



TECHNICAL MEMORANDUM (FINAL VERSION)

Date: October 8, 2019

To: Robert Armijo, City Engineer

From: Jim Nelson

Subject: **Supplement No. 3 to Citywide Storm Drainage Master Plan
Lammers and Mountain House Watersheds**

SWC File: 2014-96CC

This Technical Memorandum and its supporting exhibits and tables present Supplement No. 3 to the Citywide Storm Drainage Master Plan (SDMP) that was adopted by the Tracy City Council on April 16, 2013 by Resolution No. 2013-056. This supplement has been prepared to revise and update components of the storm drainage infrastructure plan for the Lammers and Mountain House Watersheds in the City's Sphere of Influence.

The primary reasons for preparing this Supplement No. 3 to the Citywide SDMP at this time include the following:

- The alignment of selected segments of the Lammers Outfall Storm Drain system is proposed to be altered. Alterations will include a northerly shift of some storm drain segments to follow the south side of Eleventh Street to more efficiently follow existing topography and allow certain storm drain and sanitary sewer trunk lines to align parallel and contiguous to each other to improve efficiency of construction and maintenance.
- Extensive development has occurred in this area since the current Citywide SDMP was adopted, and an update is needed to allow for official adoption of minor changes in Sub-basin boundaries and

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detention basin sizes and locations associated with proposed storm drainage infrastructure.

- The revisions herein may improve opportunities to accelerate the construction of the Lammers Outfall Storm Drain System, facilitating the conversion of several existing temporary retention basins serving existing development to detention basins having a positive drainage outflow.

Proposed revisions and updates to the Citywide SDMP presented herein have been supported by additional hydrologic and hydraulic calculations, additional investigation of physical conditions and input from City staff.

Exhibit A is a portion of Figure 5-1A from the Citywide SDMP that depicts the existing adopted storm drainage plan for the broader portion of the City where changes and updates are being proposed with this Supplement No. 3. The area to be served includes Cordes Ranch, various International Park of Commerce existing and proposed development areas, the property formerly known as the Gateway property, and other properties in the area.

Proposed updates to program storm drainage infrastructure and minor adjustments to Sub-basins and Watershed boundaries proposed per this Supplement No. 3 to the Citywide SDMP are depicted and listed on Exhibit B and include the following:

- Changes to the alignment of selected segments of the Lammers Outfall Storm Drain system.
- Minor Sub-basin changes (L17A/L17B, transfer 22 acres of the Mountain House Watershed into the Lammers Watershed, L20/L14).
- DET MWH3a/3b/3c storage volume is reduced from 37 acre-feet (AF) to 33 AF due to a 22 acre reduction in the contributing drainage area per the watershed adjustment cited above.

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- DET LW6 storage volume is increased from 101 AF to 103 AF due to minor sub-basin changes (L20/L14).
- DET LW9a storage volume is increased from 89 AF to 94 AF due to minor sub-basin changes (L17A/L17B) and watershed adjustments.
- DET LW8 is no longer depicted as a linear basin.
- DET LW10A, LW10B, LW9a and LW6 have minor location or configuration changes.
- DET LW3 is shown as an aggregate basin not located as of yet and will become three (3) or so smaller basins to be determined by the Specific Plan process for the property formerly known as Gateway.
- DET LW4 and LW5 will drain to the existing Lammers Road street storm drain system and/or future onsite storm drainage facilities serving the property formerly known as Gateway that will be directed to DET LW3; DET LW4 and LW5 (1 cfs outflow, total) will be “pass through” drainage in DET LW3 and will not affect the DET LW3 storage volume.

Also, the following statement contained at the top of page 5.22 in the Citywide SDMP relevant to new development within the Mountain House Watershed is proposed to be changed from:

New development within the Mountain House Watershed will not be allowed by the City prior to the execution of said agreement. (“Said agreement” refers to a future drainage agreement with Mountain House CSD).

to:

New development within the Mountain House Watershed will not be allowed to discharge to downstream facilities operated by the Mountain House CSD

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unless an agreement that authorizes said discharge is executed between the City and the Mountain House CSD.

Supplement No. 3 does not alter the following relevant components of the Citywide SDMP as it pertains to the subject area:

- The 2010 Drainage Agreement Between the City of Tracy and The West Side Irrigation District
- Outflow rates from detention basins proposed to serve this area (except for a DET LW3 outflow increase from 4 cfs to 5 cfs for “pass through” of storm water already stored and detained in DET LW4 and LW5).

This Supplement No. 3 to the Citywide Storm Drainage Master Plan also includes updated Opinions of Probable Cost (OPCs) for program storm drainage infrastructure that will serve the Lammers and Mountain House Watersheds. Separate OPCs have been prepared each watershed. These OPCs will be incorporated into an updated impact fee analysis performed by Harris & Associates for these watersheds.

Exhibits:

Exhibit A – Portion of Figure 5-1A from Existing Citywide Storm Drainage Master Plan Showing Existing and Proposed Storm Drainage Facilities in the City’s Lammers and Mountain House Watersheds

Exhibit B – Proposed Revisions to the Existing Citywide Storm Drainage Master Plan per Supplement No. 3

Tables:

Table 1 – Opinion of Probable Cost for Program Storm Drainage Infrastructure, Supplement No. 3 to the Citywide SDMP (Lammers Watershed)

Table 2 – Opinion of Probable Cost for Program Storm Drainage Infrastructure, Supplement No. 3 to the Citywide SDMP (Mountain House Watershed)

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James H. Nelson

Cc: Andrew Malik, City of Tracy
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Scale:
1" = 1,500'
(if printed full size at 11"x17")

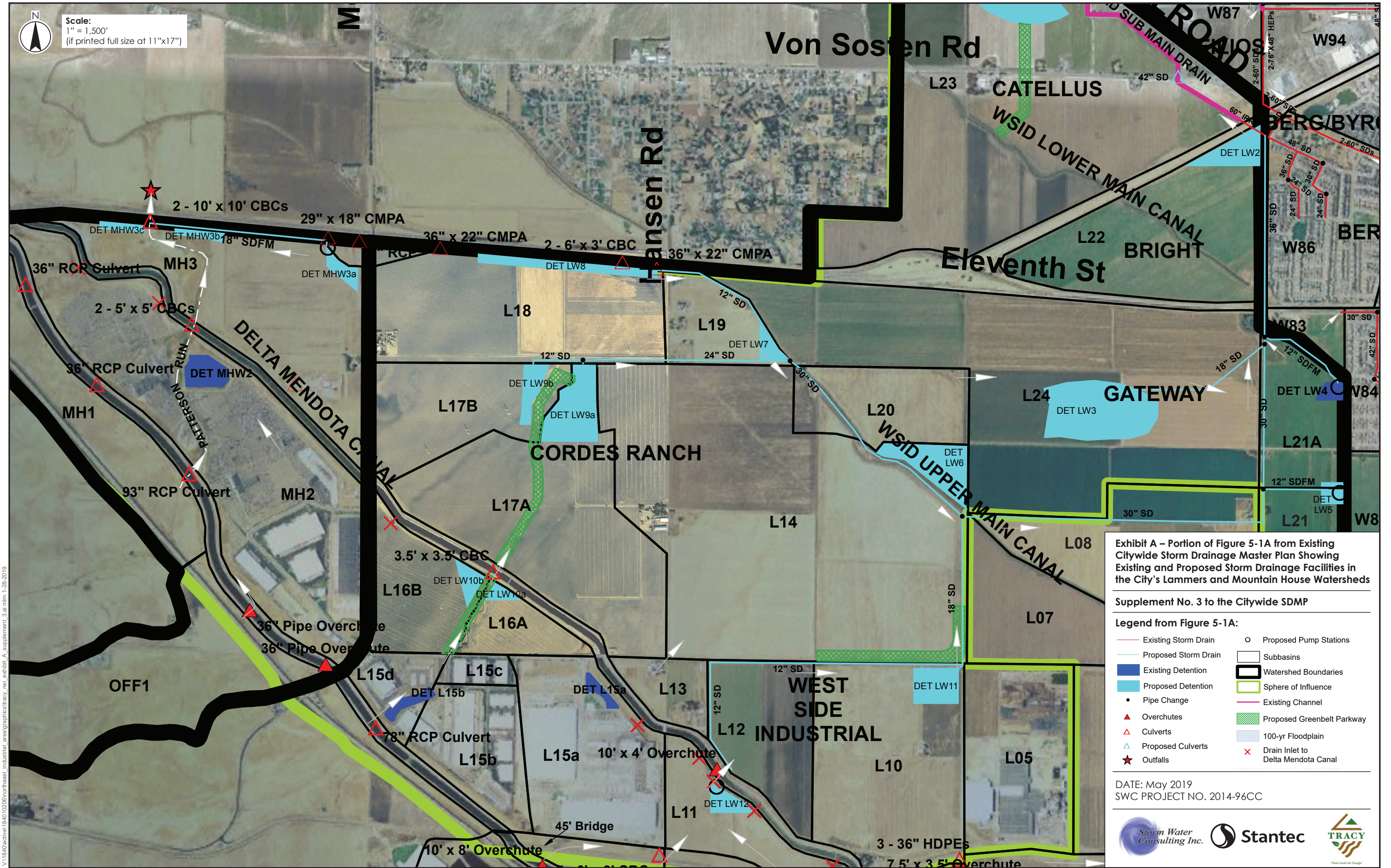


Exhibit A – Portion of Figure 5-1A from Existing Citywide Storm Drainage Master Plan Showing Existing and Proposed Storm Drainage Facilities in the City's Lammers and Mountain House Watersheds

Supplement No. 3 to the Citywide SDMP

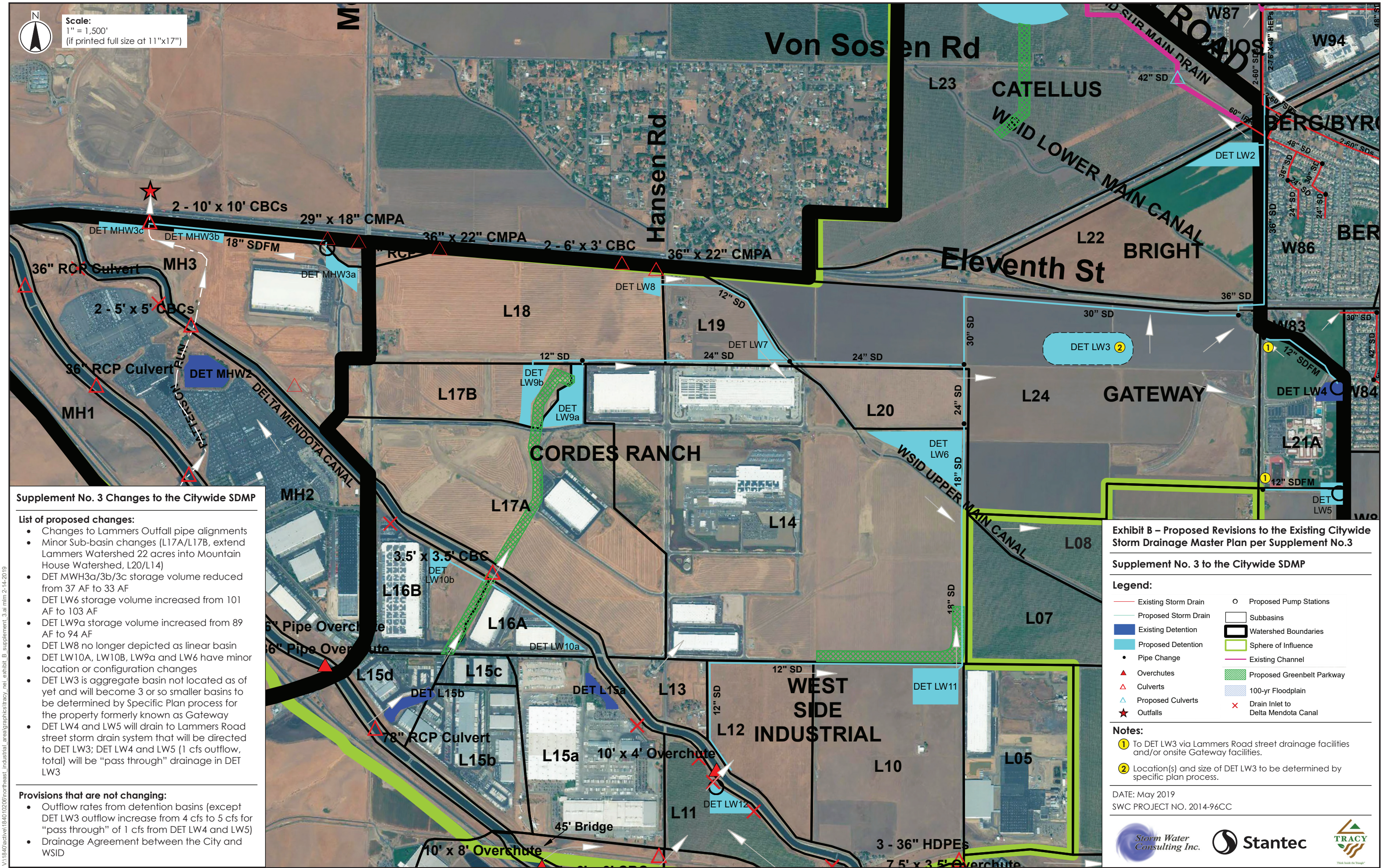
- Legend from Figure 5-1A:**
- Existing Storm Drain
 - Proposed Storm Drain
 - Existing Detention
 - Proposed Detention
 - Pipe Change
 - ▲ Overchutes
 - ▲ Culverts
 - ▲ Proposed Culverts
 - ★ Outfalls
 - Proposed Pump Stations
 - Subbasins
 - ▭ Watershed Boundaries
 - ▭ Sphere of Influence
 - Existing Channel
 - ▨ Proposed Greenbelt Parkway
 - ▨ 100-yr Floodplain
 - × Drain Inlet to Delta Mendota Canal

DATE: May 2019
SWC PROJECT NO. 2014-96CC



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Scale:
1" = 1,500'
(if printed full size at 11"x17")



Supplement No. 3 Changes to the Citywide SDMP

- List of proposed changes:**
- Changes to Lammers Outfall pipe alignments
 - Minor Sub-basin changes (L17A/L17B, extend Lammers Watershed 22 acres into Mountain House Watershed, L20/L14)
 - DET MWH3a/3b/3c storage volume reduced from 37 AF to 33 AF
 - DET LW6 storage volume increased from 101 AF to 103 AF
 - DET LW9a storage volume increased from 89 AF to 94 AF
 - DET LW8 no longer depicted as linear basin
 - DET LW10A, LW10B, LW9a and LW6 have minor location or configuration changes
 - DET LW3 is aggregate basin not located as of yet and will become 3 or so smaller basins to be determined by Specific Plan process for the property formerly known as Gateway
 - DET LW4 and LW5 will drain to Lammers Road street storm drain system that will be directed to DET LW3; DET LW4 and LW5 (1 cfs outflow, total) will be "pass through" drainage in DET LW3

- Provisions that are not changing:**
- Outflow rates from detention basins (except DET LW3 outflow increase from 4 cfs to 5 cfs for "pass through" of 1 cfs from DET LW4 and LW5)
 - Drainage Agreement between the City and WSID

Exhibit B – Proposed Revisions to the Existing Citywide Storm Drainage Master Plan per Supplement No.3

Supplement No. 3 to the Citywide SDMP

Legend:

Existing Storm Drain	Proposed Pump Stations
Proposed Storm Drain	Subbasins
Existing Detention	Watershed Boundaries
Proposed Detention	Sphere of Influence
Pipe Change	Existing Channel
Overchutes	Proposed Greenbelt Parkway
Culverts	100-yr Floodplain
Proposed Culverts	Drain Inlet to Delta Mendota Canal
Outfalls	

- Notes:**
- 1 To DET LW3 via Lammers Road street drainage facilities and/or onsite Gateway facilities.
 - 2 Location(s) and size of DET LW3 to be determined by specific plan process.

DATE: May 2019
SWC PROJECT NO. 2014-96CC



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Table 1
Opinion of Probable Cost for Program Storm Drainage Infrastructure
Supplement No. 3 to the Citywide SDMP (Lammers Watershed)

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
LAMMERS WATERSHED				
Construction of Major Facilities				
DET LW1 (90 AF, plus 32 AF add'l excavation)	122	AF	\$ 16,000	\$ 1,952,000
DET LW2 (27 AF, plus 10 AF add'l excavation)	37	AF	\$ 16,000	\$ 592,000
DET LW3 (87AF, plus 30 AF add'l excavation)	117	AF	\$ 16,000	\$ 1,872,000
DET LW5 (Non-Program)				
DET LW6 (103 AF, plus 50 AF add'l excavation)	153	AF	\$ 16,000	\$ 2,448,000
DET LW7 (Non-Program)				
DET LW8 (34 AF, plus 5 AF add'l excavation)	39	AF	\$ 16,000	\$ 624,000
DET LW9a (94 AF, plus 38 AF add'l excavation)	132	AF	\$ 16,000	\$ 2,112,000
DET LW9b (18 AF, plus 6 AF add'l excavation)	24	AF	\$ 16,000	\$ 384,000
DET LW10a/10b (20 AF, plus 7 AF add'l excavation)	27	AF	\$ 16,000	\$ 432,000
DET LW11 (30 AF, plus 11 AF add'l excavation)	41	AF	\$ 16,000	\$ 656,000
DET LW12 (13 AF, plus 4 AF add'l excavation)	17	AF	\$ 16,000	\$ 272,000
DET LW4 Pump Station (0.5 cfs capacity)	1	LS	\$ 350,000	\$ 350,000
DET LW5 Pump Station (0.5 cfs capacity, Non-Program)				
DET LW12 Pump Station (0.5 cfs capacity)	1	LS	\$ 350,000	\$ 350,000
Greenbelt Parkway	11,200	LF	\$ 340	\$ 3,808,000
Construction of Storm Drains				
12" SD & SDFM	13,400	LF	\$ 75	\$ 1,005,000
18" SD	4,100	LF	\$ 100	\$ 410,000
24" SD	7,900	LF	\$ 150	\$ 1,185,000
30" SD	6,185	LF	\$ 200	\$ 1,237,000
36" SD	3,590	LF	\$ 300	\$ 1,077,000
36" SD (Crossing of Eleventh Street)	102	LF	\$ 500	\$ 51,000
42" SD (Von Sosten Road, WSID Sub-Main Drain)	150	LF	\$ 500	\$ 75,000
Other Items				
Dewatering	1	LS	\$ 2,500,000	\$ 2,500,000
WSID Crossing Agreement	2	EA	\$ 5,000	\$ 10,000
Interflow Structure at WSID Connection (Lammers Road)	1	LS	\$ 30,000	\$ 30,000
WSID Discharge Agreement (First 30 Years)	1	EA	\$ 2,040,000	\$ 2,040,000
Subtotal of Construction				\$ 25,472,000
Design & Planning @ 10% of Construction Subtotal				\$ 2,547,200
Construction Management @ 10% of Construction Subtotal				\$ 2,547,200
General Contingency @ 15% of Construction Subtotal				\$ 3,820,800
Program Administration @ 5% of Construction Subtotal				\$ 1,273,600
Land Acquisition				
DET LW1	35.0	AC	\$ 150,000	\$ 5,250,000
DET LW2	11.0	AC	\$ 150,000	\$ 1,650,000
DET LW3	48.0	AC	\$ 150,000	\$ 7,200,000
DET LW5 (Non-Program)				
DET LW6	21.0	AC	\$ 150,000	\$ 3,150,000
DET LW7 (Non-Program)				
DET LW8	5.0	AC	\$ 150,000	\$ 750,000
DET LW9a	25.0	AC	\$ 150,000	\$ 3,750,000
DET LW9b	7.0	AC	\$ 150,000	\$ 1,050,000
DET LW10a/10b	9.0	AC	\$ 150,000	\$ 1,350,000
DET LW11	12.0	AC	\$ 150,000	\$ 1,800,000
DET LW12	6.0	AC	\$ 150,000	\$ 900,000
Greenbelt Parkway	51.4	AC	\$ 150,000	\$ 7,710,000
12" SD Easement	2.2	AC	\$ 50,000	\$ 110,000
Subtotal of Land Acquisition				\$ 34,670,000
TOTAL ESTIMATED COST				\$ 70,330,800

Table 2
Opinion of Probable Cost for Program Storm Drainage Infrastructure
Supplement No. 3 to the Citywide SDMP (Mountain House Watershed)

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
MOUNTAIN HOUSE WATERSHED				
Construction of Major Facilities				
DET MHW3a/3b/3c (33 AF, plus 14 AF add'l excavation)	47	AF	\$ 16,000	\$ 752,000
DET MHW 3a Pump Station (3.0 cfs capacity)	1	LS	\$ 350,000	\$ 350,000
Construction of Storm Drains				
18" SDFM	3,300	LF	\$ 100	\$ 330,000
Other Items				
Dewatering	1	LS	\$ 150,000	\$ 150,000
Mountain House Discharge Agreement	1	LS	TBD	TBD
Subtotal of Construction				\$ 1,582,000
Design & Planning @ 10% of Construction Subtotal				\$ 158,200
Construction Management @ 10% of Construction Subtotal				\$ 158,200
General Contingency @ 15% of Construction Subtotal				\$ 237,300
Program Administration @ 5% of Construction Subtotal				\$ 79,100
Land Acquisition				
DET MHW3a/3b/3c	10.0	AC	\$ 150,000	\$ 1,500,000
18" SDFM Easement	1.5	AC	\$ 50,000	\$ 75,000
Subtotal of Land Acquisition				\$ 1,575,000
TOTAL ESTIMATED COST				\$ 3,789,800

Note: TBD = To Be Determined and Added to Costs at a Later Date