

2010 Tanque Verde Flood Investigation Report

Site Investigation Date: August 2, 2010

Investigators: Brian Jones and Eric Shepp
Report written by Brian Jones and edited by Eric Shepp

We visited the Rustand property (109-22-020M), the site of an ongoing violation due to placement of fill and debris on the south bank of the Tanque Verde. The debris was noticeably undercut in at least one location, and it appeared that fresh fill/debris had been recently placed in at least one location. Photo taken of recent fill, approximately Lat. 32.269045, Long. -110.871144

We then visited the Mule Power Farms property (205-52-029C). Debris was observed in the overbank. Based on debris evidence, the flow appeared to be 18 inches deep at the back gate near the main channel of Tanque Verde Creek. Debris was observed as much as approximately 175 feet from the bank of the main channel at the eastern portion of the loop driveway on the property, the probably marks the edge of the Tanque Verde floodplain at this location (Lat. 32.2460.2, Long. -110.746631). Four photos taken.

We then visited the 49ers Country Club area, specifically those properties along Barbary Coast Road and Sutter Mill Street. We started at the intersection of Barbary Coast and Fortyniner Drive and went west.

Large portions of an open wood fence were knocked over at the Decker property, 12200 E. Barbary Coast Rd. (205-50-093A and 205-50-0940). Water did not appear to have entered either structure on the property, however other personal property was damaged. This property is in receipt of a LOMA, that removes there property from the floodplain. Five photos were taken.

The Castillo residence at 12150 E. Barbary Coast Rd. (205-50-0900) was flooded and two portions of the block wall collapsed. The Castillo's were not home, but a clean-up/restoration crew was working at the house. Based on the evidence, it is believed that the block wall at the rear of the property collapsed first, then water was impounded in the back yard, causing the west side yard wall to collapse. Water marks on the outside of the west side of house were about 34 inches above grade. A water mark on the inside of the western property wall was approximately 36-38 inches above grade. It is possible that this flood height was increased by impounded by the front block wall. It is difficult to say how much mud was deposited as the floodwaters receded, which would affect the flood height during the flood peak. According to the restoration crew, the residence was fairly seriously damaged. Five pictures taken.

The neighboring residence, owned by the Ashbrooks at 12140 E. Barbary Coast Rd. (205-50-0890) was flooded as well. A debris line on the rear wall of the house is approximately 30 inches above the newly deposited sediment against the base wall. The sediment is likely no more than 1 inch thick. The block wall along the back of the

property was largely destroyed. Individual blocks from the wall were found approximately 40 feet downstream from the wall. The Ashbrooks were not at home at the time, but phone contact was made the next day. Five photos were taken.

Across the street, the Travers residence at 12045 E. Barbary Coast Rd. (205-50-0680) was partially flooded. Water entered the garage, and started getting in to the main house, but the Travers family was able to prevent the water from getting more than a few feet inside the house. There was more debris on the property than found on the Castillo or Ashbrook property, which may be the result of the flow spreading out and slowing down. It is also possible that the property renovators for the Castillos and Ashbrooks had already removed exterior debris. Flood waters traveled between the Travers residence and the Carrion residence at 12101 E. Barbary Coast Rd. (205-50-0670), and flowed down the fairway of the golf course. One picture was taken.

The Carrion residence and detached garage at 12101 E. Barbary Coast Rd. (205-50-0670) were flooded. Mrs. Carrion reported that the water was about 1 inch deep inside the house but was deeper inside the garage. According to Mr. Carrion, some of their belongings (trash can, Rubbermaid shed and some fire wood) were found about a 1/4 mile away, down the golf course. Mrs. Carrion reported that their flood insurance wasn't helping because the covered damages are less than their \$2000 deductible. The garage is apparently not considered covered by the insurance since it is detached. The debris line on the back of the garage was approximately 15 inches above the newly deposited sediment, which is believed to be approximately an inch or two inch deep. Three photos taken.

We were informed by a neighbor that the Garcia residence at 12030 E. Barbary Coast Rd. (205-50-0850) flooded. The debris line on the eastern side of the residence was approximately 10 inches above grade. Water was flowing south between the Garcia residence and the Dent residence, away from Barbary Coast Road back towards the main channel. High ground behind the two properties appeared to impede the water and thus may have exacerbated the problem due to backwater effect. One photo taken.

The Dent property at 12040 E. Barbary Coast Rd. (205-50-0860) had water in the garage, but was short of getting in to the house by a couple of inches, according to Mr. Dent.

Continuing west on Barbary Coast Road, it appeared that flood waters were near to the finished floor elevations of several houses, but it wasn't obvious whether water entered the structure or not. There were rugs hanging out to dry at 11935 E. Barbary Coast Road (205-50-0740), implying that water may have entered the home.

There was evidence that, as the flood waters were moving west down Barbary Coast, the main flow path moved back and forth across the street, and occasionally took a path between houses out to the fairways north of Barbary Coast and back. It appeared that most of the water flowing down the 16th fairway appeared to hit the green and go get diverted between the houses back to Barbary Coast Rd. Two photos taken.

After getting to the west of Barbary Coast, at Soldier Trail, we drove east to the intersection of Barbary Coast and Sutter Mill.

The Farkas residence at 12440 E. Barbary Coast Rd. was flooded with 4-6 inches of water inside the home. The Farkas' felt that the "dump" where the golf course puts tree trimmings and other debris exacerbated the flooding problem at their house. We then spoke with the neighbor to the east. They were able to prevent water from getting in to their home, but barely. Water did get in to the back yard. The owner credited a berm outside the wall and the fact that they replaced the back gate with block wall for preventing their home from being flooded. He also talked about the debris that the golf course dumps nearby.

We went to investigate the "dump" and found large piles of debris consisting mainly of tree trimmings and other green waste. Portions of the pile were up to 7 feet tall. The pile was more than 200 feet long and varied in width from about 12 feet to over 25 feet. It appeared that flood waters broke through a ten foot section of the debris pile, flowed across a graded area, then as debris got caught in the thick vegetation at the western end of the graded area, was forced north onto the 7th hole of the golf course and toward the residences at the east end of 49ers. The debris pile is located in the Floodway and is likely not allowed, and some of it may actually be off the golf course property. Eight pictures taken.

As we walked west along the Tanque Verde Channel, it was apparent from the debris, that floodwater continued to flow onto the golf course. As the water was flowing downstream, it was also flowing to the north towards the residences. Two pictures taken.

The Leavitt residence at 12518 E. Barbary Coast Rd. (205-50-1100) was flooded with an unknown amount of water, and it appeared that the Drake residence at 12510 E. Barbary Coast Rd. (205-50-1090) was also flooded. Based on the large amount of debris behind and between these two properties, it appeared that at least a foot of water flowed between the homes. A fairly sizeable gravel bar was deposited in the front yard of the Leavitt property. Eight photos taken.

There were household belongings out to dry at the Rieck residence at 12505 E. Barbary Coast Rd. (205-50-1140), which was flooded. One photo taken.

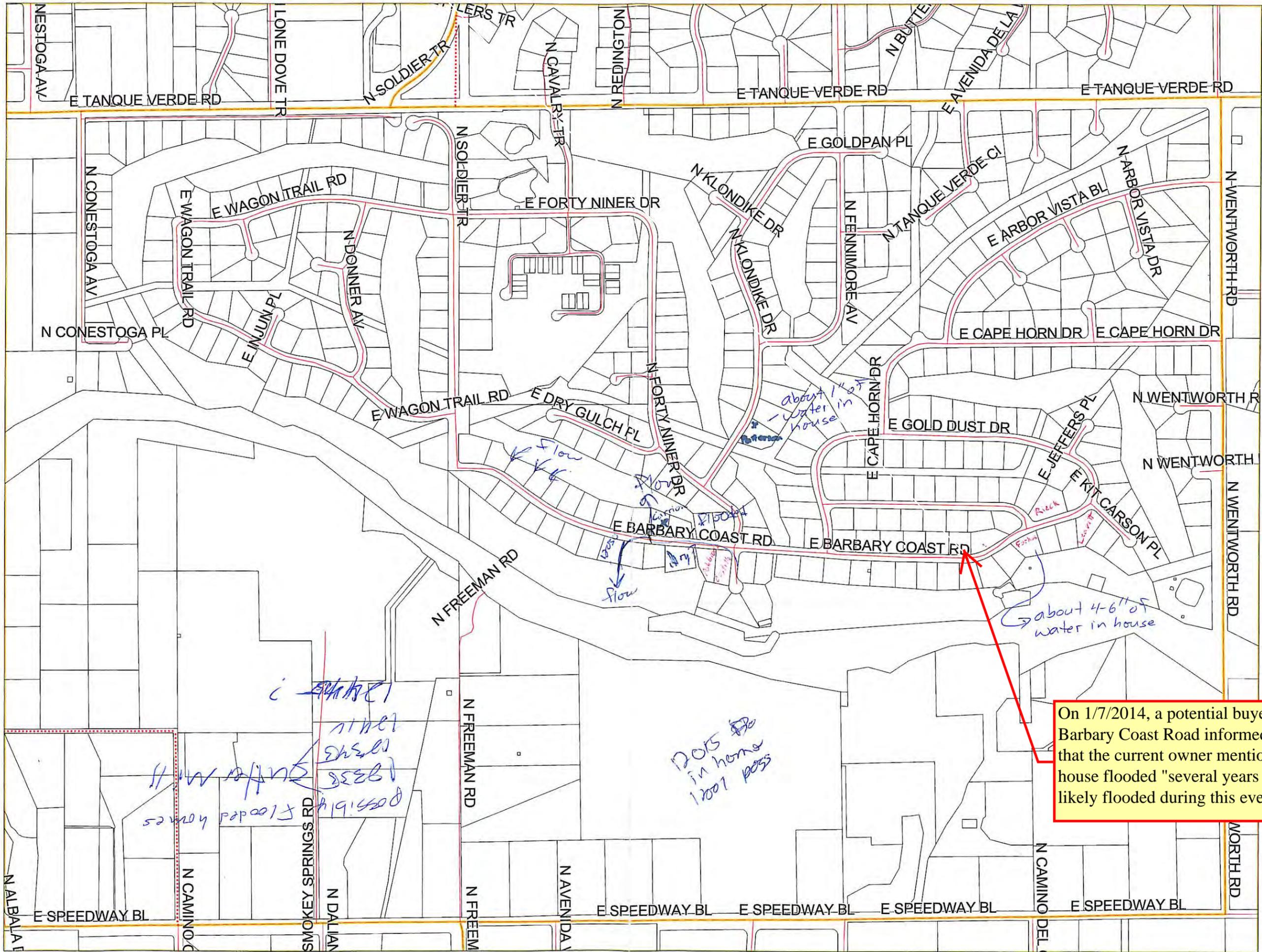
At the end of the day, we quickly investigated Sutter Mill Street and the fairways. On Sutter Mill, based upon renovator trucks in driveways, it appeared that the following residences were flooded: 12335 E. Sutter Mill St. (205-50-0210), 12345 E. Sutter Mill St. (205-50-0200), 12410 E. Sutter Mill St. (205-50-0300). A pick up truck full of carpet pieces was seen in front of 12445 E. Sutter Mill St. (205-50-0150), which may also indicate that it was flooded. It seems likely that other homes on Sutter Mill St. were flooded, but there wasn't enough time to investigate.

On the fairways, the flood continued flow to the west at a depth of approximately 18-24 inches. At the water system, the chain link fence caused water to back up to approximate

4 feet before the fence was knock over. There was significant erosion around the water storage tank with bedding ring, and bedding damaged. There was evidence of flow from the Tanque Verde channel continuing to enter into the fairway. It appeared the flow entered the residential area from the fairway at two main locations. At the Fortyniners Dr. cul-de-sac and at the intersection of Barbary Coast and Sutter Mill. This appears to due to the flattening out of the fairway. In many areas the fairway grade is about 2 feet below the grade of the adjacent residences, but at these locations, the fairway grade and the residential grade become relatively even, which allows water to flow north into the neighborhood.

By the end of the day, we tallied at least 12 homes that we either know were flooded or there was strong evidence that they flooded. Another four homes either had a garage flooded or appeared to have flooded inside the home. There were likely other homes that were flooded, however.

8-2-10
P. Jones



On 1/7/2014, a potential buyer of 12401 E. Barbary Coast Road informed the District that the current owner mentioned that this house flooded "several years ago", so it likely flooded during this event. - B. Jones

possibly flooded homes
12411
12414
12415
12416
12417
12418
12419
12420
12421
12422
12423
12424
12425
12426
12427
12428
12429
12430
12431
12432
12433
12434
12435
12436
12437
12438
12439
12440
12441
12442
12443
12444
12445
12446
12447
12448
12449
12450

12015
in home
12017
poss

Recent fill placement on
Rustand property
109-22-020M (looking S)



Flow



Flood debris on Mule Power Farms property 205-52-029C (looking NW)



Flow

Mule Power Farms property
205-52-029C (looking NW)



Flow

Flood debris on Mule Power Farms property 205-52-029C (looking NW)

Approx. 18" flow depth at gate

Flow



Flood debris in Tanque Verde behind Mule Power Farms property 205-52-029C (looking W)



large
debris pile

Flow

Fence knocked down behind
12200 E. Barbary Coast Road.
205-50-093A. Looking SSE

Flow



12200 E. Barbary Coast
Road. 205-50-0940. No
apparent damage to
structure. Looking NE



Flow

12200 E. Barbary Coast Road. 205-50-0940. Fence pushed over. Looking N



Flow

12200 E. Barbary Coast
Road. 205-50-0940.
Looking NE



Flow

12200 E. Barbary Coast Road. 205-50-0940. No apparent damage to structure. Looking E



High water mark

12150 E. Barbary Coast Road. Castillo Property. 205-50-0900. Flooded home. Block wall collapsed. Looking S.



Collapsed block wall

Flow

12150 E. Barbary Coast
Road. Castillo Property.
205-50-0900. Flooded
home. Looking SE.



Flow

Flow



Flow

12150 E. Barbary Coast
Road. Castillo Property.
205-50-0900. Looking S

12150 E. Barbary Coast Road. Castillo Property. 205-50-0900. Looking SSW

High Water Mark, approximately 38" high (impounded)

Flow



12150 E. Barbary Coast
Road. Castillo Property.
205-50-0900. Looking E

High Water
Mark
(impounded)



Flow



12140 E. Barbary Coast
Road. Ashbrook Property.
205-50-0890. Looking E

High
Water
Mark



12140 E. Barbary Coast
Road. Ashbrook Property.
205-50-0890. Flooded
Home. Looking NW

High
Water
Mark



12140 E. Barbary Coast
Road. Ashbrook Property.
205-50-0890. Flooded
home. Looking NW

High
Water
Mark



12140 E. Barbary Coast Road. Ashbrook Property. 205-50-0890. Flooded home. Looking N

High Water Mark (approx. 30" high)



13	N						
12	W						
11							
10							
9							
8							
7							
6							
5							
4/2	3	4	5	6	7	8	9

Photo #

12140 E. Barbary Coast Road. Ashbrook Property. 205-50-0890. Looking SE

Collapsed block wall

flow



12045 E. Barbary Coast Road.
Travers Property. 205-50-0680.
Water entered garage, but
residents were able to confine
flow to near entryways. Looking
NW



flow

12101 E. Barbary Coast Road. Carrion Property. 205-50-0670. Home and garage flooded. Approx 1" of water in home, deeper in garage. Looking NE.



12101 E. Barbary Coast
Road. Carrion Property.
205-50-0670. Looking NE.



flow

12101 E. Barbary Coast Road. Carrion Property. 205-50-0670. Home and garage flooded. Approx 1" of water in home, deeper in garage. Looking W at back side of garage.



flow →

12030 E. Barbary Coast Road. Garcia Property. 205-50-0850. Home flooded according to neighbor. Looking SW

high water mark (approx. 10")



flow



It appears that flow was trying to flow back south but was partially trapped by high ground behind the house.

Sand trap behind 11925
E. Barbary Coast Road.
205-50-0750. Elevated
area of golf course
appeared to push flow
south. Looking ~N

sand
trap

flow



Behind 11925 E. Barbary Coast Road.
205-50-0750. Elevated area of golf course appeared to push flow south. Looking S



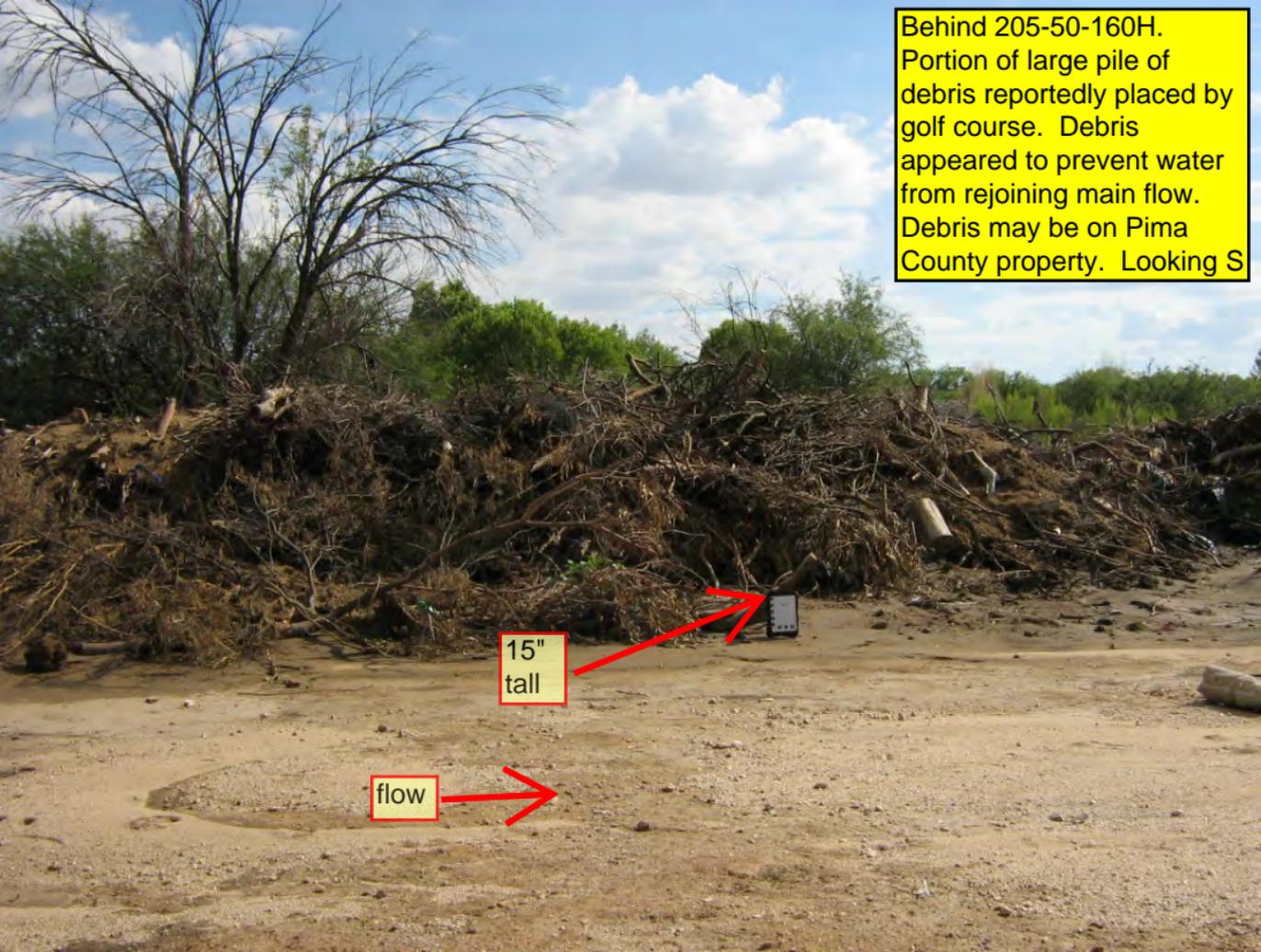
flow

Behind 205-50-160H.
Portion of large pile of
debris reportedly placed by
golf course. Debris may be
on Pima County property.
Looking ESE



flow

Behind 205-50-160H.
Portion of large pile of
debris reportedly placed by
golf course. Debris
appeared to prevent water
from rejoining main flow.
Debris may be on Pima
County property. Looking S



15"
tall

flow

Behind 205-50-160H.
Portion of large pile of
debris reportedly placed by
golf course. Looking SE

flow



Behind 205-50-160H.
Portion of large pile of
debris reportedly placed by
golf course. Looking SE



flow

Behind 205-50-160H.
Portion of large pile of
debris reportedly placed by
golf course. Looking SSW



15"
tall

flow

Behind 205-50-160H.
Portion of large pile of
debris reportedly placed by
golf course. Looking ~W



flow

Behind 205-50-160H.
Portion of large pile of
debris reportedly placed by
golf course. Looking W



flow

Behind 205-50-160H.
Portion of large pile of
debris reportedly placed
by golf course. Looking SE



Behind 205-50-160H.
Debris in fence. Looking SE

Tanque Verde main
channel

flow?



Behind 205-50-160H.
Looking ~S

flow



Behind and between 12518
E. Barbary Coast Rd.
(205-50-1100) and 12520
E. Kit Carson Pl
(205-50-0110) Looking ~N



flow
?



flow

Behind and between 12510
E. Barbary Coast Rd. (left)
(205-50-1090) and 12518
E. Barbary Coast Rd.
(right) (205-50-1100)
Looking ~N



Behind and between 12502
E. Barbary Coast Rd. (left)
(205-50-1080) and 12510
E. Barbary Coast Rd.
(right) (205-50-1090)
Looking ~NNW



12518 E. Barbary Coast
Rd. 205-50-1100
Looking ~NE



flow

12510 E. Barbary Coast
Rd. 205-50-1090

12518 E. Barbary Coast
Rd. Leavitt property.
Home flooded.
205-50-1100 Looking ~NE



flow

12510 E. Barbary Coast
Rd. 205-50-1090
Looking ~NNE



12510 E. Barbary Coast
Rd. 205-50-1090
Looking ~NNE

debris
line



flow



12518 E. Barbary Coast Rd. Leavitt property.
Home flooded.
205-50-1100 Looking ~NE

gravel bar
in yard

flow



12505 E. Barbary Coast
Rd. Rieck property. Home
flooded. 205-50-1140
Looking N

