

**MEMORANDUM**

To: Gary Nellesen; Mt. San Antonio College

From: Alysen Weiland

Date: January 18, 2015 January 18, 2015

Subject: Farm Precinct Plan – Existing Conditions – Overall Storm Drain Capacity  
Recommendations

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Psomas has completed a storm drain capacity analysis of the existing storm drains larger than 18” diameter located within the Farm Area at Mt. San Antonio College (Mt.SAC). The attached tables represent our findings. The tributary areas and estimate flow rates are based on an existing conditions concept-level hydrology analysis previously prepared by Psomas. All studies will be further documented in the Mt.SAC Farm Precinct Plan Existing Conditions Report, currently under development by Psomas. The purpose of this memo is to provide Mt. SAC with our early findings and cost data to be discussed with Senior Management at the next Compact Meeting.

Based on the storm drain capacity analysis, existing storm drain lines 1 and 6 are not sized to convey the existing 25-year and 50-year storm events. Line 1 is a large storm drain line in the existing surface parking lot which conveys storm water surface runoff from drainage area D to the existing public storm drain system in Temple Ave. Drainage area D consists of three sub-drainage areas, basins D-1, D-2 and D-3. It is the largest drainage area within the Farm area. Line 6 is a short storm drain pipe which connects an existing on-site catch basin to the existing public storm drain system in Bonita Drive. We recommend the following two options:

Option 1: Upsize lines 1 and 6:

Work would include removing the existing storm drain pipes and replacing them with larger diameter pipes: Upsize Line 1 from 27” to 48” and upsize Line 6 from 18” to 21”. Reference attached Mt. SAC Farm Area Storm Drain Recommendation Exhibit - Option 1: Upsize.

Option 2: Upsize Line 6 & Add Line 9 to intercept flow to Line 1

Work would include removing and replacing Line 6 with a 21” diameter pipe and installing a new Line 9 to intercept flow from drainage area D. Line 1 would remain. Line 9 would be a new 42” diameter storm drain pipe. Reference attached Mt. SAC Farm Area Storm Drain Recommendation Exhibit - Option 2: Intercept.

Estimate of Construction Cost

The following tables represent Psomas’ estimate of probable construction cost for Options 1 and 2. Cost data does not include soft costs, contractor markups, market factors or escalation.

### Option 1

Item/Description	Quantity	Unit	Unit Cost	Total
1. Remove and Replace Storm Drain Line 1 (Upsize 27" to 48")	650	LF	\$310	\$201,500
2. Remove and Replace Storm Drain Line 6 (Upsize 18" to 21")	10	LF	\$1,680	\$16,800
<b>Estimated Total</b>				<b>\$218,300</b>

### Option 2

Item/Description	Quantity	Unit	Unit Cost	Total
1. Remove and Replace Storm Drain Line 6 (Upsize 18" to 21")	10	LF	\$1,680	\$16,800
2. Install New Storm Drain Line 9 – 42"	1,550	LF	\$235	\$364,250
<b>Estimated Total</b>				<b>\$381,050</b>

The recommendations listed herein address existing issues of insufficient pipe capacity and do not consider future development plans or planned improvements to the Farm area. Recommendations for future development will be analyzed during the Farm Precinct Plan Phase 2 – Future Conditions project.

SD Line	Existing Size	Slope	Material	Roughness Coefficient	Full Flow Capacity (cfs)	Tributary Area Q <sub>25</sub>	Tributary Area Q <sub>50</sub>	Q Deficiency	Tributary Basin Area
Line 1	27"	2.2%	RCP	0.013	45.93	145.62	177.89	-131.96	D-1, D-2, D-3
Line 2	24"	3.4%	RCP	0.013	41.71	18.64	22.83	-	C-1, 30% E-1
Line 3	36"	5.0%	RCP	0.013	149.13	39.95	48.65	-	C-2
Line 4	36"	4.7%	RCP	0.013	144.59	40.65	49.71	-	B-1, 50% B-2
Line 5	36"	6.1%	RCP	0.013	164.72	27.78	33.88	-	50% B-2
Line 6	18"	*	RCP	0.013	14.85*	12.87	15.83	-0.98	B-1
Line 7	18"	3.8%	RCP	0.013	204.76	27.78	33.88	-	50% B-2
Line 8	60"	2.9%	RCP	0.013	443.49	301.00	367.28	-	ALL

\*assumed 2.0% slope for SD Line

**Option 1: Upsize Lines 1 & 6**

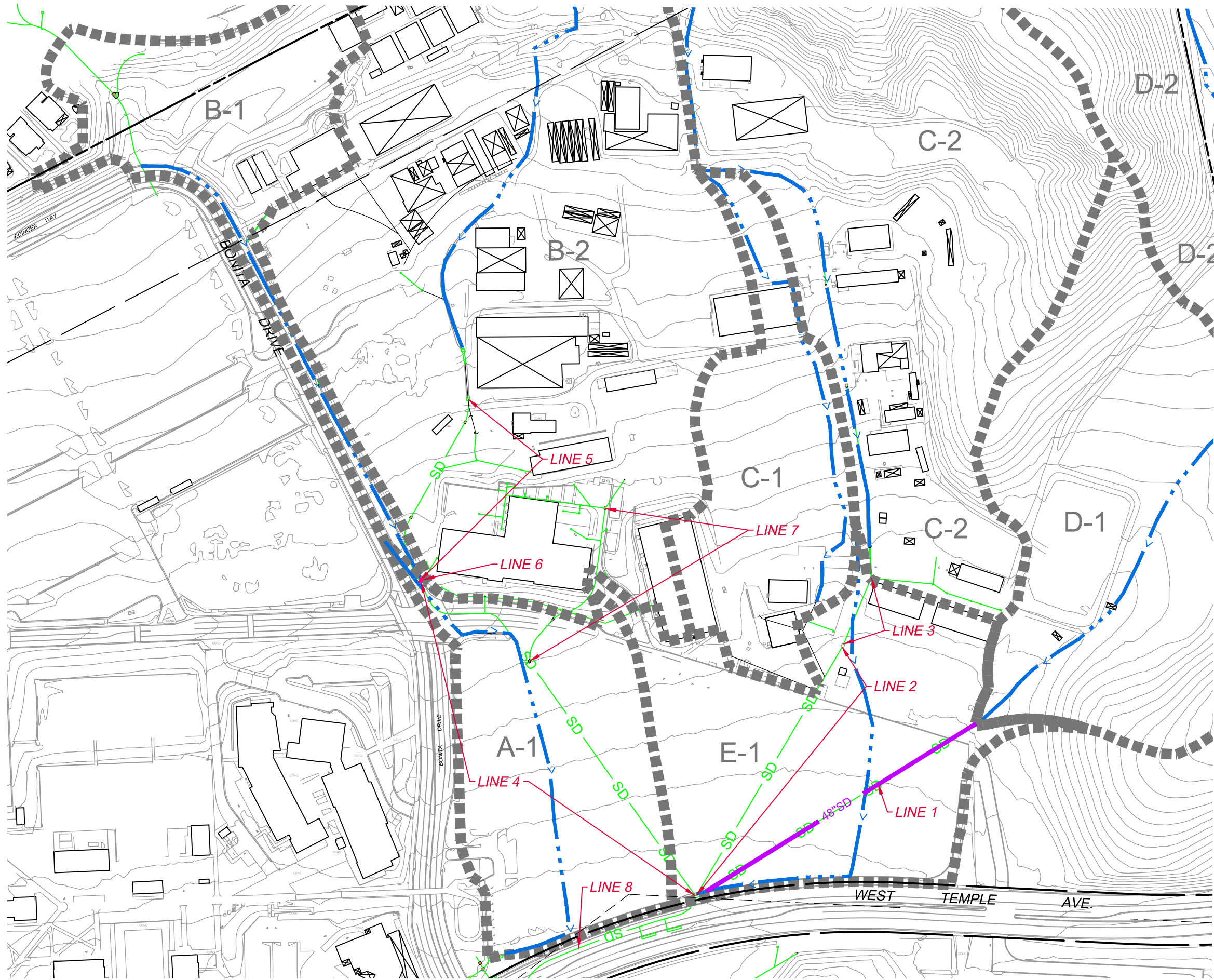
SD Line	Existing Size	Proposed Size	Slope	Material	Roughness Coefficient	Full Flow Capacity (cfs)	Tributary Area Q <sub>25</sub>	Tributary Area Q <sub>50</sub>	Percent Full	Tributary Basin Area
Line 1	27"	48"	2.2%	RCP	0.013	213.05	145.62	177.89	69.9	D-1, D-2, D-3
Line 6	18"	21"	*	RCP	0.013	22.41*	12.87	15.83	62.00	B-1

\*assumed 2.0% slope for SD Line

**Option 2: Upsize Line 6 & Add Line 9 to intercept flow to Line 1**

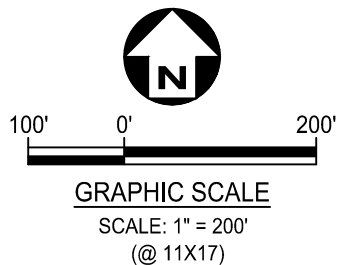
SD Line	Existing Size	Proposed Size	Slope	Material	Roughness Coefficient	Full Flow Capacity (cfs)	Tributary Area Q <sub>25</sub>	Tributary Area Q <sub>50</sub>	Percent Full	Tributary Basin Area
Line 1	27"	-	2.2%	RCP	0.013	45.93	35.01	42.77	76.4	D-1
Line 6	18"	21"	*	RCP	0.013	22.41*	12.87	15.83	62.00	B-1
Line 9	-	42"	*	RCP	0.013	142.28*	110.61	135.12	77.8	D-2, D-3

\*assumed 2.0% slope for SD Line



**LEGEND**

- DRAINAGE BASIN
- FLOW PATH
- EXISTING STORM DRAIN LINE
- PROPERTY LINE
- PROPOSED 48" SD (LINE 1)
- PROPOSED 21" SD (LINE 6)

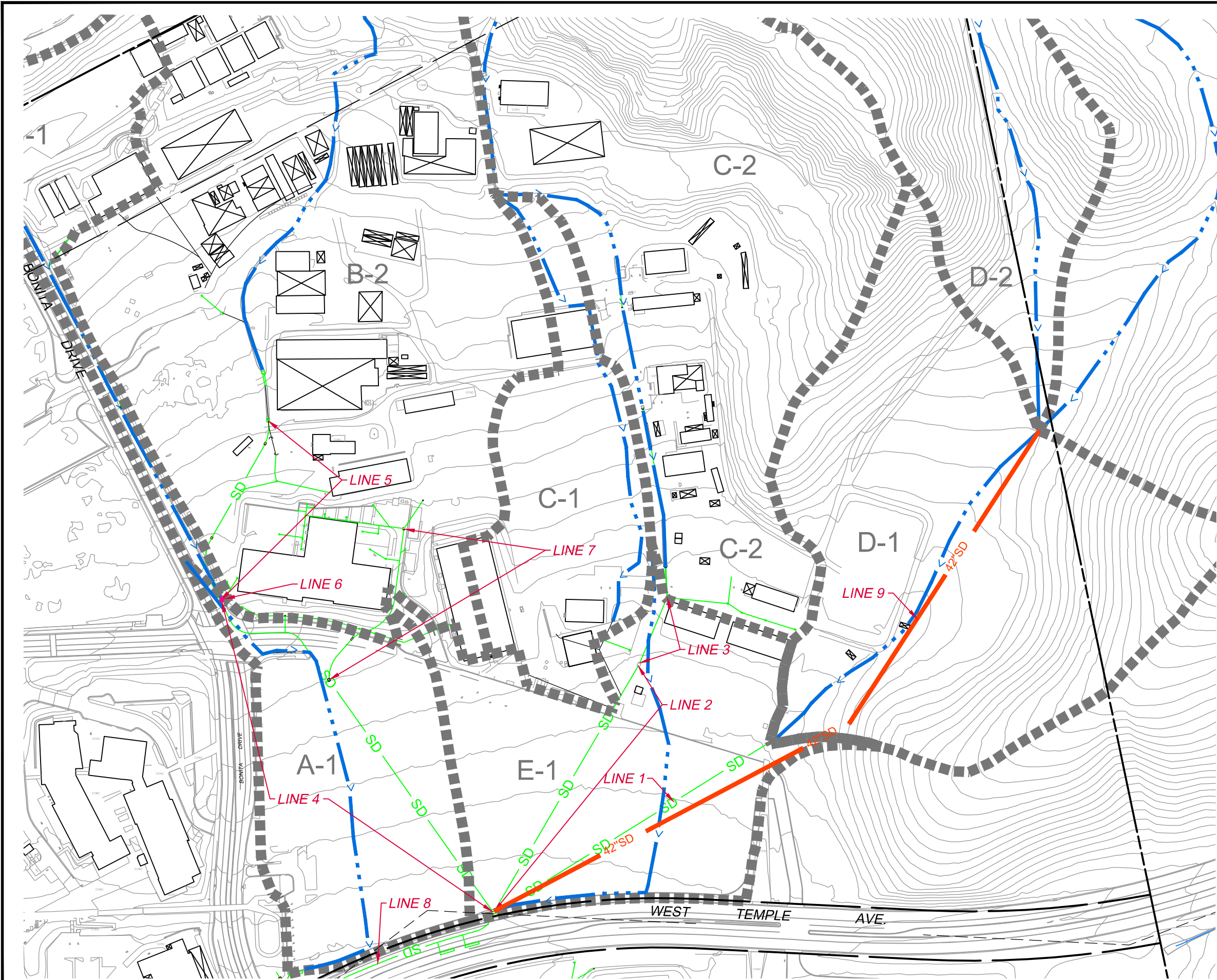


Mt. SAC Farm Area  
Storm Drain Recommendation  
Exhibit - Option 1: Upsize

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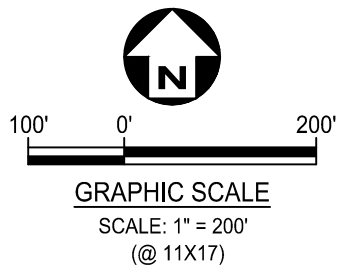
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**LEGEND**

- DRAINAGE BASIN
- FLOW PATH
- EXISTING STORM DRAIN LINE
- PROPERTY LINE
- PROPOSED 42" SD (LINE 9)
- PROPOSED 21" SD (LINE 6)



Mt. SAC Farm Area  
Storm Drain Recommendation  
Exhibit - Option 2: Intercept

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