



Geotechnical Exploration, Inc.

SOIL AND FOUNDATION ENGINEERING • GROUNDWATER • ENGINEERING GEOLOGY

30 June 2020

Philip and Leslie Salvagio
411 Sea Ridge Drive
La Jolla, CA 92037

Job No. 19-12522

Subject: **Geotechnical Response to Neighbor Geotechnical Concerns**
Salvagio Residential Project
411 Sea Ridge Drive
La Jolla, California

Dear Mr. and Mrs. Salvagio:

In accordance with the request of your Project Architect, we herein respond to the geotechnical-related concerns expressed by your previous neighbor Mr. Ben Reineman, and by Mr. Richard Reineman, the current owner of the property across the street at 414 Sea Ridge Drive. We have reviewed the emails sent by Ben and Richard Reineman on May 12, May 18 and June 18, 2020. In the emails they discuss their concerns and present hypotheses concerning the long-running upper bluff stability problems below the 417 Sea Ridge Drive property adjacent to the east side of your property at 411 Sea Ridge Drive.

Our firm, ***Geotechnical Exploration, Inc.*** (GEI), first responded to upper bluff stability concerns on the 417 Sea Ridge Drive property in November, 2004. During the time of our work on the project, a heavy rainfall event beginning February 22, 2005, resulted in a significant additional upper bluff failure that brought down upper bluff materials below 417 Sea Ridge Drive and extending laterally to the west below the pool deck at 411 Sea Ridge Drive. GEI continued to perform extensive work on the 417 Sea Ridge Drive property until December 2005, when the California Coastal Commission was nearing approval of a sea wall below the 417 Sea Ridge property. Unfortunately, the owners abandoned the sea wall project.

GEI documents addressing the upper bluff stability and failure causation at the 417 Sea Ridge Drive property were issued on February 22, 2005, March 22, 2005, and May 23, 2005. These documents, or portions thereof, are provided herein as Appendices A, B and C.

Appendix A: Site Drainage Memorandum, Preliminary Site Meetings and Evaluations

Appendix B: Bluff Failure Observations

Appendix C: Coastal Bluff Failure and Geologic Evaluation (pages 1-5, Executive Summary, Bluff Failure Chronology and Emergency Response)

In addition, we prepared a "Response to Coastal Commission Findings", dated October 3, 2005. Please review Appendices A, B and C for detailed descriptions of investigative work by GEI and others to define the cause of the upper bluff damage at 417 Sea Ridge Drive.

Photographs documenting bluff face conditions in 1995, and at the time of our field work on March 4, 2005, are provided as Appendix D.

As presented in the first paragraph of Mr. Reineman's email of May 12, the belief that the east end pool deck undercutting occurred due to a "one time occurrence due to poor pool drain maintenance at 417" is only partially correct. Though a single large rain event did cause the most significant and notable damage in 2005, long-term, on-going damage was, in fact, due to a long-term pool maintenance condition, including leaking pipe connections and even including the removal of the sump pump facility at the south end of the west sideyard at 417 Sea Ridge. The sump pump facility was located directly above the upper bluff erosion and failures.

The emails from Ben and Richard Reineman refer to several issues as probable cause of the upper bluff issues such as the natural low-profile surface drainage feature that originally crossed the 411 Sea Ridge property, which was filled in by minor grading



during building site preparation. This was not a "stream bed" that would, after grading, direct water to the bluff face. Mr. Wrench did install a yard area, shallow-depth subdrain along the east property line; the outlet pipe for the subdrain was observed following the upper bluff failures at 417 Sea Ridge Drive. Appendix D-1, a 1995 photo of the 411 and 417 Sea Ridge Drive properties bluff face shows no indication of bluff face channeling or water emission below 411 Sea Ridge Drive. The photos do show a white pipe connected to the shallow subdrain to carry collected yard area water to the base of the bluff. However, the D-1 photos do show significant upper bluff erosion and persistent wetting below the 417 Sea Ridge property as the water released from the dysfunctional sump pump at 417 Sea Ridge flows down the bluff face. Photo D-2 is a close-up of the erosion conditions below the sump pump at 417 Sea Ridge Drive and the pipe that carries the shallow subdrain collected water from 411 Sea Ridge Drive down to the beach. In 1995 the few feet of fill soils on the upper bluff below the Wrench property had not undergone nearly the degree of erosion that had occurred on the upper bluff of the 417 Sea Ridge property.

Photo D-3, taken during our on-site investigative work, shows the bluff face conditions on March 4, 2005, after the heavy rains of late February 2005. The failure encroached laterally to the west below the Wrench pool deck. As shown in the D-3 photo, the upper bluff formational soils below the deck are dry and the only wetted bluff face, top to bottom, is directly below the dysfunctional sump pump at 417 Sea Ridge. Photos D-4 and D-5, also dated March 4, 2005, clearly show the significant wetting and erosion conditions from the adverse dysfunctional sump pump water releases onto the upper bluff face. As with photo D-3, the immediately adjacent upper bluff formational soils below 411 Sea Ridge are dry.

In summary, the hypothesis presented in the May 12, May 18 and June 2, 2020 emails are not cause for concern for upper or lower bluff stability and recession rates on the 411 Sea Ridge Drive property. The 411 Sea Ridge property has suffered collateral damage over the years from wetting and failures on the 417 Sea Ridge



property. Fortunately, the collateral damage from the late February 2005 event resulted in shallowing of the upper bluff gradient at the southeast bluff face corner of the 411 Sea Ridge property leaving it in a more stable configuration. Our assigned bluff recession rates and opinions concerning bluff stability below the 411 Sea Ridge Drive property are still considered valid.

Thank you for this opportunity to be of service. Should you have any questions, you may contact the undersigned. Reference to our **Job No. 19-12522** will help to expedite a reply to your inquiries.

Respectfully submitted,

GEOTECHNICAL EXPLORATION, INC.



Leslie D. Reed, President
C.E.G. 999/P.G. 3391



APPENDIX A





GEOTECHNICAL EXPLORATION, INC.

SOIL & FOUNDATION ENGINEERING • GROUNDWATER
HAZARDOUS MATERIALS MANAGEMENT • ENGINEERING GEOLOGY

22 February 2005

Mr. Goeffrey Moncrief
417 Sea Ridge
La Jolla, CA 92037

Job No. 05-8880

Subject: **Site Drainage Condition Memorandum**
Preliminary Site Meetings and Evaluations
417 Sea Ridge
La Jolla, California

Dear Mr. Moncrief:

On January 27, 2005, we attended a meeting with yourself, Mr. Paul Benton, Architect/Engineer, and Ms. Teresa Steffen and Mr. Werner Landry of the City of San Diego to discuss the bluff failure condition to the rear of your home. Of primary concern at the time of the meeting was a PVC pipe observed to be leaking water near the top of the failure area and below the south termination of your west property line sidewalk and planter. It appeared at that time that the leak might be related to a drainage collection sump located at the south end of the sidewalk. Per your request, we arranged for and met with Mr. Richard Church of Quality Pool and Spa on February 2, 2005, to perform a preliminary evaluation of the water leakage source.

Following a brief visual inspection, Mr. Church drained enough water out of the sump to expose three pipe access ports on the south end of the concrete sump structure. By lowering the sump water level below the pipe entering the west sidewall, water leakage from the PVC elbow exposed in the bluff face stopped. We therefore concluded that leaking water was due, at least in part, to backflow out of the sump and into one of the drainage supply lines. The water was lowered to allow some additional sump water collection without leakage onto the slope face.

On February 4, 2005, another storm arrived in the San Diego area and we were contacted by Mr. Wrench and advised that the slope top PVC elbow was again leaking water. The sump had obviously refilled. On February 16, 2005, Mr. Church re-visited the property at your request to clean out and further investigate the sump as well as begin an evaluation of the swimming pool plumbing and yard area drain systems.

Although the investigation by Quality Pool and Spa is not yet complete, we understand they have determined that at least most of the yard and roof area drainage collection system is directed to the sump through four sets of pipes that penetrate the sump wall. The drainage system and sump appear to have been constructed prior to your ownership of the property in compliance with Coastal Development Permit Nos. 1995-0552015 and 1995-0560092. Mr. Church, however, discovered that the primary sump pump, the back-up pump, and the automatically triggered generator power back-up systems were no longer in place or functional. On February 16, 2005, a temporary sump pump and discharge line to the street were installed. We visited the property at 8:00 a.m., February 18, 2005, following 3 to 4 hours of heavy rain and observed the sump water level to be at least 2 feet below the inlet pipe responsible for the observed leakage. We also visited the site on February 22, 2005, following the weekend of very heavy rains. Again, the water level was 2 feet below the inlet pipe. The temporary sump pump, therefore, appears to be functioning as intended.

Mr. Church should be requested to proceed as soon as possible with this investigation and the permanent sump repair and pump installation. Until the permanent facility is in place, the temporary pump should be maintained and operated to prevent filling of the sump to the elevation of the pipe causing backflow leakage.



If you have any questions concerning this matter, please contact our office. Reference to our **Job No. 04-8603** will help to expedite a response to your inquiries.

Respectfully submitted,

GEOTECHNICAL EXPLORATION, INC.

Leslie D. Reed, President
C.E.G. 999[exp. 3-31-05]/R.G. 3391

Jaime A. Cerros, P.E.
R.C.E. 34422/G.E. 2007
Senior Geotechnical Engineer



APPENDIX B





GEOTECHNICAL EXPLORATION, INC.

SOIL & FOUNDATION ENGINEERING • GROUNDWATER
HAZARDOUS MATERIALS MANAGEMENT • ENGINEERING GEOLOGY

22 March 2005

Mr. Geoffrey Moncrief
417 Sea Ridge
La Jolla, CA 92037

Job No. 05-8880

Subject: **Bluff Failure Observations**
Moncrief Property
417 Sea Ridge
La Jolla, California

Dear Mr. Moncrief:

On March 14, 2005, our engineering geologist, in the company of Mr. Werner Landry and Mr. Tony Khalil of the City of San Diego, visited your property to view the additional bluff failure and soil masses that have fallen to the beach below. The upper bluff failure now extends approximately 17 feet along the face of the swimming pool retaining wall footing extending east of the southwest pool deck corner. The east flank of the upper failure scar swings away from the footing to the southeast for a distance of approximately 6 feet prior to intersecting the pre-failure bluff face. A near-vertical tension crack exists in the near-vertical east flank and additional failure is eminent. At the time of our visit, Mr. Landry and Mr. Khalil discussed measures the City could take to warn the public away from the failure area. As you know, we originally intended to develop an approach for stabilizing the upper bluff face as it existed when we were retained in late January 2005. During subsequent rainstorm events, however, the bluff face condition has worsened dramatically.

During the site visit of March 14, 2005, we observed that the failure now extends down to beach level. Whereas initial failures involved only upper bluff silty sand terrace deposits, the most recent failure broke through the lower bluff sand and cobble Cabrillo Formation as it slid toward the beach on top of the base-of-bluff weaker siltstone of the Point Loma Formation. The failure surface extended 1 to 2 feet into the Point Loma Formation as demonstrated by the blocks of failed siltstone piled at the base of the bluff, and on top of the beach cobbles. Although we do not have actual elevations of the failure surface, it does appear subject to daily wave action at high tide.

Based on the prior and recent failure events and the high potential for continuing failure of the bluff and top of bluff critical structures, we recommend that you seek an emergency permit to stabilize the bluff face. Although our field work and data analysis is not yet complete, we believe the most effective and aesthetically pleasing retention system will consist of a staggered set of steel-reinforced shotcrete or panel walls with a sculpted and color-matched finish representative of the geologic character of the remaining bluffs extending to the west and south.

At the request of Mr. Paul Benton, we have contacted Mrs. Barbara Wharton of Permit Us who has, in turn, contacted Mr. Werner Landry and Ms. Tracy Elliott-Yawn of the Planning Department concerning the emergency permit application process.

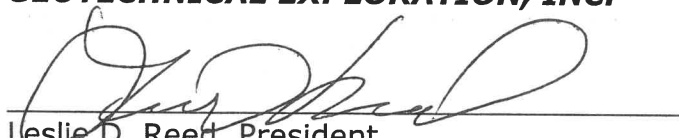
Finally, we have been informed by Mr. Richard Church of Quality Pool and Spa that the pool can now be drained. It does not appear that sufficient water to "float" the pool is likely to be present in the soils supporting the pool shell.



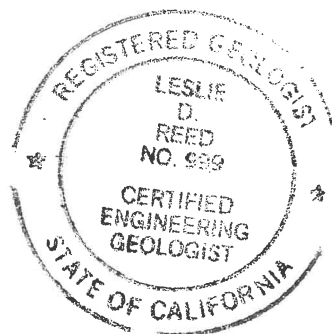
Please feel free to call if you have any questions and notify us immediately of any additional bluff failure events. Reference to our **Job No. 04-8603** will help to expedite a response to your inquiries.

Respectfully submitted,

GEOTECHNICAL EXPLORATION, INC.



Leslie D. Reed, President
C.E.G. 999[exp. 3-31-07]/R.G. 3391



APPENDIX C





GEOTECHNICAL EXPLORATION, INC.

SOIL & FOUNDATION ENGINEERING • GROUNDWATER
HAZARDOUS MATERIALS MANAGEMENT • ENGINEERING GEOLOGY

23 May 2005

Mr. Goeffrey Moncrief
417 Sea Ridge Drive
La Jolla, CA 92037

Job No. 05-8880

Subject: **Coastal Bluff Failure Investigation & Geotechnical Evaluation**
Moncrief Residential Property
417 Sea Ridge Drive
La Jolla, California

Dear Mr. Moncrief:

The following report has been prepared in accordance with your request to address the dangerous coastal bluff failure condition located along the south side of your property located at 417 Sea Ridge Drive, La Jolla, California (see Vicinity Map, Figure No. I). This report does not address the failure condition extending westerly of your western property line. We recommend strongly that your western neighbor also take action to stabilize the section of bluff undermining their concrete decking and swimming pool. At this time, all recommendations for bluff stabilization on your property have been prepared assuming retaining structures will have to be terminated at the western property line with returns keyed into the slope face. Should the western neighbor take action prior to the beginning of emergency stabilization work on your property, west end design changes can be made to allow for the westerly continuation of remedial work.

I. EXECUTIVE SUMMARY

During and as a result of the historic 2004-05 winter rains, the coastal bluff forming the southern side of your home experienced progressively worsening failures in the form of erosion block falls, and a block glide base-of-bluff landslide. Figure No. II, prepared utilizing a topographic base map provided by Mr. Paul Benton,

Engineer/Architect, has been provided to illustrate the location of the bluff failure conditions. The failures, affecting the neighboring property to the west as well as your own property, have resulted in repeated falling of earth masses to 10 feet in diameter and patio slab and wall concrete to the beach below. We have provided as Figure No. III, a photograph depicting the active bluff failure condition. Due to the daily high tide water levels at the base of the bluff (see Figure No. IV photograph), beach walkers are forced to walk at the base of bluff directly below the deteriorating bluff face. We consider the current condition extremely dangerous and stabilization work should be undertaken on an emergency basis.

We provide in this report the geotechnical criteria for the design of a tieback wall retention system. We have provided the design criteria to Mr. Paul Benton, Architect/Engineer to facilitate preparation of retention systems plans in parallel with preparation of our report. We have been advised by City of San Diego Planning and Land Use and Code Enforcement personnel that due to the danger to the beach-going public, the proposed work should be expedited and performed on an emergency basis.

II. BLUFF FAILURE CHRONOLOGY & EMERGENCY RESPONSE

Based on our proposal dated November 23, 2004, and revised January 17, 2005, ***Geotechnical Exploration, Inc.*** was retained to investigate and provide remedial recommendations for an upper bluff erosion condition confined to a relatively small area below the southwest corner of the Moncrief property. More serious bluff loss, undermining the westerly neighbor's property and causing concrete deck and wall debris to fall 40 feet to the beach below, had already occurred by the time of our first site visit on November 17, 2004 (see Figure No. V, overhanging patio slab remnant).

At the time of our first and second visits (November 17, 2004, and January 11, 2005), problematic bluff conditions appeared to be limited to the westerly 15 feet of the Moncrief property and extended approximately halfway across the westerly neighboring bluff. At the time of the visits, notable bluff deterioration was limited to the upper 15 to 18 feet of near-vertical bluff face comprised of silty sand terrace deposits. The lower 4 to 5 feet of the terrace deposits (basal cobble unit) was saturated with the water bleeding from the slope face contributing to weakening and deterioration of the upper bluff face.

While deep erosion rilling affected the upper bluff, the lower bluff's Cretaceous bedrock comprised of cobblestone and siltstone formational materials, appeared to be relatively stable. The initially proposed geotechnical investigation was, therefore, to be limited to an evaluation of upper bluff stability and retention alternatives.

By the time of our initial field work on February 22, 2005, the early heavy winter rains of December 2004 and January 2005 had caused the deeply incised upper bluff to fail back to a smoothed scarp. The failure revealed four PVC pipes that served to carry collected surface drainage water to a collection sump located at the south end of the Moncrief's west side yard concrete walkway (see Figure No. VI). Upon exposure by upper bluff failure, the pipes were observed to be leaking water from joints near the sump facility.

An investigation was initiated to evaluate the sump facility and PVC lines discharging to the sump. It was determined that at least 4 years ago, prior to the purchase of the home by the Moncriefs, the collection and pumping system had been allowed to fall into disrepair and the primary pump and backup pump had been removed from the sump enclosure. Based on review of provided records, it appears the drainage collection system, redundant pump installation, and a back-up power failure emergency generator system had all been installed in compliance with

Coastal Development Permit Nos. 1995-0552015 and 1995-0560092. The work was required at that time to address adverse surface drainage over the bluff face and significant bluff failure conditions.

Due to removal of the pumping system and lack of knowledge by the current owner that the system existed, all collected water reaching the invert elevation of the multiple drain lines through the sump box's cast concrete walls was leaking back out onto the upper bluff face. We have provided Figure Nos. VIIa and VIIb showing the sump enclosure pipe inlets -- two on the south sump wall and two on the west wall. Long-term leakage from the sump facility, as well as leakage from subdrain pipes from the neighboring westerly property and long-term natural subsurface flow, is now believed to have contributed to the upper bluff deterioration. A temporary sump pump discharging water to the street was installed to maintain the sump enclosure water level below the supply line inverts, thereby eliminating the backflow leakage condition. Although backflow leakage has been resolved, occasional supply line leakage from water en route to the sump still occurs due to improper connections. Due to their vertical cliff face location, the pipes cannot be safely accessed for repair until bluff face stabilization work takes place.

Despite the significant increase in the upper bluff failure size, our field mapping and investigation of February 22, 2005, focused on the upper bluff, with the intent of designing a stabilization structure built to retain the upper 15 to 18 feet of bluff face. Due to the rains beginning February 24, 2005, however, a full-height bluff failure occurred in early March below the Moncrief property. Additional patio concrete fell to the beach from the westerly neighboring property (see Figure No. VIIIa). It became apparent at that time that upper bluff stabilization alone would not be adequate and full-height bluff retention would be required. As shown on Figure No. VIIIb, failure not only occurred on the Cabrillo-Point Loma Formation contact, but failure within the Point Loma Formation pushed large blocks of the Point Loma Formation onto the beach.

At the time of our last site visit, the temporary sump pump was still in place and operational. Evidence of continuing and very recent block falls of the Cabrillo and Bay Point Formations was observed. Furthermore, a 2-inch-wide open fracture paralleling the bluff face revealed an additional Cabrillo Formation failure in progress.

III. SITE-SPECIFIC GEOLOGY

Field investigations and document research revealed the bluff failure to be controlled by site-specific geologic conditions. Although excess water from a historic rainfall winter and wetting of the bluff face from old deteriorated and improperly constructed drainage systems may have triggered the failures, the base-of-bluff failure occurred due to the weak strength characteristics of the Cretaceous Point Loma mudstone.

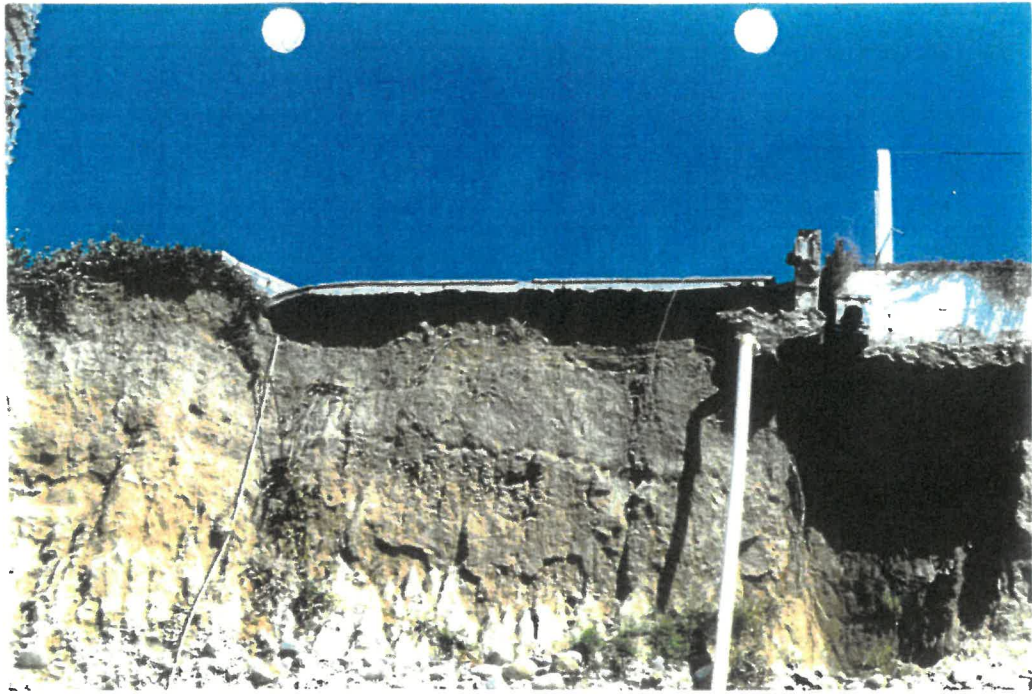
A. Stratigraphy

The bluff face at the Moncrief property is comprised of three geologic units: the Quaternary Bay Point Formation and the Cretaceous Cabrillo and Point Loma Formations. We have provided as Figure Nos. IXa and IXb excerpts from the La Jolla Quadrangle Geologic Map by Kennedy, 1975. The map does not show the Point Loma Formation at the base of the bluff. The planated Point Loma surface at the base of the bluff is commonly overlain by, and can be concealed by, loose cobbles and bluff failure natural and manmade debris. We provide Figure No. X as a photograph of the bluff face including the geologic contacts between the three formational units.

Bay Point Formation (Qbp): The upper 15 to 18 feet of bluff face (elevation 32 to 50 feet above mean sea level [AMSL]) consists of the Birdrock Terrace, Quaternary Bay Point Formation. This marine terrace deposit is comprised in the upper 12 to

APPENDIX D





411 Sea Ridge Drive
1995 (Current)
Wrench Property



417 Sea Ridge Drive
1995 (Current)
Naidu Property

