

# MEETING AGENDA

## TOWN OF CORTE MADERA

### Flood Control Board

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Monday February 13, 2017  
7:00 P.M.

Corte Madera Town Hall Council Chambers  
300 Tamalpais Drive, Corte Madera, CA 94925

1. CALL TO ORDER
2. OPEN FORUM FOR NON-AGENDA ITEMS
3. APPROVAL OF MEETING MINUTES (JANUARY 9, 2017)
4. ENGINEERING STAFF UPDATE-Kelly Crowe
5. DISCUSSION ITEMS
  - A. Flood Control Study Prioritization Criteria
  - B. Tidal Flooding Issues
6. FUTURE AGENDA ITEMS
7. ADJOURNMENT

Attachments:

1. Draft Minutes of January 9, 2017 meeting
2. Capital Project List and Prioritization Criteria from Phase 1 Town Wide Drainage Study

*Note: Per Ordinance No. 821 of the Corte Madera Municipal Code, the **Storm Drainage Special Tax** has a 25 year term, beginning July 1, 1998 and expiring June 30, 2023.*

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Department of Public Works at 415-927-5057. For auxiliary aids or services or other reasonable accommodations to be provided by the Town at or before the meeting, please notify the Department of Public Works at least 3 business days before the meeting in advance of the meeting date. If the Town does not receive timely notification of your reasonable request, the Town may not be able to make the necessary arrangements by the time of the meeting.

# **Attachment 1**

**Draft Minutes from 01-09-2017 FCB Meeting**

FLOOD CONTROL BOARD  
JANUARY 9, 2017  
CORTE MADERA TOWN HALL COUNCIL CHAMBERS  
DRAFT MINUTES

Boardmembers Robert Bundy, Chair  
Present: David Bell  
Stephanie Bennett  
Nathan Blomgren  
Ramon Garcia  
Patrick Shea  
Ann Thomas

Staff Present: Associate Engineer Kelly Crowe  
Interim Public Works Superintendent Michael Palmer

1. Call to Order

Chair Bundy opened the meeting at 7:05 p.m.

2. Open Forum for Non-Agenda Items

There were no comments.

3. Approval of Meeting Minutes (November 14, 2016)

M/s, Thomas/Bennett and carried unanimously to approve the minutes of November 14, 2016 as corrected.

4. Engineering Staff Update

Associate Engineer Crowe reported staff received an email from a resident thanking them for the winter preparations and help during the storms. He noted there has been a huge improvement over the years. Boardmember Blomgren noted residents seem to be taking ownership of their part of the neighborhood by cleaning out gutters, drains, etc.

Chair Bundy asked if Marin County Stormwater Pollution Prevention Program (MSTOPPP) might be interested in formalizing the City's "Adopt a Drain Program". Associate Engineer Crowe stated he would find out. It would certainly tie into their trash capture requirements. However, MCSTOPPP is more concerned with pollution prevention.

5. Discussion Items

A. 2016-2017 Winter Preparation

Interim Public Works Superintendent Palmer distributed some documents to the Board. He stated preparations begin in the spring and include the following: 1) American Power tests and services all the generators; 2) Tesco Systems performs thermal imaging and tests all the points, contacts, etc.; 3) All pumps are tested; 4) Cleaned all the catch basins and storm drain inlets throughout Town (about 1,000), inspect the pipes, and flush out the lines; 5) Changed the alarm systems at three pump stations; 6) Serviced four actuators at the flood control stations; 7) Cleaned all the wet wells for all the pump stations and had the diesel engines serviced; 8) Cleaned the Shorebird Marsh wetwell and serviced the diesel engines; 9) Cleaned the wetwell at the San Clemente Pump Station; 10) Repaired the separated pipe at the San Clemente Pump Station; 11) Discovered a hole near the San Clemente Pump Station close to where the manifold was replaced; 12) Marina Village and Black Kettle Lagoon pumps were removed and inspected; 13) Black Kettle pumps #2 and #3 were rebuilt and reinstalled with new air relief valves; 14) Cleaned,

inspected, and adjusted gates at Lagoon One; 15) Cleaned and inspected gates and pumps at Marquart Lagoon (Lagoon Two); 16) Cleaned and inspected Big "G" pump station; 17) Installed and repaired pipes in various neighborhoods; 18) Performed cathodic protection around town; 19) Other small miscellaneous improvements. He briefly discussed the flushing and filling schedule, monitoring storm events, and recent preparations.

Superintendent Palmer reported all the generator power cables at Marina Village had to be replaced because they were chewed up by rodents. The generator is back on line and will be load tested next spring. The pump station alarm systems are now cellular auto dialers and not based on landlines. There is a monitoring station back in Georgia.

Boardmember Garcia asked a question about the alarm systems and the actuators.

Chair Bundy asked about the status of the generators. He noted they need to be careful about how often they are run since they are old and there has been a problem in the past with the Air Quality Control Board. Superintendent Palmer stated staff plans to replace several of them. The Air Quality Control Board will leave the Town alone if they go with a tier three system. Staff is deciding on whether to replace them with a tier three or tier four system. Boardmember Thomas asked if there was a price difference. Superintendent Palmer stated "yes" and it was pretty significant. He did not have the figures in front of him.

Chair Bundy stated the generators are used in a power outage and most of the time they are not really pumping but rather opening the gates to allow passive movement of water in or out. Superintendent Palmer agreed and stated the gates move the water better than the pumps. Chair Bundy referred to the lagoons and asked if the thought was that they do not need to replace the generators or the pumps because the gates are adequate. Superintendent Palmer stated "yes"- and former Superintendent Kramer is in favor of putting in larger gates. Chair Bundy stated this sounds like a more cost effective idea.

Boardmember Blomgren asked if staff keeps track of which pumps consume the most power or run time. Superintendent Palmer stated they keep track of run times for pump stations and he would guess the highest run time was at the High Canal.

Chair Bundy referred to the Black Kettle Lagoon and noted it does not seem like there is a large volume of water to be moved and he asked if there were three pumps. Superintendent Palmer stated "yes". Chair Bundy asked if they ran one at a time. Superintendent Palmer stated this lagoon takes everything from the Lucky Drive area and the industrial area. That stretch of Nellen can get flooded during high tides and rain. That pump station gets a lot of use. Chair Bundy asked if the lagoon is listed as wetlands since it has filled in with grass. Superintendent Palmer stated there were some individuals looking for invasive species but nothing was mentioned about the classification.

Boardmember Bennett referred to the unincorporated area of Lucky Drive and asked if there was any funding from the County for flood control. Superintendent Palmer stated not to his knowledge. The Town maintains the storm drainage system in that area.

Chair Bundy asked about the function of the Big "G" pump station and portable generator- it is a very small watershed that pumps into the canal that runs behind the shopping center. He asked if this pump station was used often. Superintendent Palmer stated "yes". Chair Bundy stated if that area were to be redeveloped it should be raised up- there would then be no reason for the pump.

Chair Bundy referred to the Golden Hind Pump station (by the Cove School) and stated during high tides the tide was spilling over into the street and the pump was picking it up. Those are some powerful pumps. Superintendent Palmer agreed and stated staff will be making some adjustments to the system since it is turning on often. Chair Bundy stated they could put it on a time delay.

Chair Bundy stated Superintendent Palmer and former Superintendent Kramer have worked together to look at where pumps need to be replaced, maintained, or taken out. The Flood Board might need to run interference for the Public Works Department if a decision is made to remove a pump station.

Boardmember Thomas asked if there were any recent problems at that small section of the levee near Marina Village. Associate Engineer Crowe stated staff received the topography for that low spot from the consultants but he has not heard about any recent problems.

Boardmember Blomgren asked about the cellular service for the pump station alarm systems and asked if that would fair well if there was a full regional power outage. Superintendent Palmer stated “yes”- they draw off of PG&E power but have a battery back up system.

Boardmember Blomgren asked staff if they suddenly had an increase of 25% in the budget, what they would spend it on. Associate Engineer Crowe stated pump stations were the priority according to the Storm Drain Master Plan. The next priority is adding capacity by upsizing the storm drain systems. Marina Village, Madera Gardens, and Mariner Cove were designed with very little in terms of storm drainage. The third priority would be the curb ponding issues. He might allocate a bit more of the 25% to this issue.

Boardmember Bell asked if the required maintenance reported by Superintendent Palmer would be considered normal. Superintendent Palmer stated “yes”. Boardmember Bell asked if there has been an increase in maintenance needs. Superintendent Palmer stated “no”.

Boardmember Shea asked staff if they were anticipating problems with tomorrow’s high tide. Superintendent Palmer stated there will be the normal flooding- Golden Hind, Nellen, and in front of the Corporation Yard. Boardmember Thomas asked if a lot of this has to do with high winds. Superintendent Palmer stated “yes”.

The Board thanked Superintendent Palmer for his presentation and good work.

#### B. Golden Hind/Ebb Tide project

Associate Engineer Crowe presented the staff report. He distributed some topographic information to the Board relative to the existing storm drain system at Golden Hind Passage and Ebb Tide. He noted there was not a lot of capacity which presents a problem for the system. The numbers with the “x” next to them represent ground elevations in NGVD data- 2.6 feet would need to be added to get the tide datum. The one thing to draw from seeing these elevations is that a lot of these homes would get flooded during a storm event unless they have some sort of berm system. There is \$30,000 budgeted for this project- this would pay for some conceptual studies to evaluate costs for different options. AN West indicated that a big pump station would cost a lot of money (over \$1 million).

Boardmember Blomgren asked if staff takes into account projected sea level height when calculating the longevity of these types of expensive infrastructures. Associate Engineer Crowe stated “yes”. Boardmember Blomgren asked if they have a plan on what source to use. Associate Engineer Crowe stated “yes”- the Marin County Vulnerability Assessment was under way and the report would be issued sometime in March. The County chose a model (Our Coast, Our Future) to predict sea level rise that includes storm surge. Boardmember Thomas stated the study does not make suggestions on how to protect structures, etc. It simply reports the facts and will show what areas are currently vulnerable to flooding and what areas could experience flooding in the future. Associate Engineer Crowe stated the report is somewhat speculative and the estimates very widely. The County is also developing a Local Hazard Mitigation Plan. These two documents will work hand-in-hand. A Local Hazard Mitigation Plan will be needed in order to qualify for disaster grant funding. Boardmember Thomas asked if each jurisdiction would have its own Local Hazard Mitigation Plan. Associate Engineer Crowe stated the County would create all of these plans. Boardmember Blomgren stated the sources were very important since they want to spend the money wisely. The Coastal Commission uses the International Panel on Climate Change projections.

Boardmember Thomas asked what was meant by back-end protection and what type of permitting would be involved. Associate Engineer Crowe stated there were a lot of existing fences out there and homeowners could create a two-foot stem wall and then put a 4' or 5' fence on top of that. They could not encroach any further into the marsh. Boardmember Thomas noted all the neighbors would need to cooperate to get any protection. Chair Bundy agreed that this would need to be a cooperative effort including help from the Town. This area seems to have experienced a lot of settling and it makes no sense to put in a pump when the water spills through. It would be a good idea to rebuild that catch basin that has sunk about two feet, build the road and sidewalk back up, and install some type of barrier. Associate Engineer Crowe asked about the elevation of the tide when it starts to spill over into the back of the yards. Chair Bundy stated it was about 6.5 when it starts to run along the fence. Chair Bundy stated perhaps the catch basin should be redone with a bigger vault that could accommodate a pump in the future. For now they should install the check valve.

Associate Engineer Crowe stated AN West stated they could get some relief by putting in a submersible pump and running a discharge line going out to the bay- they could use a control panel to manually operate it. Chair Bundy stated that might not change the flooding that is associated with that catch basin. It would help to get rid of the water when the tide goes out. Associate Engineer Crowe stated the idea of a submersible pump was a temporary, cost effective fix. The ultimate solution would be a pump station with berming in the back yards, slotted drains, etc.- this could be done in a phased approach. Staff could ask AN West to look into what this would take in terms of permitting, environmental issues, etc. Chair Bundy stated it would be good for AN West to come up with a solution that would provide some immediate relief but would fit in with a longer-term solution.

Boardmember Thomas asked if the berming up in back yards would be along the fence line. Chair Bundy stated "yes". Boardmember Thomas stated they probably want to avoid getting into a permitting situation with environmental agencies, etc. Chair Bundy stated AN West came up with the idea of a sea wall that would be within the property line. Boardmember Bennett stated there was a neighborhood in Santa Venicia that successfully bermed up all the back yards. It might be worthwhile to look into this. Chair Bundy asked Associate Engineer Crowe to investigate if there are any permitting requirements when a homeowner builds a barrier within the property line. Boardmember Bennett asked how many houses would need to build a berm. Associate Engineer Crowe stated there were quite a few- probably about twenty. Chair Bundy stated some already have a berm but it all needs to be tied together.

Boardmember Bennett asked if staff received any positive feedback about the recently completed Sea Wolf Project. Associate Engineer Crowe stated "yes" but they received more calls from residents along Harbor and Prince Royal Passage. Boardmember Shea asked if they planned to do slot drains on both sides of Prince Royal. Associate Engineer Crowe stated "yes". Boardmember Bennett asked about the timeframe. Associate Engineer Crowe noted there have been a lot of delays due to the rain- they still have a segment left on Prince Royal. Boardmember Bell stated the Echo and Harbor slot drains were working great.

Chair Bundy had a question about the plan for fixing the defect in the El Camino drain system. Associate Engineer Crowe stated it was in the budget. He plans to get the project going as soon as he gets a better idea about the history of the project. Chair Bundy stated it seemed like something was installed in the past but was no longer working. It needs to be fixed.

Boardmember Bell asked if they could get an update on BayWAVE at an upcoming meeting. Associate Engineer Crowe stated "yes"- that was part of the Vulnerability Study. They are assessing the comments made by jurisdictions and will start to hold public meetings in March. He could ask the BayWAVE representative to come to an upcoming meeting. Chair Bundy asked if the public meetings would be held throughout Marin. Associate Engineer Crowe stated "yes"- probably by region (Southern, Central, Northern Marin).

Boardmember Bell asked if the Newsletter went out. Associate Engineer Crowe stated it is at the printers and will go out next week.

Associate Engineer Crowe asked the Board to comment on the prioritization of slotted drain projects. Chair Bundy stated the priority is to work on the major streets and the worst intersections (Ebb Tide/Golden Hind, and finishing Sea Wolf). Then they should work on small projects that have significant problems. Boardmember Bennett stated there were several streets (Flying Cloud, Pacific Queen, etc.) that have no drainage and no infrastructure underneath the streets. Boardmember Shea stated for the amount of excavation that has to be done to put in a slotted drain they could put in some storm drains. The street is already opened up. Associate Engineer Crowe stated many of these subdivisions were designed with little drainage and have experienced settlement. He noted staff has the design for Harbor and Echo and could go out to bid soon. Chair Bundy stated the ponding on these streets is not as significant as what Flying Cloud experiences. They should work on the major streets and big problems. Flying Cloud should be the next project. Boardmember Garcia stated they need to come up with a set of criteria.

#### 6. Future Agenda Items

Chair Bundy stated the following items would be on a future agenda: 1) El Camino Project; 2) Prioritization of slotted drain projects.

#### 7. Adjournment- The meeting was adjourned at 9:18 p.m.

## **Attachment 2**

**Capital Project List and Prioritization Criteria  
from Phase 1 Town Wide Drainage Study**



**Proposed Capital Improvement Projects**  
**(From Town-Wide Storm Drainage and**  
**Flood Control Study Phase 1 and 2)**

ITEM NO.	PROJECT	DESCRIPTION	COST	PRIORITY
1	Sub-Watershed B Piping & Curb Drains	Pipe Improvements and Curb Drain Improvements	\$ 619,000	High
2	Sub-Watershed B Pump Station	Pump Station	\$ 761,000	High
3	Sub-Watershed K Piping & Curb Drains	Pipe Improvements and Curb Drain Improvements	\$ 527,000	High
4	Sub-Watershed K Pump Station	Pump Station	\$ 396,000	High
5	Sub-Watershed M Piping & Curb Drains	Pipe Improvements and Curb Drain Improvements	\$ 681,000	High
6	Sub-Watershed M Pump Station	Pump Station	\$ 543,000	High
7	Sub-Watershed P	Pipe Improvements and Curb Drain Improvements	\$ 490,000	High
8	Sub-Watershed P Pump Station	Pump Station	\$ 396,000	High
9	Sub-Watershed Q	Pipe Improvements and Curb Drain Improvements	\$ 432,000	High
10	Sub-Watershed Q Pump Station	Pump Station	\$ 545,000	High
11	Watershed #2 Pump Station	Pump Station Replacement	\$ 348,000	High
12	Sub-Watershed D Piping & Curb Drains	Pipe Improvements and Curb Drain Improvements	\$ 83,000	Medium
13	Sub-Watershed D Pump Station	Pump Station	\$ 357,000	Medium
14	Sub-Watershed E	Pipe Improvements and Curb Drain Improvements	\$ 120,000	Medium
15	Sub-Watershed F Piping & CurbDrains	Pipe Improvements and Curb Drain Improvements	\$ 230,000	Medium
16	Sub-Watershed F Pump Station	Pump Station	\$ 542,000	Medium
17	Sub-Watershed G	Pipe Improvements and Curb Drain Improvements	\$ 280,000	Medium
18	Sub-Watershed H	Pipe Improvements and Curb Drain Improvements	\$ 562,000	Medium
19	Sub-Watershed J	Pipe Improvements and Curb Drain Improvements	\$ 148,000	Medium
20	Sub-Watershed L	Pipe Improvements and Curb Drain Improvements	\$ 501,000	Medium
21	Sub-Watershed N	Pipe Improvements and Curb Drain Improvements	\$ 508,000	Medium
22	Sub-Watershed Paradise Drive	Pipe Improvements and Curb Drain Improvements	\$ 330,000	Medium
23	Sub-Watershed South of Paradise	Pipe Improvements and Curb Drain Improvements	\$ 565,000	Medium
24	Watershed #1 Piping	12" - 30" Storm Drain Pipes, Catch Basins and Misc.	\$ 809,000	Medium

**Proposed Capital Improvement Projects**  
**(From Town-Wide Storm Drainage and**  
**Flood Control Study Phase 1 and 2)**

ITEM NO.	PROJECT	DESCRIPTION	COST	PRIORITY
25	Watershed #1 Curb Drains	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 765,000	Medium
26	Watershed #2 Piping	12" - 18" Storm Drain Pipes, Catch Basins and Misc.	\$ 166,000	Medium
27	Watershed #2 Curb Drains	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 457,000	Medium
28	Watershed #4A Piping	12" - 42" Storm Drain Pipes, Catch Basins and Misc.	\$ 524,000	Medium
29	Watershed #4A Curb Drain	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 268,000	Medium
30	Watershed #4B Piping	12" - 54" Storm Drain Pipes, Catch Basins and Misc.	\$ 687,000	Medium
31	Watershed #4B Curb Drains	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 29,000	Medium
32	Sub-Watershed A	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 72,000	Low
33	Sub-Watershed C	Pipe Improvements and Curb Drain Improvements	\$ 53,000	Low
34	Watershed #3 Piping	12" - 48" Storm Drain Pipes, Catch Basins and Misc.	\$ 600,000	Low
35	Watershed #3 Curb Drains	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 172,000	Low
36	Watershed #8 Piping	12" - 18" Storm Drain Pipes, Catch Basins and Misc.	\$ 8,000	Low
37	Watershed #9 Piping Improvements	12" - 30" Storm Drain Pipes, Catch Basins and Misc.	\$ 162,000	Low
38	Watershed #9 Curb Drains	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 184,000	Low
39	Watershed #10 Piping	12" - 24" Storm Drain Pipes, Catch Basins and Misc.	\$ 38,000	Low
40	Watershed #10 Curb Drains	Grated Line Drains, Concrete Curb & Gutter, Reconstruct Existing Sidewalk and AC Pavement	\$ 198,000	Low
<b>RECOMMENDED STORM DRAINAGE IMPROVEMENTS PHASE 1 AND PHASE 2 SUB-TOTAL</b>			<b>\$ 15,156,000</b>	
<b>RECOMMENDED STORM DRAINAGE IMPROVEMENTS PHASE 1 AND PHASE 2 ROUNDED GRAND TOTAL</b>			<b>\$ 15,200,000</b>	

**Note:**

The construction cost estimates do not include any costs for utility relocations, permanent or temporary construction easements, rights-of-way, environmental studies, permitting, or engineering design services.

**Priority Factors:**

**HIGH**

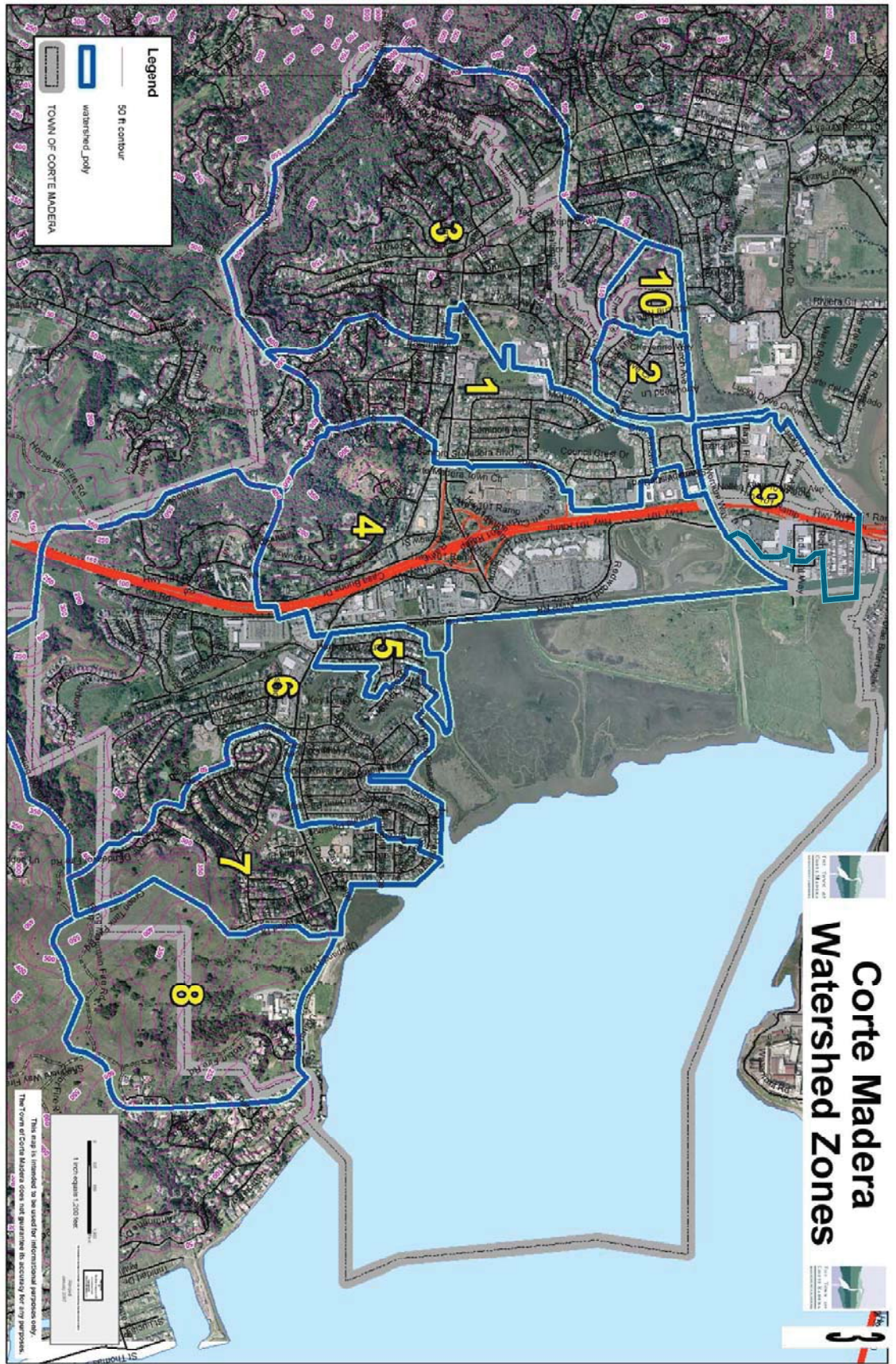
1. High potential for significant ponding / flooding from hydraulic backwater effects.
2. Subwatershed / watershed size is medium to large.
3. Subwatershed / watershed topography average elevations are low to medium.
4. Subwatershed / watershed is subject to tidal flooding.
5. The need for a new pump station is high.

**MEDIUM**

1. Medium potential for significant ponding / flooding from hydraulic backwater effects.
2. Subwatershed / watershed size is medium to large.
3. Subwatershed / watershed topography average elevations are medium to high.
4. The need for a new pump station is medium or storm drain piping connects to an existing pump station.

**LOW**

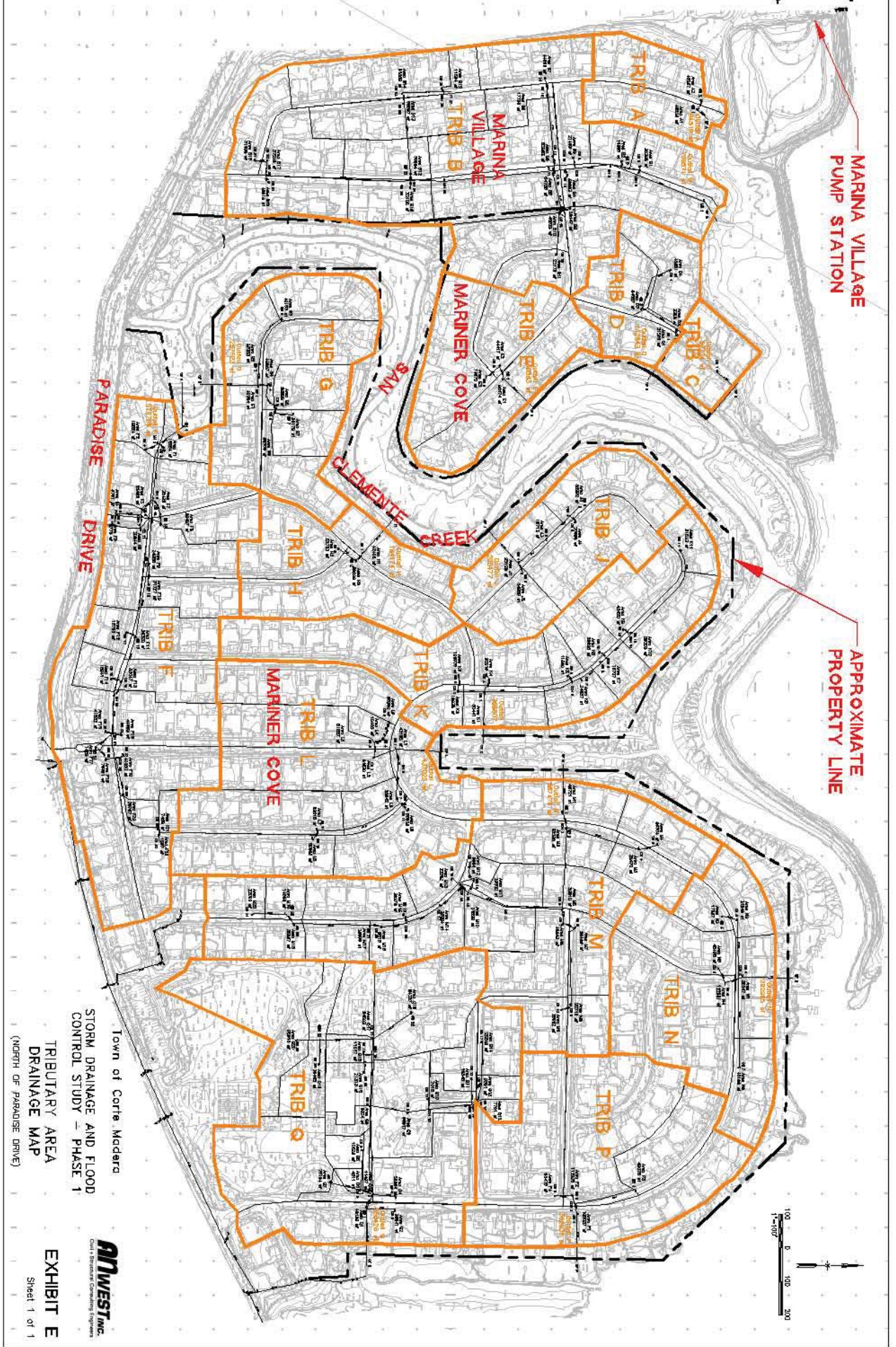
1. Low potential for significant ponding / flooding from hydraulic backwater effects.
2. Subwatershed / watershed size is small to medium.
3. Subwatershed / watershed topography average elevations are medium to high.
4. The need for a new pump station is low or storm drain piping connects to an existing pump station.



**Corte Madera  
Watershed Zones**

**NOTE:**  
WATERSHED BOUNDARIES HAVE BEEN REVISED  
TO REFLECT EXISTING CONDITIONS.

Town of Corte Madera  
STORM DRAINAGE AND FLOOD  
CONTROL STUDY - PHASE 2  
WATERSHED MAP



Town of Corti Madera  
 STORM DRAINAGE AND FLOOD  
 CONTROL STUDY - PHASE 1  
 TRIBUTARY AREA  
 DRAINAGE MAP  
 (NORTH OF PARADISE DRIVE)

**AMWEST INC.**  
 Civil & Structural Consulting Engineers  
**EXHIBIT E**  
 Sheet 1 of 1