



Lincoln Colony Apartments Project

Appendix M

Infiltration Memorandum, August 2021

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soil PACIFIC INC.

Geotechnical and Environmental Services

Project No. A-7075up-20
August 3, 2021

Mr. Jerry Zomoredian
914 West Lincoln Avenue
Anaheim, California

Log# OTH2021-01363

Subject: **On-Site Infiltration at Deeper Elevation**
Proposed Apartment Building
914 West Lincoln Avenue, Anaheim, California

Dear Sir;

Pursuant to the City of Anaheim Public Works Division inquiry date July 8, 2021, we are pleased to submit this clarification letter concerning the questioned items:

Item 3: This office was commissioned to perform on-site infiltration testing at the designated spot in order to verify the feasibility of the proposed dry well at depth of 10 to 35 feet below grade. This evaluation is based on the review of the primary WQMP design, as suggested by the project Civil Engineer. The location of the tested area is depicted on the attached plot plan.

On August 2, 2021, a bucket auger drill rig was used to perform a 6 inches boring to a depth of -35 feet as planned. Encountered soils at the proposed infiltration depth and were mainly granular sandy soil, interbedded with more silty matrix at depth of 19 to 26 feet. The encountered materials are not subject to have expansion potential. Subsurface soils within the proposed infiltration basin are mostly damp and consolidated.

The proposed infiltration basin will be placed and capped at a minimum of 10 feet away horizontally and vertically from the adjacent foundation (proposed or existing building or foundation if there is any) in order to not have an adverse effect on the proposed foundation and or public property.

On-site percolation testing was performed between -10 feet below the existing grade and -35 feet the depth of the proposed drywell for on-site infiltration purposes. As shown on the attached calculation sheet 372 inches of water column percolated in 65 minutes intervals. Used auger outward diameter is about 6 inches, however, the vibration auger drilling within sandy soils causes enlarging of the borehole diameter. Therefore, the borehole diameter of 7 inches has been assumed in the design calculation.

The calculated design rate of on-site percolation on a drywell at the suggested depth is 4.45 inches per hour. The Civil engineer in charge of WQMP will consider a factor safety into the design.

The proposed dry well at the proposed depth ranges that should be capped at -10 feet below the existing grade shall be filled by 3/4 single-size gravel. Prior to backfill, a 12 inches heavy schedule PCV perforated pipe will be placed in the middle of dry well. Gravel pack will be placed around the pipe the will receive the filtered sheet flow water subject to discharge through on-site infiltration.

Placing of the gravel must be observed by this office representative, any contaminated gravel (mixed by smaller size particles or soils) will be refused and or required to remove from the dry well. This action might have a heavy financial burden on the owner/developer, which the contractor must avoid. The upper 10 feet of the well will be capped and sealed to avoid infiltration above the 10 feet depth setback. The dry well shall be located a minimum of 10 feet away horizontally and vertically from any foundation and or public property. This distance shall be measured from the edge and top of the dry well.

The cap portion (upper 10 feet) will be backfilled using bentonite mixed slurry to prevent surficial infiltration during overflow. Two automatic submersible sump pumps with housing will be attached to the top of the infiltration basin /dry well at about -10 feet depth to flush out the overflow. The project civil engineer will connect the overflow pipe to a discharging pipe per his justification

If a prefabricated concrete box is used to shore the upper portion of the dry well during the construction of the well, then a surrounding void area of the box between the box and excavated wall must be sealed by 3 sacs slurry mix injection grouting.

The opportunity to be of service is appreciated. Should any question arise concerning this clarification letter please contact this office for further clarification.

Respectfully submitted,

SOIL PACIFIC, INC.

Hoss Eftekhari
RCE



Log of Sub-surface Exploration

B-1(infiltration)

Std. Pen	Drive Wt:	USCS Letter	Equipment Type: D-7700		Boring # B-1
Bulk/Bag	Drop:	Graphic	Diameter: 7"	Logged by: YK	Date: 7/1/21
Ring	SPT N	Laboratory		Depth: 35 feet	G.water: - feet
Elev. (feet)		M%	D.D.	Backfilled: Y	Description of Earth Materials
0					
5				SM	Gray, light brown fine grained silty sand with some gravel. Damp, Topsoil.
10				SM/SP	Light brown, brown fine to medium grained silty sand/ sand, dense. Dry to Damp, Native.
15				SM	Gray, to brown, fine to medium grained sand, with some silt, silty sand. Dense and damp.
20				SM/ML	Dark gray, brown fine to medium grained silty sand interbedded with thin layers of sandy silt. Damp to moist. Dense.
25				SM/SP	Brown light brown fine to medium grained silty sand and sand with some silt. Moist.
30					
35					End of Boring 35 feet. Ground water not encountered.
40					

Log depicts conditions at the time and location drilled.

Soil Pacific Inc.
Geotechnical and Environmental Services

Project Name: 914 W. Lincoln, Anaheim, CA

Project Number: A-7075-inf-21

Report Date:

Figure:

Porchet Method, Aka Inverse Borehole Method

$\Delta T := 65$ Time Interval 10 Minutes

$D_0 := 144$ Initial Depth to Water, (inch)

$D_f := 372$ Final Depth to Water, (inch)

$D_r := 420$ Total Depth of the Test Hole

$r := 7$ Test Hole Radius, Inch

$H_0 := D_r - D_0$ Initial height of water at the selected time interval

$H_0 = 276$

$H_f := D_r - D_f$ Final height of water at the selected time interval

$H_f = 48$

$\Delta H := H_0 - H_f$ $\Delta H = \Delta D$ Change in height over the time interval

$\Delta H = 228$

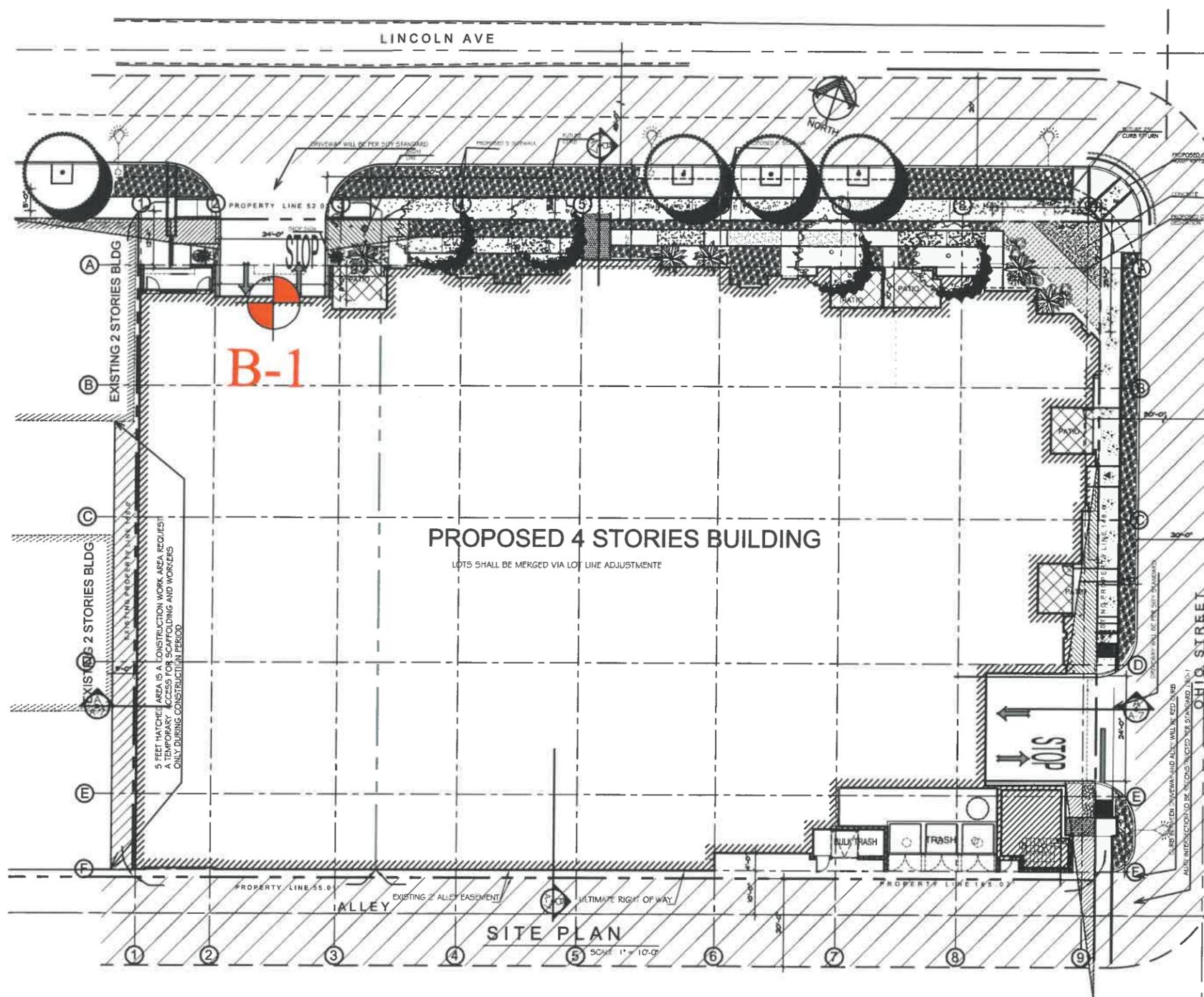
$$H_{avg} := \frac{(H_0 + H_f)}{2}$$

$H_{avg} = 162$

The Conversion Equation is used:

$$IR := \frac{\Delta H \cdot (60 \cdot r)}{\Delta T \cdot (r + 2H_{avg})}$$

$IR = 4.451$ inch
/Hour



LEGEND

 Soil Boring Location



soil PACIFIC Inc.
 Geotechnical & Environmental Services
 675 N. Eckhoff, Suite # A
 Orange, CA 92868

Project Location:
 914 West Lincoln Ave,
 Anaheim, CA

GEOTECHNICAL PLAN

FIGURE-A-1-1 | PROJECT NO.:A-7075-20

DATE : 8/03/2021

SCALE: 1"=30'