



December 17, 2021

BC Euclid LLC

CWE 2210655.01R

8445 Camino Santa Fe, #102

San Diego, California 92121

Attention: Mr. Abraham Edid

**Subject: Change of Geotechnical Engineer of Record and Update
Apartment Project, 2532-2542 Ridgeway Drive, National City, California**

Ladies and Gentlemen:

This letter has been prepared to confirm that Christian Wheeler Engineering will assume the duties of the Geotechnical Engineer of Record for the construction phase of the subject project, including the planned Anchor Block retaining wall. As such, we will assume the full responsibility for the geotechnical aspects of the project. In addition, it is our opinion that the geotechnical data contained in the geotechnical documents referenced in the following section are representative of the site conditions and we concur with the recommendations and conclusions presented in the referenced report except as modified herein. It is also our opinion that the recommendations and conclusions contained in the referenced report, except as modified herein, are still valid for the referenced grading plans.

REFERENCES

Krazan & Associates, Inc., Updated Geotechnical Engineering Investigation, Proposed Residential Development, 2542 Ridgeway Drive, National City, California, dated February 24, 2020.

Krazan & Associates, Inc., Review of Plans and Specifications, Proposed Residential Development, 2542 Ridgeway Drive, National City, California, dated September 21, 2021.

Krazan & Associates, Inc., Updated Geotechnical Engineering Investigation, Proposed Residential Development, 2542 Ridgeway Drive, National City, California, dated September 21, 2021.

Krazan & Associates, Inc., Response to Comments Letter, Proposed Ridgeway Apartments, 2542 Ridgeway Drive, National City, California, dated September 21, 2021.

Krazan & Associates, Inc., Response to Comments Letter No. 2, Proposed Ridgeway Apartments, 2542 Ridgeway Drive, National City, California, dated October 25, 2021.

Krazan & Associates, Inc., Retaining Wall Global Stability Analysis, Proposed Ridgeway Apartments, 2542 Ridgeway Drive, National City, California, dated October 25, 2021.

Krazan & Associates, Inc., Updated Geotechnical Engineering Investigation, Proposed Residential Development, 2542 Ridgeway Drive, National City, California, dated October 25, 2021.

Lundstrom Engineering and Surveying, Inc., Grading and Private Improvement Plans for: 2542 Ridgeway Drive, County of San Diego, Grading Permit No. PDS2021-LDGMJ-30273, plot date October 28, 2021.

SITE AND PROJECT DESCRIPTIONS

The subject site is an irregular-shaped project area that is comprised of four lots, identified as Assessor's Parcel Numbers 563-184-44, 564-040-02, -21 and -23. The lots are located southeast of the intersection of Ridgeway Drive and Euclid Avenue. The site currently supports two single-family residences that have the addresses of 2532 and 2542 Ridgeway Drive in the National City area of San Diego County. Topographically, the site is generally situated in a natural, tributary drainage canyon that empties into a larger drainage to the south. Elevations range from a low of about 73 feet at the canyon bottom along the southern boundary of the project to a high of about 120 at the northeastern corner. Along the western boundary of the site, adjacent to Euclid Avenue, there is a fill slope up to about 25 feet high that is constructed at an approximate inclination of 2:1 (H:V). Based on our review of historical photographs, it appears that this fill was placed during the construction of Euclid Avenue sometime during the mid-1970's.

We understand that it is proposed to construct an apartment complex on the property. The complex will include three buildings (76 units) and associated street and utility improvements. The buildings are expected to consist of three stories of wood-frame construction with shallow foundations and on-grade concrete floor slabs. Planned grading will typically include small cuts in the uphill sides of the site along the western and eastern boundaries and relatively deep fills in the central, natural drainage portion. Cuts and fills up to about 5 and 26 feet, respectively, from the existing site grades are planned. The grading will result in roughly 2,700 and 14,300 cubic yards of cut and fill, respectively, with approximately 11,600 cubic yards of import. The site

grading also includes an Anchor Block retaining wall at the southern end of the site that is up to about 20 feet tall and several small masonry retaining walls, less than about 6 feet in retained height, along the eastern and western sides of the site.

SITE GEOLOGY

The subject site is located in the Coastal Plains Physiographic Province of San Diego County. Based on our review of the referenced geotechnical report, available geotechnical literature, and our experience within the vicinity of the site, we expect that the subject site is underlain by Quaternary-age very old paralic deposits that are overlain by artificial fill associated with the construction of Euclid Avenue along the western boundary and by surficial soils within the lower portions of the existing canyon. The surficial soil consists of both natural alluvium at the bottom of the canyon as well as stockpiled soils that have been imported from off-site. The estimated geologic contacts are shown on the Site Plan and Geotechnical Map provided herewith as Plate No. 1 and Geologic Cross-Section A-A' presented as Plate No. 2.

CONCLUSIONS AND RECOMMENDATIONS

Based on our review of the referenced documents, it is our opinion that the project site is suitable for the proposed development. We offer the conclusions listed below regarding the planned construction.

- Based on the planned grading there will be a sharp transition between cut (or shallow fill) and deeper fills below Building C. In order to mitigate the potential for differential settlement and provide uniform bearing conditions beneath the structure, the uphill side of the pad should be undercut to a depth of 10 feet below the finish pad grade and be replaced as uniformly compacted, structural fill material. Laterally, the undercut should extend at least 10 feet outside the building perimeter. The undercut area should be sloped at an inclination of at least two percent towards the fill side of the pad, in such a manner that water does not become trapped in the undercut zone.
- Steepened, temporary excavations for the undercut may need to be performed near the eastern property line. In this case, steepened temporary excavations can be made during the undercut provided that they are backfilled on the same day.
- Although geologic units are not identified on the boring logs by Krazan, blow counts and descriptions apparently in the fill prism associated with Euclid Avenue indicate typically dense material. We anticipate that the existing fill will be suitable to support the planned additional fill.

- All surficial soils, including the stockpiled material, will need to be removed to the contact with competent very old paralic deposits or existing, competent fill prior to placing fill or constructing improvements.
- A subdrain should be placed at the invert of the existing canyon after the surficial soils have been removed to the contact with competent very old paralic deposits. The subdrain should be extended along the bottom to the point where the planned fill thickness is 10 feet or less. Typical subdrain designs for canyon drains are detailed on the attached Figure 1. Subdrains should be outletted into storm drain pipes or into controlled drainage areas. Subdrains outletted into controlled drainage areas should have a head wall installed at the end of the drain.
- Where the existing ground has a slope of 5:1 (horizontal to vertical) or steeper, it should be benched into as the fill extends upward from the keyways. The benching should remove all loose surficial soils and should create level areas on which to place the fill material.
- Compaction of fill slopes should be performed by back-rolling with a sheepsfoot compactor at vertical intervals of four feet or less as the fill is being placed, and track-walking the face of the slope when the slope is completed. As an alternative, the fill slopes may be overfilled by at least 3 feet and then cut back to the compacted core at the design line and grade.
- The presence of cohesionless soils at the face of slopes should be avoided. Slopes should be planted as soon as feasible after grading. Sloughing, deep rilling and slumping of surficial soils may be anticipated if slopes are left unplanted or without erosion control, especially during the rainy season. Irrigation of slopes should be carefully monitored to insure that only the minimum amount necessary to sustain plant life is used. Over-irrigating could be extremely erosive and should be avoided.
- Foundations for Building C should have a minimum horizontal setback of 10 feet from the bottom, outside edge to the adjacent slope face.

If you have any questions after reviewing this report, please do not hesitate to contact our office. This opportunity to be of professional service is sincerely appreciated.

Respectfully submitted,

CHRISTIAN WHEELER ENGINEERING



Shawn C. Caya, R.G.E. #2748

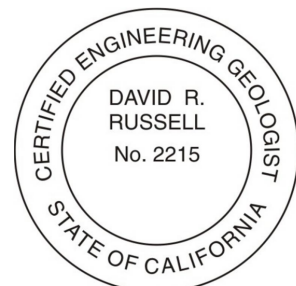
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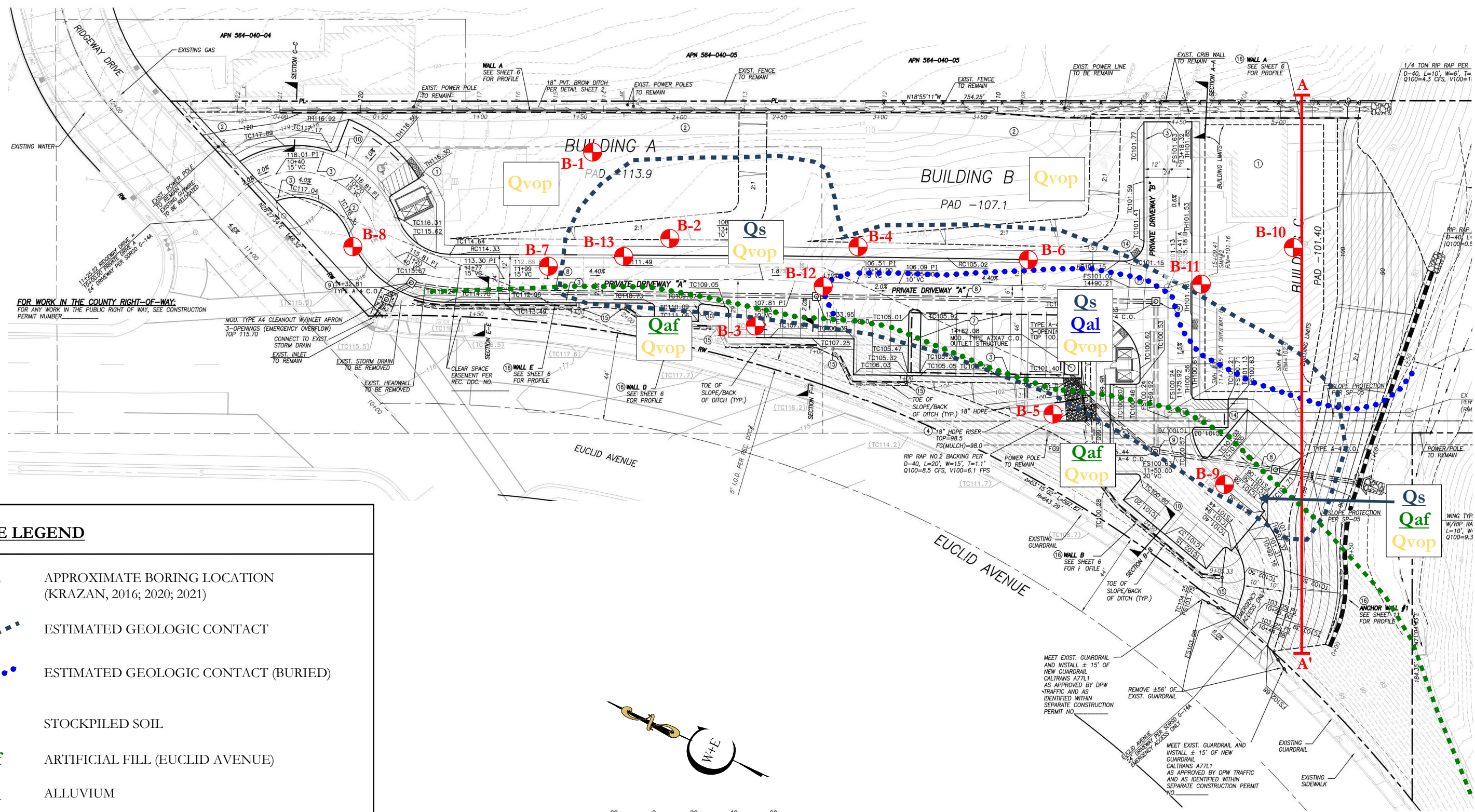
Attachments: Plate 1 Site Plan and Geotechnical Map
Plate 2 Cross-section A-A'
Plate 3 Canyon Subdrain Details

Distribution: Abraham Edid; Shawn Fitzpatrick via email



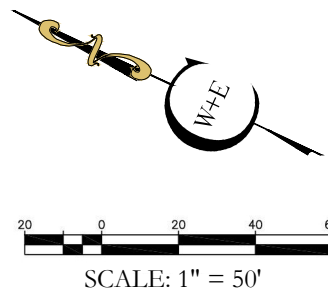
David R. Russell, C.E.G. #2115





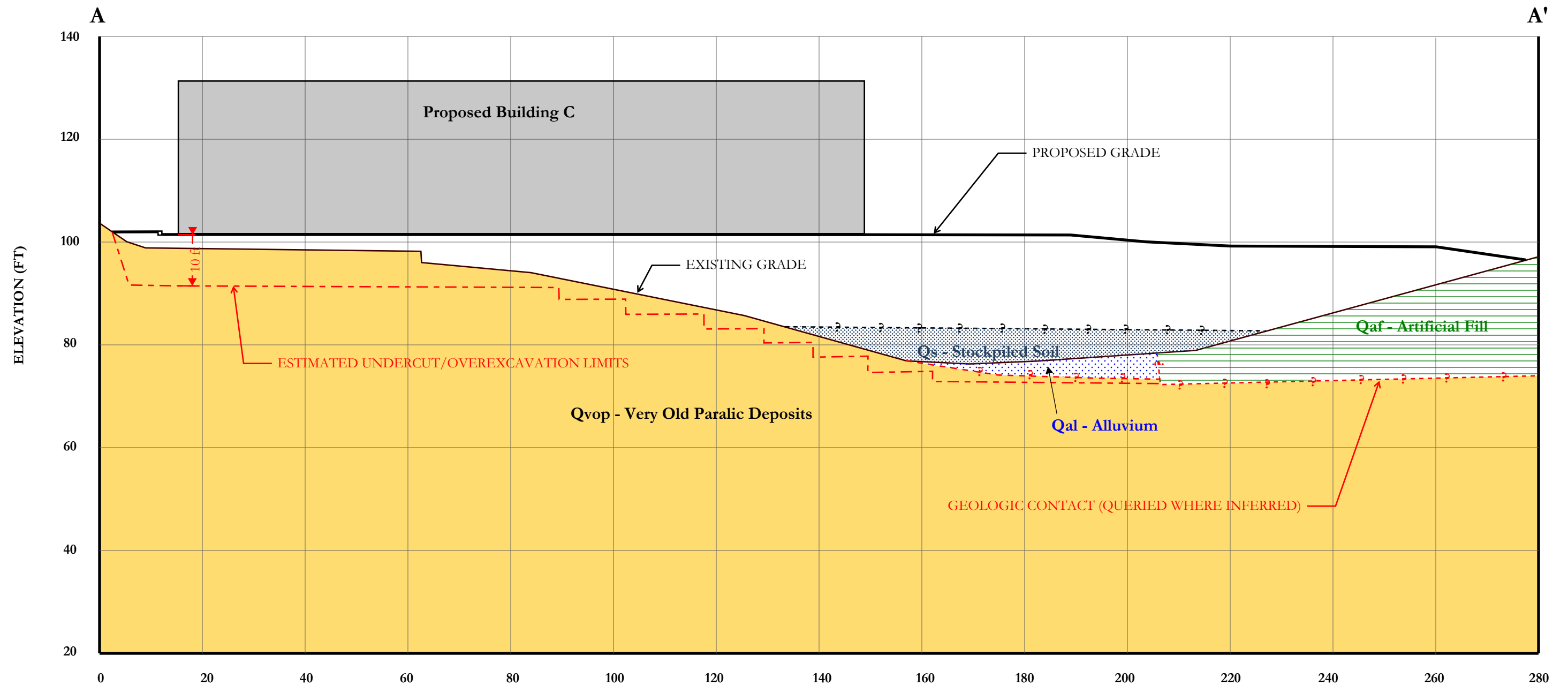
CWE LEGEND

- B-13 APPROXIMATE BORING LOCATION (KRAZAN, 2016; 2020; 2021)
- ESTIMATED GEOLOGIC CONTACT
- ESTIMATED GEOLOGIC CONTACT (BURIED)
- STOCKPILED SOIL
- ARTIFICIAL FILL (EUCLID AVENUE)
- ALLUVIUM
- VERY OLD PARALIC DEPOSITS



SITE PLAN AND GEOTECHNICAL MAP

RIDGEWAY APARTMENTS 2532-2542 RIDGEWAY DRIVE, NATIONAL CITY, CA		 CHRISTIAN WHEELER ENGINEERING
DATE: DECEMBER 2021	REPORT NO.: 2210655.01	
BY: SCC	PLATE NO.: 1	



SCALE: 1" = 20'

GEOLOGIG CROSS-SECTION A-A'

RIDGEWAY APARTMENTS
2532-2542 RIDGEWAY DRIVE, NATIONAL CITY, CA

DATE: DECEMBER 2021

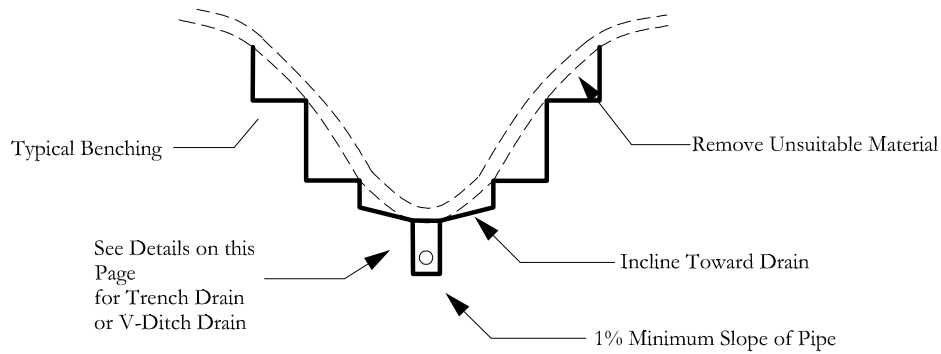
REPORT NO.: 2210655.01

BY: SCC

PLATE NO.: 2


CHRISTIAN WHEELER
ENGINEERING

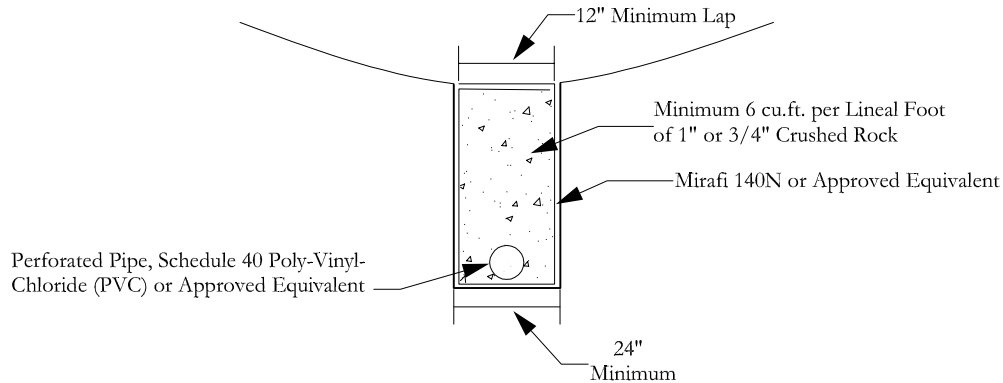
CANYON SUBDRAIN DETAIL



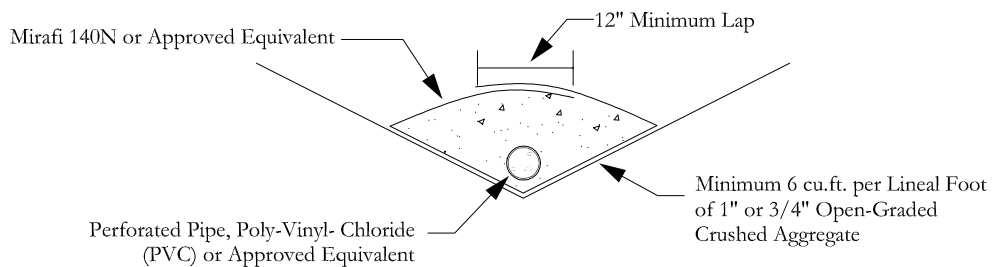
NOTE:

- A. 6-inch diameter, Schedule 40 PVC perforated pipe for fill of less than 80 feet.
- B. 8-inch diameter, Schedule 40 PVC perforated pipe for fills of more than 80 feet or pipe length greater than 500 feet.
- C. Final 10 feet of pipe at outlet to be non-perforated. Concrete cut-off wall at the perforated/non-perforated pipe junction is recommended.

TRENCH DETAIL



V-DITCH DETAIL



NO SCALE