SANTA CLARA VALLEY WATER DISTRICT

LOWER PENITENCIA CREEK CAPACITY RESTORATION PROJECT
Berryessa Creek to Coyote Creek

PROBLEM DEFINITION AND REFINED OBJECTIVES REPORT

Project No. 40334005

Report Prepared by:

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Coyote Watershed Projects

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1. PROBLEM DEFINITION AND PURPOSE

The Lower Penitencia Creek capital project was initiated in October of 2008 by the Coyote Watershed Division. The current project limits begin with Coyote Creek at the downstream end and ends at the confluence with Berryessa Creek at the upstream end (Figure 1, page 5).

The Upper Berryessa Creek project revealed that upon completion of the Lower and Upper Berryessa Creek projects, Berryessa Creek will deliver a higher 1% flow downstream to Lower Penitencia Creek, which in its current condition does not have the capacity to convey that future 1% flow. Preliminary hydraulic findings, based on current channel conditions, show overtopping of levees within the project limit with the future 1% flow.

This project will address the improvements required to accommodate the future 1% flow from the improved Berryessa Creek and to protect the properties and infrastructure located in the Berryessa / Lower Penitencia floodplains within the City of Milpitas. This project, although not a part of the Clean, Safe Creeks Program, is necessary to provide continuous flood protection for the Berryessa Creek – Lower Penitencia Creek system.

2. OBJECTIVES

- Provide one percent flow capacity to Lower Penitencia Creek downstream of Lower Berryessa Creek confluence to accommodate both current upstream Lower Penitencia Creek flow and future one percent flow from improved Berryessa Creek.
- Complete construction of Lower Penitencia Creek improvements, prior to completion of Upper Berryessa Creek construction.
- Provide maintenance guidelines for the creek in the project reach.
- Provide maintenance access that is complementary to the City of Milpitas Trail Master Plan.
- Minimize impacts to environmental resources.
- Minimize future maintenance needs.
- Project objectives are consistent with the following Board Ends Policies:
    - Ends Policy E3.1 – Provide natural flood protection for residents, businesses, and visitors.
    - Ends Policy E3.2 – Reduce potential for flood damages.
    - Ends Policy E4.3 – Improved quality of life in Santa Clara County through trails and open space.

3. BACKGROUND AND EXISTING CONDITION

3.1 Project Watershed Description

Lower Penitencia Creek is located in the northeasterly portion of Santa Clara County within the City of Milpitas. In its entirety, it is about four miles long and flows northerly from two large outfalls at Montague Expressway to its confluence with Coyote Creek near the intersection of Interstate 880 and Dixon Landing Road.

Its watershed lies in the unincorporated area of the county and in the Cities of Milpitas and San Jose. The total watershed area is about 29 sq miles[1] with about 16 square miles lying on the valley floor and the remainder in the hills of the Diablo Range.[2]

Two tributaries, Berryessa Creek and East Penitencia Creek, flow into Lower Penitencia Creek. Lower Penitencia Creek itself flows into Coyote Creek. Berryessa Creek is the major drainage channel for the mountainous portion of the Lower Penitencia Creek Watershed.

3.2 History[3]

Up until the mid 1800's, Lower Penitencia Creek was seasonally connected to Upper Penitencia Creek. The two creeks were separated by a substantial complex of willow groves, seasonally flooded wetlands, and freshwater marsh, stretching along the east side of Coyote Creek from today's Murphy Ave southward past Mabury Road. As Upper Penitencia Creek sunk into this marsh, it lost definition as a creek and then came out as a creek again as Lower Penitencia Creek. During summer months, there would have been no surface connection between the two creeks. But in winter months, they would be connected from high flows through this marsh complex.

Around 1851, a local landowner dug a ditch from the mouth of Upper Penitencia Creek through the willow groves to Coyote Creek. The ditch was dug along a half mile stretch just to the south of (and paralleling) Berryessa Road.

The purpose of this new drainage was to reduce wintertime flooding at the mouth of the creek, but it had the added effect of connecting Upper Penitencia Creek to Coyote Creek for the first time. This connection became the sole flow pathway.

[1] Berryessa Creek Watershed Hydrology Report, Berryessa Creek Levees Project, Northwest Hydraulic Consultants, April 2003
[2] Lower Penitencia Creek Planning Study Report/Engineers Report/Negative Declaration, Nov 1982
[3] Upper Penitencia Creek Historical Ecology Assessment, San Francisco Estuary Institute, June 2012

The existing channel in the project reach as we see it today was constructed at multiple locations in the 1980's. The channel improvements consisted of various modifications to the creek to increase capacity. In the reaches downstream of the confluence with Berryessa Creek, the channel was widened and levees were constructed to provide adequate flood capacity for the one percent flood flows at the time (7000 cfs).[4]

In 1983, the channel was improved between Interstate 880 and Berryessa Creek confluence by a developer. Levees were built on both sides of the creek between Interstate 880 and California Circle. A secondary channel and a center island topped with a depressed maintenance road were constructed between California Circle and Milmont Drive. A west levee was constructed between California Circle and Berryessa Creek confluence.

In 1984, the channel was concrete lined at Interstate 880 by the District.

In 1988, the channel was improved between California Circle and Berryessa Creek confluence by a different developer. The main channel was widened and a depressed maintenance road (along the east levee) was constructed between California Circle and Milmont Dr. At the same time, east levees were constructed between California Circle and Berryessa Creek confluence. In 1989, the channel downstream of Interstate 880 was widened and a south levee was constructed as part of the Coyote Creek Reach 1 improvements. In the same year, the City of Milpitas constructed the Milmont Drive bridge.

In 2001, Caltrans reconstructed the interchange at Dixon Landing Road and Interstate 880 within the Cities of Milpitas and Fremont. The project consisted of constructing a new Dixon Landing Road, a new Interstate 880 freeway structure, and new freeway access ramps. Both the new freeway bridge and the new southbound on-ramp bridge crosses over the creek.

3.2 Previous Studies

Lower Penitencia Creek Planning Study, Engineer's Report, and Negative Declaration (1982)

This study was the basis of the previous improvements mentioned in the above section. The study covered the full length of the creek from Coyote Creek confluence to the upstream limit at Montague Expressway. For the project reach downstream of Berryessa Creek confluence, it proposed channel modifications to increase capacity, specifically that the channel be widened and levees be constructed to provide adequate capacity and freeboard. It also proposed that portions of the channel be concrete lined. Adjacent property owners were required to construct these measures as conditions of development. Only the concrete lined section crossing under Interstate 880 was constructed by the District in this reach.

A copy of the report's summary section can be found in Appendix E..

[4] Lower Penitencia Creek Planning Study Report/Engineers Report/Negative Declaration, Nov 1982

Recertification of Provisionally Accredited Levee P52 on Lower Penitencia Creek (2009)

In 2007, District began recertification efforts under FEMA's Map Modernization Program. One of levees identified included in the Program was the east levee on Lower Penitencia Creek from California Circle to Berryessa Creek. A consultant firm, Schaaf & Wheeler was hired to undertake this effort.

The recertification effort also required a geotechnical investigation, which was undertook by AMEC Geomatrix Inc and resulted in a report by AMEC in 2009. The investigation concluded that there were no geotechnical issues that would prevent a recertification.

The recertification was completed in 2009 and FEMA updated the Flood Insurance Rate Map to reflect the results. See section 3.8 for more details. Also see Attachment D for relevant memorandums associated with this recertification.

3.3 Project Reach Description

The project reach, which is tidally influenced, is approximately 4700 feet from confluence with Coyote Creek at the downstream limit to confluence with Berryessa Creek at the upstream limit. The location and project limits are shown in Figure 1.

There are 4 bridges that cross the creek in the project limits. They are, from downstream to upstream, Interstate 880 on-ramp, Interstate 880, California Circle, and Milmont Drive.

Lower Penitencia Creek is mainly trapezoidal channel that is both earth-lined and concrete lined, with a portion of it splitting into dual channels. There are three pump stations along this reach, as shown in Figure 10.

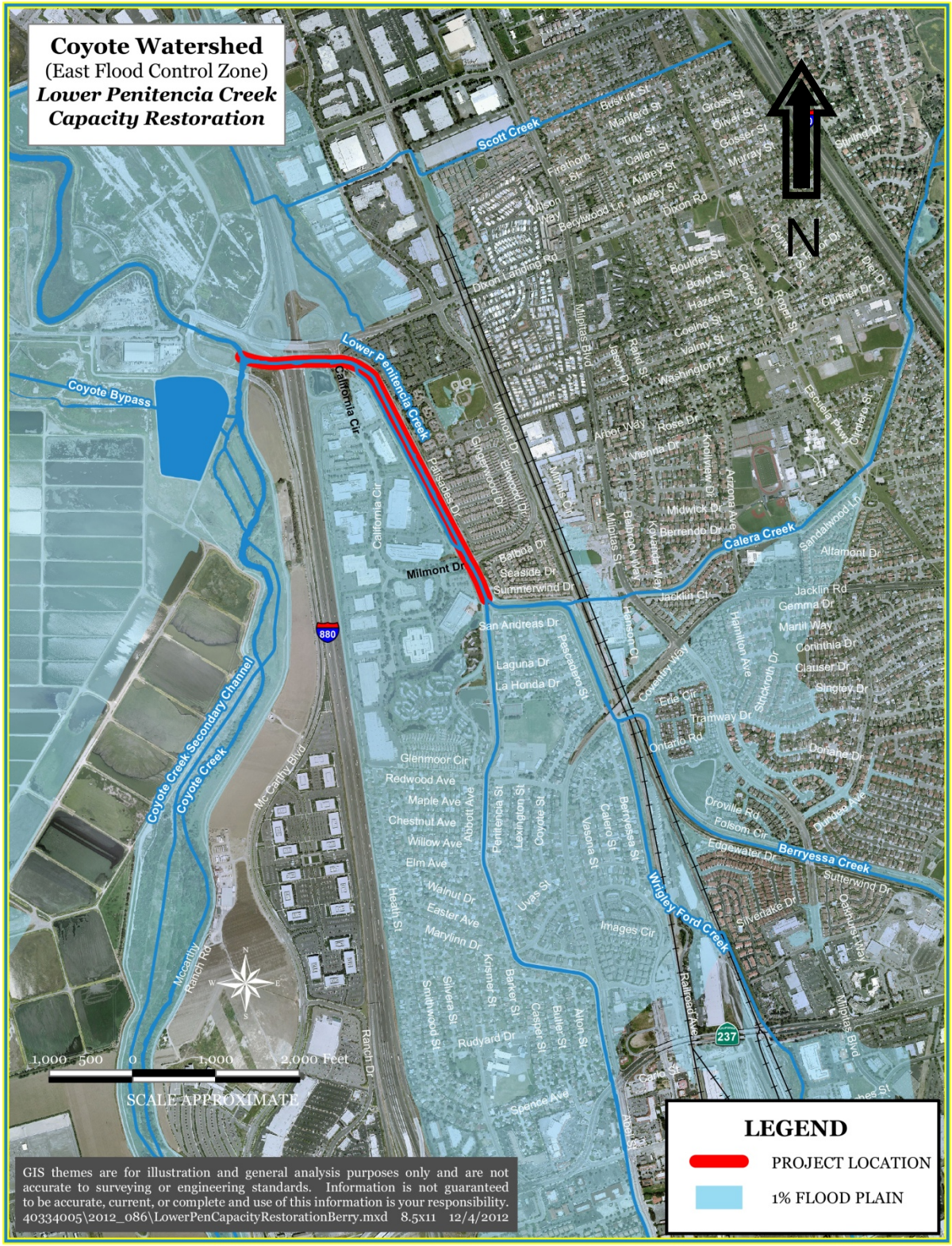

Figure 1: Location Map and Project Limits

Photo 1: Standing on south levee (Corp) looking downstream at confluence with Coyote Creek

At the confluence with Coyote Creek, the channel bottom is rock lined with 3 feet deep of ¼ ton boulders overlaid on geotextile fabric. From the confluence to approximately 200 feet downstream of Interstate 880 (downstream face), the creek is an earthen trapezoidal channel with a levee on the south bank and an embankment on the north bank that daylight at Dixon Landing Road. The top of the south levee width is 18 feet. Since the levee was constructed as part of Coyote Creek by the U.S. Army Corp of Engineers, it is inspected and maintained to the federal standards.Channel bottom width varies approximately between 55 feet and 70 feet.

Photo 2: Standing on south levee (Corp) looking upstream at Interstate 880 and on-ramp

From approximately 200 feet downstream of Interstate 880 (downstream face) to Interstate 880 (downstream face), the creek is a concrete lined trapezoidal channel. Channel bottom width varies from 68 feet to 82 feet, approximately. There is a concrete ramp on the south bank.

Photo 3: Standing on south levee (Corp) looking upstream at Interstate 880 and on-ramp

Under the Interstate 880 bridge, the creek is a concrete lined channel with a bottom width of approximately 68 feet..

From Interstate 880 to California Circle, the creek is a 55 feet wide concrete lined trapezoid channel with levees on both banks. Both north and south levees are 18 feet wide at top. Just downstream of California Circle, there are 3 outfalls at the south levee originating from the California Circle pump station. The 36 inch diameter polyethylene pipes are incased in either corrugated aluminum or steel pipes at the outfall. The location is shown on Figure 3.

Photo 4: Standing on California Circle looking downstream at Interstate 880

Under the California Circle bridge, the creek is a concrete lined trapezoidal channel with a bottom width of 55 feet.

From the upstream face of California Circle to the start of the dual channels, at approximately 165 feet upstream, the creek is a concrete lined trapezoidal channel with varying bottom widths from approximately 55 feet to 70 feet.. There are levees on both banks with the east levee top paved with asphalt concrete for the City's trail. Both levees at top are 12 feet wide. Abutting the west levee within the channel is an 18 feet wide depressed maintenance road.

Photo 5: Standing on California Circle looking upstream

At the start of the dual channels, the creek is concrete lined for approximately 90 feet before transitioning to earth. The dual channel consists of a main channel, a secondary channel (also called the high flow channel), and an 18 feet wide depressed maintenance road island in between. The main channel bottom varies approximately from 38 to 41 feet wide and the secondary channel bottom is approximately 22 feet wide. There are levees on both banks with the east levee top paved with asphalt concrete for the City's trail. Both levees at top are 12 feet wide. Abutting the west levee within the channel is an 18 feet wide depressed maintenance road.

From approximately 255 feet upstream of California Circle (upstream face) and for a length of approximately 2365 feet, the creek is an earthen dual trapezoidal channel. The main channel bottom is approximately 41 feet wide and the secondary channel bottom is approximately 22 feet wide. The west levee maintains a top width of 12 feet wide while the east levee is narrowed at 11 feet wide. The depressed maintenance road on the east bank is narrowed to 16 feet wide. Within this reach is the 72 inch diameter Jurgens outfall on the east bank. The outfall discharges storm water runoff from Jurgens pump station, which is owned and operated by the City. The location is shown on Figure 3.

At approximately 240 feet downstream of Milmont Dr (downstream face), the creek starts to transition back to a single trapezoidal concrete lined channel.

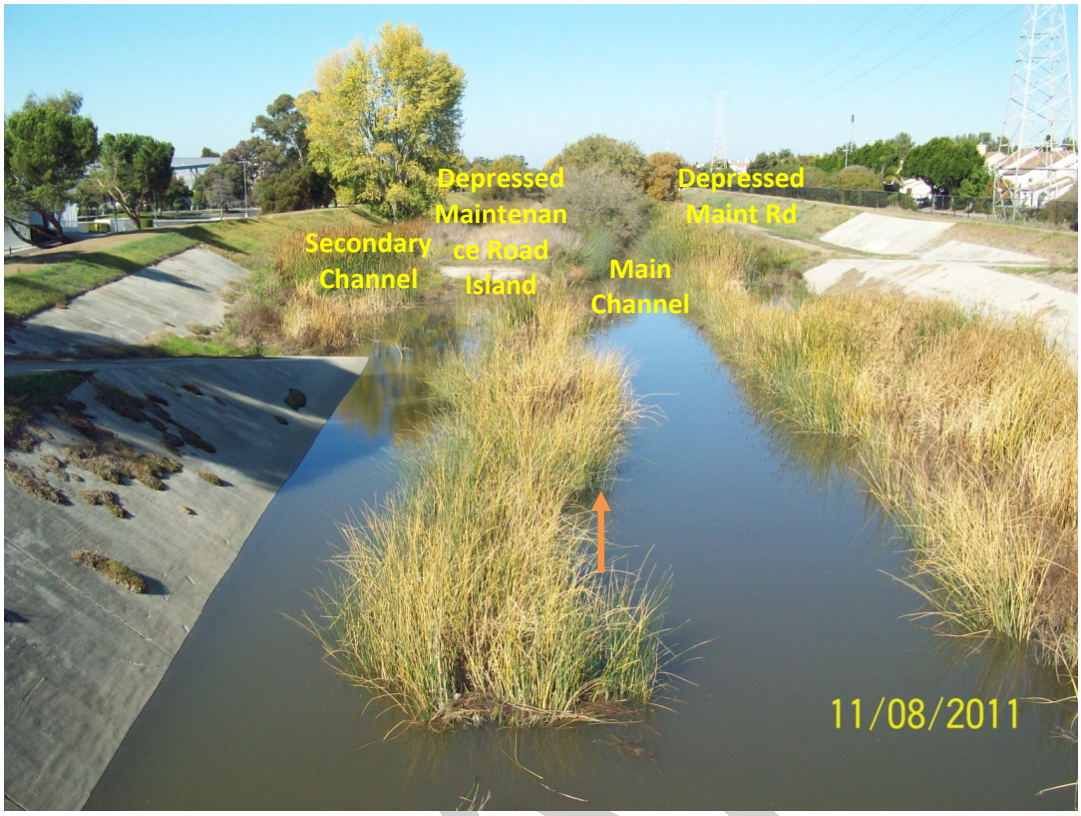

Photo 6: Standing on Milmont drive looking downstream at dual channel

For approximately 450 feet from under Milmont Drive bridge to Berryessa Creek confluence, the creek is a single concrete lined trapezoidal channel with a bottom width of approximately 60 feet. Both levees are 18 feet wide at top and have paved roadways.

Photo 7: Standing at Milmont Drive looking upstream at Berryessa Creek confluence

Just upstream of the Berryessa Creek confluence are 2 outfalls on the west bank. These two 18 inch diameter polyethylene pipes discharge storm water runoff from the Abbott Ave pump station and are encased in corrugated aluminum or steel pipes at the outfall. The location is shown on Figure 3.

3.4 Property Ownership of Creek

As shown on Figure 2:

From Coyote Creek to Interstate 880, the creek, including the south levee, is owned in District Fee. Under Interstate 880, the creek is in Caltran ownership. District does not own any easements here. Between Interstate 880 and California Circle, the creek is in private ownership and District easement. Between California Circle and Milmont Drive, the main channel, east levee, and City trail, is in District Fee. The secondary channel and west levee is in private ownership and District easement. From Milmont Drive to Berryessa Creek confluence, the channel, east levee and landscaping is in District Fee. The west levee appears to be in private ownership and District easement. All property rights will be confirmed during Design Phase.

Lower Penitencia Creek

Coyote Creek confluence to Berryessa Creek confluence

Land Rights

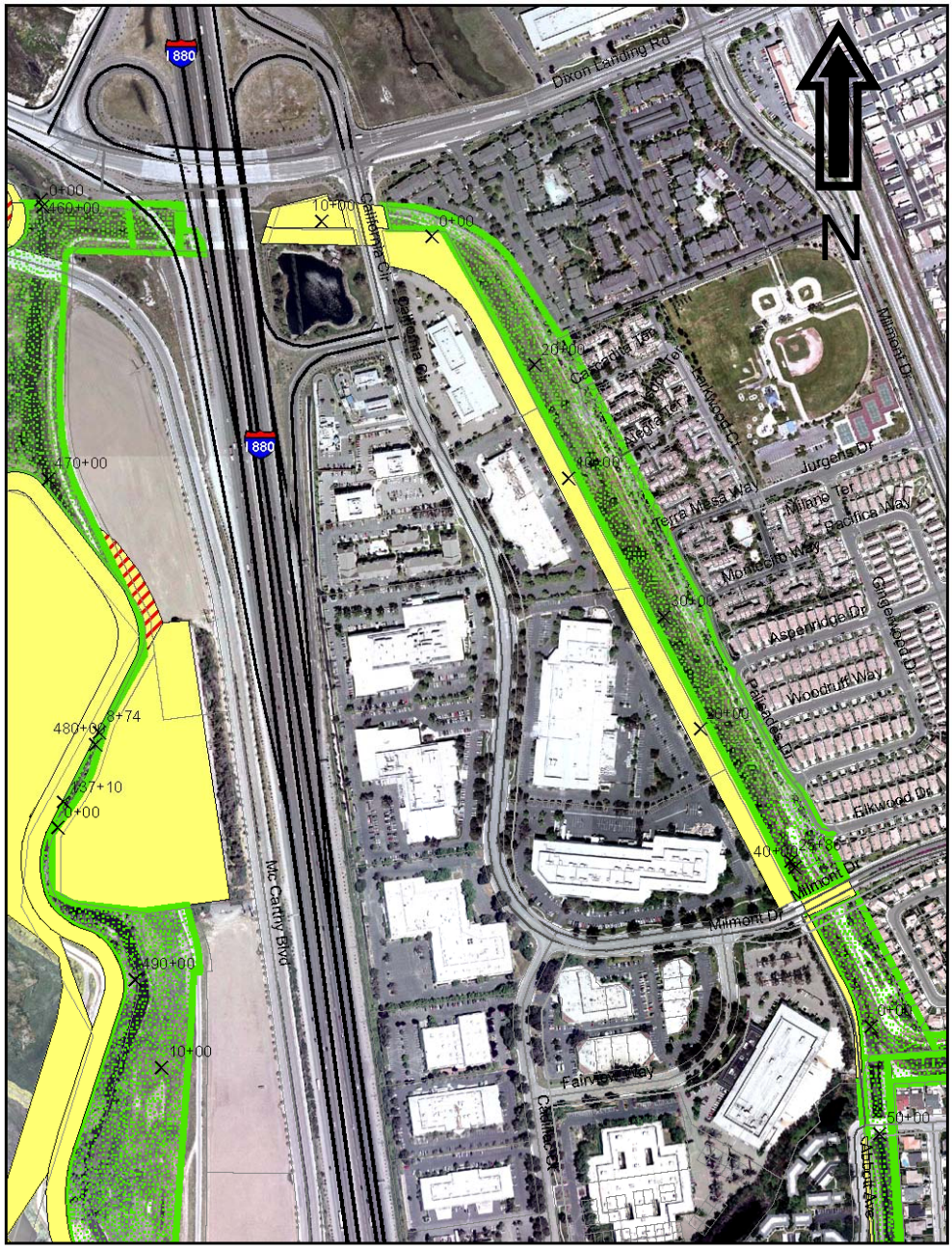

Figure 2: Creek Fee and Easement

Lower Penitencia Creek

Coyote Creek confluence to Berryessa Creek confluence

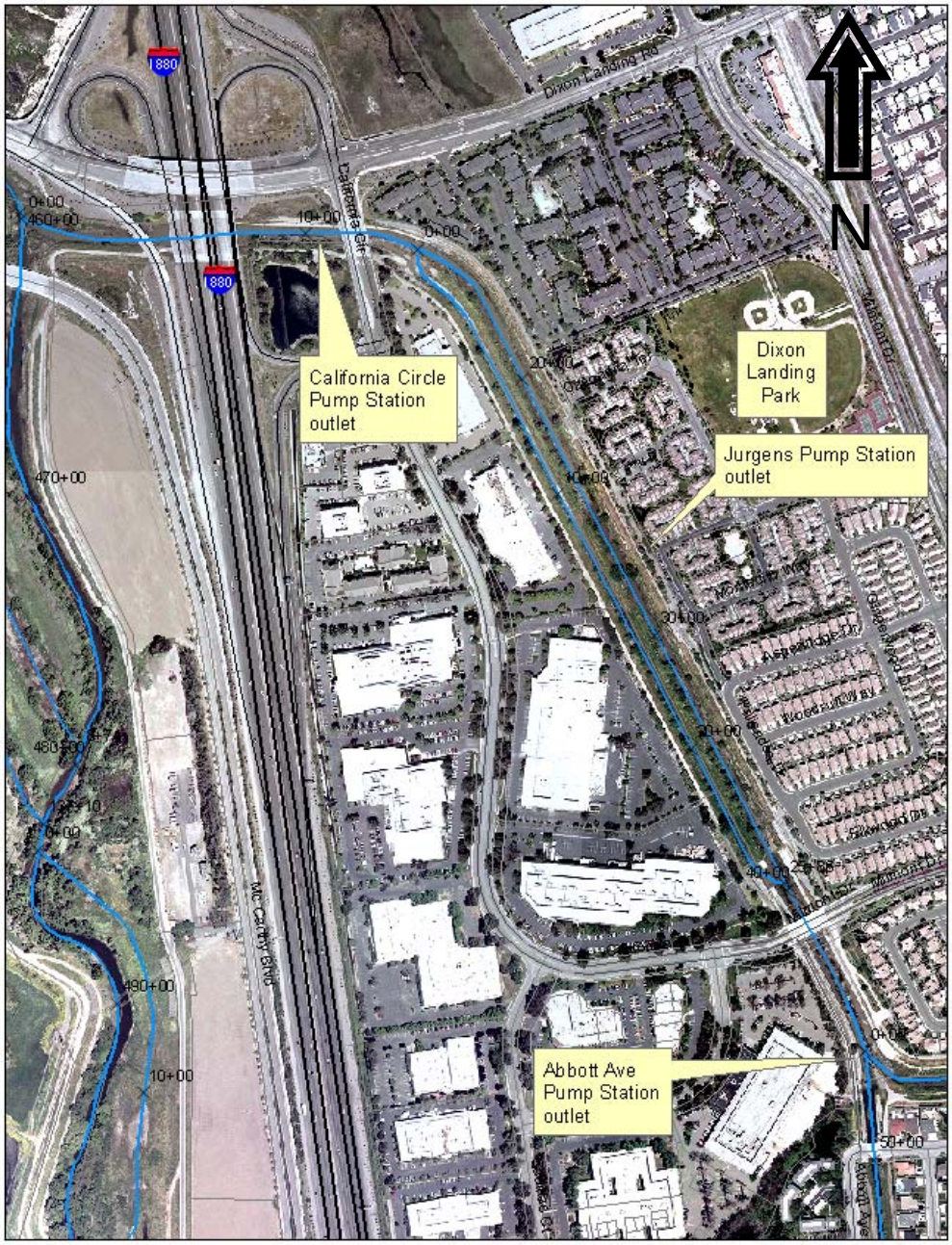

Figure 3: Pump Stations

3.6 Watershed Hydrology

This project will use the design flows, as shown below, from the Lower Berryessa Creek Project Planning Study Report, dated March 2010[5]. The design flows were based on a detailed hydrology study (and addendum)[10] and modified by subsequent analysis by the Corp of Engineers[6]. Therefore, these flows supersede the flows shown in the hydrology study and its addendum.

Table 1: New Future 1% Flow Rates (With Improved Berryessa Creek)[10]
(Corp of Engineers Design Flood Quantities)

Location	1% Flow (cfs)
Lower Penitencia Creek d/s Berryessa Creek confluence	8850
Lower Penitencia Creek u/s Coyote Creek confluence	9050

3.7 Hydraulics

FEMA Levee Recertification in 2009

The District obtained the services of Schaaf and Wheeler to re-evaluate and recertify the east levee on Lower Penitencia Creek to provide protection from a one percent flood (3500 cfs base flow + coincident pump station discharges). In 2009, the recertification study was completed and the levee was recertified. The limit of this levee re-certification study is between the confluence of Lower Penitencia Creek with Berryessa Creek and the upstream face of California Circle. The approximate length of the recertification reach was 3400 feet or 0.65 mile. In general, the area protected from one percent flooding by the levee extends from Lower Penitencia Creek east to the Union Pacific Railroad, between Dixon Landing Road on the north and nearly to Berryessa Creek on the south. As part of the interior drainage analysis, the 72 inch diameter outfall on the east bank, which discharges storm water runoff from the Jurgens Pump Station was studied. Located in the Dixon Landing Park (See Figure 3), this facility drains mixed residential areas between Lower Penitencia Creek and Hwy 680. The system is undersized for large runoff events and was designed to function in tandem with the detention storage available in the park itself. Analysis shows that water can be stored to an approximate elevation of 12.7 feet NAVD before being released across Dixon Landing Road north into the City of Fremont. Therefore, an area of residual ponding is

[5] Lower Berryessa Creek Project Planning Study Report, March 2010, Winzler & Kelly and Santa Clara Valley Water District

[6] Lower Berryessa Creek Project-Lower Berryessa Creek Final Hydraulic Model Technical Memorandum, Winzler & Kelly, April 16, 2010.

shown at the park and this also is reflected in the most updated Flood Insurance Rate Map dated 5/18/2009. [7]

At the same time, a geotechnical study was done as part of the recertification. The study concluded that the levees meet geotechnical criteria as set by FEMA for recertification.[8]

The west levee was not evaluated or certified since there is flooding in areas west of the channel. Part of that flooding is from Berryessa Creek. As shown in Figure 4, the latest Flood Insurance Rate Map shows flooding between 1 and 3 feet west of the project reach.

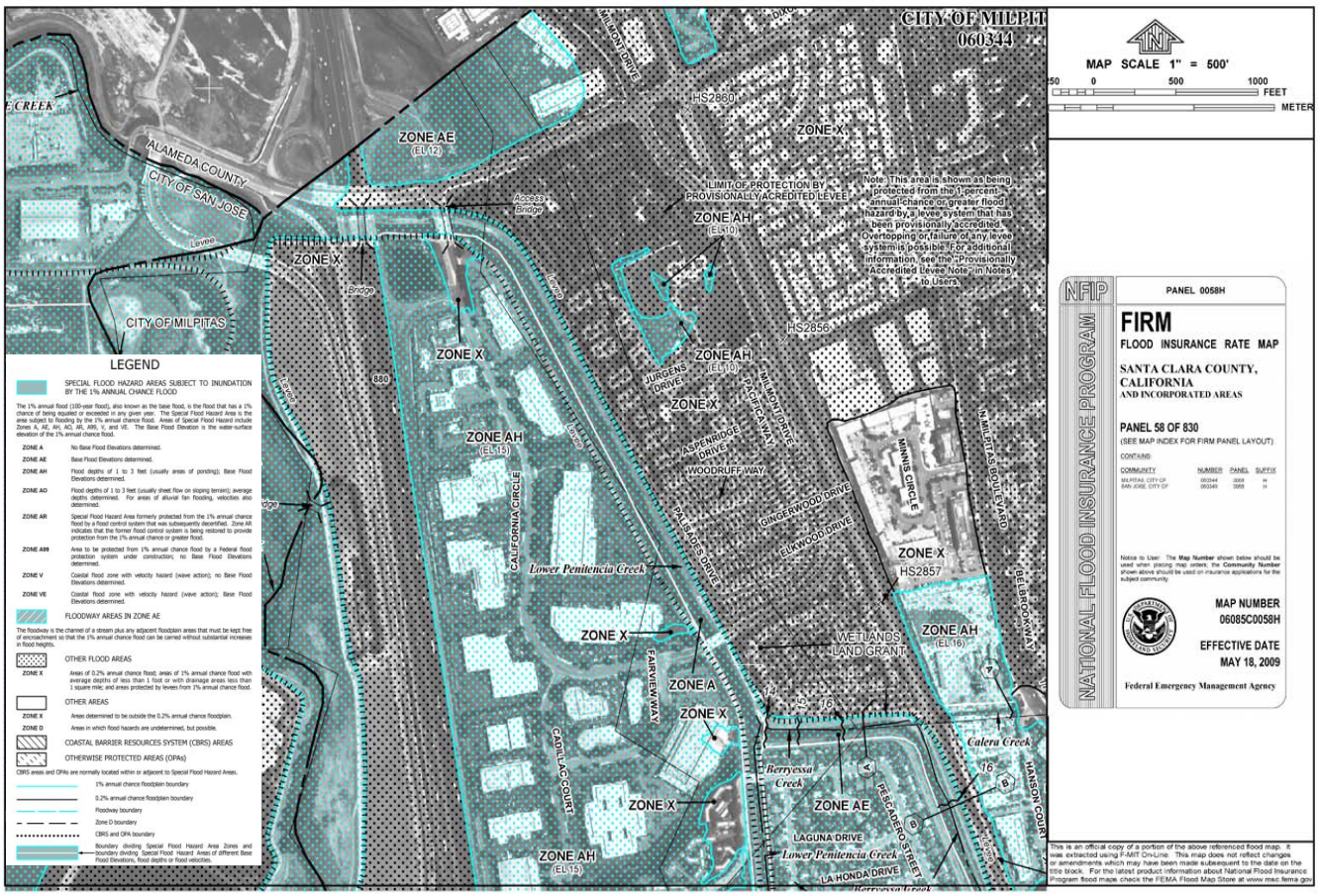

Figure 5: Flood Insurance Rate Map

Preliminary Hydraulic Analysis

[7] Recertification of Provisionally Accredited Levee P52 on Lower Penitencia Creek in Milpitas, CA, Schaaf and Wheeler, July 2009

[8] Geotechnical Investigation Lower Penitencia Creek Levee Recertification, AMEC Geomatrix, July 2009

Two separate preliminary hydraulic analyses were performed on Lower Penitencia Creek. The first one was performed in 2010 as part of the analysis completed for Lower Berryessa Creek project.[9] This covered the creek downstream of Berryessa Creek confluence in conjunction with future one percent flows (see Table 1). The second one was completed in early 2012 as part of an effort to understand the likely situation upstream of the confluence.

The first analysis consisted of reanalyzing the Lower Berryessa hydraulic model with current (2009-2010) conditions in Lower Penitencia Creek. The most up to date hydraulic model was based on 1980's as-built channel geometry; since then, the creek has experienced both sedimentation and the establishment of vegetation. New survey data collected in 2009 and 2010 supported this. This has resulted in a reduced channel cross-section area and increased channel roughness. As a result of these changes, which reflect the existing 2010 conditions in conjunction with the future one percent flood flows, the water surface elevation for Lower Penitencia Creek just downstream of Milmont Drive bridge would increase roughly by 3 to 4 feet. Since the Lower Berryessa Creek project had based its design on an earlier model that included non-sedimented and vegetated Lower Penitencia Creek conditions, and thus a lower downstream starting water surface elevation, the Lower Penitencia Creek project will most likely need to incorporate removal of the sedimentation and vegetation to bring the water surface elevation at Berryessa Creek back to its original design.

Below is an excerpt from the November 2010 Memo on the findings and recommendations (on Lower Penitencia Creek for Lower Berryessa Creek project):

> Main Findings:
>
> *The main results of the downstream boundary condition investigation are described here.*
>
> 1. *The 100-year water surface elevation will increase by 3 to 4 feet at the location of the downstream boundary of the Lower Berryessa Creek HEC-RAS model. This increase could be substantially reversed through sediment and vegetation maintenance.*
>
> 2. *The Lower Berryessa Creek design flow (7200 cfs @ one percent at the Lower Berryessa Creek-Lower Penitencia Creek confluence) is based on anticipated future completion of capacity improvement projects on Upper Berryessa Creek and other tributaries. Under current hydraulic conditions, the one percent event is estimated at approximately 3600 cfs, which can be safely conveyed by the existing unmaintained channel.*
>
> 3. *An increase of 3 to 4 feet of the downstream boundary condition of the 60 percent Lower Berryessa Creek design hydraulic model would increase the one percent water surface elevations along the entire project reach. If improvements are not made to Lower Penitencia Creek, increases to the one percent water surface elevation would vary between about 3 to 4 feet at the Lower Penitencia Creek-Lower Berryessa Creek confluence and 0.8 feet at Lower Berryessa Creek (just upstream of Hillview Dr. bridge).*

[9] Memorandum, Lower Berryessa Flood Protection Project-Downstream Boundary Condition for the 100-year Water Surface Profile, Emily Zedler, November 22, 2010.

Under the scenario where maintenance of Lower Penitencia Creek is not performed, the 60 percent design of the Lower Berryessa Creek Project would need to be adjusted by raising floodwall heights accordingly.

4. *Alternatively, the water surface elevation could be reduced with various modifications to the geometry of Lower Penitencia Creek, such as the construction of a floodplain. There is a future capital flood protection project on Lower Penitencia Creek which will address these issues.*

Recommendations in the memo:

Based on this study, the following recommendations are provided.

1. *The current 60% design of the Lower Berryessa project will convey the future one percent flow (7200 cfs at the Lower Berryessa Creek-Lower Penitencia Creek confluence) and will meet one percent FEMA freeboard standards, provided that maintenance is performed to restore the Lower Penitencia Creek to its 1980s as-built conditions. Because Lower Penitencia Creek is subject to sedimentation, an on-going maintenance plan should also be developed for Lower Penitencia Creek.*

2. *Vegetation and sediment maintenance on Lower Penitencia Creek must be performed prior to the future planned capacity improvement project on Upper Berryessa Creek. Otherwise, there will be a risk of flooding to Lower Berryessa Creek during a one percent flood event.*

3. *As part of their future work, the Lower Penitencia Creek capital project team should develop and evaluate alternatives to the vegetation and sediment maintenance plan in order to achieve the lower one percent water surface profile. Alternatives might include widening the channel, increasing the hydraulic gradient, or reducing the roughness factor. These alternatives could be performed instead of or in concert with the maintenance plan for Lower Penitencia Creek, and could potentially result in further reductions to the one percent water surface elevations*.

The second preliminary analysis compared 3 scenarios. The first scenario is with current channel conditions and current existing one percent FEMA flows. The resulting profile showed that most of the creek had capacity with less than 3 feet freeboard, upstream and downstream of Berryessa Creek confluence. The second scenario is with completed Berryessa Creek, with new future one percent flows (see Table 1), and current channel conditions. The resulting profile showed overtopping of the levees upstream of Interstate Interstate 880 with most bridges under pressure flow condition. It also showed that the water would continue to spill out of channel until a bit upstream of the Elmwood Correctional Facility entrance, about 2 miles upstream of Berryessa Creek confluence. The third scenario is with a “cleaner” channel, i.e. as-built channel geometry in conjunction with new future 1% flows. The resulting profile showed that downstream of Berryessa Creek confluence, the creek had capacity but with less than 3 feet freeboard. Upstream of the confluence, it showed minor overtopping with some bridges under pressure flow conditions. This situation continues upstream to Calaveras Blvd, after which the flows are contained within the floodwalls. See Table 1 for future 1% flow rates downstream of Berryessa Creek confluence and Appendix B for future 1% flow

rates upstream of the confluence. See Appendix C for water surface profiles of these three scenarios. This analysis is very preliminary and more data needs to be collected to confirm these results during feasible alternative analysis phase.

Starting Water Surface Elevation

A Memorandum from Randall Talley dated 9/27/1990 discussed the starting water surface elevation at Lower Penitencia Creek's confluence with Coyote Creek. A 2-D model showed that the water surface elevation at the confluence with Lower Penitencia Creek is 11.2 NGVD (approximately 14 NAVD88).

3.8 Environmental Setting

There are some trees within the channel along the project reach. However, grasses and low shrubs are more typical vegetation on the banks. None of the riparian vegetation provides significant shading to the creek's low flow channel.

Lower Berryessa Creek EIR

A Lower Berryessa Creek Program Final Environmental Impact Report (December, 2011), which was prepared for the Lower Berryessa Creek Project, included Lower Penitencia Creek as one element.[10] As stated in the report, "Lower Penitencia Creek was discussed at the program level in this EIR. As currently proposed, improvements to this element include removing sediment and vegetation to return the channel to design capacity. The bench within the channel would be lowered and a new, widened floodplain would be constructed near INTERSTATE 880." This is an assumption within the report that will be revisited and analyzed as part of identifying alternatives later in the planning phase.

The report states that preliminary wetland delineation was not conducted for the Lower Penitencia Creek, but was visually evaluated. The estimate describes:

> "Wetland vegetation, either freshwater or brackish marsh species, also occurs in thick patches within the low-flow channels and adjacent to open water areas throughout the creek. A few large trees occur in some locations at the toe of the levee. Downstream of Interstate 880, the creek is more tidally influenced and vegetation communities transition to brackish marsh vegetation."

No sensitive natural communities were found in Lower Penitencia Creek.

There are approximately 7.20 acres of potentially jurisdictional waters of the U.S. within Lower Penitencia Creek in the project area. This quantity is roughly estimated to include approximately 5.5 acres of wetlands and 1.7 acres of open water areas.

No special status plant species are anticipated to occur within the program area. There are no high potential for any special status species of plants, amphibians, reptiles, fish, birds, and mammals to occur in the project reach.

A cultural resource survey at this project area was not done at the time of the EIR.

[10] Lower Berryessa Creek Program FEIR, ESA, Dec 2011

Specific construction (temporary) and long term impacts will be evaluated at a later date in the planning phase when alternatives are being developed.

3.9 Maintenance History

Stream Maintenance Program (SMP)

Current Best Management Practice (BMP) in the Stream Maintenance Program (SMP) allows only half channel sediment removal for the project reach in any given year, but the entire channel can be impacted by sediment removal activities. District is in the process of renewing the SMP permits. District have proposed removing this half channel cleaning restriction, but due to comments from regulators on this item, it is not known whether the new SMP program will have this requirement. The SMP renewal has yet to be finalized. Once the new program is finalized, it will cover maintenance activities for years 2012-2022.

Under the SMP, sediment was removed from the project reach in two occasions. In 2004, 3630 cy of sediment was removed between San Andreas Dr and Milmont Ave at $178,000 ($49 /cy). In 2005, 3656 cy of sediment was removed from the secondary channel from California Cr to Milmont Dr at $175,000 ($48 /cy).

Prior sediment removals were conducted in years 1983, 1984, 1985, 1986, 1988, 1989, and 1997. See following Table 2.

Table 2: Sediment Removal Maintenance History[11]

Calendar Year	Location	Length (ft)	Vol (CY)
1984	D/S Interstate 880 to Coyote Creek	600	2460
1984	U/S California Cr to Berryessa Crk	3100	4000
1985	U/S California Cr to Berryessa Crk	3100	15000[12]
1986	U/S California Cr to Berryessa Crk	3100	9600[124]
1988	U/S California Cr to Berryessa Crk	3200	4000
1989	D/S San Andreas Dr	3800	4215
1997	Milmont Dr to California Cr	3600	17790[12]
2004	Milmont Dr to San Andreas Dr	1000	3630
2005	California Cr to Milmont Dr (secondary channel only)	2800	3656

[11] Additional information can be found in Appendix F.

[12] Volume is high - number may be researched further at a later date.

In 2000(?), Caltrans reconstructed the freeway interchange at Interstate 880 and Dixon Landing Road. Sediment was removed from the channel as part of the project.

Current maintenance needs include sediment removal, vegetation maintenance, and maintaining both maintenance roads. For many years, sediment removal activities were deferred upon finding that the channel could pass FEMA flows with the current deposition. This project will look into incorporating reduced maintenance activities as part of the solution.

4. OPPORTUNITIES AND CONSTRAINTS

Opportunities

Land Development

There are two properties between California Circle and the creek, both currently commercial, that will be developed into residential housing. Depending on the details and timeline, there may be opportunity for a contribution from the redevelopment.

Maintenance

Potential additional opportunities can include improved maintenance access, dewatering system, and landscape cleanup to reduce future sediment removal by emulating marsh floodplain elevations instead of a widened bottom invert width that is not sustainable.

Constraints

Hydraulics

Future alternatives will need to ensure that the water surface elevations in this creek do not elevate the already established water surface elevations in Lower Berryessa Creek project.

Right of Way

There is limited Right of Way. Most of the creek is adjoined to the west by commercial properties and to the east by residential properties.

Schedule

Construction of improvements will need to be completed prior to completion of Upper Berryessa Creek project.

Joint Use Agreement for City of Milpitas Trail

Future alternatives will need to take into consideration impacts to the existing City trail.

Under a joint use agreement with the District, the City of Milpitas owns a trail in the project reach. There is a trail AC overlay on the east levee from California Circle to about 700 feet downstream California Cr (downstream face), where the trail then diverges off the levee and continues along the foot of the PG&E towers and at the outboard toe of the east levee to Milmont Drive. The City has also installed in this joint use area, landscaping and drainage. This landscaping and drainage along the east levee extends between Milmont Drive and Berryessa Creek confluence.

There is a paved pedestrian and emergency vehicle access on the west levee between Milmont Drive (downstream Berryessa Creek confluence) and San Andreas Drive (upstream Berryessa Creek confluence). This portion appears to be in District easement.

The trail is located in District fee (downstream of Milmont) and is identified in a joint use agreement with City of Milpitas for a period of 25 years, set to expire in 2022.[13]

5. COMMUNITY OUTREACH

Since this project is a capacity restoration project, there is no public meetings planned for the Draft Problem Definition Report. During the Feasible Alternatives Analysis phase, a public meeting will be scheduled to solicit input from the public and stakeholders.

6. POTENTIAL CHANGES TO PROJECT OBJECTIVES AND SCOPES

The current project objectives and scopes remain the same. During a preliminary hydraulic analysis of the creek (see Appendix C), the resulting profiles showed various losses of freeboard upstream of the project limit. The preliminary findings were presented to the project owner in January, 2012 and it was determined by the project owner that the reaches upstream of the confluence with Berryessa Creek will be addressed in a future new Capital project.

7. NEXT STEPS

The next immediate steps will focus on developing feasible alternatives, preparing an outreach strategy plan, performing public outreach, identifying a staff recommended alternative, and preparing the Planning Study Report.

[13] Lease Agreement (Joint Use) No. A2001, File 4033-49, January 7, 1997.

8. SIGNATURES

Accepted by:

C. Liang Lee, Ph.D. P.E. Deputy Operating Officer Coyote & Pajaro Watersheds	Date
Melanie Richardson, P.E. Deputy Operating Officer Watersheds Capital Division	Date

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Appendix A

Memorandum on Lower Berryessa Creek Hydraulic Analysis

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Appendix B

Design Flow Rates for Upstream of Berryessa Creek Confluence

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Appendix C

Preliminary Hydraulic Profiles (Dec 2011 & Jan 2012)

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Appendix D

2009 Levee Recertification Memorandum

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Appendix E

Lower Penitencia Creek Planning Study
Coyote Creek to Montague Expressway
Planning Study, Engineer's Report, Negative Declaration
1982

Summary

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Appendix F

Typical Cross Sections (from As-Builts)

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