²	44.67	m ² Cell Num	nber		55		- Average Dia	meter of Sa	mple	2.970 in	7.54 cm	
Volume		335.48	cm ³	0.0118 f	Flow Pur	np Numbe	r	4B		Area	6.93	in ²	44.70 cm ²	· · · · ·	
Mass		633.6	g	1.40 II	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	335.82	cm ³	0.0119 ft ³	Dry Density	90.6 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	640.9	g	1.41 lb	Vol. of Voids	155.33 cm ³
Dry Density	,	90.7	pcf		Cell Pres	sure		95.0	psi			-4		Vol. of Solids	180.49 cm ³
			•		Back Pre	essure		90.0	psi					Void Ratio	0.86
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	98.9 %
Mass of wet	t sample &	k tare	633.6	g	Max Hea	id		49.24	cm	Mass of wet	sample & ta	re	723.9 g		
Mass of dry	sample &	tare	487.4	g	Min Head	d		48.53	cm	Mass of dry	sample & ta	re	570.3 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		6.55		Mass of tare			82.9 g		
% Moisture			30.0		Minimum	n Gradient		6.46		% Moisture			31.5		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for F	Permeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/02/21	8	5	-	0.70	49.24	6.55	24.6	-	-	-		NA			USCS
10/02/21	8	15	600	0.69	48.53	6.46	24.6	7.70E-07	0.897	6.91E-07				(ASTM	I D2487;2488)
10/02/21	8	25	600	0.70	49.24	6.55	24.6	7.70E-07	0.897	6.91E-07]				NA
10/02/21	8	35	600	0.69	48.53	6.46	24.6	7.70E-07	0.897	6.91E-07	*		REMAR	KS	
10/02/21	8	45	600	0.70	49.24	6.55	24.6	7.70E-07	0.897	6.91E-07	*	Bottom	Half of the mold was use	ed for testing.	
10/02/21	8	55	600	0.69	48.53	6.46	24.6	7.70E-07	0.897	6.91E-07	*				
10/02/21	9	5	600	0.70	49.24	6.55	24.6	7.70E-07	0.897	6.91E-07	*				
					Reported	Average	Hydraulic Cor	nductivity*		6.9E-07	cm/sec				
Flow pump	ID #	10)43	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #	-		1045/1049		
Thermomet	er ID #	796	/985] (Oven ID #	496/758		Board Press	sure Meter	· ID #			290		
Syringe ID #	#	10)46				-	Pore Pressu	ire Meter	ID #			216		
*Constant Rate calculations of I	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	for Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow able above) sh	through the owed no sig	e fully saturated sample with acc gnificant upward or downward tre	uracy +/-5%. Flow Pu end.	imp Rate isused for

		î		TIMEL	.Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	10/20/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			4	21136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/El	levation		-
Sample ID			39008	/2-13		Subs	ample ID	4		Location			S	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/22/21				Curin	g Age, Days			28
				ASTM D	5084; Standa Materials l	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porou w)	IS		
	nitial San	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	After Test)		
Height		3.030	in	7.70 ci	m Speed			11								
Diameter		2.969	in	7.54 ci	m Board Nu	umber		15		Average Heig	ght of Samp	le	3.031 i	in	7.70 cm	
Area		6.92	in²	44.67 CI	m ² Cell Num	nber		55		Average Dia	meter of Sa	mple	2.970 i	in	7.54 cm	
Volume		343.76	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	2B		Area	6.93	in²	44.70	cm ²		
Mass		646.9	g	1.43 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	344.10	cm ³	0.0122 f	ft ³	Dry Density	90.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	658.8	g	1.45 I	lb	Vol. of Voids	160.38 cm ³
Dry Density	,	90.0	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	183.72 cm ³
	Back Pressure							90.0	psi						Void Ratio	0.87
	Moisture Content Confining (Effective) Pr							5.0	psi		Moi	sture Co	ontent		Saturation	101.5 %
Mass of we	t sample &	tare	646.9	g	Max Hea	d		139.27	cm	Mass of wet	sample & ta	re	741.2 g	g		
Mass of dry	sample &	tare	495.9	g	Min Hea	d		137.16	cm	Mass of dry s	sample & ta	re	578.5	g		
Mass of tar	е		0.0	g	Maximun	n Gradient		18.09		Mass of tare			82.6	g		
% Moisture			30.4		Minimum	Gradient		17.82		% Moisture			32.8			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	ermeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	ON	-	
10/20/21	7	10	-	1.97	138.57	18.00	22.5	-	-	-		NA				JSCS
10/20/21	7	20	600	1.95	137.16	17.82	22.5	1.40E-07	0.942	1.32E-07					(ASTN	D2487;2488)
10/20/21	7	30	600	1.98	139.27	18.09	22.5	1.40E-07	0.942	1.31E-07						NA
10/20/21	7	40	600	1.96	137.87	17.91	22.5	1.39E-07	0.942	1.31E-07	*			REMARK	S	
10/20/21	7	50	600	1.97	138.57	18.00	22.5	1.40E-07	0.942	1.31E-07	*	Bottom	Half of the mo	old was used	I for testing.	
10/20/21	8	0	600	1.95	137.16	17.82	22.5	1.40E-07	0.942	1.32E-07	*					
10/20/21	8	10	600	1.98	139.27	18.09	22.5	1.40E-07	0.942	1.31E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		1.3E-07	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	· ID #			694/459			
Syringe ID a	#	24	46				•	Pore Pressu	re Meter	ID #			372			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a d after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sai gnificant upward or	mple with accur downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. st.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH	
		Soil		Fax: 770-923	۱ 3-8973	$\overline{\mathcal{O}}$		Date	10/02/21	
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com]	Checked By	18	
Client Pr. #			200016			Lab. PR	. #	21136-02-3		
Pr. Name		Т	ime Oil Term	inal		S. Ty	pe Mold	Depth/Elev.	-	
Sample ID	39009	9/CAA-4 Ex-Situ	ı (1)	Subsample	1	Locati	on	Seattle, WA		
Add. Info	-	-	Mixing/Mo	olding Date	09/22/21		Curing	Age, Days	10	
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Stren	igth of Molded	Soil-Cement (Cylinders		
				METHOD	В					
		ГА			WATER COL		RMINATION			
Initial Height	t in		5.622	7	Mass of Wet	Sample and	Tare, g	1482.2		
Initial Diame	ter. in		2.977	1	Mass of Drv	Sample and T	are. q	1191.3		
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g	, g	299.7		
Area, in ²			6.96	1	Moisture, %	-		32.6		
Volume, in ³			39.13							
Mass of Sar	nple, g		1184.5							
Wet Density	, pcf		115.3							
Dry Density,	pcf		86.9							
Machine Sp	eed, in/min		0.050	_						
Strain rate,	% / min		0.89							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	ſ		Dio	ital Caliper ID	# 17/583		
	Compression	Device ID #	10/1014			Read	out Device ID	# 10/1016		
	Balance ID #		1036/1037				Oven ID	# 758/496		
Maximum Lo	oad at Failure,	lbf			1086					
Specimen C	ross-sectional	Area, in ²			6.96		Failure Coo	de 3		
Compressiv	e Strength at F	ailure, psi			156					
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		156			Failure Skete	ch	
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per ASTM C	(42)			
			DESC	RIPTION		-				
							Failure Typ	e:		
								Cone and S	hear	
		U	SCS (ASTN	1 D2487: D24	188)					
]					
			REM	IARKS						
L										
Г	Ŷ	TIMELY		1874 Forge S	Street Tucker	, GA 30	0084			
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,	r.e. st.	ENGINE	ERING	Phone: 770-9	938-8233	1	$\mathbf{\Delta}$		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\overline{C}	\sim		Date	10/20/21
L		TESTS, L	LC	Web: <u>www.te</u>	st-llc.com		SHIO		Checked By	18
Client Pr. #			200016				Lab. PR. #		21136-02-3	
Pr. Name		Т	ïme Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID	39009	9/CAA-4 Ex-Situ	ı (1)	Subsample	2		Location		Seattle, WA	
Add. Info		-	Mixing/Mo	olding Date	09/22/21	1		Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ength o	f Molded So	oil-Cement C	ylinders	
				METHOD	В					
	SAMPLE DA	ГА			WATER CO	ONTEN		IINATION		
Initial Height	t, in		5.683		Mass of We	et Sam	ple and Tar	e, g	1495.5	
Initial Diame	eter, in		2.979		Mass of Dry	y Samp	ole and Tare	e, g	1205.0	
Height-to-Di	ameter Ratio		1.91		Mass of Tai	re, g			305.6	
Area, in ²			6.97		Moisture, %	, 0			32.3	
Volume, in ³			39.61							
Mass of Sar	nple, g		1191.8							
Wet Density	, pct		114.6	-						
Machine Sn	pci eed in/min		0.050	-						
Strain rate.	% / min		0.88	-						
0	, , , , , , , , , , , , , , , , , , , ,		0.00	J						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2684					
Specimen C	ross-sectional	Area, in ²			6.97			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			385					
Conversion	Factor for Heig	ht to Diameter	r Ratio		1.00					
Reported C	ompressive S	trength at Fa	ilure, psi		385				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	=1.15 (C.F9	08 as 100% a	nd add. corred	ction pe	er ASTM C42)		
			DESC	RIPTION						
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	188) 1					
					J					
				IVDKG						
										
	L									

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	10/02/21
				TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		A	ASHID			Checked By	18
Client Pr. #					200016					Lab. PR. #	£		21136-02-3	3	
Pr. Name					Time Oil Term	ninal		<u> </u>		S. Type	e Mo	d	Depth/Elevation		-
Sample ID		390	009/CAA-4	4 Ex-Situ (1)		Subs	ample ID	3		Location	1		Seattle, WA	4	
Add. Info		-		Mi	xing/Molding Da	ite		09/22/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials l	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)		
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a	-				Final Data (After Test	t)	
Height		2.988	lin	7.59 0	m Speed			10	1						
Diameter		2.970	in	7.54	m Board Nu	umber		18		Average Hei	aht of Samp	le	2.989 in	7.59 cm	
Area		6.93	in²	44.70	m ² Cell Num	nber		37		Average Dia	meter of Sa	nple	2.971 in	7.55 cm	
Volume		339.22	cm ³	0.0120 f	t ³ Flow Pur	np Numbe	r	4A		Area	6.93	in ²	44.73 cm ²		
Mass		623.4	g	1.37	5 Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	339.56	cm ³	0.0120 ft ³	Dry Density	86.7 pcf
Specific Gra	avity	2.700	- (Assume	d)	B - Value	e		0.95		Mass	634.6	g	1.40 lb	Vol. of Voids	164.91 cm ³
Dry Density	-	86.7	pcf		Cell Pres	sure		95.0	psi		1		·	Vol. of Solids	174.66 cm ³
			J [*]		Back Pre	essure		90.0	psi					Void Ratio	0.94
	Mois	ture Cont	ent		Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	98.9 %
Mass of we	t sample &	k tare	623.4	g	Max Hea	id		188.51	cm	Mass of wet	sample & ta	re	717.3 g		<u> </u>
Mass of dry	sample &	tare	471.5	g	Min Head	d		187.81	cm	Mass of dry	sample & ta	re	554.3 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		24.83		Mass of tare			82.8 g		
% Moisture			32.2		Minimum	n Gradient		24.74		% Moisture			34.6		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for F	Permeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/02/21	8	5		2.68	188.51	24.83	24.6	-	-			NA			USCS
10/02/21	8	15	600	2.67	187.81	24.74	24.6	2.02E-07	0.897	1.81E-07				(ASTM	I D2487;2488)
10/02/21	8	25	600	2.68	188.51	24.83	24.6	2.02E-07	0.897	1.81E-07					NA
10/02/21	8	35	600	2.68	188.51	24.83	24.6	2.02E-07	0.897	1.81E-07	*		REMAR	KS	
10/02/21	8	45	600	2.67	187.81	24.74	24.6	2.02E-07	0.897	1.81E-07	*	Bottom	Half of the mold was use	ed for testing.	
10/02/21	8	55	600	2.67	187.81	24.74	24.6	2.02E-07	0.897	1.82E-07	*				
10/02/21	9	5	600	2.68	188.51	24.83	24.6	2.02E-07	0.897	1.81E-07	*				
				_	Reported	Average	Hydraulic Co	nductivity*		1.8E-07	cm/sec				
Flow pump	ID #	10)43	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048		
Thermomet	er ID #	796	/985	(Oven ID #	496/758		Board Press	sure Meter	r ID#			570		
Syringe ID #	#	10)47				-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu STP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	for Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow table above) sh	through the	e fully saturated sample with according the saturated sample with according the saturated or downward trees the saturated structure of the saturated structu	uracy +/-5%. Flow Pu end.	imp Rate isused for

		t		TIMEL	LΥ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	10/20/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		A/ ACC	SREDITED				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	1136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID		390	009/CAA-4	1 Ex-Situ (1)		Subs	ample ID	4		Location			S	Seattle, WA	-	
Add. Info		-		Mix	ing/Molding Da	ite		09/22/21				Curir	ng Age, Days			28
				ASTM D	5084; Standa Materials l	ard Test N Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous	S		
	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (A	fter Test)		
Height		3.013	in	7.65 ci	m Speed			11	1							
Diameter		2.973	in	7.55 ci	m Board Nu	umber		16		Average Heig	ght of Samp	le	3.014 ir	ı	7.66 cm	
Area		6.94	in²	44.79 CI	m ² Cell Num	nber		4		Average Dia	meter of Sa	mple	2.974 ir	ı	7.55 cm	
Volume		342.75	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	2A		Area	6.95	in²	44.82 C	m ²		
Mass		621.6	g	1.37 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	343.10	cm ³	0.0121 ft	3	Dry Density	85.3 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	633.2	g	1.40 lk	C	Vol. of Voids	169.49 cm ³
Dry Density	,	85.3	pcf		Cell Pres	sure		95.0	psi						Vol. of Solids	173.61 cm ³
	Moisture Content				Back Pre	essure		90.0	psi						Void Ratio	0.98
	Mois	ture Cont	ent	-	Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	97.0 %
Mass of we	t sample &	tare	621.6	g	Max Hea	ld		156.86	cm	Mass of wet	sample & ta	ire	712.4 g	l		
Mass of dry	sample &	tare	468.6	g	Min Head	d		154.75	cm	Mass of dry s	sample & ta	re	548.0 g	l		
Mass of tar	е		0.0	g	Maximun	n Gradient		20.49		Mass of tare			79.4 g	l		
% Moisture			32.7		Minimum	Gradient		20.21		% Moisture	1		35.1			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water	Used for Pe	ermeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N		
10/20/21	7	10	-	2.22	156.15	20.40	22.5	-	-	-		NA			l	JSCS
10/20/21	7	20	600	2.20	154.75	20.21	22.5	1.23E-07	0.942	1.16E-07					(ASTM	D2487;2488)
10/20/21	7	30	600	2.23	156.86	20.49	22.5	1.23E-07	0.942	1.16E-07						NA
10/20/21	7	40	600	2.21	155.45	20.31	22.5	1.23E-07	0.942	1.15E-07	*			REMARK	S	
10/20/21	7	50	600	2.22	156.15	20.40	22.5	1.23E-07	0.942	1.16E-07	*	Bottom	Half of the mol	ld was used	for testing.	
10/20/21	8	0	600	2.20	154.75	20.21	22.5	1.23E-07	0.942	1.16E-07	*					
10/20/21	8	10	600	2.23	156.86	20.49	22.5	1.23E-07	0.942	1.16E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		1.2E-07	cm/sec					
Flow pump	ID #	2	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	sure Meter	r ID#			694/459			
Syringe ID a	#	2	45]			•	Pore Pressu	ire Meter	ID #			1104			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra soure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated san gnificant upward or	nple with accura downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	r, GA 300)84			
	T.E. S.T.	ENGINE	ERING	Phone: 770-9	938-8233		$\mathbf{\Sigma}$		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\bigcirc	\sim		Date	10/03/21
L		TESTS, L	LC	Web: <u>www.te</u>	st-llc.com	AAS	SHIO		Checked By	18
Client Pr. #			200016			200.00	Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID	39010)/CAA-4 Ex-Situ	ı (2)	Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Me	olding Date	09/23/21	1		Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Met	hods for Com	pressive Stre	ength of	Molded So	oil-Cement C	ylinders	
				METHOD	В					
lucitical I la indu		Α	E 004	7	WATER CC				4570 5	
Initial Heigh	t, IN Nor in		5.634 2.060	_	Mass of We	et Samp	e and Tar	re, g	1578.5	
Height-to-Di	ameter Ratio		2.909	_	Mass of Tar	y Sampi ire a		, y	419.9	
Area in ²			6.92	-	Moisture %	6 (internet) 6			36.2	
Volume, in ³			39.01	-		0			00.2	
Mass of Sar	nple, q		1161.6							
Wet Density	, pcf		113.4							
Dry Density,	pcf		83.3							
Machine Sp	eed, in/min		0.050							
Strain rate,	% / min		0.89							
				TEST	DATA					
	Load Cell ID #	+	11/1015	1			Diaita	l Caliner ID	# 17/583	
	Compression	- Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037				Reddoc	Oven ID	# 758/496	
				J	·					
Maximum L	oad at Failure,	lbf			1392					
Specimen C	ross-sectional	Area, in ²			6.92			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			201					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		201				Failure Skete	ch
Note 2: * - A	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. corred	ction per	ASTM C42)		
			DESC	RIPTION						
								Failure Type	e:	
		1.14			100)				Cone and S	near
		U:	303 (ASTN	1 DZ487: DZ4	100 <i>)</i>					
					J					
			REM	/IARKS						
	<u>.</u>									

	Ŷ	TIMELY		1874 Forge S	Street Tucker, C	GA 30084			
,	r.e. s.r.	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	8-8973			Date	10/21/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID	39010)/CAA-4 Ex-Situ	ı (2)	Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/23/21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded So	oil-Cement C	ylinders	
				METHOD	В				
	SAMPLE DAT	Γ A		-	WATER CON	TENT DETERM	INATION		
Initial Height	t, in		5.656	4	Mass of Wet	Sample and Tai	re, g	1453.4	
Initial Diame	ter, in		2.977	-	Mass of Dry S	Sample and Tar	e, g	1145.7	
Height-to-Di	ameter Ratio		1.90	-	Mass of Tare	, g		297.1	
Area, in			6.96	-	Moisture, %			36.3	
Volume, In ²	oplo a		39.37						
Wet Density	npie, g		1103.5	-					
Dry Density	ncf		82.6						
Machine Sp	eed. in/min		0.050						
Strain rate, 9	% / min		0.88						
				4					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015	1		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Readou	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			3313				
Specimen C	ross-sectional	Area, in ²			6.96		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			476				
Conversion	Factor for Heig	ht to Diameter	^r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		476			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	on per ASTM C42	?)		
			DESC	RIPTION			,		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)				
			REM	IARKS					

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	-923-8973								Date	10/03/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		A	ASHIO				Checked By	18
Client Pr. #					200016					Lab. PR. #			2	1136-02-3		
Pr. Name					Time Oil Term	ninal		-		S. Type	Мо	ld	Depth/Ele	vation		-
Sample ID		390	010/CAA-4	4 Ex-Situ (2)		Subs	ample ID	3		Location			Se	eattle, WA		
Add. Info		-		Mi	xing/Molding Da	ite		09/23/21				Curin	g Age, Days			10
				ASTM D	5084; Standa Materials U	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)	5		
Ir	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (A	fter Test)		
Height		2.995	in	7.61 c	m Speed			10	1							
Diameter		2.957	in	7.51 c	m Board Nu	umber		19	1	Average Hei	ght of Samp	le	2.996 in		7.61 cm	
Area		6.87	in²	44.31	m ² Cell Num	nber		12	1	Average Dia	meter of Sa	mple	2.958 in		7.51 cm	
Volume		337.05	cm ³	0.0119 f	Flow Pur	np Numbe	r	2B	1	Area	6.87	in ²	44.34 cr	m²		
Mass		609.3	g	1.34 II	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	337.39	cm ³	0.0119 ft ³	3	Dry Density	82.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	620.9	g	1.37 lb		Vol. of Voids	171.48 cm ³
Dry Density		82.9	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	165.91 cm ³
			-		Back Pre	essure		90.0	psi						Void Ratio	1.03
	Mois	ture Cont	ent	-	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	100.9 %
Mass of wet	t sample 8	k tare	609.3	g	Max Hea	ld		45.72	cm	Mass of wet	sample & ta	re	689.7 g			
Mass of dry	sample &	tare	447.8	g	Min Head	d		45.02	cm	Mass of dry	sample & ta	re	516.8 g			
Mass of tare	e		0.0	g	Maximun	n Gradient		6.01		Mass of tare			69.0 g			
% Moisture			36.1		Minimum	Gradient		5.92		% Moisture			38.6			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water L	Jsed for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	N		
10/03/21	7	5	-	0.65	45.72	6.01	25.1	-	-	-		NA				USCS
10/03/21	7	15	600	0.64	45.02	5.92	25.1	8.47E-07	0.887	7.52E-07					(ASTM	I D2487;2488)
10/03/21	7	25	600	0.65	45.72	6.01	25.1	8.47E-07	0.887	7.52E-07						NA
10/03/21	7	35	600	0.65	45.72	6.01	25.1	8.41E-07	0.887	7.46E-07	*			REMARK	S	
10/03/21	7	45	600	0.64	45.02	5.92	25.1	8.47E-07	0.887	7.52E-07	*	Bottom	Half of the mole	d was used	for testing.	
10/03/21	7	55	600	0.64	45.02	5.92	25.1	8.54E-07	0.887	7.58E-07	*					
10/03/21	8	5	600	0.65	45.72	6.01	25.1	8.47E-07	0.887	7.52E-07	*					
					Reported	Average	Hydraulic Cor	nductivity*		7.5E-07	cm/sec					
Flow pump	ID #	24	44	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #	_		587			
Thermomet	er ID #	796	/985		Oven ID #	496/758		Board Press	sure Meter	r ID #			570			
Syringe ID #	¥	24	46]			-	Pore Pressu	ure Meter	ID #			779/780			
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali lts at steady	brated Syringe	for Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sam gnificant upward or d	ple with accuration	acy +/-5%. Flow Рu d.	Imp Rate isused for

		t		TIMEI	_Y	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		ENGIN	JEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	10/21/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO			Checked By	18
Client Pr. #					200016	-				Lab. PR. #			21136-02-3	3	•
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Elevation		-
Sample ID		390	010/CAA-4	4 Ex-Situ (2))	Subs	ample ID	4		Location			Seattle, WA	۹	
Add. Info		-		Mi	xing/Molding Da	ıte		09/23/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials I	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	irated Porous w)		
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (After Test	t)	
Height		3.002	in	7.63 (cm Speed			11							
Diameter		2.961	in	7.52 (m Board N	umber		3		Average Hei	ght of Samp	le	3.003 in	7.63 cm	
Area		6.89	in²	44.43	m ² Cell Num	nber		5		Average Dia	meter of Sa	mple	2.962 in	7.52 cm	
Volume		338.75	cm ³	0.0120 f	t ³ Flow Pur	np Numbe	r	4B		Area	6.89	in ²	44.46 cm ²		
Mass		613.9	g	1.35 I	b Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	339.09	cm ³	0.0120 ft ³	Dry Density	82.6 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	3		0.95		Mass	621.7	g	1.37 lb	Vol. of Voids	172.79 cm ³
Dry Density		82.7	pcf		Cell Pres	sure		95.0	psi			-4		Vol. of Solids	166.30 cm ³
			•		Back Pre	essure		90.0	psi					Void Ratio	1.04
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	99.9 %
Mass of we	t sample 8	k tare	613.9	g	Max Hea	ıd		48.53	cm	Mass of wet	sample & ta	re	704.7 g		<u></u>
Mass of dry	sample &	tare	449.0	g	Min Head	d		47.13	cm	Mass of dry	sample & ta	re	532.0 g		
Mass of tare	e		0.0	g	Maximun	n Gradient		6.36		Mass of tare			83.0 g		
% Moisture			36.7	<u> </u>	Minimum	1 Gradient		6.18		% Moisture			38.5		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for F	Permeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/21/21	7	20	-	0.68	47.83	6.27	23.4	-	-	-		NA		l	USCS
10/21/21	7	30	600	0.67	47.13	6.18	23.4	4.05E-07	0.923	3.73E-07				(ASTM	I D2487;2488)
10/21/21	7	40	600	0.69	48.53	6.36	23.4	4.02E-07	0.923	3.71E-07]				NA
10/21/21	7	50	600	0.68	47.83	6.27	23.4	3.99E-07	0.923	3.68E-07	*		REMAR	KS	
10/21/21	8	0	600	0.69	48.53	6.36	23.4	3.99E-07	0.923	3.68E-07	*	Bottom	Half of the mold was use	ed for testing.	
10/21/21	8	10	600	0.67	47.13	6.18	23.4	4.02E-07	0.923	3.71E-07	*				
10/21/21	8	20	600	0.68	47.83	6.27	23.4	4.05E-07	0.923	3.73E-07	*				
					Reported	1 Average	Hydraulic Co	nductivity*		3.7E-07	cm/sec				
Flow pump	ID #	10)43	E	3alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985	(Oven ID #	496/758		Board Press	sure Meter	· ID #			1041		
Syringe ID #	¥	10)46]			-	Pore Pressu	ire Meter	ID #			26/27		
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ilts at steady	brated Syringe	for Inflow and Calibra ssure (DP) Reading	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	nflow & outflow able above) sh	through the owed no sig	e fully saturated sample with according the saturated sample with according the saturated or downward trees the saturated structure of the saturated structu	uracy +/-5%. Flow Pu end.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084	4			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233		λ		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\bigtriangledown			Date	10/03/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			La	ab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39011/2-10		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/23/21			Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Strer	ngth of M	lolded So	il-Cement C	ylinders	
				METHOD	В					
				METHOD		I				
	SAMPLE DAT	Γ Α		-	WATER CO	NTENT	DETERM	INATION		
Initial Height	t, in		5.651		Mass of Wet	t Sample	and Tar	e, g	1564.1	
Initial Diame	eter, in		2.969	-	Mass of Dry	Sample	and lare	e, g	12/0.3	
Height-to-Di	ameter Ratio		1.90	-	Mass of Tare	e, g			359.1	
Area, in			6.92	-	Moisture, %				32.2	
Volume, In ²	nnlo a		39.12							
Wet Density	npie, g		1207.4	-						
Dry Density	ncf		88.9	-						
Machine Sp	eed. in/min		0.050							
Strain rate,	% / min		0.88							
,				1						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			642					
Specimen C	ross-sectional	Area, in ²			6.92			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			93					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure. psi		93				Failure Sketo	ch
Note 2: * - A (conversion factor	based on H/D=	1 15 (C E - 9	08 as 100% a	nd add_correct	tion ner A	STM C42)		
Noie 2 A C			DFSC	RIPTION			01101042,	/		
			5200				1			
								Failura Type	K	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)		I			
]					
			REM	IARKS						
			1.7010				Ĩ			

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. [s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233				Tested By	KP/IH
		Soil		Fax: 770-923	۱ 3-8973	\sim	2		Date	10/21/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AASH			Checked By	18
Client Pr. #			200016			Lab. F	PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S.	Туре	Mold	Depth/Elev.	-
Sample ID		39011/2-10		Subsample	2	Loc	ation		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/23/21			Curing A	Age, Days	28
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Mold	led So	il-Cement C	Cylinders	
				METHOD	В					
		ΓΔ					TERM			
Initial Height			5 627	1	Mass of Wet	Sample an	d Tar	e a	1491 4	
Initial Diame	ter. in		2.976	-	Mass of Drv	Sample and	d Tare	e, g e. a	1199.4	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g		, 5	300.9	
Area, in ²			6.96		Moisture, %				32.5	
Volume, in ³			39.14							
Mass of Sar	nple, g		1193.2							
Wet Density	, pcf		116.1							
Dry Density,	pcf		87.6							
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.89							
				TEST	DATA					
		4	11/1015	1			Diaita		# 17/502	
	Compression	Device ID #	10/1013	-		Re	Pigitai	t Device ID	# 17/585 # 10/1016	
	Balance ID #		1036/1037	-			Jauou	Oven ID	# 758/496	
				1						
Maximum Lo	oad at Failure,	lbf			1384					
Specimen C	ross-sectional	Area, in ²			6.96		I	Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			199					
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		199				Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per ASTI	M C42))		
			DESC	RIPTION						
							1	Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
			REM	IARKS						

		t		Timei	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-		Date	10/03/21
				TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHID	 		Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-0	02-3	
Pr. Name					Time Oil Term	ninal		<u> </u>		S. Type	Мо	ld	Depth/Elevation	1	-
Sample ID			39011	/2-10		Subs	ample ID	3		Location			Seattle,	WA	
Add. Info		-		Mi	xing/Molding Da	ite		09/23/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials l	ard Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	w)		
lı	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a	-				Final Data (After T	est)	
Heiaht		2.973	lin	7.55 0	m Speed			9]						
Diameter		2.969	in	7.54 0	m Board N	umber		5		Average Hei	oht of Samp	le	2.974 in	7.55 cm	
Area		6.92	in²	44.67	cm ² Cell Num	nber		5		Average Dia	meter of Sa	mple	2.970 in	7.54 cm	
Volume		337.29	cm ³	0.0119 f	t ³ Flow Pur	np Numbe	r	3B		Area	6.93	in ²	44.70 cm ²		
Mass		629.2	g	1.39	b Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	337.63	cm ³	0.0119 ft ³	Dry Density	87.9 pcf
Specific Gra	avity	2.700	- (Assume	d)	B - Value	e		0.95		Mass	635.2	g	1.40 lb	Vol. of Voids	161.42 cm ³
Dry Density	,	88.0	pcf		Cell Pres	sure		95.0	psi			-	·	Vol. of Solids	176.21 cm ³
			J [*]		Back Pre	essure		90.0	psi					Void Ratio	0.92
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	98.8 %
Mass of we	t sample 8	k tare	629.2	g	Max Hea	id		28.84	cm	Mass of wet	sample & ta	re	708.5 g		·
Mass of dry	sample &	tare	475.7	g	Min Hea	d		28.14	cm	Mass of dry s	sample & ta	re	549.1 g		
Mass of tare	e		0.0	g	Maximur	n Gradient		3.82		Mass of tare			73.4 g		
% Moisture			32.3		Minimum	n Gradient		3.72		% Moisture			33.5		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used f	or Permeability Te	st.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/03/21	7	20	-	0.40	28.14	3.72	24.1	-	-	-		NA			USCS
10/03/21	7	30	600	0.41	28.84	3.82	24.1	2.66E-06	0.908	2.41E-06				(AST	M D2487;2488)
10/03/21	7	40	600	0.41	28.84	3.82	24.1	2.63E-06	0.908	2.38E-06					NA
10/03/21	7	50	600	0.40	28.14	3.72	24.1	2.66E-06	0.908	2.41E-06	*		REM	IARKS	
10/03/21	8	0	600	0.40	28.14	3.72	24.1	2.69E-06	0.908	2.44E-06	*	Bottom	Half of the mold was	used for testing.	
10/03/21	8	10	600	0.41	28.84	3.82	24.1	2.66E-06	0.908	2.41E-06	*				
10/03/21	8	20	600	0.41	28.84	3.82	24.1	2.63E-06	0.908	2.38E-06	*				
				-	Reported	Average	Hydraulic Co	nductivity*		2.4E-06	cm/sec				
Flow pump	ID #	4	75	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262		
Thermomet	er ID #	796	/985	(Oven ID #	496/758		Board Press	sure Meter	r ID #			1042		
Syringe ID #	#	49	90				-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	tem (Flow Pu STP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	for Inflow and Calibra ssure (DP) Reading	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	nflow & outflow able above) sh	through the owed no sig	e fully saturated sample with gnificant upward or downwa	accuracy +/-5%. Flow F rd trend.	Pump Rate isused for

		t		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/21/21
				TESTS,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	1136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID			39011	/2-10		Subs	ample ID	4		Location			S	eattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/23/21				Curir	ig Age, Days			28
				ASTM D	5084; Standa Materials l	ard Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous	6		
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (A	fter Test)		
Height		3.008	in	7.64 c	m Speed			11	1							
Diameter		2.965	in	7.53 ci	m Board Nu	umber		4		Average Heig	ght of Samp	le	3.009 in	ı	7.64 cm	
Area		6.90	in²	44.55 C	m ² Cell Num	nber		2		Average Dia	meter of Sa	mple	2.966 in	ı	7.53 cm	
Volume		340.34	cm ³	0.0120 ft	³ Flow Pur	np Numbe	r	4A		Area	6.91	in ²	44.58 CI	m²		
Mass		635.1	g	1.40 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	340.69	cm ³	0.0120 ft	3	Dry Density	88.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	642.6	g	1.42 lb)	Vol. of Voids	162.76 cm ³
Dry Density	,	88.1	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	177.93 cm ³
	Malating Content				Back Pre	essure		90.0	psi						Void Ratio	0.91
	Mois	ture Cont	ent	_	Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	99.7 %
Mass of we	t sample &	tare	635.1	g	Max Hea	d		82.30	cm	Mass of wet	sample & ta	ire	724.7 g			
Mass of dry	sample &	tare	480.4	g	Min Hea	d		80.89	cm	Mass of dry s	sample & ta	re	562.5 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		10.77		Mass of tare			82.1 g			
% Moisture			32.2		Minimum	Gradient		10.58		% Moisture			33.8			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water I	Used for Pe	rmeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N		
10/21/21	7	20	-	1.16	81.59	10.68	23.4	-	-	-		NA				USCS
10/21/21	7	30	600	1.17	82.30	10.77	23.4	2.34E-07	0.923	2.16E-07					(ASTN	I D2487;2488)
10/21/21	7	40	600	1.15	80.89	10.58	23.4	2.35E-07	0.923	2.17E-07						NA
10/21/21	7	50	600	1.15	80.89	10.58	23.4	2.37E-07	0.923	2.19E-07	*			REMARK	S	
10/21/21	8	0	600	1.17	82.30	10.77	23.4	2.35E-07	0.923	2.17E-07	*	Bottom	Half of the mol	d was used	for testing.	
10/21/21	8	10	600	1.16	81.59	10.68	23.4	2.34E-07	0.923	2.16E-07	*					
10/21/21	8	20	600	1.17	82.30	10.77	23.4	2.34E-07	0.923	2.16E-07	*					
					Reported	Average	Hydraulic Co	nductivity*		2.2E-07	cm/sec					
Flow pump	ID #	10)43	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1044/1048			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	ure Meter	· ID #			1041			
Syringe ID a	#	10)47				•	Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sam gnificant upward or o	nple with accura downward tren	acy +/-5%. Flow Pu d.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	1 3-8973	\sim			Date	10/04/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com				Checked By	18
Client Pr. #			200016			Lab.	. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S	6. Туре	Mold	Depth/Elev.	-
Sample ID		39012/2-22		Subsample	1	Lo	ocation		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/24/21			Curing A	Age, Days	10
	ASTM [) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of Mol	lded So	il-Cement C	Cylinders	
				METHOD	В					
		ΓΔ			WATER COL		TFRM	ΙΙΝΔΤΙΟΝ		
Initial Height	in		5 611	1	Mass of Wet	t Sample a	nd Tar	e a	1619 7	
Initial Diame	ter. in		2.972	-	Mass of Drv	Sample ar	nd Tare	e, g e. a	1339.3	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g		, 3	416.4	
Area, in ²			6.94		Moisture, %				30.4	
Volume, in ³			38.92		,					
Mass of Sar	nple, g		1205.5							
Wet Density	, pcf		118.0							
Dry Density,	pcf		90.4							
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.89							
				TEST	DATA					
		+	11/1015	1			Diaita	l Calinar ID	# 17/583	
	Compression	- Device ID #	10/1014			F	Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037	_			leadou	Oven ID	# 758/496	
				1	ſ			0.000.02		
Maximum Lo	bad at Failure,	lbf			720					
Specimen C	ross-sectional	Area, in ²			6.94			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			104					
Conversion	Factor for Heig	ht to Diameter	⁻ Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		104				Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per AST	TM C42,)		
			DESC	RIPTION						
								Failure Type	e:	
									Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)					
					J					
			REM	IARKS						

	Ŷ	TIMELY		1874 Forge S	Street Tucker, G	GA 30084			
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/22/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID		39012/2-22		Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/24/21		Curing A	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Strens	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
	SAMPLE DA	Α	5 5 4 4	٦	WATER CON		MINATION		
Initial Height	t, in		5.544	_	Mass of Wet	Sample and Ta	re, g	1493.2	
Initial Diame	eter, In amotor Potio		2.982	_	Mass of Dry a	sample and Tar	e, g	204.2	
			1.00	-		, y		304.2	
Alea, III			0.98	-	woisture, %			30.8	
Volume, In	nnlo a		38.72 1100.6	_					
Wet Density	npie, g		117 1	-					
Dry Density	ncf		89.5	-					
Machine Sp	eed. in/min		0.050						
Strain rate, 9	% / min		0.90						
				-					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digita	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037]			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1451				
Specimen C	ross-sectional	Area, in ²			6.98		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			208				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		208			Failure Skete	ch
- Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F 9	08 as 100% a	nd add. correctio	on per ASTM C42	2)		
			DESC	RIPTION			-/		
							Ī	\times	
							Failure Type	e. Karala a	
								Cone and S	hear
	.	U	SCS (ASTM	D2487: D24	188)		•		
]				
			REM	IARKS					
				-			I		
							l		

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested I	By EB/KP
				Soil		Fax: 770-	923-8973							Date	10/04/21
	(Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASH O			Checked	ву /в
Client Pr. #					200016					Lab. PR. #			21136-	-02-3	
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevatio	'n	-
Sample ID			39012	/2-22		Subs	ample ID	3		Location			Seattle	e, WA	
Add. Info		-		Miz	king/Molding Da	te		09/24/21				Curin	g Age, Days		10
				ASTM D	5084; Standa Materials L	ord Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	rated Porous w)		
li li	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	a					Final Data (After 1	Test)	
Height		3.002	in	7.63 c	m Speed			9	1						
Diameter		2.972	in	7.55 c	m Board Nu	umber		6		Average Hei	ght of Samp	le	3.003 in	7.63 cm	
Area		6.94	in ²	44.76 C	m ² Cell Num	ıber		11		Average Dia	meter of Sa	nple	2.973 in	7.55 cm	
Volume		341.27	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	4A		Area	6.94	in ²	44.79 cm ²		
Mass		637.7	g	1.41 lt	Flow Pur	np Rate*		4.48E-04	cm ³ /sec	Volume	341.61	cm ³	0.0121 ft ³	Dry Densi	y 89.5 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	645.7	g	1.42 lb	Vol. of Voi	ds 160.06 cm ³
Dry Density		89.6	pcf		Cell Pres	sure		95.0	psi			-		Vol. of Sol	ds 181.56 cm ³
	Moisture Content				Back Pre	essure		90.0	psi					Void Ratio	0.88
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	97.2 %
Mass of wet	t sample 8	k tare	637.7	g	Max Hea	d		21.81	cm	Mass of wet	sample & ta	re	727.8 g		
Mass of dry	sample &	tare	489.9	g	Min Head	b		21.10	cm	Mass of dry s	sample & ta	re	572.4 g		
Mass of tare	Э		0.0	g	Maximun	n Gradient		2.86		Mass of tare			82.5 g		
% Moisture			30.2		Minimum	Gradient		2.77		% Moisture			31.7		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used	for Permeability	ſest.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/04/21	7	40	-	0.30	21.10	2.77	24.7	-	-	-		NA			USCS
10/04/21	7	50	600	0.31	21.81	2.86	24.7	3.56E-06	0.895	3.18E-06				(A	STM D2487;2488)
10/04/21	8	0	600	0.31	21.81	2.86	24.7	3.50E-06	0.895	3.13E-06					NA
10/04/21	8	10	600	0.30	21.10	2.77	24.7	3.56E-06	0.895	3.18E-06	*		REI	MARKS	
10/04/21	8	20	600	0.30	21.10	2.77	24.7	3.62E-06	0.895	3.24E-06	*	Bottom	Half of the mold was	s used for testing	
10/04/21	8	30	600	0.31	21.81	2.86	24.7	3.56E-06	0.895	3.18E-06	*				
10/04/21	8	40	600	0.30	21.10	2.77	24.7	3.56E-06	0.895	3.18E-06	*				
				_	Reported	Average	Hydraulic Co	nductivity*		3.2E-06	cm/sec				
Flow pump	ID #	10	43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #	-		1044/1048		
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	" ID #			1042		
Syringe ID #	#	10	47]			-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of I	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	mp with Cali Its at steady	brated Syringe f Differential Pre	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample wit gnificant upward or downwa	th accuracy +/-5%. Flo ard trend.	w Pump Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973			<u> </u>				Date	10/22/21
				Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-	3	
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			39012	/2-22		Subs	ample ID	4		Location			Seattle, W	A	
Add. Info		-		Mi	king/Molding Da	te		09/24/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous w)		
h	nitial Sar	nple Dat	a (Befor	e Test)		•	Test Data	a					Final Data (After Tes	t)	
Heiaht		3.066	lin	7.79 c	m Speed			12	1						
Diameter		2.965	in	7.53	m Board Nu	umber		18	1	Average Hei	oht of Samp	le	3.067 in	7.79 cm	
Area		6.90	in²	44.55	m ² Cell Num	nber		15	1	Average Dia	meter of Sa	mple	2.966 in	7.53 cm	
Volume		346.91	cm ³	0.0123 f	Flow Pur	np Numbe	r	4B	1	Area	6.91	in ²	44.58 cm ²		
Mass		653.9	g	1.44	Flow Pur	np Rate*		5.60E-05	cm ³ /sec	Volume	347.25	cm ³	0.0123 ft ³	Dry Density	90.2 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95	1	Mass	664.5	g	1.46 lb	Vol. of Voids	161.37 cm ³
Dry Density	-	90.3	pcf		Cell Pres	sure		95.0	psi			J -		Vol. of Solids	185.88 cm ³
	Moieture Content				Back Pre	essure		90.0	psi					Void Ratio	0.87
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	100.8 %
Mass of we	t sample 8	k tare	653.9	g	Max Hea	d		104.10	cm	Mass of wet	sample & ta	re	749.8 g		
Mass of dry	sample &	tare	501.8	g	Min Head	b		102.70	cm	Mass of dry s	sample & ta	re	587.2 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		13.36	1	Mass of tare			85.4 g		
% Moisture			30.3		Minimum	Gradient		13.18]	% Moisture			32.4		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for I	Permeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/22/21	8	35	-	1.47	103.40	13.27	21.3	-	-	-		NA		, i	JSCS
10/22/21	8	45	600	1.48	104.10	13.36	21.3	9.43E-08	0.969	9.14E-08				(ASTM	D2487;2488)
10/22/21	8	55	600	1.46	102.70	13.18	21.3	9.46E-08	0.969	9.17E-08					NA
10/22/21	8	5	-3000	1.48	104.10	13.36	21.3	9.46E-08	0.969	9.17E-08	*		REMAR	RKS	
10/22/21	9	15	4200	1.47	103.40	13.27	21.3	9.43E-08	0.969	9.14E-08	*	Bottom	Half of the mold was use	ed for testing.	
10/22/21	9	25	600	1.48	104.10	13.36	21.3	9.43E-08	0.969	9.14E-08	*				
10/22/21	9	35	600	1.46	102.70	13.18	21.3	9.46E-08	0.969	9.17E-08	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		9.2E-08	cm/sec				
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985	0	Ven ID #	496/758		Board Press	sure Meter	r ID #			570		
Syringe ID #	#	10)46]			-	Pore Pressu	ure Meter	ID #			779/780		
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Calil llts at steady	brated Syringe	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sample with acc gnificant upward or downward tr	curacy +/-5%. Flow Pu end.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. s.r.</u>	Engine	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/04/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	E	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Туре	Mold	Depth/Elev.	-
Sample ID	39044	4/CAA-4 Ex-Situ	(3)	Subsample	1	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/24/21		Curing A	Age, Days	10
	ASTM I) 1633: Standa	rd Test Met	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	ylinders	
				METHOD	В				
	SAMPLE DA	A	5 7 4 7	7	WATER CON		MINATION		
Initial Height	t, IN		5.747	-	Mass of Wet	Sample and Ta	are, g	1409.4	
Height-to-Di	ameter Ratio		2.975	-	Mass of Tare		le, y	258.3	
$\Delta rea in^2$			6.95	-	Moisture %	., g		200.0 /1.7	
Volume in^3			30.05	-	Wolsture, 70			Τ Ι. <i>Ι</i>	
Mass of Sar	nole a		1153.2	-					
Wet Density	. pcf		110.0	1					
Dry Density,	pcf		77.6	1					
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.87						
				TEST					
				_	271171				
	Load Cell ID #	ŧ	11/1015			Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014	_		Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			2083				
Specimen C	ross-sectional	Area, in ²			6.95		Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			300				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		300			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	008 as 100% a	nd add. correcti	on per ASTM C4	2)		
			DESC	RIPTION			,		
							Ţ		
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	188)				
			REN	ARKS			_		
]		
							Ţ		
L									

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
,	T.E. S.T.	ENGINE	ERING	Phone: 770-9	938-8233	\square			Tested By	KP/IH
		Soil		Fax: 770-923	۱ 3-8973	$\overline{\mathcal{A}}$			Date	10/22/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AASH			Checked By	18
Client Pr. #			200016			Lab.	. PR. #		21136-02-3	
Pr. Name	-	Т	ime Oil Term	inal		S	. Type	Mold	Depth/Elev.	-
Sample ID	39044	1/CAA-4 Ex-Situ	ı (3)	Subsample	2	Lo	ocation		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/24/21			Curing A	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of Mol	lded Soil	-Cement C	ylinders	
				метнор	B					
	SAMPLE DAT	ΓA		_	WATER CO	NTENT DE	ETERMI	NATION		
Initial Height	t, in		5.681		Mass of Wet	t Sample a	ind Tare	, g	1445.0	
Initial Diame	eter, in		2.979		Mass of Dry	Sample ar	nd Tare,	g	1110.8	
Height-to-Di	ameter Ratio		1.91	_	Mass of Tare	e, g			303.7	
Area, in ²			6.97		Moisture, %				41.4	
Volume, in ³			39.60							
Mass of Sar	nple, g		1142.5	_						
Wet Density	r, pcf		109.9	-						
Machine Sp	pci eed in/min		0.050	-						
Strain rate	% / min		0.000	-						
otrain rato,	,0,,		0.00	1						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015]			Digital	Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			R	Readout	Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Movimum L	and at Epilura	lhf			4269					
Specimen C		Area in ²			4200		F	ailure Cod	a 3	
Comprossiv	o Strongth of E				612		1		e 5	
Compressiv	e Strength at F	allure, psi	Datia		612					
Conversion	Factor for Heig	nt to Diameter			1.00	_			Callura Cleat	ah
Reported C	ompressive 5	trength at Fa	liure, psi		612					SU .
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	tion per AST	TM C42)			
	F		DESC	RIPTION			ï			
							F	allure Type	e: Cons and S	haar
				1 D2487. D24	188)					near
		0.		02-101.024]					
				L	J					
			REM	IARKS			.			

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	<u>ST.</u>		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/05/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. #					200016					Lab. PR. #			21	136-02-3		•
Pr. Name					Time Oil Term	inal				S. Type	Mo	d	Depth/Elev	vation		-
Sample ID		390	044/CAA-4	4 Ex-Situ (3)		Subs	ample ID	3		Location			Sea	attle, WA		
Add. Info		-		Miz	king/Molding Da	te		09/24/21				Curin	g Age, Days			11
				ASTM D	5084; Standa Materials L	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)			
h	nitial Sar	nple Dat	a (Befor	e Test)			Test Dat	а					Final Data (Aft	ter Test)		
Height		3.013	in	7.65 c	m Speed			10								
Diameter		2.974	in	7.55 c	m Board Nu	umber		4		Average Hei	ght of Samp	le	3.014 in		7.66 cm	
Area		6.95	in²	44.82 C	m ² Cell Num	ıber		2		Average Dia	meter of Sa	nple	2.975 in		7.56 cm	
Volume		342.98	cm ³	0.0121 ft	³ Flow Pur	np Numbe	r	3B		Area	6.95	in ²	44.85 cm	2		
Mass		597.6	g	1.32 lk	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	343.33	cm ³	0.0121 ft ³		Dry Density	76.8 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	•		0.95		Mass	608.2	g	1.34 lb		Vol. of Voids	186.80 cm ³
Dry Density		76.9	pcf		Cell Pres	sure		95.0	psi						Vol. of Solids	156.53 cm ³
					Back Pre	ssure		90.0	psi						Void Ratio	1.19
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Mois	sture Co	ntent		Saturation	99.3 %
Mass of we	t sample 8	k tare	597.6	g	Max Hea	d		139.27	cm	Mass of wet	sample & ta	re	677.2 g			
Mass of dry	sample &	tare	422.7	g	Min Head	t		138.57	cm	Mass of dry	sample & ta	re	491.6 g			
Mass of tare	e		0.0	g	Maximun	n Gradient		18.19		Mass of tare			68.9 g			
% Moisture			41.4		Minimum	Gradient	-	18.10		% Moisture	-		43.9			
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Us	sed for Pe	rmeability Test	
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION			
10/05/21	9	20	-	1.98	139.27	18.19	23.5	-	-	-		NA			ι	JSCS
10/05/21	9	30	600	1.97	138.57	18.10	23.5	2.75E-07	0.920	2.53E-07					(ASTM	D2487;2488)
10/05/21	9	40	600	1.98	139.27	18.19	23.5	2.75E-07	0.920	2.53E-07						NA
10/05/21	9	50	600	1.97	138.57	18.10	23.5	2.75E-07	0.920	2.53E-07	*			REMARK	S	
10/05/21	10	0	600	1.98	139.27	18.19	23.5	2.75E-07	0.920	2.53E-07	*	Bottom	Half of the mold	was used	for testing.	
10/05/21	10	10	600	1.97	138.57	18.10	23.5	2.75E-07	0.920	2.53E-07	*					
10/05/21	10	20	600	1.98	139.27	18.19	23.5	2.75E-07	0.920	2.53E-07	*					
				_	Reported	Average	Hydraulic Co	nductivity*		2.5E-07	cm/sec					
Flow pump	ID #	4	75	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			262			
Thermomet	er ID #	796	/985	C	ven ID #	496/758		Board Press	sure Meter	ID#			1041			
Syringe ID #	¥	4	90	J				Pore Pressu	ire Meter	ID #			26/27			
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pres	or Inflow and Calibra	ated Graduate at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of ir ersus Time (see t	flow & outflow able above) she	through the owed no sig	e fully saturated sampl gnificant upward or do	le with accura	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIME	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	ST.		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	10/22/21
				TESTS	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>		ACC	ASHID	 		Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-	3	
Pr. Name					Time Oil Term	ninal		-		S. Type	Мо	ld	Depth/Elevation		-
Sample ID		390)44/CAA-4	4 Ex-Situ (3))	Subs	ample ID	4		Location			Seattle, W	A	
Add. Info		-		Mi	xing/Molding Da	ite		09/24/21]		Curin	g Age, Days		28
				ASTM D	5084; Standa Materials L	ard Test I Jsing a F	Method for lexible Wal	Measurem I Permeam	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous w)		
Ir	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a	-				Final Data (After Tes	st)	
Height		3.063	in	7.78	cm Speed			12]						
Diameter		2.966	in	7.53	m Board Nu	umber		19		Average Hei	ght of Samp	le	3.064 in	7.78 cm	
Area		6.91	in²	44.58	cm ² Cell Num	nber		5		Average Dia	e meter of Sa	mple	2.967 in	7.54 cm	
Volume		346.80	cm ³	0.0122 f	t ³ Flow Pur	np Numbe	r	4A		Area	6.91	in ²	44.61 cm ²		
Mass		606.9	g	1.34 I	b Flow Pur	np Rate*		5.60E-05	cm ³ /sec	Volume	347.15	cm ³	0.0123 ft ³	Dry Density	77.1 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	615.5	g	1.36 lb	Vol. of Voids	188.28 cm ³
Dry Density	,	77.2	pcf		Cell Pres	sure		95.0	psi			-4		Vol. of Solids	158.86 cm ³
	Moisture Content				Back Pre	essure		90.0	psi					Void Ratio	1.19
	Moisture Content				Confinin	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	99.1 %
Mass of wet	t sample 8	k tare	606.9	g	Max Hea	ıd		158.27	cm	Mass of wet	sample & ta	re	696.9 g		
Mass of dry	sample &	tare	429.0	g	Min Head	d		156.15	cm	Mass of dry s	sample & ta	re	510.3 g		
Mass of tare	е		0.0	g	Maximun	n Gradient		20.34		Mass of tare			81.3 g		
% Moisture			41.5		Minimum	n Gradient		20.06		% Moisture			43.5		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)	ſ	Note: I	Deaired Water Used for	Permeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/22/21	8	35		2.25	158.27	20.34	21.3	-	-	-]	NA		l	JSCS
10/22/21	8	45	600	2.22	156.15	20.06	21.3	6.21E-08	0.969	6.02E-08				(ASTM	D2487;2488)
10/22/21	8	55	600	2.24	157.56	20.25	21.3	6.23E-08	0.969	6.04E-08]				NA
10/22/21	9	5	600	2.23	156.86	20.16	21.3	6.21E-08	0.969	6.02E-08	*		REMAR	RKS	
10/22/21	9	15	600	2.25	158.27	20.34	21.3	6.20E-08	0.969	6.01E-08	*	Bottom	Half of the mold was us	ed for testing.	
10/22/21	9	25	600	2.24	157.56	20.25	21.3	6.19E-08	0.969	6.00E-08	*				
10/22/21	9	35	600	2.25	158.27	20.34	21.3	6.19E-08	0.969	6.00E-08	*				
					Reported	Average	Hydraulic Co	nductivity*		6.0E-08	cm/sec				
Flow pump	ID #	10)43	E	Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #	-		1044/1048		
Thermomet	er ID #	796	/985] (Oven ID #	496/758		Board Press	ure Meter	· ID #			570		
Syringe ID #	#	10)47				-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of I	e of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	for Inflow and Calibra ssure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	nflow & outflow able above) sh	through the	e fully saturated sample with ac gnificant upward or downward ti	curacy +/-5%. Flow Pu rend.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084			
,	r.e. s.r.	Enginei	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973		•	Date	10/05/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR	. #	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Ty	pe Mold	Depth/Elev.	-
Sample ID	39045	5/CAA-4 Ex-Situ	ı (4)	Subsample	1	Locati	on	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/25/21		Curing	Age, Days	10
	ASTM E) 1633: Standa	rd Test Met	hods for Com	pressive Stren	igth of Molded	l Soil-Cement (Cylinders	
				METHOD	В				
		- •							
Initial Haight		A	E 600	Т	WATER CO			1451 5	
Initial Height	, III tor in		2.082 2.077	-	Mass of Wel	Sample and T	Tare, g	1451.5	
	ameter Ratio		2.977	-	Mass of Tare		ale, y	360.0	
Area in ²			6.06	-	Moisture %	s, y		38.0	
$\lambda i e a$, in $\lambda o lumo i n^3$			20.55	-	MOISTURE, 70			30.0	
Mass of San	nnle a		1162.0	-					
Wet Density	pcf		111.9	-					
Dry Density.	pcf		81.1	1					
Machine Sp	eed, in/min		0.050	1					
Strain rate, 9	% / min		0.88						
				_					
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Dię	gital Caliper ID) # 17/583	
	Compression	Device ID #	10/1014			Read	dout Device ID) # 10/1016	
	Balance ID #		1036/1037	·			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1642				
Specimen C	ross-sectional	Area, in ²			6.96		Failure Co	de 3	
Compressive	e Strength at F	ailure, psi			236				
Conversion	Factor for Heig	ht to Diameter	[.] Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		236			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correct	ion per ASTM (C42)		
			DESC	RIPTION			,		
								\times	
							Failure Tvp)e:	
								Cone and S	hear
		U	SCS (ASTN	1 D2487: D24	88)				
			REM	IARKS					

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
,	r.e. st.	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/23/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	L	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Type	Mold	Depth/Elev.	-
Sample ID	39045	5/CAA-4 Ex-Situ	ı (4)	Subsample	2	Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/25/21		Curing A	Age, Days	28
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	B				
	SAMPLE DAT	Γ A		_	WATER COM	NTENT DETER	MINATION		
Initial Height	t, in		5.689		Mass of Wet	Sample and Ta	ire, g	1460.6	
Initial Diame	eter, in		2.977		Mass of Dry	Sample and Ta	re, g	1139.2	
Height-to-Di	ameter Ratio		1.91		Mass of Tare	e, g		299.0	
Area, in ²			6.96		Moisture, %			38.3	
Volume, in ³			39.60						
Mass of Sar	nple, g		1162.5	_					
Wet Density	, pct		111.8						
Machine Sp	pci eed in/min		0.9	-					
Strain rate	% / min		0.000	-					
otrain rate,	<i>, , , , , , , , , ,</i>		0.00	_					
				TEST	DATA				
	I oad Cell ID #	ŧ	11/1015	1		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037				Oven ID	# 758/496	
				-					
Maximum Lo	bad at Failure,	lbf			4685				
Specimen C	ross-sectional	Area, in ²			6.96		Failure Cod	le 3	
Compressiv	e Strength at F	ailure, psi			673				
Conversion	Factor for Heig	ht to Diameter	^r Ratio		1.00				
Reported C	ompressive S	trength at Fai	ilure, psi		673			Failure Sket	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	2)		
			DESC	RIPTION					
							Failure Type	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	188)				
			REM	IARKS					
							1		

		t		TIMEL	.Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/05/21
				Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			ASHIO				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			21	136-02-3		
Pr. Name					Time Oil Term	inal				S. Type	Мо	ld	Depth/Elev	vation		-
Sample ID		390)45/CAA-4	Ex-Situ (4)		Subs	ample ID	3		Location			Se	eattle, WA		
Add. Info		-		Mix	ing/Molding Da	te		09/25/21				Curir	ng Age, Days			10
				ASTM D	5084; Standa Materials L	rd Test M Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous			
	nitial San	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (Af	ter Test)		
Height		2.930	in	7.44 ci	m Speed			11								
Diameter		2.968	in	7.54 ci	m Board Nu	umber		12		Average Heig	ght of Samp	le	2.931 in		7.44 cm	
Area		6.92	in²	44.64 CI	m ² Cell Num	ber		14		Average Dia	meter of Sa	mple	2.969 in		7.54 cm	
Volume		332.19	cm ³	0.0117 ft	³ Flow Pur	np Numbe	r	2B		Area	6.92	in²	44.67 cm	n ²		
Mass		592.7	g	1.31 lb	Flow Pur	np Rate*		1.12E-04	cm ³ /sec	Volume	332.53	cm ³	0.0117 ft ³		Dry Density	80.6 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	603.5	g	1.33 lb		Vol. of Voids	173.45 cm ³
Dry Density	ensity 80.7 pcf				Cell Pres	sure		95.0	psi			_			Vol. of Solids	159.07 cm ³
			_		Back Pre	essure		90.0	psi						Void Ratio	1.09
	Mois	ture Cont	ent	-	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	100.3 %
Mass of we	t sample &	tare	592.7	g	Max Hea	d		150.53	cm	Mass of wet	sample & ta	ire	688.4 g			
Mass of dry	sample &	tare	429.5	g	Min Head	b		149.82	cm	Mass of dry s	sample & ta	re	514.4 g			
Mass of tar	е		0.0	g	Maximun	n Gradient		20.22		Mass of tare			84.9 g			
% Moisture			38.0		Minimum	Gradient		20.12		% Moisture			40.5			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water U	Ised for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION	1		
10/05/21	10	5	-	2.14	150.53	20.22	23.5	-	-	-		NA			I	USCS
10/05/21	10	15	600	2.13	149.82	20.12	23.5	1.24E-07	0.920	1.14E-07					(ASTM	D2487;2488)
10/05/21	10	25	600	2.14	150.53	20.22	23.5	1.24E-07	0.920	1.14E-07						NA
10/05/21	10	35	600	2.13	149.82	20.12	23.5	1.24E-07	0.920	1.14E-07	*			REMARKS	S	
10/05/21	10	45	600	2.14	150.53	20.22	23.5	1.24E-07	0.920	1.14E-07	*	Bottom	Half of the mold	l was used	for testing.	
10/05/21	10	55	600	2.13	149.82	20.12	23.5	1.24E-07	0.920	1.14E-07	*					
10/05/21	0/05/21 11 5 600 2.14 150.53					20.22	23.5	1.24E-07	0.920	1.14E-07	*					
					Reported	Average	Hydraulic Cor	nductivity*		1.1E-07	cm/sec					
Flow pump	ID #	24	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			587			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	ID #			776			
Syringe ID a	#	24	46				-	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	orated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a d after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated samp gnificant upward or de	ole with accura ownward trend	acy +/-5%. Flow Pu d.	imp Rate isused for

		t		TIMEI	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engin	IEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	923-8973							Date	10/23/21
	<u>(</u>			Tests	, LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED			Checked By	18
Client Pr. #					200016					Lab. PR. #			21136-02-	3	
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/Elevation		-
Sample ID		390	045/CAA-4	4 Ex-Situ (4)		Subs	ample ID	4		Location			Seattle, W	A	
Add. Info		-		Miz	king/Molding Da	te		09/25/21				Curin	g Age, Days		28
				ASTM D	5084; Standa Materials U	rd Test I Jsing a F	Method for lexible Wal	Measureme I Permeame	ent of Hy eter (Me	/draulic Cor thod D, Cor	nductivity	of Satu e of Flo	rated Porous w)		
h	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	а					Final Data (After Tes	t)	
Height		3.009	in	7.64 c	m Speed			12							
Diameter		2.973	in	7.55 c	m Board Nu	umber		5		Average Hei	ght of Samp	le	3.010 in	7.65 cm	
Area		6.94	in²	44.79 C	m ² Cell Num	ber		15		Average Dia	meter of Sa	nple	2.974 in	7.55 cm	
Volume		342.30	cm ³	0.0121 ft	Flow Pur	np Numbe	r	4B		Area	6.95	in ²	44.82 cm ²		
Mass		612.1	g	1.35 II	Flow Pur	np Rate*		5.60E-05	cm ³ /sec	Volume	342.64	cm ³	0.0121 ft ³	Dry Density	80.7 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	;		0.95		Mass	622.8	g	1.37 lb	Vol. of Voids	178.61 cm ³
Dry Density		80.7	pcf		Cell Pres	sure		95.0	psi					Vol. of Solids	164.03 cm ³
	Moisture Content				Back Pre	essure		90.0	psi					Void Ratio	1.09
	Moisture Content				Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	100.7 %
Mass of we	t sample 8	k tare	612.1	g	Max Hea	d		187.81	cm	Mass of wet	sample & ta	re	710.1 g		
Mass of dry	sample &	tare	442.8	g	Min Head	d		185.70	cm	Mass of dry	sample & ta	re	530.2 g		
Mass of tare	Э		0.0	g	Maximun	n Gradient		24.56		Mass of tare			87.4 g		
% Moisture			38.2		Minimum	Gradient	-	24.29		% Moisture	-		40.6		
TIME	FUNCT	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for I	Permeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/23/21	7	20	-	2.65	186.40	24.38	23.3	-	-	-		NA		, i	JSCS
10/23/21	7	30	600	2.64	185.70	24.29	23.3	5.13E-08	0.925	4.75E-08				(ASTM	D2487;2488)
10/23/21	7	40	600	2.67	187.81	24.56	23.3	5.12E-08	0.925	4.73E-08					NA
10/23/21	7	50	600	2.66	187.10	24.47	23.3	5.10E-08	0.925	4.71E-08	*		REMAR	RKS	
10/23/21	8	0	600	2.66	187.10	24.47	23.3	5.11E-08	0.925	4.72E-08	*	Bottom	Half of the mold was use	ed for testing.	
10/23/21	8	10	600	2.67	187.81	24.56	23.3	5.10E-08	0.925	4.71E-08	*				
10/23/21	8	20	600	2.65	186.40	24.38	23.3	5.11E-08	0.925	4.72E-08	*				
				_	Reported	Average	Hydraulic Cor	nductivity*		4.7E-08	cm/sec				
Flow pump	ID #	10)43	E	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1045/1049		
Thermomet	er ID #	796	/985	0	Ven ID #	496/758		Board Press	sure Meter	· ID #			1042		
Syringe ID #	#	10)46]			-	Pore Pressu	ire Meter	ID #			779/780		
*Constant Rate calculations of	of Flow Syst HC (ASTM S	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe f Differential Pre	or Inflow and Calibra	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to ation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with acc gnificant upward or downward tr	curacy +/-5%. Flow Pu end.	mp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker, (GA 30084			
	<u>r.e. [s.t.</u>]	ENGINE	ERING	Phone: 770-9	938-8233			Tested By	KP/IH
		Soil		Fax: 770-923	3-8973			Date	10/05/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com			Checked By	18
Client Pr. #			200016			Lab. PR. #	ŧ	21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S. Туре	e Mold	Depth/Elev.	-
Sample ID		39046/2-21		Subsample	1	Location	ı	Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/25/21		Curing /	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	nods for Com	pressive Stren	gth of Molded S	oil-Cement C	Cylinders	
				METHOD	В				
		ГА					ΜΙΝΑΤΙΟΝ		
Initial Height	in		5 585	1	Mass of Wet	Sample and Ta		1502.3	
Initial Diame	ter in		2 965		Mass of Dry	Sample and Ta	re a	1235.2	
Height-to-Di	ameter Ratio		1.88	1	Mass of Tare	e a	, g	301.8	
Area, in ²			6.90		Moisture %	, 5		28.6	
Volume in ³			38.56		molocaro, vo			20.0	
Mass of San	nple. a		1202.2	1					
Wet Density	, pcf		118.8						
Dry Density,	pcf		92.3	1					
Machine Sp	eed, in/min		0.050						
Strain rate, 9	% / min		0.90						
				TEST	DATA				
	Load Cell ID #	ŧ	11/1015]		Digit	al Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Reado	ut Device ID	# 10/1016	
	Balance ID #		1036/1037	J			Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			385				
Specimen C	ross-sectional	Area, in ²			6.90		Failure Coo	le 3	
Compressive	e Strength at F	ailure, psi			56				
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00				
Reported C	ompressive S	trength at Fai	lure, psi		56			Failure Skete	ch
Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F9	08 as 100% a	nd add. correcti	ion per ASTM C4	2)		
			DESC	RIPTION		,	,		
							Т	\times	
							Failure Tvp	e:	
								Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)		-		
]				
			REM	IARKS					
							1		
							-		

Г	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084				
	<u>r.e. s.r.</u>	ENGINE	ERING	Phone: 770-9	938-8233	$ \square $			Tested By	KP/IH
		Soil		Fax: 770-923	۱ 8-8973		2		Date	10/23/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AASH			Checked By	18
Client Pr. #			200016			Lab. F	PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal		S.	Туре	Mold	Depth/Elev.	-
Sample ID		39046/2-21		Subsample	2	Loc	ation		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/25/21			Curing A	Age, Days	28
	ASTM I) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	igth of Mold	led Soi	il-Cement C	ylinders	
				METHOD	В					
		FA					redm			
Initial Height		A	5 676	1	Mass of Wet	Sample an			1513.4	
	l, III Iter in		2 977	-	Mass of Dry	Sample an	u Tare	e, y v a	1243.3	
Height-to-Di	ameter Ratio		1.91	-	Mass of Tare		liaie	, y	298.4	
Area in ²			6.96	-	Moisture %	, g			28.6	
Volume in^3			30.50	-	Wolstare, 70				20.0	
Mass of Sar	nple a		1216.3	-						
Wet Density	, pcf		117.3							
Dry Density,	pcf		91.2							
Machine Sp	eed, in/min		0.050							
Strain rate, 9	% / min		0.88							
				_						
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	1		I	Digital	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014			Re	eadou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			1600					
Specimen C	ross-sectional	Area, in ²			6.96		F	Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			230					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		230				Failure Skete	ch
- Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F 9	08 as 100% a	nd add. correct	ion per AST	A C42)			
			DESC	RIPTION			,			
									\times	
							F	Failure Type	e. Karala a	
							ľ		Cone and S	hear
	-	U	SCS (ASTM	D2487: D24	88)					
]					
			REM	IARKS						
				-						

		î		TIMEL	.Y	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973					-			Date	10/05/21
				TESTS,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	21136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/El	evation		-
Sample ID			39046	/2-21		Subs	ample ID	3		Location			S	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	ite		09/25/21				Curir	ng Age, Days			10
			ASTM D	5084; Standa Materials L	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	irated Porous	S							
	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	fter Test)		
Height		2.987	in	7.59 ci	m Speed			10								
Diameter		2.968	in	7.54 ci	m Board Nu	umber		3		Average Heig	ght of Samp	le	2.988 ir	ı	7.59 cm	
Area		6.92	in²	44.64 C	m ² Cell Num	nber		41		Average Dia	meter of Sa	mple	2.969 ir	ı	7.54 cm	
Volume		338.65	cm ³	0.0120 ft	³ Flow Pur	np Numbe	r	3A		Area	6.92	in²	44.67 0	m ²	·	
Mass		636.9	g	1.40 lb	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	338.99	cm ³	0.0120 ff	3	Dry Density	91.0 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	646.1	g	1.42	C	Vol. of Voids	155.84 cm ³
Dry Density	,	91.1	pcf		Cell Pres	sure		95.0	psi			_			Vol. of Solids	183.16 cm ³
			_		Back Pre	essure		90.0	psi						Void Ratio	0.85
	Mois	ture Cont	ent	_	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	97.3 %
Mass of we	t sample 8	tare	636.9	g	Max Hea	d		15.47	cm	Mass of wet	sample & ta	ire	727.7 g	l		
Mass of dry	sample &	tare	494.6	g	Min Head	d		14.77	cm	Mass of dry s	sample & ta	re	576.1 g	l		
Mass of tar	е		0.0	g	Maximun	n Gradient		2.04		Mass of tare			81.5 g	I		
% Moisture			28.8		Minimum	Gradient		1.95		% Moisture			30.7			
TIME	FUNCT	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water	Used for Pe	rmeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N	-	
10/05/21	9	20	-	0.21	14.77	1.95	23.5	-	-	-		NA			l	JSCS
10/05/21	9	30	600	0.22	15.47	2.04	23.5	2.52E-06	0.920	2.32E-06					(ASTM	D2487;2488)
10/05/21	9	40	600	0.21	14.77	1.95	23.5	2.52E-06	0.920	2.32E-06						NA
10/05/21	9	50	600	0.22	15.47	2.04	23.5	2.52E-06	0.920	2.32E-06	*			REMARK	S	
10/05/21	10	0	600	0.21	14.77	1.95	23.5	2.52E-06	0.920	2.32E-06	*	Bottom	Half of the mo	ld was used	for testing.	
10/05/21	10	10	600	0.22	15.47	2.04	23.5	2.52E-06	0.920	2.32E-06	*					
10/05/21	10	20	600	0.21	14.77	1.95	23.5	2.52E-06	0.920	2.32E-06	*					
				•	Reported	Average	Hydraulic Co	nductivity*		2.3E-06	cm/sec					
Flow pump	ID #	4	75	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			469			
Thermometer ID # 796/985 Oven ID # 49						496/758		Board Press	ure Meter	r ID #			1041			
Syringe ID a	#	4	91				-	Pore Pressu	re Meter	ID #			26/27			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) rest	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no si	e fully saturated sar gnificant upward or	nple with accura downward tren	acy +/-5%. Flow Pu d.	mp Rate isused for

		t		TIMEL	LΥ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/23/21
				TESTS.	LLC	Web: ww	w.test-llc.com	<u>1</u>		A/ ACC	SREDITED				Checked By	18
Client Pr. 7	4				200016					Lab. PR. #			2	1136-02-3		
Pr. Name					Time Oil Term	ninal				S. Type	Мо	ld	Depth/Ele	evation		-
Sample ID			39046	/2-21		Subs	ample ID	4		Location			S	Seattle, WA		
Add. Info		-		Mix	king/Molding Da	ate		09/25/21				Curir	ng Age, Days			28
			ASTM D	5084; Standa Materials l	/draulic Cor thod D, Con	nductivity	of Satu e of Flo	urated Porous	S							
I	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (A	(fter Test)		
Height		3.031	in	7.70 ci	m Speed			11								
Diameter		2.967	in	7.54 ci	m Board N	umber		6		Average Heig	ght of Samp	ole	3.032 ir	า	7.70 cm	
Area		6.91	in²	44.61 C	m ² Cell Num	nber		5		Average Dia	meter of Sa	mple	2.968 ir	า	7.54 cm	
Volume		343.41	cm ³	0.0121 ft	³ Flow Pur	mp Numbe	r	1A		Area	6.92	in ²	44.64 C	m ²	<u>.</u>	
Mass		641.0	g	1.41 lb	Flow Pur	mp Rate*		1.12E-04	cm ³ /sec	Volume	343.75	cm ³	0.0121 ft	3	Dry Density	90.6 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	e		0.95		Mass	650.6	g	1.43 lk	C	Vol. of Voids	158.91 cm ³
Dry Density	,	90.7	pcf		Cell Pres	ssure		95.0	psi						Vol. of Solids	184.84 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	0.86
	Mois	ture Cont	ent	7	Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture C	ontent		Saturation	95.4 %
Mass of we	t sample &	tare	641.0	g	Max Hea	ad		68.93	cm	Mass of wet	sample & ta	are	731.6 g	l		
Mass of dry	sample &	tare	499.0	g	Min Hea	d		66.12	cm	Mass of dry s	sample & ta	re	580.1 g	l		
Mass of tar	е		0.0	g	Maximur	n Gradient		8.95		Mass of tare			81.1 g	l		
% Moisture			28.5		Minimum	n Gradient		8.59		% Moisture	1		30.4			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note:	Deaired Water	Used for Pe	ermeability Test	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIO	N		
10/23/21	6	40	-	0.94	66.12	8.59	23.3	-	-	-		NA				JSCS
10/23/21	6	50	600	0.98	68.93	8.95	23.3	2.86E-07	0.925	2.65E-07					(ASTM	D2487;2488)
10/23/21	7	0	600	0.97	68.23	8.86	23.3	2.82E-07	0.925	2.61E-07						NA
10/23/21	7	10	600	0.97	68.23	8.86	23.3	2.83E-07	0.925	2.62E-07	*			REMARK	S	
10/23/21	7	20	600	0.95	66.82	8.68	23.3	2.86E-07	0.925	2.65E-07	*	Bottom	Half of the mol	ld was used	for testing.	
10/23/21	7	30	600	0.97	68.23	8.86	23.3	2.86E-07	0.925	2.65E-07	*					
10/23/21	7	40	600	0.96	67.53	8.77	23.3	2.85E-07	0.925	2.63E-07	*					
					Reported	d Average	Hydraulic Co	nductivity*		2.6E-07	cm/sec					
Flow pump	ID #	2	22	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			1107			
Thermometer ID # 796/985 Oven ID #					ven ID #	496/758		ure Meter	r ID #			1042				
Syringe ID a	#	1	40				-	Pore Pressu	ire Meter	ID #			779/780			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Its at steady	brated Syringe for Differential Pres	or Inflow and Calibra ssure (DP) Reading	ated Graduate s at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in rersus Time (see t	flow & outflow able above) sh	through th owed no s	e fully saturated san	nple with accuration downward tren	acy +/-5%. Flow Pu d.	imp Rate isused for

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 3008	4			
	<u>r.e. [s.t.</u>]	ENGINE	ERING	Phone: 770-9	938-8233	\square	λ		Tested By	KP/IH
		Soil		Fax: 770-923	3-8973	\bigtriangledown			Date	10/07/21
L		TESTS, L	LC	Web: <u>www.te</u>	est-llc.com	AAS			Checked By	18
Client Pr. #			200016			La	ab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39047/2-20		Subsample	1		Location		Seattle, WA	
Add. Info	-	-	Mixing/Mo	olding Date	09/27/21			Curing A	Age, Days	10
	ASTM E) 1633: Standa	rd Test Metl	hods for Com	pressive Stre	ngth of N	Iolded So	oil-Cement C	ylinders	
				METHOD	В					
		٢Δ			WATER CO	NTENT				
Initial Height	in		5 633	1	Mass of Wet	t Sample	and Tar	e a	1485.6	
Initial Diame	ter. in		2.977		Mass of Drv	Sample	and Tare	e, g e. a	1203.4	
Height-to-Di	ameter Ratio		1.89		Mass of Tare	e, g		, 0	299.2	
Area, in ²			6.96		Moisture, %				31.2	
Volume, in ³			39.21							
Mass of Sar	nple, g		1187.9							
Wet Density	, pcf		115.4							
Dry Density,	pcf		87.9							
Machine Sp	eed, in/min		0.050	-						
Strain rate, 9	% / min		0.89							
				TEST	DATA					
	Load Cell ID #	ŧ	11/1015	1			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	It Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure,	lbf			896					
Specimen C	ross-sectional	Area, in ²			6.96			Failure Cod	e 3	
Compressiv	e Strength at F	ailure, psi			129					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		129				Failure Sketo	ch
- Note 2: * - A d	conversion factor	based on H/D=	1.15 (C.F 9	08 as 100% a	nd add, correct	tion per A	STM C42)		
			DESC	RIPTION			,	/		
									$ $ \times $ $	
								Failure Type	e:	
								JI	Cone and S	hear
		U	SCS (ASTM	D2487: D24	88)		.			
]					
			REM	IARKS						

	Ŷ	TIMELY		1874 Forge S	Street Tucker,	GA 30084	4			
r	Ê.E. ST.	Engine	ERING	Phone: 770-9	938-8233	\square	λ		Tested By	KP/IH
		Soil		Fax: 770-923	۱ 8-8973	$\mathbf{\nabla}$			Date	10/25/21
L		Tests, l	LC	Web: <u>www.te</u>	est-llc.com	AAS			Checked By	18
Client Pr. #			200016			La	ab. PR. #		21136-02-3	
Pr. Name		Т	ime Oil Term	inal			S. Type	Mold	Depth/Elev.	-
Sample ID		39047/2-20		Subsample	2		Location		Seattle, WA	
Add. Info	-		Mixing/Mo	olding Date	09/27/21			Curing A	Age, Days	28
	ASTM D) 1633: Standa	rd Test Metl	hods for Com	pressive Stren	ngth of M	folded So	il-Cement C	ylinders	
				METHOD	В					
Initial Haight		A	5 504	Т	Mass of Wot	t Sampla			1472.7	
	, III ter in		2 080	-	Mass of Dry	Sample	and Tare	e, y	1472.7	
Height-to-Dia	ameter Ratio		1.88	-	Mass of Tare			, y	302.0	
Area in ²			6.97	-	Moisture %	o, g			31.6	
Volume in^3			30.02		Wolstore, 70				01.0	
Mass of San	nnle a		1175 7	-						
Wet Density	pic, g		114.8	-						
Dry Density.	pcf		87.2							
Machine Spe	eed, in/min		0.050							
Strain rate, 9	% / min		0.89							
				TEST	DATA					
	Load Cell ID #	£	11/1015	7			Digita	I Caliper ID	# 17/583	
	Compression	Device ID #	10/1014				Readou	t Device ID	# 10/1016	
	Balance ID #		1036/1037]				Oven ID	# 758/496	
Maximum Lo	oad at Failure, I	bf			2742					
Specimen C	ross-sectional	Area, in ²			6.97			Failure Cod	e 3	
Compressive	e Strength at F	ailure, psi			393					
Conversion	Factor for Heig	ht to Diameter	Ratio		1.00					
Reported C	ompressive S	trength at Fai	lure, psi		393				Failure Skete	ch
Note 2: * - A d	onversion factor	based on H/D=	1 15 (C F - 9	08 as 100% a	nd add. correct	tion per A	STM C42)		
			DESC	RIPTION			.ee,	/		
									\times	
								Failure Type	K	
									Cone and S	hear
		U	SCS (ASTM	I D2487: D24	88)		4			
]					
			REN	IARKS						
							<u>.</u>			

		t		TIME	LY	1874 For	ge Street Tu	cker, GA 300	84						
	T.E.	<u>ST.</u>		Engi	NEERING	Phone: 7	70-938-8233				$\langle \Lambda \rangle$			Tested By	EB/KP
				Soil		Fax: 770-	-923-8973							Date	10/07/21
				TESTS	S, LLC	Web: <u>ww</u>	w.test-llc.com	<u>n</u>		ACC	SREDITED			Checked By	18
Client Pr. #					200016	•			Lab. PR. #			21136-02	-3	-	
Pr. Name					Time Oil Ter	minal				S. Type	Мо	d	Depth/Elevation		-
Sample ID			39047	/2-20		Subs	ample ID	3		Location			Seattle, W	/A	
Add. Info		-		M	ixing/Molding D	ate		09/27/21				Curin	g Age, Days		10
ASTM D 5084; Standard Test Method for Measurement of Hydra Materials Using a Flexible Wall Permeameter (Method											nductivity	of Satu e of Flo	rated Porous w)		
lı	nitial Sar	nple Dat	a (Befor	e Test)		-	Test Dat	a					Final Data (After Tes	st)	
Height		3.005	lin	7.63	cm Speed			10	1						
Diameter		2.969	in	7.54	cm Board N	lumber		9	1	Average Hei	ght of Samp	le	3.006 in	7.64 cm	
Area		6.92	in²	44.67	cm ² Cell Nu	mber		41	1	Average Dia	meter of Sa	nple	2.970 in	7.54 cm	
Volume		340.92	cm ³	0.0120	ft ³ Flow Pt	Imp Numbe	r	2A	1	Area	6.93	in ²	44.70 cm ²		
Mass		629.4	g	1.39	b Flow Ρι	Imp Rate*		2.24E-04	cm ³ /sec	Volume	341.27	cm ³	0.0121 ft ³	Dry Density	87.6 pcf
Specific Gra	avity	2.700	- (Assume	d)	B - Valı	ie		0.95	1	Mass	642.7	g	1.42 lb	Vol. of Voids	163.80 cm ³
Dry Density	-	87.7	pcf		Cell Pre	essure		95.0	psi		.		·	Vol. of Solids	177.46 cm ³
			J [*]		Back Pr	ressure		90.0	psi					Void Ratio	0.92
	Mois	ture Cont	ent		Confinir	ng (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent	Saturation	99.8 %
Mass of we	t sample &	k tare	629.4	g	Max He	ad		17.59	cm	Mass of wet	sample & ta	re	724.0 g		
Mass of dry	sample &	tare	479.0	g	Min Hea	ad		16.88	cm	Mass of dry s	sample & ta	е	560.5 g		
Mass of tare	е		0.0	g	Maximu	im Gradient		2.30		Mass of tare			81.5 g		
% Moisture			31.4		Minimur	m Gradient		2.21		% Moisture			34.1		
TIME	FUNCTI	ION	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: [Deaired Water Used for	Permeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTION		
10/07/21	8	5	-	0.25	17.59	2.30	23.1	-	-	-		NA			USCS
10/07/21	8	15	600	0.24	16.88	2.21	23.1	2.22E-06	0.929	2.06E-06				(ASTN	I D2487;2488)
10/07/21	8	25	600	0.25	17.59	2.30	23.1	2.22E-06	0.929	2.06E-06					NA
10/07/21	8	35	600	0.24	16.88	2.21	23.1	2.22E-06	0.929	2.06E-06	*		REMA	RKS	
10/07/21	8	45	600	0.25	17.59	2.30	23.1	2.22E-06	0.929	2.06E-06	*	Bottom	Half of the mold was us	ed for testing.	
10/07/21	8	55	600	0.24	16.88	2.21	23.1	2.22E-06	0.929	2.06E-06	*				
10/07/21	9	5	600	0.25	17.59	2.30	23.1	2.22E-06	0.929	2.06E-06	*				
				_	Reporte	ed Average	Hydraulic Co	nductivity*		2.1E-06	cm/sec				
Flow pump	ID #	24	44		Balance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346		
Thermomet	er ID #	796	/985		Oven ID #	496/758		Board Press	sure Meter	r ID#			571		
Syringe ID #	#	24	45	J				Pore Pressu	ire Meter	ID #			29		
*Constant Rate calculations of	of Flow Syst	tem (Flow Pu TP 977) resu	imp with Cali ults at steady	brated Syringe Differential Pre	for Inflow and Calib essure (DP) Readin	rated Graduate gs at the range	ed Pipette for out of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the owed no sig	e fully saturated sample with ac gnificant upward or downward t	ccuracy +/-5%. Flow Pu trend.	imp Rate isused for

		t		TIMEL	Υ	1874 For	ge Street Tu	cker, GA 300	84							
	T.E.	ST.		Engin	EERING	Phone: 7	70-938-8233				$\langle X \rangle$				Tested By	EB/KP
				Soil		Fax: 770-	923-8973								Date	10/25/21
	<u>(</u>			Tests,	LLC	Web: <u>ww</u>	w.test-llc.com	<u>1</u>			REDITED				Checked By	18
Client Pr. 7					200016					Lab. PR. #			2	21136-02-3		•
Pr. Name					Time Oil Term	inal				S. Type	Мо	d	Depth/El	evation		-
Sample ID			39047	/2-20		Subsample ID 4							5	Seattle, WA		
Add. Info		-		Mix	ing/Molding Da	te		09/27/21				Curin	g Age, Days			28
ASTM D 5084; Standard Test Method for Measurement of Hydra Materials Using a Flexible Wall Permeameter (Metho											nductivity	of Satu e of Flo	irated Porou w)	s		
I	nitial Sar	nple Dat	a (Befor	e Test)			Test Data	a					Final Data (A	After Test)		
Height		3.035	in	7.71 ci	n Speed			10								
Diameter		2.967	in	7.54 ci	n Board Nu	umber		14		Average Heig	ght of Samp	le	3.036 ii	n	7.71 cm	
Area		6.91	in²	44.61 CI	m ² Cell Num	ber		14		Average Dia	meter of Sa	mple	2.968 i	n	7.54 cm	
Volume		343.86	cm ³	0.0121 ft	Flow Pur	np Numbe	r	2a		Area	6.92	in ²	44.64	cm ²		
Mass		635.1	g	1.40 lb	Flow Pur	np Rate*		2.24E-04	cm ³ /sec	Volume	344.21	cm ³	0.0122 f	t ³	Dry Density	87.4 pcf
Specific Gra	avity	2.700	(Assume	d)	B - Value	9		0.95		Mass	645.4	g	1.42	b	Vol. of Voids	165.74 cm ³
Dry Density	,	87.4	pcf		Cell Pres	sure		95.0	psi			-			Vol. of Solids	178.47 cm ³
					Back Pre	essure		90.0	psi						Void Ratio	0.93
	Mois	ture Cont	ent		Confining	g (Effective	e) Pressure	5.0	psi		Moi	sture Co	ontent		Saturation	98.7 %
Mass of we	t sample &	tare	635.1	g	Max Hea	d		205.39	cm	Mass of wet	sample & ta	re	725.8 g	9		
Mass of dry	sample &	tare	481.8	g	Min Head	b		203.99	cm	Mass of dry s	sample & ta	re	562.3	9		
Mass of tar	е		0.0	g	Maximun	n Gradient		26.63		Mass of tare			80.5 g	9		
% Moisture			31.8		Minimum	Gradient		26.45		% Moisture			33.9			
TIME	FUNCTI	ON	Δt	READING	Head	Gradient	Temp.	PERME	ABILITY	(cm/sec)		Note: I	Deaired Water	Used for Pe	ermeability Tes	t.
DATE	HOUR	MIN	(sec)	DP, (psi)	(cm)		T _x (°C)	@ T _x	R _T	@ 20 °C			DESCRIPTIC	N	_	
10/25/21	7	0	-	2.91	204.69	26.54	24.7	-	-	-		NA				USCS
10/25/21	7	10	600	2.90	203.99	26.45	24.7	1.89E-07	0.895	1.69E-07					(ASTN	l D2487;2488)
10/25/21	7	20	600	2.92	205.39	26.63	24.7	1.89E-07	0.895	1.69E-07						NA
10/25/21	7	30	600	2.92	205.39	26.63	24.7	1.88E-07	0.895	1.69E-07	*			REMARK	S	
10/25/21	7	40	600	2.90	203.99	26.45	24.7	1.89E-07	0.895	1.69E-07	*	Bottom	Half of the mo	ld was used	for testing.	
10/25/21	7	50	600	2.92	205.39	26.63	24.7	1.89E-07	0.895	1.69E-07	*					
10/25/21	8	0	600	2.91	204.69	26.54	24.7	1.89E-07	0.895	1.69E-07	*					
				-	Reported	Average	Hydraulic Cor	nductivity*		1.7E-07	cm/sec					
Flow pump	ID #	2	44	В	alance ID #	1035/1036		Differential F	Pressure I	Meter ID #			346			
Thermomet	er ID #	796	/985	0	ven ID #	496/758		Board Press	ure Meter	ID#			694/459			
Syringe ID a	#	2	45			P	•	Pore Pressu	re Meter	ID #			372			
*Constant Rate calculations of	e of Flow Syst HC (ASTM S	em (Flow Pu TP 977) resu	mp with Calil Ilts at steady	brated Syringe for Differential Pres	or Inflow and Calibra sure (DP) Readings	ated Graduate s at the range	ed Pipette for outf of +/-5%. Perme	flow) is capable to eation was stoppe	o maintain a ed after HC v	constant rate of in ersus Time (see t	flow & outflow able above) sh	through the	e fully saturated sar gnificant upward or	mple with accur downward tren	acy +/-5%. Flow Pu d.	imp Rate isused for