September 5, 2012

SANITARY SEWER MASTER PLAN

for

THE CANNERY

Davis, California

MacKay & Somps

ENGINEERS PLANNERS SURVEYORS

THE CANNERY
SANITARY SEWER MASTER PLAN

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THE CANNERY
SANITARY SEWER MASTER PLAN

EXECUTIVE SUMMARY

This report is intended to provide sanitary sewer related information needed for California Environmental Quality Act (CEQA) analysis of a proposed development known as The Cannery in Davis California.

An estimated 0.19 mgd average daily dry weather flow (ADDF) and 0.44 mgd daily peak wet weather flow (PWWF) will be generated from the project based design guideline factors provided by the City in an August 1, 2012 Utility Guidance Letter for ConAgra Development. For initial planning purposes, and as directed by city staff, the Cannery Project will follow the August 1, 2012 Utility Guidance Letter for sanitary sewer master planning.

This master plan also provides a method for collecting and discharging those flows to the existing City sewer system. Preliminary sewer pipeline invert grades have been established.

In terms of conveyance and treatment plant capacity, this master plan finds the City's existing trunk sewer system and treatment plant have adequate capacity to convey and treat the sewer flows generated by this project. Specifically, while the existing 36-inch diameter trunk sewer in Covell Blvd. may lack adequate capacity, the 42-inch diameter trunk sewer that crosses neighboring property north of Covell Blvd. and continues to the treatment plant has sufficient capacity to serve the project.

The existing treatment plant has an average dry weather capacity of 7.5 million gallons per day while the city's projected average dry weather flows are approximately 5.2 million gallons per day (August 1, 2012 Utility Guidance Letter). Project generated sewer flows are estimated at 0.19 million gallons per day which would leave a remaining reserve capacity at the treatment plant of 2.1 million gallons per day (average dry weather flow).

1. THE CANNERY DEVELOPMENT APPLICATION

The Cannery project is located in the City of Davis and comprises 100+/- acres of land formerly used as a cannery for tomato products. The property is owned by ConAgra Foods and was the site of a tomato canning facility previously operated by Hunt Wesson. The city limits are coincident with the north and east property lines of the ConAgra property. **Figure 1 -Vicinity Map** shows the general location of the property.

An application for development of The Cannery project was filed in September, 2010. Following extensive planning input from many sources, the proposed development plan has been formulated to include a mixture of land uses as shown on **Figure 2 – Land Use Map**. The following is a summary of the proposed development:

Table 1 – Proposed Land Uses

	Acreage	Units
Low Density	14.8	96
Medium Density	25.2	240
High Density	10.0	250
Mixed Use	15.0	236,000 SF (Incl. 24 DU)
Recreation/Clubhouse	1.0	-
Parks and Greenbelts	32.2	-
Well Site	0.2	-
TOTALS	**98.4**	**610**

2. ESTIMATED PROJECT SEWER GENERATION

Table 2 shows the estimated flows to be generated by The Cannery project. Per capita flow rates listed are as directed by city staff provided in an August 1, 2012 Utility Guidance Letter.

Tables 2 presents the projected sewer flows from The Cannery (0.19 million gallons per day average dry weather flow), served from a single point of service. The peak wet weather flows will be 0.44 million gallons per day. Existing facilities clearly have the capacity to handle these projected flows.

3. EXISTING SEWER FACILITIES

Treatment

The City of Davis owns and operates a sanitary sewer treatment facility located approximately four miles northeast of the project site. The treatment facility is shown in **Figure 1 – Vicinity Map**.

City Public Works staff has indicated there is adequate capacity available at the treatment facility to serve the proposed discharge from The Cannery. The current dry weather capacity of the city's existing wastewater treatment facility is 7.5 million gallons per day. The 2011 dry estimated dry weather flow to the plant was approximately 5.2 million gallons per day, leaving, at that time, a remaining capacity of 2.3 million gallons per day.[1] The above estimated flows from The Cannery (average dry weather flows of 0.19 million gallons per day) would reduce then projected remaining capacity of the treatment plant to approximately 2.1 million gallons per day.

In, addition to the city's current waste water treatment facility, an upgrade to the existing treatment plant is in the planning process. The capacity of the new plant has not yet been approved by City Council, but is likely to remain the as the existing plant, approximately 7.5 million gallons per day. The proposed plant size provides the capacity for growth of 0.5% from 2012 until 2018, and 1% growth thru 2037. The Cannery project falls within these growth assumptions.

Trunk Mains

As shown on **Figure 3 – Existing Sewer Mains**, the City of Davis owns and maintains a trunk main in Covell Blvd. This pipe is 36" in diameter along the project frontage. The invert of this pipe is approximately 22 feet below street grade. City Public Works staff has indicated the Covell Blvd. pipeline is nearing its allowable capacity. Approximately 700 feet east of J Street, the 36" main drains into a trunk 42" main which flows north in an easement across private property. This main crosses under Channel A then flows eastward and eventually discharges at the City's wastewater treatment facility. City Public Works staff has indicated the 42" trunk main and downstream pipes to the treatment plant have adequate capacity to serve the proposed discharge from The Cannery.

Existing Cannery Facilities

A private 6" gravity line served the restrooms of the old Hunt Wesson/ConAgra canning facility. This line flows south from the old cannery entrance at Covell Blvd. and then eastward along the south side of Covell Blvd. and ties into a 15" line which drains into the above described 42" trunk main. This 6" pipe does not have adequate capacity to serve the proposed project, therefore it is proposed that the portion of this line located in Covell Blvd should be abandoned in place and capped at or near the property line. The onsite portion of this line will likely be removed.

[1] Per August 1, 2012 Utility Guidance Letter.

The old Hunt Wesson/ConAgra canning facility also operated a 24" gravity pipe which was used to convey tomato canning wastewater from the facility to disposal fields owned by ConAgra which are located near the City's treatment plant. The wastewater was disposed of through land application on this property. The City of Davis owns the easement within which this 24" pipe is located. The 24" pipe is relatively shallow (approximately 7 feet below existing grade). The condition of the 24" pipe is not known and may not be adequate to convey sanitary sewer flows because of potential leakage concerns and/or solids settlement resulting from slow velocities.

4. COLLECTION AND DISCHARGE OPTIONS

Figure 4 – Alignment Exhibit is a preliminary configuration of a collection system to convey sewer from The Cannery project to the 42" trunk main that crosses E. Covell Boulevard approximately 370 +/- feet east of the Cannery's east property line.

In general, the new sewer lines are shown to be located within public ROW and typically under the paved road section. The downstream end of the system within The Cannery project will be relatively deep. In order to minimize potential future impacts associated with open cut repair work on the sewer line, the alignment of the deep segment downstream of the roundabout could be located outside the roadway in the open space corridor / Ag Buffer (perhaps under the bike path). Repair work done without cutting the street (using pipe bursting and/or micro tunneling techniques) is becoming more common and the concern about open cut issues may become less significant, but there does not appear to be any real concern about locating the pipe outside the paved street section at the location. This alignment would allow for flexibility of repair techniques, if and when repair is needed.

In order to facilitate water treatment options, the on-site sewer system will be extended to Well No. 33, located in the southwest corner of the site. This 0.2 existing well site is planned to be expanded by an additional 17,000 +/- square feet and equipped with water treatment facilities the will need sewer service to dispose of backwash and waste water flows.

The downstream end of the on-site collection system would be extended easterly along the north side of E. Covell Blvd so that the connection to the existing City system would be made at the 42" pipe.

The new line in Covell Blvd. would be deep and would likely require shoring for open cut installation. However, Covell Blvd. has four travel lanes. If the pipe is installed in the paved section it would probably only require shut down of one or two lanes which would allow two-way traffic to be maintained during construction.

If this segment could be constructed outside the existing pavement section there would be less cost incurred for traffic control and pavement replacement. Such an alignment might also reduce potential future maintenance costs. However, an alignment outside the pavement might require acquisition of an easement from the property north of Covell Blvd.

THE CANNERY
SEWER DESIGN FLOWS

Based on Preliminary Land Use Plan dated February 1 2012.

TABLE 2 - ALL FLOWS TO ONE DISCHARGE LOCATION

TOTAL

Parcel #	Land Use	Acres (gross)	Units	Persons per unit	FAR	Floor Area (sf)	Persons	Flow per Unit (gpd)	ADDF (gpd)	PF	PDDF (gpd)	I/I (gpd)	PWWF (gpd)
	Low Density Residential	14.8	96	2.71			260	230	22,080	2.147	47,406	8,880	56,286
	Medium Density Residential	25.2	240	2.71			650	230	55,200	2.147	118,514	15,120	133,634
	High Density Residential	10.0	250	2.71			678	230	57,500	2.147	123,453	6,000	129,453
	Mixed Use - High Density Residential	Incl.	24	2.71			65	230	5,520	2.147	11,851	Incl.	11,851
	Mixed Use - Commercial (15 acres x 2000 gpd/acre)	15.0	0	0			0	2000	30,000	2.147	64,410	9,000	73,410
	Mixed Use - Employees (1 employee/250 square feet)	Incl.	0	0		236,000	944	15	14,160	2.147	30,402	Incl.	30,402
	Recreation - Clubhouse (HOA)	1.0	0	0		5,500	22	1500	1,500	2.147	3,221	600	3,821
	Non sewer generating areas (Parks, Open space, ROW, etc)	32.4	0	0			0	0	0	0	0		0
	Total	***98.4***	***610***			***241,500***			***185,960 gpd***		*399,256*	*39,600*	***438,856 gpd***
									0.19 mgd				**0.44 mgd**

Notes:

1 Per Captia Flow Rates were established by the Davis Public Works Department and provided in an August 1, 2012 Utility Guidance Letter
2 2.71 occupants per unit established by the Davis Public Works Department and provided in an August 1, 2012 Utility Guidance Letter
3 Flow per occupant is 230 gallons per day per occupant. Commercial/Business Park/Retail/Semi-public flows based on 15 gallons per day per employee. One employee per 250 square feet.
4 Infiltration and Inflow allowance is assumed 600 gpd per gross acre per Davis Public Works Department and provided in an August 1, 2012 Utility Guidance Letter.
5 ADDF = Average Daily Dry Weather Flow
6 PF = Peaking Factor
7 I/I = Infiltration and Inflow (applied on gross acreage basis). Parks, Open space, & ROW are exempt.
8 PWWF = Peak Wet Weather Flow = Design Flow for pipes
9 Mixed Use (Non-Residential) area is shown at full acreage in addtion to the Mixed Use (Residential) flows - a conservative assumption.

CONAGRA

CO RD 29

CO RD 28H

113

F STREET

SITE

THE CANNERY

WEST COVELL BLVD.

CITY OF DAVIS

RUSSEL BLVD.

MACE BLVD.

80

NTS

SHEET 1 OF 1

FIGURE 1
VICINITY MAP
THE CANNERY

CITY OF DAVIS CALIFORNIA

MacKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142B FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690

10-07-2011 9:43am Jeff Handy P:\27202_27202_FROM PL\EXHIBITS\SEWER-ROUTING-PROFILE-FIG1.DWG

February 1, 2012

The Cannery

Illustrative Land Plan

Davis, California

The HLA Group Landscape Architects & Planners, Inc.

SHEET 1 OF 1

FIGURE 2
CONCEPTUAL LAND PLAN
THE CANNERY

CITY OF DAVIS CALIFORNIA

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08-28-2012 3:25pm Jeff Handy P:\27202\MASTER PLANS\SEWER\CANNERY-SSMP-FIG 2 08-24-12.DWG

0 1000 2000 4000

SCALE: 1"=2000'

ConAgra
DISPOSAL
FIELDS

WASTE WATER
TREATMENT PLANT

48"

ConAgra FORCE MAIN

(ROAD 102)

ConAgra
PUMP STATION

42"

42"

42"

48"

42"

24"

CHANNEL A

24"

42"

PLOE LINE ROAD

THE CANNERY

6" 36" 15"

COVELL BLVD. 30" 36" 6"

SHEET 1 OF 1

FIGURE 3
EXISTING SEWER MAINS
THE CANNERY

CITY OF DAVIS CALIFORNIA

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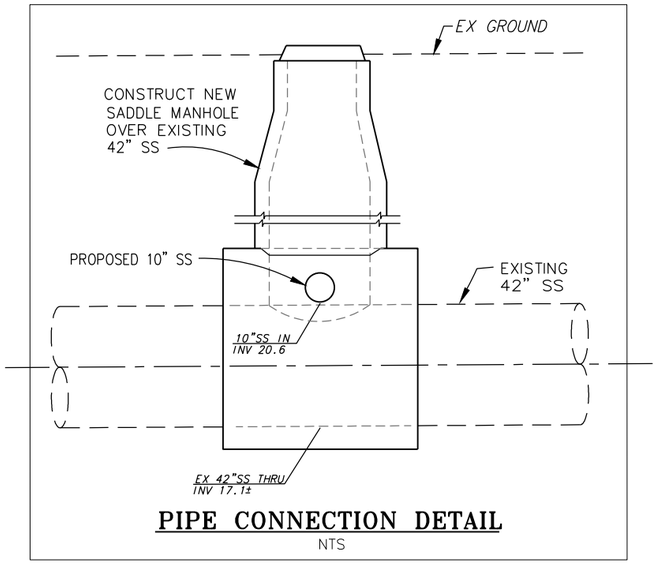
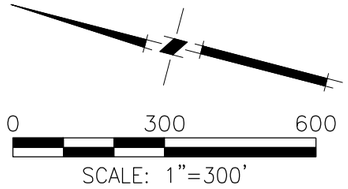


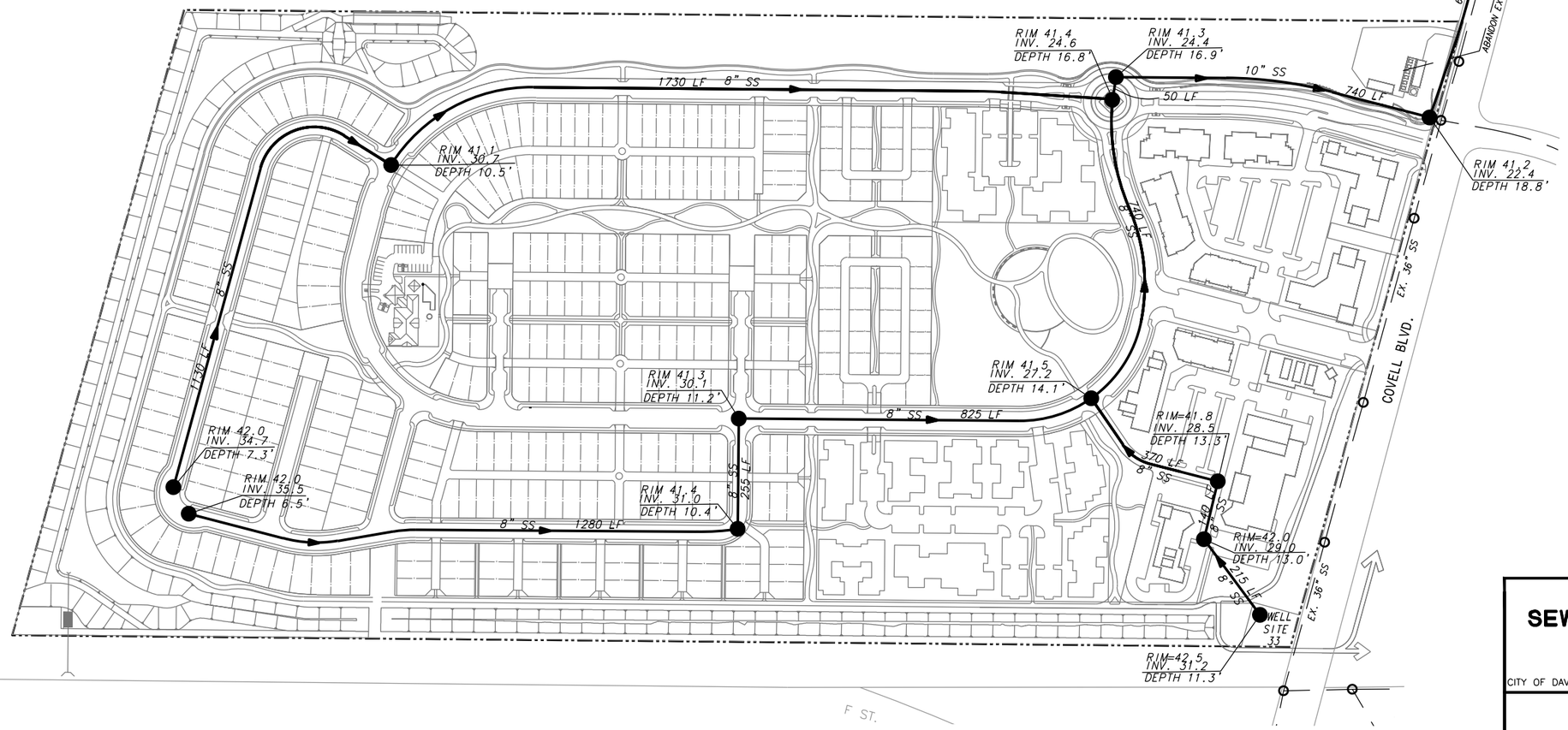
PIPE CONNECTION DETAIL

NTS

NOTES:

1. THIS EXHIBIT HAS BEEN PREPARED TO SHOW APPROXIMATE DEPTHS OF COVER ON A CONCEPTUAL GRAVITY SEWER SYSTEM CONNECTING TO THE EXISTING SEWER MAIN SYSTEM.
2. PIPE SLOPES ARE ASSUMED TO CONFORM TO THE CITY'S MINIMUM STANDARDS (8" PIPES AT S=0.0035 AND 10" PIPES AT S=0.0025). INVERT DROPS OF 0.1' WERE ALSO ASSUMED AT EACH MANHOLE AS SHOWN ON THIS EXHIBIT.
3. PIPE INVERTS SHOWN ARE BASED ON A MINIMUM UPSTREAM STARTING DEPTH OF 7 FEET THEN SLOPE PIPES IN ACCORDANCE WITH NOTE 2.
4. ALL ELEVATIONS ARE BASED ON THE CITY DATUM.
5. PLANS TO BE REFINED WHEN THE GRADING DESIGN IS ESTABLISHED.
7. SANITARY SEWER LAYOUT MAY VARY FROM THIS EXHIBIT BASED ON FINAL INFRASTRUCTURE AND UTILITY DESIGN.





SHEET 1 OF 1

FIGURE 4
SEWER Alignment Exhibit
THE CANNERY

CITY OF DAVIS CALIFORNIA

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