Project No. G2432-52-01
August 23, 2019

Pierce Education Properties, L.P.
8880 Rio San Diego Drive, Suite 750
San Diego, California 92108

Attention: Mr. Neal L. Singer

Subject: STORM WATER MANAGEMENT INVESTIGATION
COLLEGE VIEW
5420-22 55TH STREET
SAN DIEGO, CALIFORNIA

Dear Mr. Singer:

In accordance with your request and authorization of our Proposal No. LG-19288 dated August 1, 2019, we herein submit the results of our storm water management investigation for the subject project. We performed our investigation to evaluate the underlying soil and geologic conditions and potential geologic hazards, and to assist in the design of the proposed building and associated improvements.

The accompanying report presents the results of our study and conclusions and recommendations pertaining to storm water aspects of the proposed project. Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Ken W. Haase
Senior Staff Geologist

Shawn Foy Weedon
GE 2714

Matthew R. Love
RCE 84154

KWH:SFW:MRL:kcd

(e-mail) Addressee

STORM WATER MANAGEMENT INVESTIGATION

The property is located at 5420-22 55th Street in the College area of the City of San Diego, California (see Vicinity Map, Figure 1). The existing property consists of 2- to 4-story apartment complex with accommodating pool area, utilities and landscaping. Surface parking is available on the west side of the buildings. The Existing Site Plans shows the existing conditions. A canyon slope descends to the west and drains to the northwest with a maximum slope height of about 50 feet.

Existing Site Plan

We understand storm water management devices will be used in accordance with the *Storm Water Standards* (SWS) currently used by the City of San Diego. If not properly constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to these devices. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeological study at the site. If infiltration of storm water runoff occurs,

downstream properties may be subjected to seeps, springs, slope instability, raised groundwater, movement of foundations and slabs, or other undesirable impacts as a result of water infiltration.

INFILTRATION CONDITIONS

Hydrologic Soil Group

The United States Department of Agriculture (USDA), Natural Resources Conservation Services, possesses general information regarding the existing soil conditions for areas within the United States. The USDA website also provides the Hydrologic Soil Group. Table 1 presents the descriptions of the hydrologic soil groups. If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. In addition, the USDA website also provides an estimated saturated hydraulic conductivity for the existing soil.

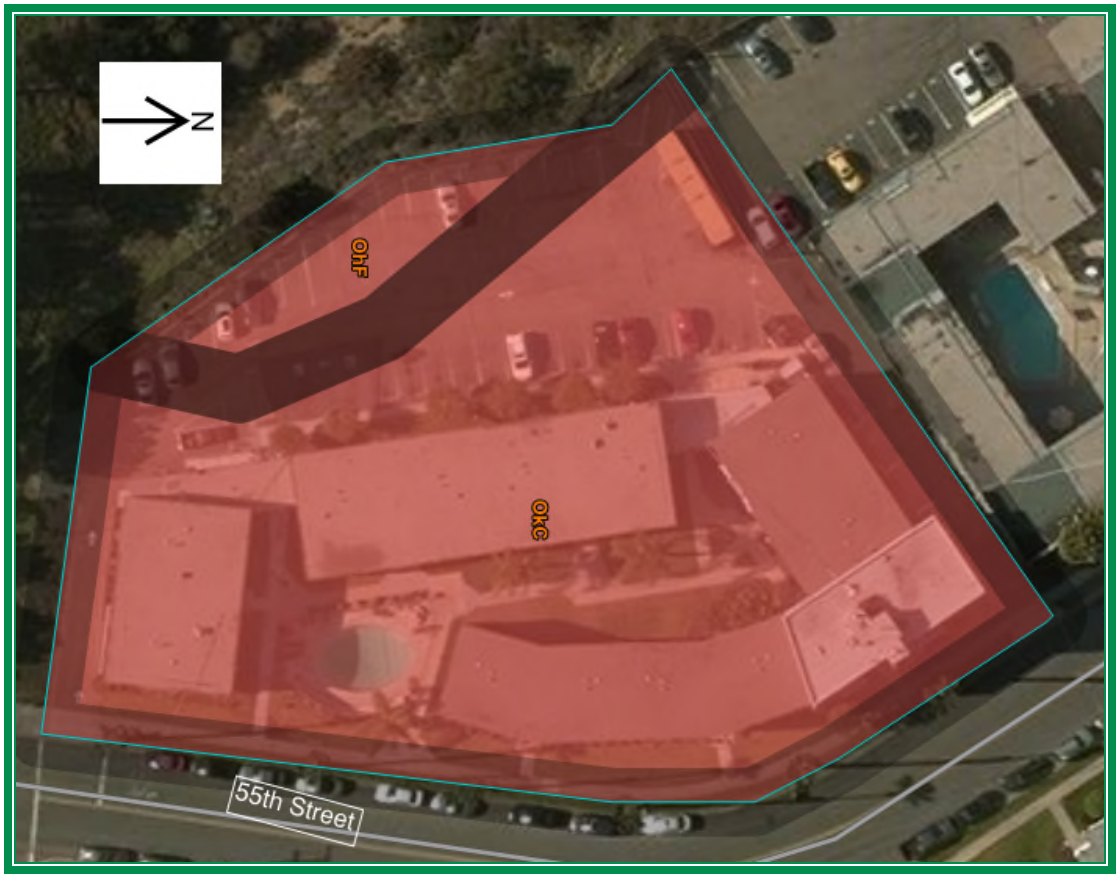
TABLE 1
HYDROLOGIC SOIL GROUP DEFINITIONS

Soil Group	Soil Group Definition
A	Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.
B	Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
C	Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
D	Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The property is underlain by undocumented fill, Very Old Paralic Deposits and Stadium Conglomerate. and should be classified as Soil Group D. Table 2 presents the information from the USDA website for the subject property. The USDA Hydrologic Map presents the approximate location of the units from the USDA website.

TABLE 2
USDA WEB SOIL SURVEY – HYDROLOGIC SOIL GROUP

Map Unit Name	Map Unit Symbol	Approximate Percentage of Property	Hydrologic Soil Group	k_{SAT} of Most Limiting Layer (inches/hour)
Olivenhain cobbly loam, 30 to 50 percent slopes	OhF	10	D	0.00 – 0.06
Olivenhain-Urban land complex, 2 to 9 percent slopes	OkC	90	D	0.00 – 0.06



USDA Hydrologic Map

In-Situ Testing

We performed 5 Aardvark Permeameter tests at the property at locations determined by the project Civil Engineer, as shown on the Geologic Map, Figure 2. The results of the tests provide parameters regarding the saturated hydraulic conductivity and infiltration characteristics of on-site soil and geologic units. Table 3 presents the results of the estimated field saturated hydraulic conductivity and estimated infiltration rates obtained from the Aardvark Permeameter tests. The field sheets are also attached

herein. Based on the *City of San Diego Storm Water Standards*, the infiltration rate should be considered equal to the saturated hydraulic conductivity rate. We applied a feasibility factor of safety of 2.0 to our estimated infiltration rates to provide input on Worksheet C.4-1. Soil infiltration rates from in-situ tests can vary significantly from one location to another due to the heterogeneous characteristics inherent to most soil. The Geologic Map, Figure 2 presents the locations of the permeability tests.

TABLE 3
FIELD PERMEAMETER INFILTRATION TEST RESULTS

Test Location	Test Depth (feet)	Geologic Unit	Field-Saturated Infiltration Rate, k_{sat} (inch/hour)	C.4-1 Worksheet Infiltration Rate[1], k_{sat} (inch/hour)
P-1	4 ½	Qvop/Tst	0.002	0.001
P-2	8 ½	Qvop/Tst	0.004	0.002
P-3	5	Qvop/Tst	0.002	0.001
P-4	2	Qvop/Tst	0.128	0.064
P-5	2	Qvop/Tst	0.003	0.002
		Average:	0.028	0.014

Using a Factor of Safety of 2.

Infiltration categories include full infiltration, partial infiltration and no infiltration. Table 4 presents the commonly accepted definitions of the potential infiltration categories based on the infiltration rates.

TABLE 4
INFILTRATION CATEGORIES

Infiltration Category	Field Infiltration Rate, I (inches/hour)	Factored Infiltration Rate[1], I (inches/hour)
Full Infiltration	$I > 1.0$	$I > 0.5$
Partial Infiltration	$0.10 < I \leq 1.0$	$0.05 < I \leq 0.5$
No Infiltration (Infeasible)	$I < 0.10$	$I < 0.05$

Using a Factor of Safety of 2.

GEOLOGIC HAZARDS AND CONSIDERATIONS

Groundwater Elevations

We did not encounter static groundwater during our field investigation to the maximum depth explored of 46½ feet. We expect static groundwater exists at depths greater than 80 feet below existing grades.

New or Existing Utilities

Existing utilities are located onsite and utilities will be constructed within the site boundaries. Full or partial infiltration should not be allowed in the areas of the utilities to help prevent potential damage/distress to improvements. Mitigation measures to prevent water from infiltrating the utilities consist of setbacks, installing cutoff walls around the utilities and installing subdrains and/or installing liners. The horizontal and vertical setbacks for infiltration devices should be a minimum of 10 feet and a 1:1 plane of 1 foot below the closest edge of the deepest adjacent utility, respectively.

Existing and Planned Structures

Existing residential and roadway structures exist adjacent to the site. Water should not be allowed to infiltrate in areas where it could affect the neighboring properties and existing adjacent structures, improvements and roadway. Mitigation for existing structures consists of not allowing water infiltration within a lateral distance of at least 10 feet from the new or existing foundations and properly lines.

Slope Hazards

The site is relatively flat to sloping with an approximately 50-foot high descending slope on the western limit of the site. Water migration and the resulting seepage forces negatively affect the stability of slopes and causes erosion. The *City of San Diego Storm Water Standards* recommends a minimum setback of 50 feet or 1.5 times the slope height (75 feet for a 50-foot high slope) from the top of existing slopes. A setback would be needed for the project from an infiltration standpoint for slopes.

Hydrocollapse

Hydrocollapse is the tendency of unsaturated soil structure to collapse upon saturation resulting in the overall settlement of the effected soil and overlying foundations or improvements supported thereon. Potentially compressible surficial soil underlying the proposed improvements is typically removed and recompacted during remedial site grading. However, if compressible soil is left in-place, a potential for settlement due to hydrocollapse of the soil exists. Due to the very dense nature of the underlying units, the potential for hydrocollapse is not present within the Very Old Paralic Deposits/Stadium Conglomerate.

CONCLUSIONS AND RECOMMENDATIONS

Storm Water Evaluation Narrative

The area where infiltration could potentially be feasible is limited based on the locations of site slopes and existing underground utilities and buildings. The associated setbacks from these features and improvements are detailed herein. We performed infiltration tests within the formational materials within potentially feasible areas for infiltration per the recommendations herein and as determined by the project Civil Engineer at the locations shown on Figure 2.

Storm Water Infiltration Conclusion

Infiltration would not be possible in the areas of existing or proposed underground utilities, buildings, and descending slopes, as discussed herein. Additionally, the infiltration test results from the area where infiltration could be possible indicate permeability rates less than 0.5 inches per hour and 0.05 inches per hour (with a FOS of 2) for full or partial infiltration, respectively. Therefore, full or partial infiltration within the Very Old Paralic Deposits/Stadium Conglomerate is considered infeasible at the site.

We opine the property is considered infeasible to full and partial infiltration. The planned storm water devices should be properly lined to prevent water migration into the underlying soil and to prevent distress to utilities and buildings. If storm water devices/basins are planned in the allowable infiltration area (area outside of the setback zones), liners can be removed from the bottom to allow incidental infiltration, if possible. However, the devices will need to be lined if located adjacent to proposed utilities and structures.

Storm Water Infiltration Recommendations

Liners and subdrains should be incorporated into the design and construction of the planned storm water devices. The liners should be impermeable (e.g. High-density polyethylene, HDPE, with a thickness of about 30 mil or equivalent Polyvinyl Chloride**,** PVC) to prevent water migration. The subdrains should be perforated within the liner area, installed at the base and above the liner, be at least 3 inches in diameter and consist of Schedule 40 PVC pipe. The subdrains outside of the liner should consist of solid pipe. The penetration of the liners at the subdrains should be properly waterproofed. The subdrains should be connected to a proper outlet. The devices should also be installed in accordance with the manufacturer's recommendations. Liners should be installed on the side walls of the proposed basins in accordance with a partial infiltration design.

Storm Water Standard Worksheets

The SWS requests the geotechnical engineer complete the *Categorization of Infiltration Feasibility Condition* (Worksheet C.4-1 or Form I-8) worksheet information to help evaluate the potential for

infiltration on the property. The attached Worksheet C.4-1 presents the completed information for the submittal process.

The regional storm water standards also have a worksheet (Worksheet D.5-1 or Form I-9) that helps the project civil engineer estimate the factor of safety based on several factors. Table 5 describes the suitability assessment input parameters related to the geotechnical engineering aspects for the factor of safety determination.

TABLE 5
SUITABILITY ASSESSMENT RELATED CONSIDERATIONS FOR INFILTRATION FACILITY SAFETY FACTORS

Consideration	High Concern – 3 Points	Medium Concern – 2 Points	Low Concern – 1 Point
Assessment Methods	Use of soil survey maps or simple texture analysis to estimate short-term infiltration rates. Use of well permeameter or borehole methods without accompanying continuous boring log. Relatively sparse testing with direct infiltration methods	Use of well permeameter or borehole methods with accompanying continuous boring log. Direct measurement of infiltration area with localized infiltration measurement methods (e.g., Infiltrometer). Moderate spatial resolution	Direct measurement with localized (i.e. small-scale) infiltration testing methods at relatively high resolution or use of extensive test pit infiltration measurement methods.
Predominant Soil Texture	Silty and clayey soils with significant fines	Loamy soils	Granular to slightly loamy soils
Site Soil Variability	Highly variable soils indicated from site assessment or unknown variability	Soil boring/test pits indicate moderately homogenous soils	Soil boring/test pits indicate relatively homogenous soils
Depth to Groundwater/ Impervious Layer	<5 feet below facility bottom	5-15 feet below facility bottom	>15 feet below facility bottom

Based on our geotechnical investigation and the previous table, Table 6 presents the estimated factor values for the evaluation of the factor of safety. This table only presents the suitability assessment safety factor (Part A) of the worksheet. The project civil engineer should evaluate the safety factor for design (Part B) and use the combined safety factor for the design infiltration rate.

TABLE 6
FACTOR OF SAFETY WORKSHEET DESIGN VALUES – PART A1

Suitability Assessment Factor Category	Assigned Weight (w)	Factor Value (v)	Product (p = w x v)
Assessment Methods	0.25	2	0.50
Predominant Soil Texture	0.25	2	0.50
Site Soil Variability	0.25	2	0.50
Depth to Groundwater/ Impervious Layer	0.25	1	0.25
Suitability Assessment Safety Factor, S_A = □p			1.75

The project civil engineer should complete Worksheet D.5-1 or Form I-9 using the data on this table. Additional information is required to evaluate the design factor of safety.

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A[10]
Part 1 - Full Infiltration Feasibility Screening Criteria	
DMA(s) Being Analyzed:	**Project Phase:**
College View – 5420-22 55th Street, San Diego, California	Design
Criteria 1: Infiltration Rate Screening	
1A	Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper Type A or B and corroborated by available site soil data[11]? ☐ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result or continue to Step 1B if the applicant elects to perform infiltration testing. ☐ No; the mapped soil types are A or B but is not corroborated by available site soil data (continue to Step 1B). ☐ No; the mapped soil types are C, D, or "urban/unclassified" and is corroborated by available site soil data. Answer "No" to Criteria 1 Result. ☒ No; the mapped soil types are C, D, or "urban/unclassified" but is not corroborated by available site soil data (continue to Step 1B).
1B	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1? ☒ Yes; Continue to Step 1C. ☐ No; Skip to Step 1D.
1C	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1 greater than 0.5 inches per hour? ☐ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result. ☒ No; full infiltration is not required. Answer "No" to Criteria 1 Result.
1D	**Infiltration Testing Method.** Is the selected infiltration testing method suitable during the design phase (see Appendix D.3)? Note: Alternative testing standards may be allowed with appropriate rationales and documentation. ☒ Yes; continue to Step 1E. ☐ No; select an appropriate infiltration testing method.

Note that it is not required to investigate each and every criterion in the worksheet, a single "no" answer in Part 1, Part 2, Part 3, or Part 4 determines a full, partial, or no infiltration condition.

[10] This form must be completed each time there is a change to the site layout that would affect the infiltration feasibility condition. Previously completed forms shall be retained to document the evolution of the site storm water design.

[11] Available data include site-specific sampling or observation of soil types or texture classes, such as obtained from borings or test pits necessary to support other design elements.

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I- 8A[10]
1E	**Number of Percolation/Infiltration Tests.** Does the infiltration testing method performed satisfy the minimum number of tests specified in Table D.3-2? ☒ Yes; continue to Step 1F. ☐ No; conduct appropriate number of tests.
IF	**Factor of Safety.** Is the suitable Factor of Safety selected for full infiltration design? See guidance in D.5; Tables D.5-1 and D.5-2; and Worksheet D.5-1 (Form I-9). ☒ Yes; continue to Step 1G. ☐ No; select appropriate factor of safety.
1G	**Full Infiltration Feasibility.** Is the average measured infiltration rate divided by the Factor of Safety greater than 0.5 inches per hour? ☐ Yes; answer "Yes" to Criteria 1 Result. ☒ No; answer "No" to Criteria 1 Result.
Criteria 1 Result	Is the estimated reliable infiltration rate greater than 0.5 inches per hour within the DMA where runoff can reasonably be routed to a BMP? ☐ Yes; the DMA may feasibly support full infiltration. Continue to Criteria 2. ☒ No; full infiltration is not required. Skip to Part 1 Result.

Summarize infiltration testing methods, testing locations, replicates, and results and summarize estimates of reliable infiltration rates according to procedures outlined in D.5. Documentation should be included in project geotechnical report.

We performed 5 Aardvark Permeameter tests at the site within existing Very Old Paralic Deposits/Stadium Conglomerate. The following presents the results of our field infiltration tests:

P-1 at 5 feet; Material: Very Old Paralic Deposits; 0.002 inches/hour (0.001 inches/hour with FOS=2)

P-2 at 5 feet; Material: Very Old Paralic Deposits; 0.004 inches/hour (0.002 inches/hour with FOS=2)

P-3 at 5 feet; Material: Very Old Paralic Deposits; 0.002 inches/hour (0.001 inches/hour with FOS=2)

P-4 at 5 feet; Material: Very Old Paralic Deposits; 0.128 inches/hour (0.064 inches/hour with FOS=2)

P-5 at 5 feet; Material: Very Old Paralic Deposits; 0.003 inches/hour (0.002 inches/hour with FOS=2)

The test results indicate the approximate infiltration rates range from 0.002 to 0.128 inches per hour (0.001 to 0.064 inches per hour with an applied factor of safety of 2) and an average of 0.028 inches per hour (0.014 inches per hour with a factor of safety of 2).

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[10]	
Criteria 2: Geologic/Geotechnical Screening			
2A	If all questions in Step 2A are answered "Yes," continue to Step 2B. For any "No" answer in Step 2A answer "No" to Criteria 2, and submit an "Infiltration Feasibility Condition Letter" that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
2A–1	Can the proposed full infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick below the infiltrating surface?	☐ Yes	☐ No
2A-2	Can the proposed full infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	☐ Yes	☐ No
2A-3	Can the proposed full infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☐ Yes	☐ No
2B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1. If all questions in Step 2B are answered "Yes," then answer "Yes" to Criteria 2 Result. If there are "No" answers continue to Step 2C.		
2B–1	**Hydroconsolidation.** Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can full infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☐ Yes	☐ No
2B-2	**Expansive Soils.** Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can full infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I- 8A[10]	
2B-3	**Liquefaction**. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011 or most recent edition). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can full infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☐ Yes	☐ No
2B-4	**Slope Stability**. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can full infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☐ Yes	☐ No
2B-5	**Other Geotechnical Hazards.** Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can full infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☐ Yes	☐ No
2B-6	**Setbacks.** Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can full infiltration BMPs be proposed within the DMA using established setbacks from underground utilities, structures, and/or retaining walls?	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[10]	
2C	**Mitigation Measures.** Propose mitigation measures for each geologic/geotechnical hazard identified in Step 2B. Provide a discussion of geologic/geotechnical hazards that would prevent full infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for full infiltration BMPs? If the question in Step 2 is answered "Yes," then answer "Yes" to Criteria 2 Result. If the question in Step 2C is answered "No," then answer "No" to Criteria 2 Result.	☐ Yes	☐ No
Criteria 2 Result	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	☐ No
Summarize findings and basis; provide references to related reports or exhibits.			
Part 1 Result – Full Infiltration Geotechnical Screening[12]		**Result**	
If answers to both Criteria 1 and Criteria 2 are "Yes", a full infiltration design is potentially feasible based on Geotechnical conditions only. If either answer to Criteria 1 or Criteria 2 is "No", a full infiltration design is not required.		☐ Full infiltration Condition ☒ Complete Part 2	

[12] To be completed using gathered site information and best professional judgement considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A[10]
Part 2 – Partial vs. No Infiltration Feasibility Screening Criteria	
DMA(s) Being Analyzed:	**Project Phase:**
College View – 5420-22 55th Street, San Diego, California	Design

Criteria 3: Infiltration Rate Screening	
3A	**NRCS Type C, D, or "urban/unclassified":** Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper is Type C, D, or "urban/unclassified" and corroborated by available site soil data? ☐ Yes; the site is mapped as C soils and a reliable infiltration rate of 0.15 in/hr. is used to size partial infiltration BMPS. Answer "Yes" to Criteria 3 Result. ☐ Yes; the site is mapped as D soils or "urban/unclassified" and a reliable infiltration rate of 0.05 in/hr. is used to size partial infiltration BMPS. Answer "Yes" to Criteria 3 Result. ☒ No; infiltration testing is conducted (refer to Table D.3–1), continue to Step 3B.
3B	**Infiltration Testing Result:** Is the reliable infiltration rate (i.e. average measured infiltration rate/2) greater than 0.05 in/hr. and less than or equal to 0.5 in/hr? ☐ Yes; the site may support partial infiltration. Answer "Yes" to Criteria 3 Result. ☒ No; the reliable infiltration rate (i.e. average measured rate/2) is less than 0.05 in/hr., partial infiltration is not required. Answer "No" to Criteria 3 Result.
Criteria 3 Result	Is the estimated reliable infiltration rate (i.e., average measured infiltration rate/2) greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour at any location within each DMA where runoff can reasonably be routed to a BMP? ☐ Yes; Continue to Criteria 4. ☒ No: Skip to Part 2 Result.

Summarize infiltration testing and/or mapping results (i.e. soil maps and series description used for infiltration rate).

We performed 5 Aardvark Permeameter tests at the site within existing Very Old Paralic Deposits/Stadium Conglomerate. The following presents the results of our field infiltration tests:

P-1 at 5 feet; Material: Very Old Paralic Deposits; 0.002 inches/hour (0.001 inches/hour with FOS=2)

P-2 at 5 feet; Material: Very Old Paralic Deposits; 0.004 inches/hour (0.002 inches/hour with FOS=2)

P-3 at 5 feet; Material: Very Old Paralic Deposits; 0.002 inches/hour (0.001 inches/hour with FOS=2)

P-4 at 5 feet; Material: Very Old Paralic Deposits; 0.128 inches/hour (0.064 inches/hour with FOS=2)

P-5 at 5 feet; Material: Very Old Paralic Deposits; 0.003 inches/hour (0.002 inches/hour with FOS=2)

The test results indicate the approximate infiltration rates range from 0.002 to 0.128 inches per hour (0.001 to 0.064 inches per hour with an applied factor of safety of 2) and an average of 0.028 inches per hour (0.014 inches per hour with a factor of safety of 2).

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[10]	
Criteria 4: Geologic/Geotechnical Screening			
4A	If all questions in Step 4A are answered "Yes," continue to Step 4B. For any "No" answer in Step 4A answer "No" to Criteria 4 Result, and submit an "Infiltration Feasibility Condition Letter" that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
4A–1	Can the proposed partial infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick?	☐ Yes	☐ No
4A-2	Can the proposed partial infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	☐ Yes	☐ No
4A-3	Can the proposed partial infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☐ Yes	☐ No
4B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1 If all questions in Step 4B are answered "Yes," then answer "Yes" to Criteria 4 Result. If there are any "No" answers continue to Step 4C.		
4B–1	**Hydroconsolidation.** Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can partial infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☐ Yes	☐ No
4B-2	**Expansive Soils.** Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can partial infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[10]	
4B-3	**Liquefaction**. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can partial infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☐ Yes	☐ No
4B-4	**Slope Stability**. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can partial infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☐ Yes	☐ No
4B-5	**Other Geotechnical Hazards.** Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can partial infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☐ Yes	☐ No
4B-6	**Setbacks.** Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can partial infiltration BMPs be proposed within the DMA using recommended setbacks from underground utilities, structures, and/or retaining walls?	☐ Yes	☐ No
4C	**Mitigation Measures.** Propose mitigation measures for each geologic/geotechnical hazard identified in Step 4B. Provide a discussion on geologic/geotechnical hazards that would prevent partial infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for partial infiltration BMPs? If the question in Step 4C is answered "Yes," then answer "Yes" to Criteria 4 Result. If the question in Step 4C is answered "No," then answer "No" to Criteria 4 Result.	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I- 8A[10]	
Criteria 4 Result	Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without increasing the risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	☐ No
Summarize findings and basis; provide references to related reports or exhibits.			

Part 2 – Partial Infiltration Geotechnical Screening Result[13]	Result
If answers to both Criteria 3 and Criteria 4 are "Yes", a partial infiltration design is potentially feasible based on geotechnical conditions only. If answers to either Criteria 3 or Criteria 4 is "No", then infiltration of any volume is considered to be infeasible within the site.	☐ Partial Infiltration Condition ☒ No Infiltration Condition

[13] To be completed using gathered site information and best professional judgement considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate finding

THE GEOGRAPHICAL INFORMATION MADE AVAILABLE FOR DISPLAY WAS PROVIDED BY GOOGLE EARTH, SUBJECT TO A LICENSING AGREEMENT. THE INFORMATION IS FOR ILLUSTRATIVE PURPOSES ONLY; IT IS NOT INTENDED FOR CLIENT'S USE OR RELIANCE AND SHALL NOT BE REPRODUCED BY CLIENT. CLIENT SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS GEOCON FROM ANY LIABILITY INCURRED AS A RESULT OF SUCH USE OR RELIANCE BY CLIENT.

N

NO SCALE

VICINITY MAP

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

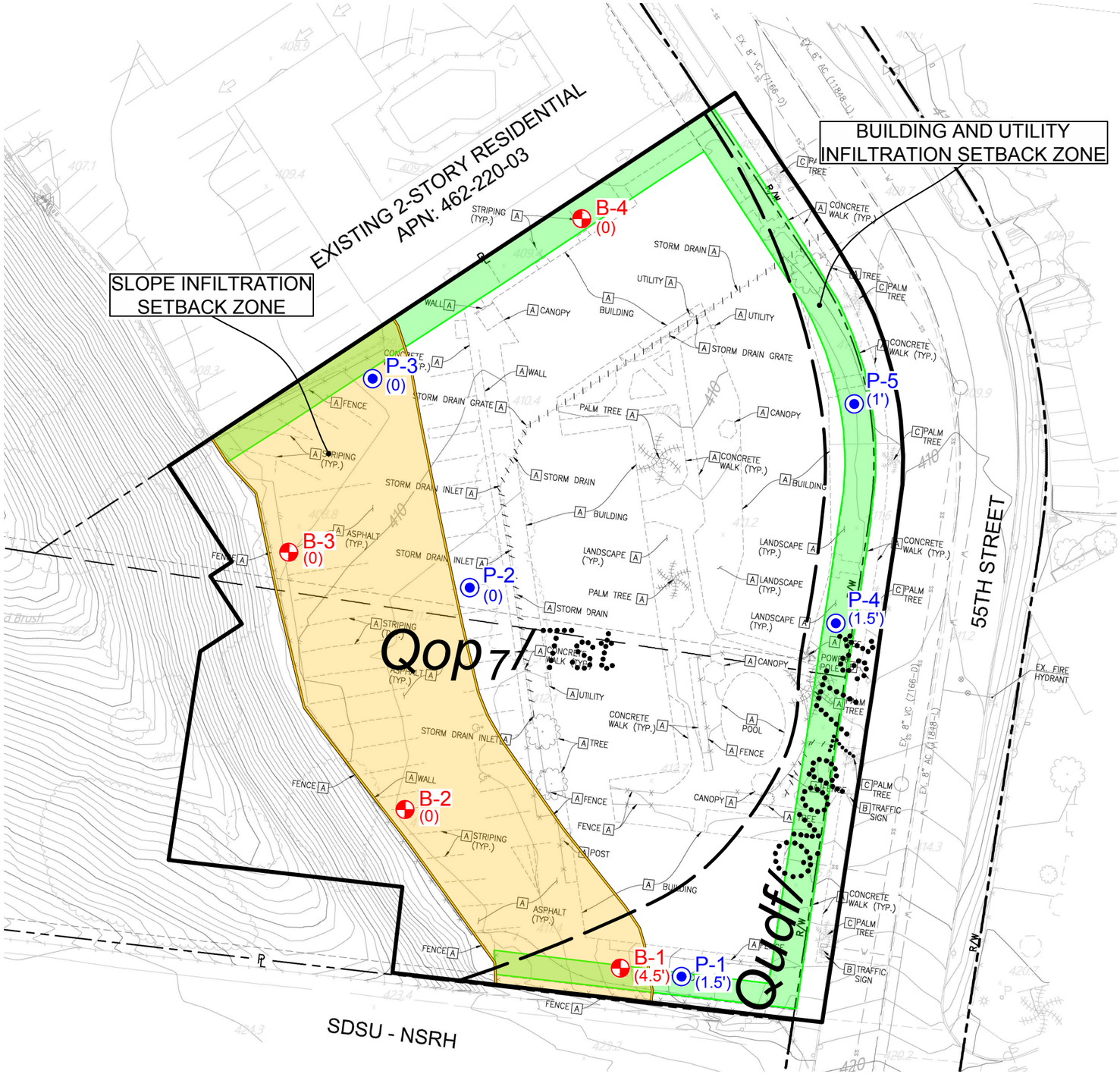
RM / AML		DSK/GTYPD

COLLEGE VIEW
5420-22 55TH STREET
SAN DIEGO, CALIFORNIA

DATE 08 - 23 - 2019	PROJECT NO. G2432 - 52 - 01	FIG. 1

Plotted:08/23/2019 1:44PM | By:RUBEN AGUILAR | File Location:Y:\PROJECTS\G2432-52-01 (College View)\DETAILS\G2432-52-01 Vic Map.dwg

COLLEGE VIEW
5420-22 55TH STREET
SAN DIEGO, CALIFORNIA



0' 20' 40' 60' 80'
SCALE 1"=40'(on 11x17)

GEOCON LEGEND

Qudf .....UNDOCUMENTED FILL

Qvop 7 .....VERY OLD PARALIC DEPOSITS
(Dotted Where Buried

Tst .....STADIUM CONGLOMERATE
(Dotted Where Buried)

~ .....APPROX. LOCATION OF GEOLOGIC CONTACT

B-4 .....APPROX. LOCATION OF BORING

P-5 .....APPROX. LOCATION OF AARDVARK PERMEAMETER TEST

(4') .....APPROX. DEPTH TO FORMATION (Feet)

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159
PROJECT NO. G2432 - 52 - 01
FIGURE 2
DATE 08 - 23 - 2019

GEOLOGIC MAP

Plotted:08/23/2019 1:44PM | By:RUBEN AGUILAR | File Location:Y:\PROJECTS\G2432-52-01 (College View)\SHEETS\G2432-52-01 Geo Map.dwg

PROJECT NO. G2432-52-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P 1** ELEV. (MSL.) **415'** DATE COMPLETED **08-08-2019** EQUIPMENT **CME 75** BY: **K. HAASE**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0					5" **ASPHALT**			
				SM	**UNDOCUMENTED FILL (Qudf)** Medium dense, moist, brown, Silty, fine to corse SAND; abundant gravel and cobble			
2				SM	**VERY OLD PARALIC DEPOSITS/STADIUM CONGLOMERATE-Undivided ($Qvop_7$/Tst)** Very dense, damp to moist, brown, Silty, fine- to coarse-grained, Sandy CONGLOMERATE			
4								
					BORING TERMINATED AT 5 FEET Groundwater not encountered			

Figure A-5,
Log of Boring P 1, Page 1 of 1

G2432-52-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2432-52-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P 2** ELEV. (MSL.) **412'** DATE COMPLETED **08-08-2019** EQUIPMENT **CME 75** BY: **K. HAASE**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0					4" **ASPHALT**			
				SC	**VERY OLD PARALIC DEPOSITS/STADIUM CONGLOMERATE-Undivided ($Qvop_7$/Tst)** Dense to very dense, moist, brown, Clayey, fine- to coarse-grained, Sandy CONGLOMERATE			
2								
4								
6								
8					BORING TERMINATED AT 8 FEET Groundwater not encountered			

Figure A-6,
Log of Boring P 2, Page 1 of 1

G2432-52-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2432-52-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P 3** ELEV. (MSL.) **409'** DATE COMPLETED **08-08-2019** EQUIPMENT **CME 75** BY: **K. HAASE**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0					5" **ASPHALT**			
				SC	**VERY OLD PARALIC DEPOSITS/STADIUM CONGLOMERATE-Undivided ($Qvop_7$/Tst)** Dense to very dense, moist, dark brown, Clayey, fine- to coarse-grained, Sandy CONGLOMERATE			
2								
4								
					BORING TERMINATED AT 5 FEET Groundwater not encountered			

Figure A-7,
Log of Boring P 3, Page 1 of 1

G2432-52-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2432-52-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P 4** ELEV. (MSL.) **411'** DATE COMPLETED **08-09-2019** EQUIPMENT **HAND AUGER** BY: **K. HAASE**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**UNDOCUMENTED FILL (Qudf)** Loose, moist, dark brown, Clayey, fine to coarse SAND; some gravel			
2				SC	**VERY OLD PARALIC DEPOSITS/STADIUM CONGLOMERATE-Undivided ($Qvop_7$/Tst)** Very dense, damp to moist, brown, Clayey, fine- to coarse-grained Sandy CONGLOMERATE			
					BORING TERMINATED AT 2.5 FEET Groundwater not encountered			

Figure A-8,
Log of Boring P 4, Page 1 of 1

G2432-52-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2432-52-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P 5** ELEV. (MSL.) **409'** DATE COMPLETED **08-09-2019** EQUIPMENT **HAND AUGER** BY: **K. HAASE**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**UNDOCUMENTED FILL (Qudf)** Loose, moist, brown, Clayey, fine to medium SAND; some gravel			
				SC	**VERY OLD PARALIC DEPOSITS/STADIUM CONGLOMERATE-Undivided (Qvop$_7$/Tst)** Very dense, damp to moist, brown, Clayey, fine- to coarse-grained Sandy CONGLOMERATE			
2					BORING TERMINATED AT 2 FEET Groundwater not encountered			

Figure A-9,
Log of Boring P 5, Page 1 of 1

G2432-52-01.GPJ

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

GEOCON

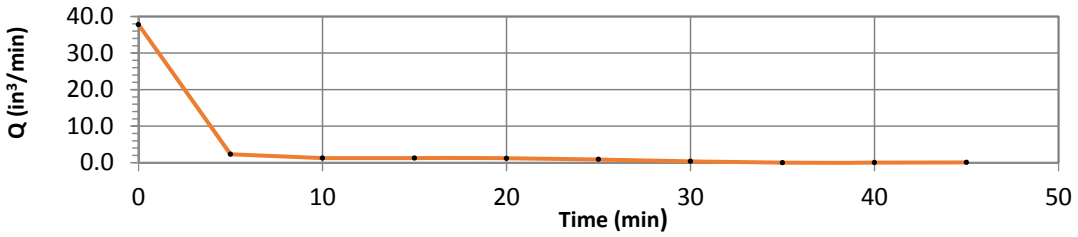
Aardvark Permeameter Data Analysis

Project Name:	College View	Date:	8/8/2019
Project Number:	G2432-52-01	By:	JML
Test Number:	P-1		

Borehole Diameter, d (in.):	8.00	Ref. EL (feet, MSL):	415.0
Borehole Depth, **H** (in):	55.00	Bottom EL (feet, MSL):	410.4
Distance Between Reservoir & Top of Borehole (in.):	30.50		
Estimated Depth to Water Table, **S** (feet):	50.00		
Height APM Raised from Bottom (in.):	5.00		
Pressure Reducer Used:	No		

Distance Between Resevoir and APM Float, **D** (in.):	73.25
Head Height Calculated, **h** (in.):	8.74
Head Height Measured, **h** (in.):	8.00
Distance Between Constant Head and Water Table, **L** (in.):	553.00

Reading	Time Elapsed (min)	Water Weight Consummed (lbs)	Water Volume Consummed (in^3)	Q (in^3/min)
1	0.00	0.000	0.00	0.00
2	5.00	6.820	188.86	37.772
3	5.00	0.415	11.49	2.298
4	5.00	0.230	6.37	1.274
5	5.00	0.225	6.23	1.246
6	5.00	0.210	5.82	1.163
7	5.00	0.165	4.57	0.914
8	5.00	0.070	1.94	0.388
9	5.00	0.000	0.00	0.000
10	5.00	0.005	0.14	0.028
11	5.00	0.010	0.28	0.055
			Steady Flow Rate, Q (in^3/min):	0.042



Soil Matric Flux Potential, Φ_m

Φ_m= 0.00041 in^2/min

Field-Saturated Hydraulic Conductivity (Infiltration Rate)

K_{sat} = 4.16E-05 in/min 0.002 in/hr

GEOCON

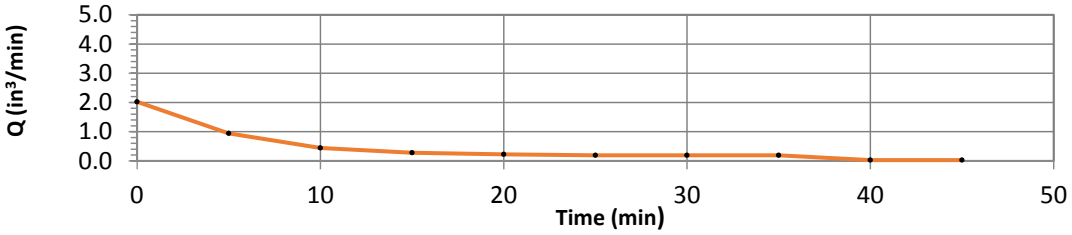
Aardvark Permeameter Data Analysis

Project Name:	College View	Date:	8/8/2019
Project Number:	G2432-52-01	By:	JML
Test Number:	P-2	Ref. EL (feet, MSL):	412.0
		Bottom EL (feet, MSL):	403.5

Borehole Diameter, d (in.):	8.00
Borehole Depth, **H** (in):	102.00
Distance Between Reservoir & Top of Borehole (in.):	29.50
Estimated Depth to Water Table, **S** (feet):	50.00
Height APM Raised from Bottom (in.):	5.00
Pressure Reducer Used:	No

Distance Between Resevoir and APM Float, **D** (in.):	119.25
Head Height Calculated, **h** (in.):	8.90
Head Height Measured, **h** (in.):	11.00
Distance Between Constant Head and Water Table, **L** (in.):	509.00

Reading	Time Elapsed (min)	Water Weight Consummed (lbs)	Water Volume Consummed (in^3)	Q (in^3/min)
1	0.00	0.000	0.00	0.00
2	5.00	0.365	10.11	2.022
3	5.00	0.170	4.71	0.942
4	5.00	0.080	2.22	0.443
5	5.00	0.050	1.38	0.277
6	5.00	0.040	1.11	0.222
7	5.00	0.035	0.97	0.194
8	5.00	0.035	0.97	0.194
9	5.00	0.035	0.97	0.194
10	5.00	0.005	0.14	0.028
11	5.00	0.005	0.14	0.028
		Steady Flow Rate, Q (in^3/min):		0.083



Soil Matric Flux Potential, Φ_m

Φ_m= 0.0006 in^2/min

Field-Saturated Hydraulic Conductivity (Infiltration Rate)

K_{sat} = 6.39E-05 in/min 0.004 in/hr

GEOCON

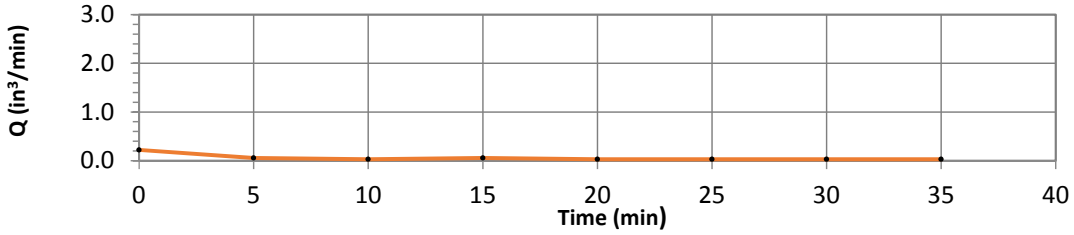
Aardvark Permeameter Data Analysis

Project Name:	College View	Date:	8/9/2019
Project Number:	G2432-52-01	By:	JML
Test Number:	P-3	Ref. EL (feet, MSL):	409.0
		Bottom EL (feet, MSL):	404.3

Borehole Diameter, d (in.):	8.00
Borehole Depth, **H** (in):	57.00
Distance Between Reservoir & Top of Borehole (in.):	28.50
Estimated Depth to Water Table, **S** (feet):	50.00
Height APM Raised from Bottom (in.):	5.00
Pressure Reducer Used:	No

Distance Between Resevoir and APM Float, **D** (in.):	73.25
Head Height Calculated, **h** (in.):	8.74
Head Height Measured, **h** (in.):	9.00
Distance Between Constant Head and Water Table, **L** (in.):	552.00

Reading	Time Elapsed (min)	Water Weight Consummed (lbs)	Water Volume Consummed (in^3)	Q (in^3/min)
1	0.00	0.000	0.00	0.00
2	5.00	8.775	243.00	48.600
3	5.00	0.040	1.11	0.222
4	5.00	0.010	0.28	0.055
5	5.00	0.005	0.14	0.028
6	5.00	0.010	0.28	0.055
7	5.00	0.005	0.14	0.028
8	5.00	0.005	0.14	0.028
9	5.00	0.005	0.14	0.028
10	5.00	0.005	0.14	0.028
			Steady Flow Rate, Q (in^3/min):	0.028



Soil Matric Flux Potential, Φ_m

Φ_m= 0.0002 in^2/min

Field-Saturated Hydraulic Conductivity (Infiltration Rate)

K_{sat} = 2.53E-05 in/min 0.002 in/hr

GEOCON

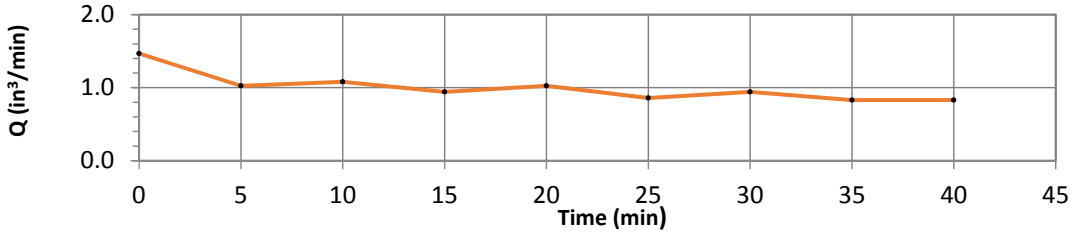
Aardvark Permeameter Data Analysis

Project Name:	College View	Date:	8/9/2019
Project Number:	G2432-52-01	By:	JML
Test Number:	P-4	Ref. EL (feet, MSL):	411.0
		Bottom EL (feet, MSL):	408.7

Borehole Diameter, d (in.):	5.00
Borehole Depth, **H** (in):	28.00
Distance Between Reservoir & Top of Borehole (in.):	26.00
Estimated Depth to Water Table, **S** (feet):	50.00
Height APM Raised from Bottom (in.):	1.00
Pressure Reducer Used:	No

Distance Between Resevoir and APM Float, **D** (in.):	45.75
Head Height Calculated, **h** (in.):	4.65
Head Height Measured, **h** (in.):	3.50
Distance Between Constant Head and Water Table, **L** (in.):	575.50

Reading	Time Elapsed (min)	Water Weight Consummed (lbs)	Water Volume Consummed (in^3)	Q (in^3/min)
1	0.00	0.000	0.00	0.00
2	5.00	0.265	7.34	1.468
3	5.00	0.185	5.12	1.025
4	5.00	0.195	5.40	1.080
5	5.00	0.170	4.71	0.942
6	5.00	0.185	5.12	1.025
7	5.00	0.155	4.29	0.858
8	5.00	0.170	4.71	0.942
9	5.00	0.150	4.15	0.831
10	5.00	0.150	4.15	0.831
			Steady Flow Rate, Q (in^3/min):	0.868



Soil Matric Flux Potential, Φ_m

Φ_m= 0.0209 in^2/min

Field-Saturated Hydraulic Conductivity (Infiltration Rate)

K_{sat} = 2.13E-03 in/min 0.128 in/hr

GEOCON

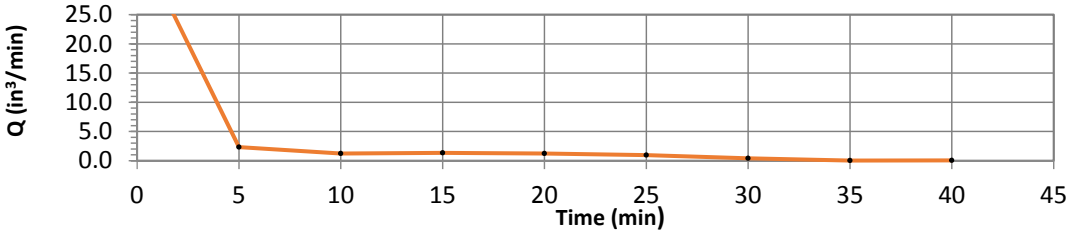
Aardvark Permeameter Data Analysis

Project Name:	College View	Date:	8/9/2019
Project Number:	G2432-52-01	By:	JML
Test Number:	P-5	Ref. EL (feet, MSL):	409.0
		Bottom EL (feet, MSL):	406.9

Borehole Diameter, d (in.):	8.00
Borehole Depth, **H** (in):	25.00
Distance Between Reservoir & Top of Borehole (in.):	28.00
Estimated Depth to Water Table, **S** (feet):	50.00
Height APM Raised from Bottom (in.):	2.00
Pressure Reducer Used:	No

Distance Between Resevoir and APM Float, **D** (in.):	43.75
Head Height Calculated, **h** (in.):	5.65
Head Height Measured, **h** (in.):	5.50
Distance Between Constant Head and Water Table, **L** (in.):	580.50

Reading	Time Elapsed (min)	Water Weight Consummed (lbs)	Water Volume Consummed (in^3)	Q (in^3/min)
1	0.00	0.000	0.00	0.00
2	5.00	6.810	188.58	37.717
3	5.00	0.420	11.63	2.326
4	5.00	0.220	6.09	1.218
5	5.00	0.240	6.65	1.329
6	5.00	0.220	6.09	1.218
7	5.00	0.175	4.85	0.969
8	5.00	0.075	2.08	0.415
9	5.00	0.005	0.14	0.028
10	5.00	0.010	0.28	0.055
			Steady Flow Rate, Q (in^3/min):	0.042



Soil Matric Flux Potential, Φ_m

Φ_m= 0.0005 in^2/min

Field-Saturated Hydraulic Conductivity (Infiltration Rate)

K_{sat} = 5.46E-05 in/min 0.003 in/hr