

**LAST CHANCE DITCH
SURVEY - DECEMBER 2003**

Ditch Survey

For:

Last Chance Ditch

RETURN TO
GENO TOATELLI
WHEN TAKEN
6/08
RENO PUB WORKS



Prepared for:

City of Reno, Public Works Department
P.O. Box 1900
Reno, Nevada 89505

Prepared by:

 **Gray & Associates** INC.
CIVIL ENGINEERS • PLANNERS • SURVEYORS
130 VINE STREET
RENO, NEVADA 89503

December 2, 2003



October 7, 2003

R013-02097.01

Howard Sund
City of Reno Public Works
350 South Center Street, Suite #408
Reno, NV 89501

RE: Reno Irrigation Ditches

Dear Mr. Sund:

I have completed the wet assessment portion of the Reno Irrigation Ditch Study. In the wet assessment I visited the locations of the ditch connection points that were given a first priority rating in the original Capital Improvement Plans. After reviewing those points, I chose to lower the rating on a few, and reassessed the importance level on others.

As you requested, I have ranked the first priority repairs in order of urgency. The following is the ranking with a short discussion on each:

Table with 4 columns: Rank, Point Number, Recommended Action And Discussion, Location. It lists three items: 1. Rank 1, Point 1116, Construct concrete or masonry wall to stabilize slope. 2. Rank 2, Point 1043, Riprap channel 50+/- ft downstream of grouted riprap. 2. Rank 2, Point 1044, Construct cutoff wall upstream of drop. Stabilize vertical face with concrete or masonry wall. Construct splash pad in flowline.

		<p>into a relatively unstable slope. Inadequate flowline protection was installed at the interface between the concrete section and the natural section. A large scour hole has developed. Compounding the erosion problem at this location is the road cut for West McCarran Blvd. The flowlines in the benches for the road cut were lined with Enkamat. At the time that the construction was done, geofabrics were still fairly new, and the installation probably wasn't very well done. Ultimately, the geofabric did not do its job to eliminate erosion, and there has been some major headward erosion at the connection with the Steamboat Ditch.</p> <p>The improvements for the flowline of the Steamboat Ditch and the roadcut damage should probably be performed simultaneously since each problem exacerbates the other. That is why both points 1043 and 1044 were listed as priority 2.</p>	
3	3137	<p>Construct headwall and riprap to flowline of ditch. This is the outfall from a culvert carrying runoff from a large wash. The City of Reno constructed a small detention pond at the intersection of Moana Lane and Pioneer Drive, so the peak flows are probably not as great as the 36 inch culvert implies, but there needs to be some level of erosion protection, regardless. It is clear that there has been erosion in storm events.</p>	Washoe Golf Course
4	1048	<p>Construct headwall and riprap to flowline.</p>	Ashfork Drive
4	1050	<p>Repair undermined/separated pipe sections. Construct headwall and riprap to flowline of ditch. Construct Curb on existing access road from Ashfork to route surface drainage into existing drop inlet at east end of access road. Point 1048 is a storm drain from Greensburg Circle, and Point 1050 is a storm drain from Ashfork Drive/Bridgewater Drive. Both drains end well above the flowline of the Steamboat Ditch and runoff freefalls into the ditch. Point 1050 is being undermined because of surface runoff from the storm drain access road and is a hazard. Both of the outfall improvements as well as improvements to the storm drain access road should be performed at the same time to ensure complete protection of the Steamboat Ditch. The city might consider routing the 24" culvert under the ditch and discharging runoff into the wash that it would naturally enter. If this option is considered, a major hydrology study would need to be undertaken to ensure protection of downstream properties.</p>	Ashfork Drive



5	2094	<p>Riprap from Plumb Lane to flowline of ditch.</p> <p>There is no curb & gutter in this section of Plumb Lane. Runoff from the north side of Plumb Lane, east of Point 2094 travels west through a widened area north of the shoulder of Plumb Lane. It eventually reaches a point where it turns north and discharges, overland, into the Last Chance Ditch. The grade is quite steep from Plumb Lane to the Last Chance Ditch, and the erosion is significant. Since there is no curb & gutter in this section of Plumb Lane to contain runoff, it would be difficult to collect runoff in a pipe. Ultimately, if curb & gutter is constructed on Plumb Lane, this would be a more desirable solution. Until that time, erosion could be minimized by riprapping the channel from Plumb Lane to the Last Chance Ditch.</p>	Plumb Lane east of Homewood
6	1076	<p>Construct headwall and riprap to flowline.</p> <p>This is a storm drain outfall from the intersection of Susileen Drive and Markridge Drive. It discharges down a very steep slope from Susileen Drive into the Steamboat Ditch. There is significant erosion. This section of Susileen is very narrow and there is a 3 ft +/- vertical drop-off right at the eastern edge of pavement. The City may want to consider making these improvements a part of a larger public works project. Susileen probably needs a new retaining wall on its east edge along with a guardrail. If a retaining wall is to be installed, it can act as a headwall for the storm drain.</p>	Susileen Drive at Markridge Dr.
7	3101	<p>Construct headwall and riprap to flowline of ditch.</p> <p>Clean up broken storm drain pipe.</p> <p>This is the outfall for public storm drain from the intersection of Oreana Drive and Golconda Drive.</p>	2200 Oreana Drive Reno, NV 89509 Gloria G. Brown Trust
8	1143	<p>Hydraulic analysis required. Major erosion do to overtopping of ex. DI at top of slope. No apparent source of surface runoff to ex. DI indicates that erosion is due to surcharging of upstream storm drain-causing discharge from ex. DI.</p> <p>This was moved lower on the priority list since the origin of the erosion is in question. If a hydrology study is done and it is determined that runoff chronically discharges out of the DI, this can be moved up on the priority list.</p>	Cuesta Apartments, Skyline Drive
9	2150	<p>Construct headwall and riprap to flowline of ditch.</p> <p>Public drainage from Reanon Court. Small watershed.</p>	Private Residence 3150 Reanon Ct. Stephan & Judy McCabe
10	4220	<p>Construct headwall and riprap to flowline.</p> <p>This was made lowest priority due to preliminary field</p>	Elks Lodge



		investigation. Field investigation indicated that this might not, in fact, be a storm drainpipe. It may be a remnant irrigation pipe from when this area was an irrigated pasture. City records may provide information on origin of pipe.	
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Point 3090 was originally listed as a first priority on the CIP. I chose to remove it from the CIP since it is the outfall for Hunter Creek reservoir. It appears that the Lake Ditch Company has rights to a diversion from Hunter Creek. There are also boulders placed in the flowline to protect the ditch.

At this point, I believe that we should schedule a meeting to decide what our next step should be. Please feel free to call at any time.

Sincerely,
Gray & Associates

Edward C. Thomas, P.E.
Project Manager



STEAMBOAT DITCH - CAPITAL IMPROVEMENT PLAN			
5-POINT RATING SYSTEM			
1 = IMMEDIATE ACTION REQUIRED			
5 = NO ACTION NECESSARY			
PAGE 1			
POINT NO.	RATING	COMMENTS	RECOMMENDED ACTION
1006	5	(Woodchuck Ln.)	None
1009	3	Private Yard Drain Erosion	Rip-rap to flowline of ditch
1010	5	(Frankovich Ct.)	None
1012	3	Weser Ln.	Construct headwall
1014	5	Path X-ing	None
1016	5	(Caughlin Parkway)	None
1017	2	Promotory From MH in Street	Construct concrete or rock splashpad in flowline
1020	5	Pathway to SS Access	None
1024	5	(Bitteroot) with 12" SD to Box	None
1026	5	Inlet though box culvert	None
1028	5	Foot Path	None
1029	5	(Alum Creek)	None
1030	5	(Buck Creek rd.)	None
1031	5	Inlet though headwall	None
1032	5	(Quilici) 1 1/2" Conduit through culvert	None
1033	5	Though headwall of box	None
1034	5	Rockery Drain	None
1035	5		None
1038	4	(Caughlin Creek)	Construct cutoff wall on upstream side
1042	5		None
1043	1	End Conc. Sect.	Rip-rap channel 50+/- downstream of grouted rip-rap
1044	1	Erosion	Construct cutoff wall upstream of drop
			Stabilize vertical face with concrete or masonry wall
			Construct splash pad in flowline
1048	1	12" RCP	Construct headwall and rip-rap to flowline
1050	1	24" RCP	Repair undermined/separated pipe sections, construct headwall and rip-rap to flowline of ditch, construct curb on existing access road from Ashfork to route surface drainage into existing drop inlet at east end of access road
1051	4		Rip-rap to flowline of ditch
1053	5	(Southampton) 12" RCP side of box	None
1055	RCB	(Southampton) Outlet end	Rip-rap to flowline of ditch
1056	4	Wash from S. Hampton.	Monitor future upstream development to ensure that steps are taken to minimize erosion at this location
1057	5	(Meridian) upstream 12" entering Box	None
1059	5	(Meridian) downstream	None
1076	1	Susileen at Markridge	Construct headwall and rip-rap to flowline
1077	4		Remove grout and rip-rap to flowline
1078	2		Remove grout, backfill undermined soil, and rip-rap to flowline
1081	5	(Markridge)	None
1084	4	photo says 1085b	Construct headwall and rip-rap to flowline
1085b	3		Construct headwall and splash pad in flowline
1086	3		Re-construct headwall and rip-rap to flowline
1087	5	(Marthiam) inlet end	None
1088	5	photo says 1089 outlet end	None
1089	2		Construct headwall and splash pad in flowline
1090	5	(Belford) Upstream	None
1092	5	(Belford) Downstream	None
1093	4	Possible SD connect	Miter pipe to slope and rip-rap to flowline
1101	4	(Cashill)	Construct wingwalls

1104	5	Headwall 10'	None
1106	4	12" steel pipe overcrossing ditch	Repair failing pipe anchorages
1107	3	Ditch enters 1' above I.E.	Rip-rap to flowline of ditch
1108	5	No inlets	None
1109	5	No inlets	None
1111	5	BM 2410	None
1112	2	Drainage from above	Construct cutoff wall in flowline above drop Construct concrete or masonry wall to stabilize Construct splash pad in flowline
1116	1	Exposed sanitary sewer pipe over ditch	Construct concrete or masonry wall to stabilize Backfill over exposed pipe
1127	5	CL 18' Box Culvert	None
1130	5	CL 18' Box Culvert	None
1134	3	Run off from tank site	Rip-rap to flowline of ditch
1140	5	(Skyline) No inlets	None
1141	4	Bridge over Ditch	Rip-rap sides of ditch
1142	5	Bridge over Ditch	None
1143	1	12" PVC down drain from Cuesta Apts.	Hydraulic analysis required. Major erosion due to overtopping of ex. DI at top of slope. No apparent source of surface runoff to ex. DI indicates that erosion is due to surcharging of upstream storm drain causing discharge from ex. DI.
1144	5	Box across Drainage	None
1146	4	12" PVC down drain from Cuesta Apts.	Source of erosion appears to have been eliminated by Cuesta Apartments. Monitor to make sure erosion isn't increasing.
1147	5	(Manzanita) No inlets	None
1150	5	Beg. Conc Ditch under McCarran	None
1154	5	(McCarran) end McCarran headwall	None
1156B	3	10" PVC over ditch / beg conc Ditch	Stabilize slide slope with rip-rap
1163	5	Golf Cart X-ing	None
1167	5	Cart X-ing	None
1170	5	No inlets	None

LAST CHANCE DITCH - CAPITAL IMPROVEMENT PLAN

5-POINT RATING SYSTEM

1 = IMMEDIATE ACTION REQUIRED

5 = NO ACTION NECESSARY

PAGE 1

POINT NO.	RATING	COMMENTS	RECOMMENDED ACTION
2004		Outlet drain under flume	FIELD INVESTIGATION REQUIRED
2007	4	20' conc sect And Rock lined ditch	Construct 6" curb on either side of concrete section to confine runoff to concrete slab
2016	5	(White Fir) Box culvert	None
2018	5	N. Side	None
2025	3	Drainage inlet	Rip-rap to flowline of ditch
2034	5	(Juniper) Box Culvert	None
2035	5	Inlet from west	None
2036	5	Ditch Drainage Inlet	None
2037	5	Concrete Abutment	None
2044	4	Filled in	Rip-rap to flowline of ditch
2047	4	S. Side Road Culvert	Rip-rap to flowline of ditch
2049	3	Catch Basin	Field study required during dry season. Possibly rip-rap to flowline of ditch
2050	3	Catch Basin	Rip-rap to flowline of ditch
2051	5	(Latigo Rd.) Bridge	None
2054	5	From E. Side Ditch of Latigo Rd.	None
2062	4	CMP S. Side	Rip-rap to flowline of ditch
2064B	2	Yard Drainage with erosion	Rip-rap to flowline of ditch
2065	2	Yard Drain with erosion	Rip-rap to flowline of ditch
2066	5	Yard Drain	None
2068	4	Yard Drain Ditch with erosion	Rip-rap to flowline of ditch
2071	5	CMP lined culvert with gate	None
2072	5	Caughlin Ranch Drainage	None
2073	5	Path crossing with Xtra Photo	None
2074	4	Path crossing	Clean out culverts
2075	4	Path crossing	Clean out culverts
2076	5	(McCarran) Bridge	None
2079	5	End Barrel	None
2082	5	RCB Caughlin Crossing	None
2084	5	RCB N. Side	None
2087	5	36" RCP	None
2088	5	(McCarran)	None
2090	5	N. Side	None
2092	5	(Homewood) W. side	None
2093	5	E. Side	None
2094	1	Erosion & Drainage from Plumb	Rip-rap from Plumb to flowline of ditch
2096	2	Erosion & Drainage	Rip-rap to flowline of ditch
2097	2	Drain S. Side Erosion	Rip-rap to flowline of ditch
2100	3	18" CMP from private pond	Construct headwall and rip-rap to flowline of ditch
2104	5	(W. Plumb Lane) beg. Rockline	None
2108	5	(Aquila Ave.)	None
2109	5	Private Drive	None
2113	5	(Hunter Lake)	None
2114	3	Road drain to ditch	Replace concrete lined swale to ditch with rip-rap to flowline
2115	5	East Side	None
2118	5	Private Drive	None
2122	4	Drain to Ditch	Rip-rap to flowline of ditch
2128		Unknown dug up pipe	FIELD INVESTIGATION REQUIRED
2129	4	12" RCP	Repair concrete

2129b	5	(Webster/Setinel Dr.)	None
2130	3	Many manholes across road	Construct splash pad
2130b	5	Needs investigation	None
2140	5	SD Inlet with MH Cover	None
2141	5	(unknown)Start Conc Sect. N. Side	None
2148	3	Yard Drain	Rip-rap to flowline of ditch
2150	1	Drain from Reanon Ct. near SSMH	Construct headwall and rip-rap to flowline of ditch
			Construct small masonry retaining wall in front of SSMH to allow backfill around SSMH
2153	5	Box Culvert under creek	None
2166	5	(Skyline Circle)	None
2167	5	Catch Basin drop in at Bridge	None
2170	5	(Rancho Manor Dr.)	None
2173	5	(Monterey Dr.) Catch Basin	None
	5	Drop ins on both sides of road	None
2174	4	(Moana)	Construct wingwalls or rip-rap
2183	5	(Pioneer Dr.)	None
2187	5	Trail Bridge additional photo	None
2203	4	(Manzanita) Wall S. Side	Construct wingwalls or rip-rap
2213	2	SD to Ditch	Construct headwall and rip-rap to flowline of ditch
2214	3	(Rio Pinar Dr) SD both Sides	Construct wingwalls or rip-rap
2217	5	(McCarran) with Catch Basin drop	None
2218	5	Catch Basin to Ditch	None
2220	5	Golf Parking Pic Says 2219	None
2221	5	Under Driving Range	None
2223	5	Entrance to Lakeside	None
2225	5	Course Trail	None
2228	5	Golf Course	None
2229	2	Private SD to Ditch	Construct headwall and rip-rap to flowline of ditch
2231	2	Private SD to Ditch	Construct headwall and rip-rap to flowline of ditch
2232	5	GR Ranch entrance	None
2234	5	(Evans Creek Rd)	None

CAPITAL IMPROVEMENT PLAN - LAKE DITCH

5-POINT RATING SYSTEM

1 = IMMEDIATE ACTION REQUIRED

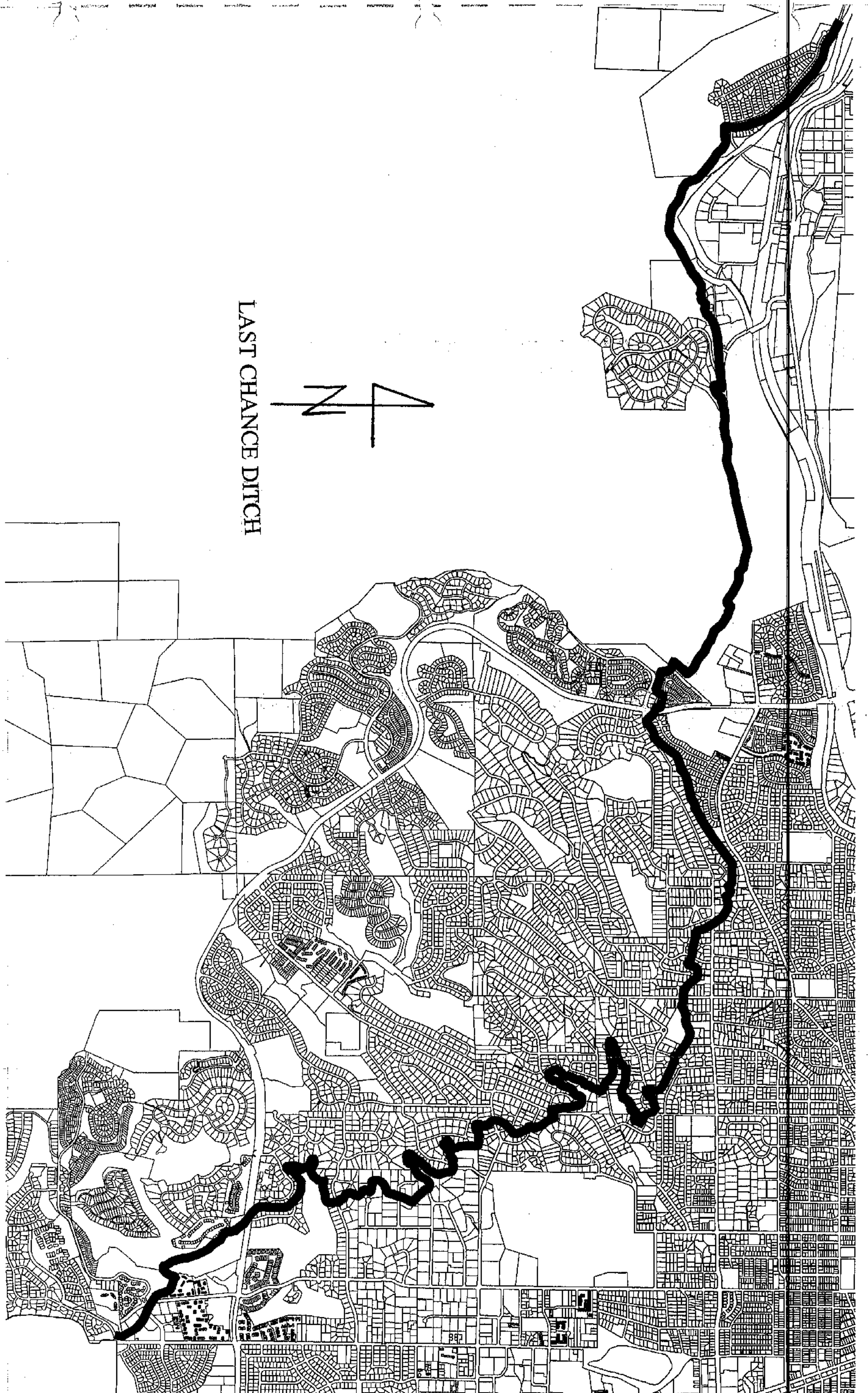
5 = NO ACTION NECESSARY

PAGE 1

POINT NO.	RATING	COMMENTS	RECOMMENDED ACTION
3004	5	TRAIL BRIDGE	None
3005	3	TRAIL PATH	Rip-rap to flowline
3006	5	TRAIL BRIDGE	None
3007	5	TRAIL BRIDGE	None
3009	5	STREAM INLET TO DITCH	Construct Headwall and rip-rap to flowline
3014	5	(RAINSHADOW LANE) DRAIN W. SIDE RD.	None
3014B	4		Rip-rap to flowline
3017B	5	PRIVATE DRIVE	None
3020	5	YARD SWALE	None
3028	5	PRIVATE	None
3029	5	BEGIN CONC. SECTION & SD TO DITCH	None
3030	4	SD TO DITCH	Cut back pipe to reduce drop
3031	5	SD TO DITCH	None
3032	5	(EDGEWATER)	None
3034	4	SD TO DITCH	Rip-rap to flowline
3035	5	SD TO DITCH END CONC. BEG. ROCK	None
3039	3	SD TO DITCH (PIC SAYS 3037)	Rip-rap to flowline
3040	5	SD TO DITCH AND CROSS	None
3042	5	(MCCARRAN) START CONC. SECTION	None
3044	3	SD TO DITCH - NEEDS MAINTENANCE	Rip-rap from cross drain to back of inlet to ditch. Clean up inlet. Remove tree growing in inlet.
3048	5	SD TO DITCH	
3050	5	(RIVER RUN)	None
3054	5	(MAYBERRY)	None
3055	5	SD CATCH IN KNIGHT	None
3060	5	PRIVATE DRIVE (VERNON)	None
3064	5	PRIVATE / 2X15" SD AT FERRIS LANE	None
3068	3	YARD DRAIN	Construct concrete splash pad in flowline
3069	4	(HUNTER LAKE)	Construct wingwalls or rip-rap
3071	5	YARD DRAIN	None
3072	3	(CLOUGH ROAD)	Construct wingwalls
3073	2	SD	Construct headwall and rip-rap to flowline
3075	2	SD	Construct headwall and rip-rap to flowline
3079	3	SD TO DITCH	Rip-rap to flowline
3080	5	(SHARON) 2X8" SD BOTH SIDES	None
3085	3	SD TO DITCH - BOTH SIDES OF ROAD	Construct splash pad. If inlet is ever improved to a Type 4-R, a headwall may be needed.
3085B		AT MANOR	
3086	5	(MONROE) W/ 2 SD'S, BOTH SIDES ROAD	None
3090	5	(BROWN ST.) W/ 2SD INLETS	None
3091	5	(MT. ROSE) W/ 2SD INLETS, BOTH SIDES	None
3093	5	OUTLET	None
3094	2	SD TO DITCH	Rip-rap to flowline
3095	2	(PLUMB) W/ 2 SD INLET 8"; BOTH SIDES	Construct headwall Construct wingwalls or rip-rap
3098	2	SD TO DITCH	Clean and rip-rap to flowline
3099	5	(MAPLEWOOD)	None
3101	1	SD TO DITCH FROM GOLDONDA	Construct Headwall and rip-rap to flowline
3102	5	PINERIDGE W/ 2 SD BOTH SIDES RD.	None
3107	2	SD TO DITCH	Construct headwall
3112	2	SD TO DITCH	Construct headwall
3115	2	BOD @ PRIVATE BRIDGE	Construct headwall and rip-rap to flowline

3116	3	(SKYLINE)12"SD TO DITCH	Construct wingwall with headwall for 12" SD
3121	3	GOLF DRAINS	Construct splash pad
3131	4	GOLF DRAIN	Construct splash pad
3133	3	SUBDIV. DRAIN BLOWN OUT OF GROUND	Rip-rap to flowline
3134	2	SD COVERED ?	Clean and rip-rap to flowline
3135	3	SD TO DITCH	Rip-rap to flowline
3136	5	12" SD	None
3137	1	SD'S TO DITCH ON WASHOE G.C.	Construct headwall and rip-rap to flowline
3139	4	DRAIN EAST SIDE	Rip-rap to flowline
3140	5	(MOANA)	None
3144	5	S. OF MOANA (UNKNOWN)	None
3146	5	(MEADOWVIEW)	None
3147	4	WTF	Rip-rap to flowline
3149	4	POND DRAIN	Rip-rap to flowline
3151	3	SD TO DITCH	Construct Headwall and rip-rap to flowline
3155	2	PRIVATE YARD DRAINAGE	Rip-rap to flowline
3156	4	YARD DRAINAGE	Rip-rap to flowline
3160	3	YARD DRAINAGE	Construct splash pad
3162	4	N. SIDE LAKERIDGE	Construct wingwalls or rip-rap
3169	3	SD TO DITCH	Clean out and rip-rap to flowline
3172	4	LAKESIDE CATCH BASINS BOTH SIDES	Construct wingwalls or rip-rap
3176	3	SD TO DITCH	Construct Headwall and rip-rap to flowline
3177	5	(MCCARRAN)	None
3179	5	LAKERIDGE	None
3180	5	LAKERIDGE	None
3181	5	(LAKESIDE)	None
3183	5	(LAKESIDE) SD INLETS BOTH SIDES	None
3190	2	SD TO DITCH	Rip-rap to flowline

CAPITAL IMPROVEMENT PLAN - COCHRAN DITCH			
5-POINT RATING SYSTEM			
1 = IMMEDIATE ACTION REQUIRED			
5 = NO ACTION NECESSARY			
PAGE 1			
POINT NO.	RATING	COMMENTS	RECOMMENDED ACTION
4205	5	Underground	None
4210	3	(Baker Ln) Pipe Ditch open again	Construct headwall
4211	5	(Pecham)	None
4213	4	SD to Ditch	Too overgrown to make assessment. May be priority 5.
4214	4	SD to Ditch	Add splash pad.
4215	4	SD to Ditch	Too overgrown to make assessment. May be priority 5.
4216	5	SD to Ditch	None
4218	3	SD to Ditch/underground S. Side	Rip-rap to flowline
4220	1	SD to Ditch	Construct headwall and rip-rap to flowline
4221	2	SD to Ditch	Construct headwall
4222	2	SD to Ditch	Construct headwall and rip-rap to flowline
4223	5	Underground	None
4224	3	Out of ground here	Construct headwall
4225	5	(Virginia Ln)under grd past Kietzke	None
4226	5	Break Splits and underground again	None
4227	5	underground break 72" CMP inside	None
4228	2	(Deluchie)	Construct headwall
4229	4	Sluice box over stream	Rip-rap stream
4230		With Grate and then drops in EL.	



LAST CHANCE DITCH



PHOTOS



Last Chance 2001



Last Chance 2002



Last Chance 2002B



Last Chance 2004



Last Chance 2005



Last Chance 2007



Last Chance 2007B



Last Chance 2008



Last Chance 2009



Last Chance 2010



Last Chance 2011



Last Chance 2012



Last Chance 2013



Last Chance 2014



Last Chance 2015



Last Chance 2016



Last Chance 2018



Last Chance 2020



Last Chance 2021



Last Chance 2022



Last Chance 2023



Last Chance 2025



Last Chance 2026



Last Chance 2027



Last Chance 2028



Last Chance 2028B



Last Chance 2029



Last Chance 2029B



Last Chance 2029C



Last Chance 2031



Last Chance 2032



Last Chance 2033



Last Chance 2033B



Last Chance 2033C



Last Chance 2034



Last Chance 2035



Last Chance 2036



Last Chance 2037



Last Chance 2038



Last Chance 2039



Last Chance 2040



Last Chance 2041



Last Chance 2042



Last Chance 2043



Last Chance 2044



Last Chance 2045



Last Chance 2047



Last Chance 2050



Last Chance 20508



Last Chance 2051



Last Chance 2054



Last Chance 2056



Last Chance 2057



Last Chance 2058



Last Chance 2059



Last Chance 2060



Last Chance 2062



Last Chance 2063



Last Chance 2064



Last Chance 2064B



Last Chance 2065



Last Chance 2066



Last Chance 2067



Last Chance 2068



Last Chance 2069



Last Chance 2070



Last Chance 2071



Last Chance 2072

Handwritten note: 2071 - 2072



Last Chance 2073



Last Chance 2074

*Last Chance
2073-2074*



*Alto Fork
Culvert, 2016*

Last Chance 2075



*Alto Fork
Culvert*

Last Chance 2076



*Water for the Best of Both
April 2019*

Last Chance 2079



Last Chance 2080



Last Chance 2081



Last Chance 2082

People's Survey



Conduit

Last Chance 2084



Last Chance 2085



Last Chance 2086



Last Chance 2087



Last Chance 2087B



Photo 2087

Last Chance 2088



Last Chance 2089



Last Chance 2090



Last Chance 2091



Last Chance 2092



Last Chance 2093



Last Chance 2094



Last Chance 2094B



Last Chance 2094C



Last Chance 2094D



Last Chance 2096



Last Chance 2097



Last Chance 2098



Last Chance 2099



Last Chance 2100



Last Chance 2101



Last Chance 2102



Last Chance 2103



Last Chance 2104

Last Chance



Last Chance 2106



Last Chance 2107



Last Chance 2108

2108



Last Chance 2109

2109



Last Chance 2110



Last Chance 2111



Last Chance 2112



Last Chance 2113

Photo Cole



Last Chance 2114



Last Chance 2115



Last Chance 2116



Last Chance 2117



Last Chance 2118



Last Chance 2119



Last Chance 2121



Last Chance 2122



Last Chance 2123



Last Chance 2124



Last Chance 2125



Last Chance 2126



Last Chance 2127



Last Chance 2128



Winters
Chiron

Last Chance 2129



Last Chance 2130



Last Chance 2131



Last Chance 2132



Last Chance 2133



Last Chance 2134



Last Chance 2135



Last Chance 2136



Last Chance 2137



Last Chance 2138



Last Chance 2139



Last Chance 2140



Last Chance 2141



Last Chance 2142



Last Chance 2143



Last Chance 2144



Last Chance 2145



Last Chance 2146



Last Chance 2147



Last Chance 2148



Last Chance 2149



Last Chance 2150



Last Chance 2151



Last Chance 2152



Last Chance 2153



Last Chance 2154



Last Chance 2155



Last Chance 2156



Last Chance 2157



Last Chance 2158



Last Chance 2159



Last Chance 2160



Last Chance 2161



Last Chance 2162



Last Chance 2163



Last Chance 2164



Last Chance 2165



Last Chance 2166



Last Chance 2167



Last Chance 2168



Last Chance 2170



Last Chance 2171



Last Chance 2173



Last Chance 2173B



Last Chance 2174



Last Chance 2175



Last Chance 2177



Last Chance 2178



Last Chance 2179



Last Chance 2180



Last Chance 2181



Last Chance 2183

Last Chance



Last Chance 2184

White River



Last Chance 2184B



Last Chance 2185



Last Chance 2186



Last Chance 2187



Last Chance 2187B



Last Chance 2187C



Last Chance 2188



Last Chance 2190



Last Chance 2191



Last Chance 2192



Last Chance 2192B



Last Chance 2193



Last Chance 2194



Last Chance 2195



Last Chance 2196



Last Chance 2197



Last Chance 2198



Last Chance 2199



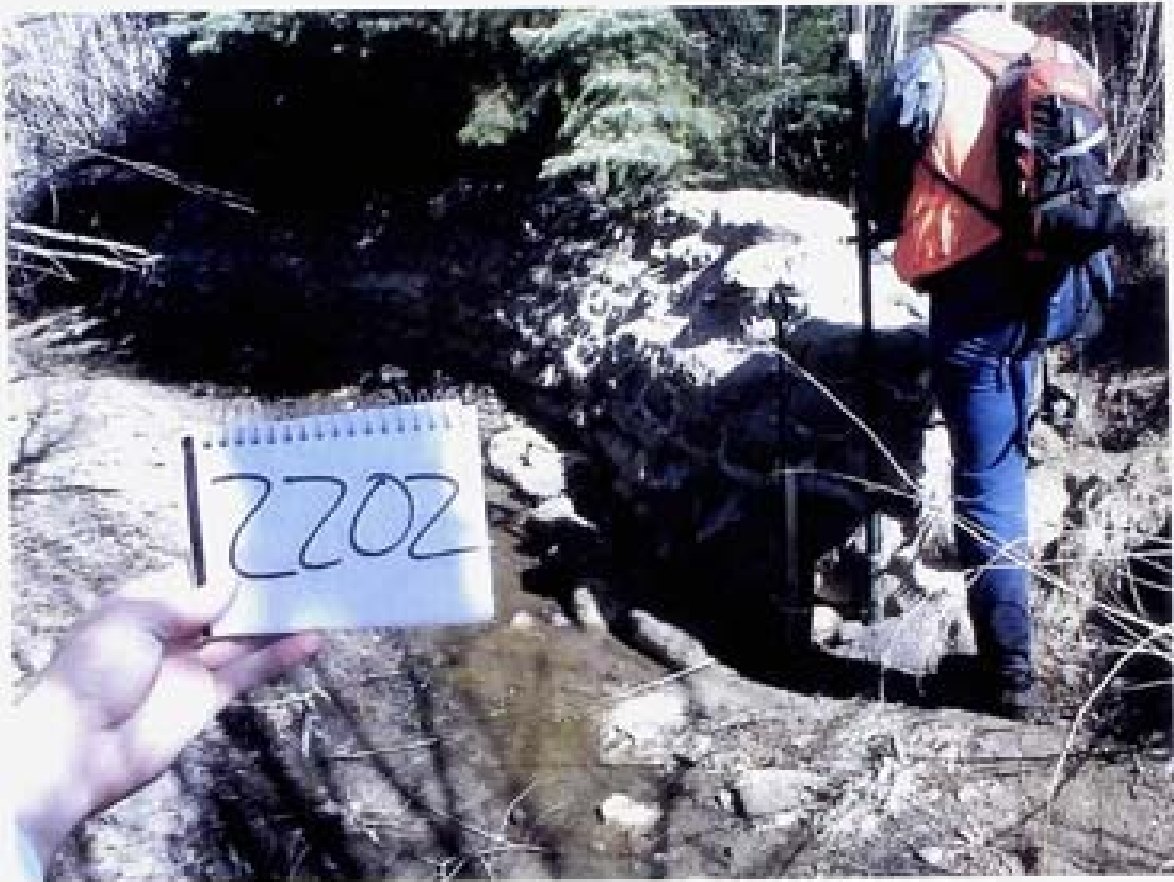
Last Chance 2200



Last Chance 2200B



Last Chance 2201



Last Chance 2202



Last Chance 2202



Last Chance 2202B



Last Chance 2203



Last Chance 2205



Last Chance 2206



Last Chance 2207



Last Chance 2208



Last Chance 2209



Last Chance 2210



Last Chance 2212



Last Chance 2212B



Last Chance 2213



Last Chance 2213B



Last Chance 2214



Last Chance 2216



Last Chance 2217



Last Chance 2217B



Last Chance 2218



Last Chance 2218B



Last Chance 2220



Last Chance 2220B



Last Chance 2221



Last Chance 2223



Last Chance 2223



Last Chance 2224



Last Chance 2225



Last Chance 2226



Last Chance 2227



Last Chance 2228



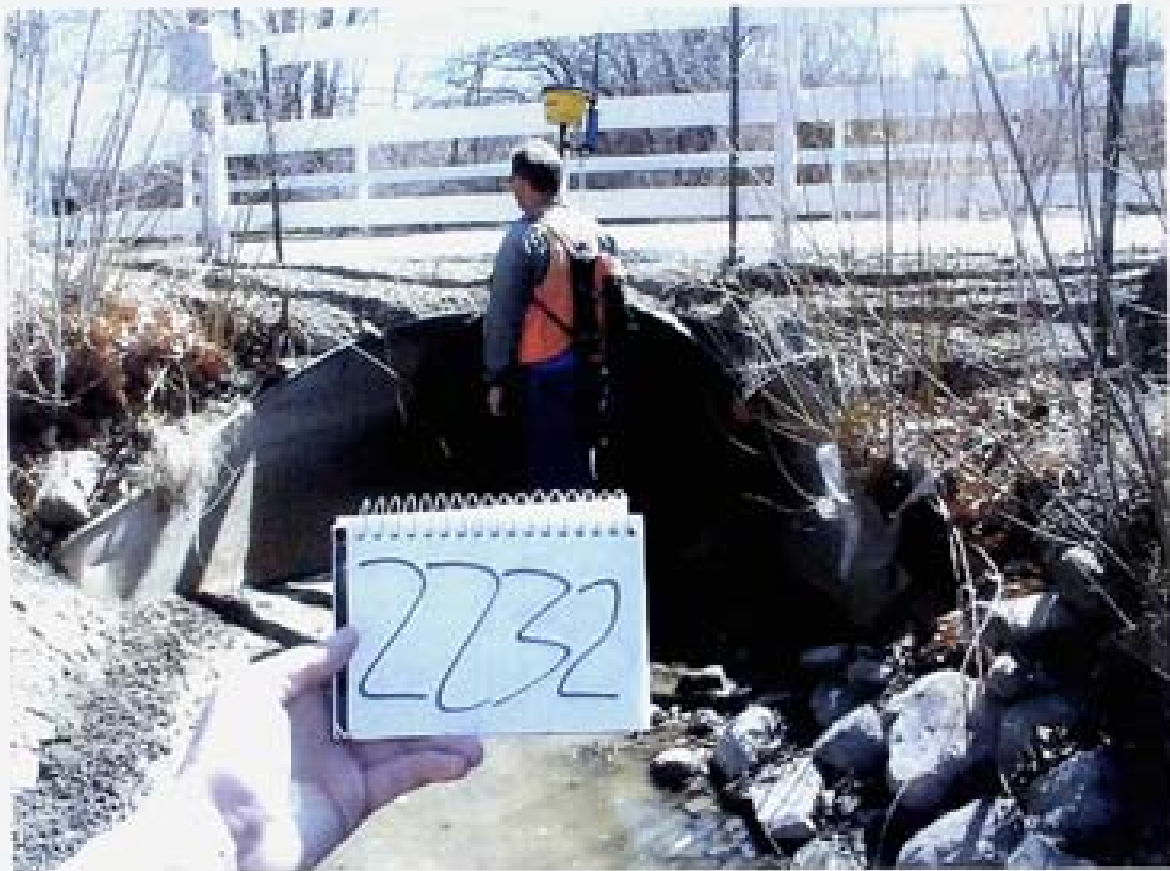
Last Chance 2229



Last Chance 2230



Last Chance 2231



Last Chance 2232



Last Chance 2233



Last Chance 2234

POINT DATA

LAST CHANCE DITCH

POINT NO.	NORTHING	EASTING	SHAPE	SIZE	MATERIAL	NUMBER OF BARRELS	HEAD-WALL	FES	SLUICE GATE	INLET	OUTLET	ROAD CROSSING	STREAM XING	COMMENTS
2001	14862657.80	2250272.92		12'x4.5'	Conc									Conc Flume 40' in length
2002	14862644.48	2250299.40		4'x6'	Wood			X			X			Sluice Gate with extra photos
2003	14862641.88	2250319.70												END CONC FLUME
2004	14862622.67	2250300.73	RCP	36"		1				X				Outlet drain under flume
2005	14862631.25	2250357.99		12' Wide	Conc				X					Conc. Sect.
2006	14862544.49	2250506.20												END CONC SEC
2007	14862338.97	2250968.70		20'	Conc									20' conc sect And Rock lined ditch
2008	14861896.17	2251589.32		3'	Wood									Private Bridge
2009	14861715.32	2251796.76		3'	Wood									Private Bridge
2010	14861512.25	2252005.91		2'										Private Bridge
2011	14861343.10	2252143.72		2'										Private Bridge
2012	14861244.44	2252223.32			Conc									Conc. Sect. 20'
2013	14861178.30	2252267.98		2'	Wood									Private Bridge
2014	14860637.08	2252485.30	Cir.	4"	metal	1								Yard Drain
2015	14860521.67	2252486.45		3'	Wood									Private Bridge
2016	14860413.14	2252495.70	Box	5'x10'	Conc					X		X		(White Fir) Box culvert
2017	14860369.47	2252541.75												CL MON WHITE FIR
2018	14860326.91	2252477.91			Gunite									N. Side
2019	14860251.72	2252476.35												END GUNNITE
2020	14860227.26	2252467.09											X	Creek Inlet
2021	14860137.15	2252991.24			Metal/Wood									Private Bridge
2022	14859374.25	2253714.83	Box		Conc									Conc Flume
2023	14859363.90	2253737.91		4'x4'				X					X	drainage under flume
2024	14859341.30	2253764.85												END CONC
2025	14859301.17	2253821.49			Conc					X			X	Drainage inlet
2026	14859701.49	2255990.13			PVC	1					X			Irrigation Valve
2027	14859681.61	2256135.12			Conc									Beg. Flume
2028	14859683.70	2256158.94		15'x4'	Wood			X					X	Wood flume over creek
2029	14859679.48	2256167.76		4'x10'	Wood			X						Sluice gate in flume
2030	14859678.26	2256188.28												END CONC
2031	14859785.20	2256384.75		8"	Metal			X						GV
2032	14859779.67	2256389.25		12' Wood										Private Bridge
2033	14860140.47	2256215.91			Conc									Conc Sect.
2034	14860128.67	2258485.69	Grate Box	5'x10'	Conc	1						X		(Juniper) Box Culvert
2035	14859993.18	2256192.91	Cir.	12"	Conc					X				Inlet from west
2036	14860126.65	2255503.23								X			X	Ditch Drainage Inlet
2037	14860135.74	2255512.42			Conc									Unknown Outlet Sand Bagged

POINT NO.	PHOTO NO.	SHAPE	SIZE	MATERIAL	NUMBER OF BARRELS	HEAD-WALL	FES	SLUICE GATE	INLET	OUTLET	ROAD CROSSING	STREAM XING	COMMENTS
2038	14860203.30		8"					X					GV
2039	14860202.91	Squash	36"	CMP	1			X				X	CMP
2040	14860207.67	Squash	36"	CMP				X	X				Culvert w/ Sluice Gate
2041	14860556.13			Gunite				X					Beg. Gunite
2042	14860536.70		8"	Metal				X	X				GV
2043	14860508.59		8"	Metal				X	X				GV
2044	14860496.36	Squash	36"x18"	CMP		X			X				Filled in
2045	14860484.43			Sand Bags									Beg. Sand Bags
2046	14860474.15												END S BAG S SIDE
2047	14860447.54	Squash	36"x18"	CMP				X	X		X		S. Side Road Culvert
2048	14860462.02												CL RD
2049	14860415.29		8"										Catch Basin
2050	14860492.63		8"										Catch Basin
2051	14860424.75		44"x12"			X					X		(Latigo Rd.) Bridge
2052	14860416.54												CL LATIGO
2053	14860407.71												BOX E LATIGO
2054	14860367.79	Cir.	12"	CMP				X					12" CMP
2055	14860393.83	Cir.	12"	CMP					X				12" CMP
2056	14860337.69		6"	Conc				X		X			GV
2057	14860282.45		3'										Private Bridge
2058	14860180.69		6"					X		X			GV
2059	14859997.43	Cir.	2"	PVC				X	X				Yard Valve
2060	14859960.19		2"	PVC					X				Yard Pipe
2061	14859868.32												18" CMP W SIDE RD
2062	14859913.44	Cir.	18"	CMP				X					CMP S. Side
2063	14859920.46		20"x3"								X		Roadway Bridge
2064	14859913.67		8"	Metal						X			GV with Drain S. Side
2064B	14859913.67												Yard Drainage with erosion
2065	14859844.93								X				Yard Drain with erosion
2066	14859775.05		3'x4'	Metal/Conc				X	X				Yard Drain
2067	14859759.29		2"					X	X				Yard Drain PVC
2068	14859596.93							X	X				Yard Drain Ditch with erosion
2069	14859563.83		8"	Metal				X		X			GV
2070	14859393.13		8"	Metal				X		X			GV
2071	14859007.86		72"	Metal/Conc				X					CMP lined culvert with gate
2072	14859022.62		4'x8'	Conc				X		X			Caughlin Ranch Drainage
2073	14858993.86		24"	CMP							X		Path crossing with Xtra Photo

5/1/2008

POINT NO.	PHOTO NO.	SHAPE	SIZE	MATERIAL	NUMBER OF BARRELS	HEAD-WALL	FES	SLUICE GATE	INLET	OUTLET	ROAD CROSSING	STREAM XING	COMMENTS
2074	14859097.69	Cir.	24"	CMP	3						X		Path crossing
2075	14859727.47	Cir.	24"	CMP	3						X		Path crossing
2076	14859805.72			Conc							X		(McCarran) Bridge <i>Alvin Creek</i>
2077	14859006.58												ReShoot to set GPS DWG
2079	14858945.86	Squash	72"	CMP	1	X							End Barrel
2080	14858855.79		100' long										Beg. Gunite
2081	14858697.68		100' long										Beg. Gunite
2082	14858747.41	Box	10'x5'	RCB		X					X		RCB Caughlin Crossing
2083	14858825.03												CL MON CAUGHLIN XING
2084	14858828.58	Box	10'x5'	RCB		X							RCB N. Side
2085	14858806.26	Cir.	4"	PVC					X				Gunite to McCarran
2086	14858805.70	Cir.	4"	PVC					X				Drain inlet
2087	14858693.33	Cir.	36"	RCP	1				X				SD inlet
2088	14858701.89	Box	10'x5'	RCB		X					X		(McCarran)
2089	14858706.06	Cir.	8"	Metal		X				X			GV
2090	14858638.08	Box	10'x5'	RCB		X							N. Side
2091	14858639.19		12"	Metal				X					GV
2092	14858553.93	Box	10'x5'	RCB		X					X		(Hornwood) W. side
2093	14858613.29	Box	10'x5'	RCB		X							E. Side
2094	14858913.69								X				Erosion & Drainage from Plumb
2095	14858835.84												PLUMB EROSION SOURCE
2096	14859155.86								X				Erosion & Drainage
2097	14858835.84	Cir.	24"	CMP					X				Drain S. Side Erosion
2098	14859738.75		150' Long										Beg. Rockwall Sect. S. Side
2099	14860318.25		20' Long										Gunite Sect.
2100	14860269.87	Cir.	18"	CMP					X				Conc. Sect.
2101	14860305.20		150'	CONC									Conc. Sect.
2102	14860264.04	Bridge		WOOD									Private Bridge
2103	14860141.48		6"	Metal				X		X			GV
2104	14860123.39	Box	4'x12'	RCB		X					X		(W. Plumb Lane) beg. Rockline
2105	14859948.87	Box	4'x12'	RCB		X							
2106	14859664.63	Cir.	4"	CPP					X				Plastic pipe drain
2107	14859540.86												End rock Sect.
2108	14869464.34	Box	4'x12'	RCB		X					X		(Aquila Ave.)

POINT NO.		PHOTO NO.	SHAPE	SIZE	MATERIAL	NUMBER OF BARRELS	HEAD-WALL	FES	SLUICE GATE	INLET	OUTLET	ROAD CROSSING	STREAM XING	COMMENTS
2109	14859588.65	2271216.61	Box	4'x12'	RCB		X					X		Private Drive
2110	14859589.31	2271255.58		6"				X						GV
2111	14859542.67	2271318.59	Bridge	3'	Wood									Bridge
2112	14859538.84	2271329.91		6"				X						GV
2113	14859276.90	2271703.80	Box	12'x4'	RCB		X			X		X		(Hunter Lake)
2114	14859267.39	2271696.98			Conc									Road drainage to ditch
2115	14859275.09	2271751.49	Box	12'x4'	RCB		X							East Side
2116	14859253.25	2271930.08		6"	Metal			X			X			Plugged GV
2117	14859406.15	2272619.04		6"	Metal			X			X			GV
2118	14859299.53	2272806.01	Squash	6.5'x4.5'	CMP		X					X		Private Drive
2119	14859281.00	2272818.37			RR Ties									RR Ties Retaining Wall
2120	14859198.90	2272937.42												RR TIES END
2121	14859175.19	2272979.71	Cir.	4"	Metal					X				Drain to Ditch
2122	14859069.41	2273058.50	Cir.	15"	RCP	1			X					Drain to Ditch
2123	14859008.86	2273297.87	Cir.	2"	Metal						X			Outlet
2124	14858982.51	2273347.20	Cir.	3"	Metal				X					Yard Drain
2125	14858720.94	2273808.36		150' long	Conc					X				Conc. Sect. 150' long
2126	14858716.53	2273797.63	Cir.	4"	PVC				X					Yard Drain
2127	14858687.34	2273807.42	Box	6'x4'	RCB							X		Private Drive
2128	14858632.12	2273811.67		4"	Metal									(Unknown) dug up pipe
2129	14858458.10	2273795.43	Cir.	12"	Conc				X					SD to ditch
2129b			Squash	5'x3'	CMP							X		(Webster/Setinel Dr.)
2130	14858467.52	2273874.30	Cir.	12"	Conc				X					Many manholes across road
2130b			Squash	5'x3'	CMP							X		
2131	14858514.08	2273933.60	Bridge	4'	Wood									Bridge
2132	14858637.45	2274129.61	Cir.	2"	Metal				X					Yard Drain & Broken Wall Sect.
2133	14858477.79	2274314.81			Conc.									Conc. Wall S.W. Side
2134	14858442.45	2274340.23	Box	10'x3'	RCB							X		Private
2135	14858434.36	2274364.86		6"	Metal			X			X			GV
2136	14858329.41	2274526.11	Bridge	3'	Wood									Private Walk
2137	14858229.28	2274496.98	Cir.	8"	Metal	2								Insulated Metal Pipes

POINT NO.	PHOTO NO.	SHAPE	SIZE	MATERIAL	NUMBER OF BARRELS	HEAD-WALL	FES	SLUICE GATE	INLET	OUTLET	ROAD CROSSING	STREAM XING	COMMENTS
2138	14857977.51	Bridge	4'	Wood									Private & 15 plugged Wall Drains
2139	14857667.02							X				X	Stream Inlet
2140	14857645.46	Cir.	18"	Plastic	1	X		X					SD Inlet with MH Cover
2141	14857550.93	Squash	5'x4'	CMP	1	X					X		(unknown)Start Conc Sect. N. Side
2142	14857438.52			Conc									End Wall
2143	14857429.22		6"	Metal			X		X				GV
2144	14857266.34	Cir.	2"	Metal					X				Metal Pipe
2145	14857260.91	Cir.	6"	Metal									X-ing ditch
2146	14856903.43	Bridge	4"	Wood									Private
2147	14856893.40	Bridge	4"	Wood									Private
2148	14856608.68	Cir.	8"	CMP					X				Yard Drain
2149	14856589.43	Bridge	3'	Wood									Private
2150	14856476.88	Cir.	12"	Conc									SD & SSMH
2151	14856414.35	Squash	36"	CMP									SD Drainage
2152	14856412.41		6"	Metal				X		X			GV
2153	14856312.36	Box	8'x4'	RCB		X		X				X	Box Culvert under creek
2154	14856308.96	Sluice	20'	Conc									Sluice
2155	14856305.13	Bridge	18'	Wood									Private
2156	14856621.47	Bridge	15'	Wood							X		Private Dr.
2157	14856980.51	Bridge	3'	Wood									Private
2158	14857052.92	Bridge	15'	Wood							X		Private beg.50'rock then 100'gunite
2159	14857041.98		100'	Gunite									Gunite Sect.
2160	14856849.80	Bridge	15'	Wood							X		Private Dr.
2161	14856784.01	Bridge	4'	Wood									Private walk
2162	14856691.10	Bridge	50'	Wood							X		Private Dr.
2163	14856592.49	Bridge	20'	Wood							X		Private Dr.
2164	14856567.92	Bridge	20'	Wood							X		Private Dr.
2165	14856483.08	Bridge	20'	Wood							X		Private Dr.
2166	14856368.14	Cir.	6'x3'	CMP							X		(Skyline-Cable)

POINT NO.	PHOTO NO.	SHAPE	SIZE	MATERIAL	NUMBER OF BARRELS	HEAD WALL	FES	SLUICE GATE	INLET	OUTLET	ROAD CROSSING	STREAM XING	COMMENTS
2167	14856370.21		18"	RCP	1				X				Catch Basin drop in at Bridge
2168	14856408.24		100'x4'	Brick									N. Side Brick / S. Side Rock
2169	14856386.94										X		END BLOCK WALL E ROCK W
2170	14855906.12	Squash	3'x6'	CMP	1	X							(Rancho Manor Dr.)
2171	14855591.58		5'	Wood									Retaining wall E. Side
2172	14855496.15												END WOOD RET WALL
2173	14855437.44	Cir.	72"	RCP	1	X					X		(Monterey Dr.) CB Both Sides
2174	14855126.28	Squash	3'x6'	CMP	1	X					X		(Moana)
2175	14854747.54		150'	Conc									Conc Sect.
2176	14854709.17												END CONC SEC
2177	14854604.66	Cir.	4"	CPP				X					Plastic Pipe Yard Drain
2178	14854571.58	Cir.	4"	PVC				X					Yard Drain
2179	14854095.97			Conc									Beg. Conc Sect.
2180	14854066.76	Cir.	5"	PVC				X					Yard Drain
2181	14853992.39	Cir.	4"	PVC	3			X					Yard Drain
2182	14854006.91												END GUNNITE E SIDE
2183	14854191.77	Box	6'x12'	RCB		X					X		(Pioneer Dr.)
2184	14854193.54	Bridge	12' wide	Wood							X		Additional 6" sluice GV
2185	14853608.49	Bridge	3'	Wood									Private
2186	14853494.91	Bridge	12'	Wood									Trail Bridge
2187	14853194.97	Bridge	12'	Wood					X			X	Trail Bridge
2188	14853193.26		50'	Conc									Conc Sect.
2189	14853636.83	Bridge	15'	Wood							X		Private Dr.
2190	14853594.80			Conc									Beg. Conc Sect.
2191	14853555.25	Bridge		Wood							X		Private Dr.
2192	14853429.23	Bridge	8"	Wood/Metal									Private Dr.
2193	14853395.48		8"	Gunite				X		X	X		Private Dr.
2194	14853328.07		8"	75' Sect				X		X			End Conc. Beg. Gunite GV
2195	14853011.71	Squash	3'x6'	CMP	1	X		X			X		GV and Beg. Gunite E. Side
2196	14852978.40		6"	Metal				X		X			Private Dr.
2197	14852820.81		6"	Metal				X		X			GV
2198	14852674.56		6"	Metal				X		X			GV
2199	14852383.21		6"	Metal				X		X			GV
2200	14852370.73	Box	10'x4'	RCB		X			X				Private Xtra photo of S. Side Drain

DANT DEGENHA

C.I.P.

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LAST CHANCE DITCH - CAPITAL IMPROVEMENT PLAN			
5-POINT RATING SYSTEM			
1 = IMMEDIATE ACTION REQUIRED			
5 = NO ACTION NECESSARY			
PAGE 1			
POINT NO.	RATING	COMMENTS	RECOMMENDED ACTION
2004		Outlet drain under flume	FIELD INVESTIGATION REQUIRED
2007	4	20' conc sect And Rock lined ditch	Construct 6" curb on either side of concrete section to confine runoff to concrete slab
2016	5	(White Fir) Box culvert	None
2018	5	N. Side	None
2025	3	Drainage inlet	Rip-rap to flowline of ditch
2034	5	(Juniper) Box Culvert	None
2035	5	inlet from west	None
2036	5	Ditch Drainage Inlet	None
2037	5	Concrete Abutment	None
2071	5	CMP lined culvert with gate	None
2072	5	Caughlin Ranch Drainage	None
2073	5	Path crossing with Xtra Photo	None
2074	4	Path crossing	Clean out culverts
2075	4	Path crossing	Clean out culverts
2076	5	(McCarran) Bridge	None
2079	5	End Barrel	None
2082	5	RCB Caughlin Crossing	None
2084	5	RCB N. Side	None
2087	5	36" RCP	None
2088	5	(McCarran)	None
2090	5	N. Side	None
2092	5	(Homewood) W. side	None
2093	5	E. Side	None
2094	1	Erosion & Drainage from Plumb	Rip-rap from Plumb to flowline of ditch
2096	2	Erosion & Drainage	Rip-rap to flowline of ditch
2097	2	Drain S. Side Erosion	Rip-rap to flowline of ditch
2100	3	18" CMP from private pond	Construct headwall and rip-rap to flowline of ditch
2104	5	(W. Plumb Lane) beg. Rockline	None
2108	5	(Aquila Ave.)	None
2109	5	Private Drive	None
2113	5	(Hunter Lake)	None
2114	3	Road drain to ditch	Replace concrete lined swale to ditch with rip-rap to flowline
2115	5	East Side	None
2118	5	Private Drive	None
2122	4	Drain to Ditch	Rip-rap to flowline of ditch
2128	4	Unknown dug up pipe	Couldn't be reached for verification. Indication: plug pipe and fill hole.
2129	4	12" RCP	Repair concrete
2129b	5	(Webster/Setinel Dr.)	None
2130	3	Many manholes across road	Construct splash pad
2130b	5	Needs Investigation	None
2140	5	SD Inlet with MH Cover	None
2141	5	(unknown)Start Conc Sect. N. Side	None
2148	3	Yard Drain	Rip-rap to flowline of ditch
2150	1	Drain from Reanon Ct. near SSMH	Construct headwall and rip-rap to flowline of ditch
			Construct small masonry retaining wall in front of SSMH to allow backfill around SSMH
2153	5	Box Culvert under creek	None
2166	5	(Skyline Circle)	None

2167	5	Catch Basin drop in at Bridge	None
2170	5	(Rancho Manor Dr.)	None
2173	5	(Monterey Dr.) Catch Basin	None
	5	Drop ins on both sides of road	None
2174	4	(Moana)	Construct wingwalls or rip-rap
2183	5	(Pioneer Dr.)	None
2187	5	Trail Bridge additional photo	None
2203	4	(Manzanita) Wall S. Side	Construct wingwalls or rip-rap
2213	2	SD to Ditch	Construct headwall and rip-rap to flowline of ditch
2214	3	(Rio Pinard Dr) SD both Sides	Construct wingwalls or rip-rap
2217	5	(McCarran) with Catch Basin drop	None
2218	5	Catch Basin to Ditch	None
2220	5	Golf Parking Pic Says 2219	None
2221	5	Under Driving Range	None
2223	5	Entrance to Lakeside	None
2225	5	Course Trail	None
2228	5	Golf Course	None
2229	2	Private SD to Ditch	Construct headwall and rip-rap to flowline of ditch
2231	2	Private SD to Ditch	Construct headwall and rip-rap to flowline of ditch
2232	5	GR Ranch entrance	None
2234	5	(Evans Creek Rd)	None