

## RESULTS

SITE INSPECTION- 8/13/19

# 19<sup>TH</sup> FAIRWAY

*Prepared for:*

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*Prepared by:*

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## 1.0 SUMMARY

The site inspection for 19<sup>th</sup> Fairway was completed on 8/13/19 by John Cona-PE. Criterium-Cona Engineers is acting as a third-party engineer on this project.

The purpose of the site inspection was to investigate three ongoing issues with the property and prepare initial recommendations on how best to proceed in the following three areas:

1. Water Infiltration- ongoing water leakage into lower units of buildings A & B.
2. Roof- gutter and downspout issues
3. Pool -future removal

This engineer has been involved with the property since August of 2017 starting with a Reserve Study and follow-up work on water infiltration and drainage analysis.

## 2.0 PROPERTY DESCRIPTION

The property under investigation is located at 54 Columbine Circle in Eagle/Vail, CO. The property consists of 3 wood framed condominium buildings built in three phases starting in 1977. Unit construction varies throughout the complex.

This is a residential property with 26 units located East of Avon, CO and South of Interstate 70. The property is accessed from Columbine Circle from the North side of the property

## 3.0 DISCUSSION

The request received by this office was to review three concerns:

1. Water Infiltration- ongoing water leakage into some lower units of buildings A & B.
2. Roof- gutter and downspout issues
3. Pool-future removal potential

We will address each issue separately although there is significant crossover that will be noted.



## 4.0 SUMMARY DESCRIPTION

### *WATER INFILTRATION*

- Building A & B are constructed with approx. 5ft. of the lower level below grade. The concrete slab is approx. 4” thick. Concrete Masonry Unit (CMU) block rest on the slab and the CMU forms stem walls that support the structure. The slab is continuous and extends approx. 6” past the CMU on the exterior side of the foundation. The shelf on the exterior slab can act to channel water under the CMU into the lower level of unit #1 thru #18.

*Excavation of Unit #9 West side in 2018 showing 6” exterior shelf on the concrete slab*



- Building C has a crawlspace under the lower level flooring and this flooring is wood framed. There is a perimeter concrete footer located approx. 3 ft. below the wood floor in the lower level. This is a better construction method for Building C since any water infiltration that does occur will be located in the crawlspace and not damage lower level flooring materials.

*View of crawlspace and footer in Building C-unit #19*



#### UNIT SUMMARY-LOWER LEVEL -Building A

- #1- End unit-New carpeting and wood flooring- no damage observed
- #2- Front of unit leaked 4-5 years ago and has not leaked since then. Rear wall was excavated and sealed in 2014 and no leaking observed since then. New carpeting 2019.
- #3-Observed possible previous leak in front of unit.





#4- Front repaired by Aspen Foundations in 2018- installed 30 ft. of perforated drain pipe and dry pit located approx. 25' from foundation. Leaked after the 2018 repair initially due to soil grade towards building and incomplete downspout. Soil grade, downspout and interior sealing repairs were performed and no leakage after the follow-up repairs.

*#4 wall repaired in 2018- dry in 2019. Some evidence of salts on surface of wall that have been observed for many years.*





#5- Leakage on the back side in 2019 and in previous years. The leakage occurs in the Spring with snow melt.

*#5 rear corner leakage that occurred in 2019*



#6- Leakage on front wall-similar to Unit #4.

#7- No leakage observed

#8- No leakage observed







## UNIT SUMMARY-LOWER LEVEL -Building B

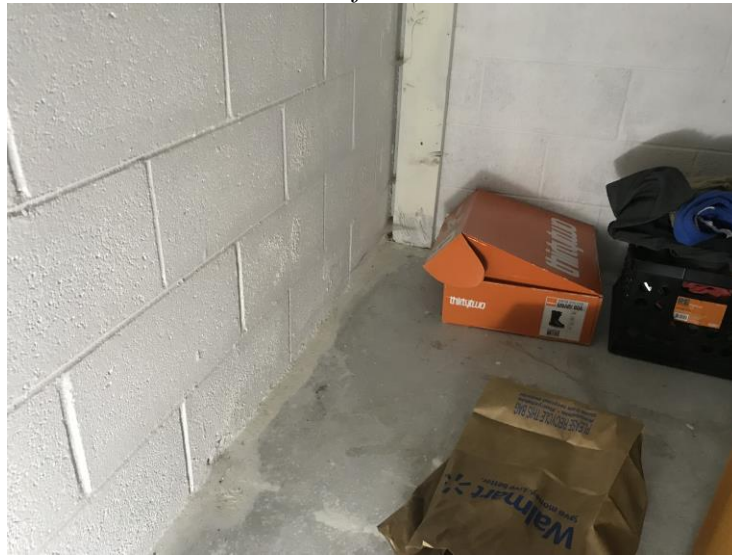
#9- Perforated pipe installed by Aspen Foundation in 2018 on the side and front of unit with integrated drywell approx. 20 ft. from the foundation. Closet and area under stairs was dry along with the sump pit. No leakage of area repaired in 2018 occurred in 2019. Water infiltration was observed in 2019 that appears to have originated in Unit #10 and carried into Unit #9.

*2019 water damage in front of Unit #9 at corner adjacent to unit #10*



#10- Front side leak on June 15th,2019 after heavy rainstorm that carried water into unit #9.

*Evidence of water in #10*



*#10 gutter over entrance-no downspout & blue tarp located to move water away from foundation.*



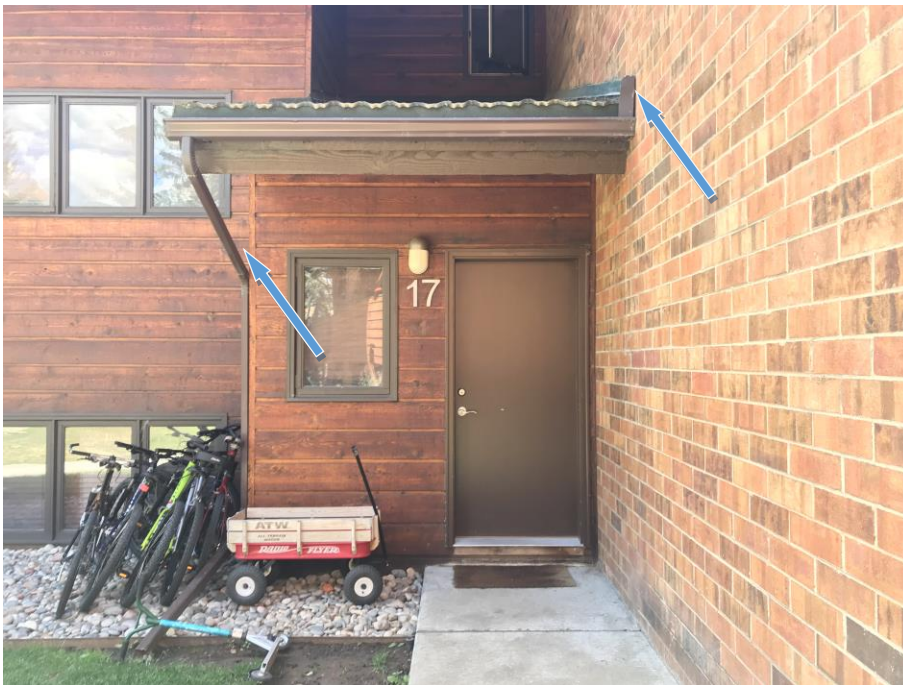


#11 – No damage observed. No downspout on the entrance gutter. Soil grade slopes away.

#12- previous damage front side with efflorescence under stairs and previously repaired drywall. Some doors do not close correctly. Entrance gutter does not have a downspout.

#13,#14,#15 no entry

#16- Front leak 5-6 years ago and flashing and downspout was added to the gutter over the entrance of #17 and this corrected the problem for #16. Water was observed running down the wall at the foundation.



#17 – Evidence of previous front leak.





### UNIT SUMMARY-LOWER LEVEL -Building C

#19 Observed crawlspace under this unit. Crawlspace was dry and approx. 3 ft. under the wood framed suspended floor.

#21 Water infiltration issue 10 years ago according to the homeowner. The front of unit was excavated and membrane applied to the wall from the exterior and a perforated drain pipe was installed. No further problems have been reported.



## ***GUTTERS AND DOWNSPOUTS***

- A & B building do not have gutters and downspouts on the rear of the building.
- C-Building has gutters and downspouts on the front and rear of the building.
- All three buildings have significant overhangs on the eaves of the roofs. No overhangs are present on the rake edges.
- The Gerard stone coated metal roof was installed on wood battens without removing the previous roof material. The roof elevation changed (raised) by approx. 3” and the gutters were now located too low in some locations to catch significant storm water flowing off of the roof.
- Gutter length is typically 40 ft with only one downspout- Maximum 20 ft. length of gutter with downspout is recommended.

*Gutters over unit #8- 4” gutter with 40 ft. length and only one down spout*



- Gutters over the entrance doors on Building B do not have downspouts.



## **WATER INFILTRATION -DISCUSSION AND CONCLUSION**

**Building A & B**- The original design of Building A & B with the 6” exterior shelf on the concrete slab is problematic. This shelf tends to channel water under the CMU block into the lower level of these units.

A & B building has excessive 40 ft. length gutters located at an incorrect height to capture large water flows off of the roof.

The rear of the A & B buildings does not have gutters.

Soil grade slopes are not away from the building front and rear and tend to channel water towards the building. The surface water moving towards the foundation tends to saturate soil at the foundation and the inherent construction weakness of the exterior concrete shelf mentioned above allows water to enter the units.

**Building-C** – This building has a crawlspace with the foundation located 3ft. under the framed wood floor of the lower level. Building C also has gutters and downspouts on





the front and rear of the building and soil grade is sloped generally away from the building. Water Infiltration is not currently a concern for Building C.

### **WATER INFILTRATION- REPAIR RECOMMENDATIONS**

The general recommended approach is to interrupt the surface water at the source and use excavation and sealing of the perimeter of the foundation as a Phase 2 solution.

1. Regrade the soil around building A & B- regrading would require a min. 6” slope away per 10ft. of horizontal distance from the building.

Regrade the following areas:

- Front and rear of Building A
- Area between Building A & B between unit #9 & #8
- Front side of Building B

Regrading would involve an elevation survey and development of a Grading Plan that would require removal of concrete sidewalks and grass and developing swales to move water away from the buildings and off of the property or into dry wells. The property does not have storm water sewers and there is not much grade (drop) to work with to develop the proper grading. The grassy area on the rear side of Build A appears to be the lowest elevation on the property. The new soil grade would need to be correctly sloped and compacted. Once the correct grades are established, the sidewalks and landscape would be reinstalled.

2. Install gutters at the correct height with maximum 20 ft. length front and rear of Building A&B.
3. All gutters to have downspouts that deposit water flow at least 8ft from the foundation.
4. If there is continued water infiltration from hydrostatic pressure after all the grading and gutter work is completed, then excavation and sealing of the foundation could be completed as Phase 2.







### ***POOL-REMOVAL***

A preliminary review of the potential pool removal indicates the following:

1. Concrete pool deck, walls and floor to be broken up, removed and trucked to land fill.
2. Pool would be backfilled with an engineered fill. Fill to be compacted and levelled with a base layer in preparation for asphalt.
3. Expand asphalt parking lot over the previous pool area of approx. 1700 sq. ft.
4. Rework the parking lot striping to add 6-7 parking spots with 9'x20' parking slots at a 60-degree angle.

All demolition and construction will be dependent on permitting requirements for the city and county.

We strongly recommend that the HOA utilizes engineering oversight for the projects listed. Development of Request for Proposal (RFP), evaluation of contractor bids, Design Plans and actual installation oversight is critical for the success of 19<sup>th</sup> Fairway projects.

Thank you for the opportunity to provide you engineering services on this project.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John A. Cona".

John Cona-PE 0036481  
President



*issued 8/21/19*

