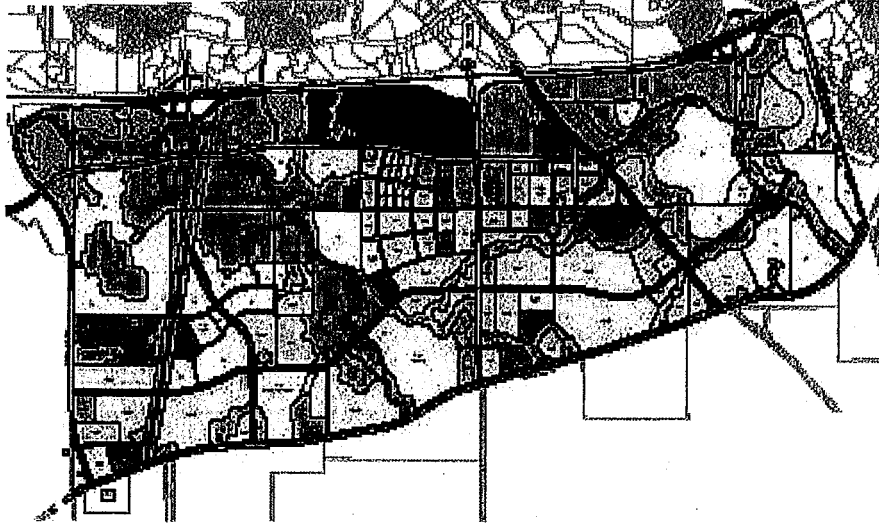


WASTEWATER INFRASTRUCTURE PLAN



FOR THE

FOLSOM SPECIFIC PLAN AREA

CITY OF FOLSOM , CA
SEPTEMBER 16, 2008

PREPARED FOR:
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CITY OF FOLSOM
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ABBREVIATIONS

ac	Acre
ADWF	Average dry weather flow
cfs	cubic feet per second
CSD-1	County Sanitation District 1
DU	Dwelling Unit
d/D	Ratio of flow depth to pipe diameter
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESD	Equivalent single-family dwelling unit
FSPA	Folsom Specific Plan Area
FSPS	Folsom South Pump Station
fps	Feet per second
gpd	Gallons per day
I/I	Inflow/Infiltration
ISS	Interceptor Sequencing Study
GW	Groundwater infiltration
LAFCo	Local Area Formation Commission
mgd	Million gallons per day
MSL	Mean sea level
OPCC	Opinion of probable construction cost
OS	Open Space
PF	Peaking Factor
PUE	Public Utility Easement
PDWF	Peak dry weather flow
PWWF	Peak wet weather flow
POC	Point of Connection
PUD	Planned Unit Development
RDI/I	Rainfall dependent inflow and infiltration
SASD	Sacramento Area Sanitation District
SFEMP	Sewerage Facilities Expansion Master Plan
SOI	Sphere of Influence
SRCSD	Sacramento Regional County Sanitation District
TOD	Traffic Oriented Development
USB	Urban Service Boundary
WWIF	Wastewater Infrastructure Plan

EXECUTIVE SUMMARY

This Wastewater Infrastructure Plan (WWIP) is prepared for the Folsom Specific Plan Area (FSPA), also known as the Sphere of Influence (SOI). The FSPA is a 3,502 acre proposed master planned community of mixed land use including: low, medium and high-density residential parcels, schools, parks, open space, commercial sites and employment centers. Reference the following exhibits for an FSPA overview:

- Exhibit ES-1: Vicinity Map
- Exhibit ES-2: FSPA Land Use Plan with acreage summary
- Exhibit ES-3: Wastewater Infrastructure Plan
- Exhibit ES-4: EID Shed Analysis

Purpose of Wastewater Infrastructure Plan

The purpose of the WWIP includes but is not limited to the following:

- Provide support for EIR documentation
- Identify possible FSPA points of connections (POCs)
- Identify sewer sheds, wastewater flows, size backbone and internal trunk sewers
- Pre-design trunk sewers to identify relative pipe depths
- Demonstrate ability to gravity serve the FSPA, or in areas where depth of sewer is a concern, provide pumping and force main alternatives
- Calculate estimated wastewater flow within the El Dorado Irrigation District (EID) sewer shed in the FSPA
- Prepare an Opinion of Probable Construction Cost (OPCC) for alternatives
- Provide a basis for developing Level 2 and 3, FSPA Wastewater Master Plans

Design Standards and Other Criteria

The following sources were used to prepare the FSPA WWIP:

- Sacramento Area Sanitation District Design Standards (SASD), February 2008
- Sphere of Influence (SOI) Specific Plan Area Wastewater Infrastructure Plan Draft, October 2007, Prepared by J. Crowley Group
- Land Use Plan, dated June 6, 2008 with acreages and densities used for the FSPA, prepared by RRM Design Group
- City of Folsom, Wastewater Collection System Capacity Analysis Update, January 2006, prepared by ECO:LOGIC
- Sacramento Regional County Sanitation District (SRCSD) Interceptor Master Plan 2000, Black and Veatch
- 2006 Draft CSD-1 Sewerage Facilities Expansion Master Plan (SFEMP)
- Additional documents are listed in Section 3 – Wastewater Flow Projections

Calculated Wastewater Flow Summary

SASD, 2008 Design Standards were used to calculate flows for 2601 sewered acres in the FSPA. A comparison of projected FSPA wastewater flows to previous SRCSD Master Plan studies is as follows.

SRCS D Interceptor Master Plan, 2000, Black & Veatch	FS11 to *FE 3B PS	22,035	14.48	
Folsom Specific Plan Area (FSPA)	FS11 to *FE 3B PS	18,918	12.64	

**FE 3B PS is an existing SRCSD Pump Station located north of Highway 50 at the south side of Iron Point Road approximately 1500 feet west of Oak Avenue.*

Pump Stations and the EID Service Area Summary

All wastewater within the FSPA boundary, including 189.4 gross / 134.4 sewered acres within the EID service area, is directed by gravity sewers and pump stations/force mains to the proposed Folsom South Pump Station (FSPS). The FSPS is located at the north side of Easton Valley Parkway approximately 1500 feet west of Oak Avenue. The FSPS will pump wastewater to the north side of Highway 50 and tie into the existing SRCSD force main system at the downstream side of FE 3B PS. See Exhibit ES-3.

Upstream of the proposed FSPS, gravity systems will provide service to over 90% of ESDs in the FSPA. Lands within the EID service area, and a sub-shed east of Empire Ranch Road, will be served by three small pump stations described as PS 2, 3, and with peak pumping capacities as follows:

FSPA PS 2	NW corner of White Rock and Empire Ranch Roads	1.39
FSPA PS 3	East FSPA boundary near existing Stonebriar Court	0.65
FSPA PS 4	East FSPA boundary near existing Winterfield Court	0.38

Reference Exhibit ES-3 for the proposed Pump Station 2, 3, and 4 locations.

EID has stated that it wants to provide service to lands within its service area boundary. Based on conceptual grading prepared by CTA Engineering for lands within the EID service area boundary, connection to EID gravity sewer lines may be possible at:

EID POC	Location	Benefit
1	Winterfield Court	Eliminates PS 4
2	Stonebriar Drive / Prima Way intersection	Eliminates PS 3
3	Ranch Bluff Way south of White Rock Road	Reduces PS 2 pumping

If EID is to be a service provider, detailed routing studies and downstream capacity at these three POCs (921 ESDs) must be confirmed by EID or others. Reference Exhibit ES-4 for location of the three possible EID POCs.

Conclusion...SRCSD Capacity

This WWIP confirms that the projected FSPA PWWF, including flow from the EID service area (12.64 mgd), is less than the projected FSPA/SOI flow in the SRCSD Interceptor Plan, 2000 (14.48 mgd). Based on that Interceptor Plan, this report concludes that SRCSD Pump Station FE 3B and the downstream interceptor system have adequate capacity to serve the FSPA.

Recommendations... EID/City of Folsom Sewer Service Area

EID, the city of Folsom, and the FSPA owners group should meet to resolve the service provider for the EID service area.

Next Steps

As the FSPA environmental and entitlement process moves forward, the following tasks are anticipated, and may require updates to this WWIP:

- Coordination with EID, the city of Folsom and owners group to resolve the EID sewer service area issue. If EID is confirmed as the service provider, perform routing studies, evaluate EID capacity, and quantify required upgrades to the EID system to provide an acceptable level of service.
- Confirmation by SRCSD that downstream interceptor and treatment facilities are adequate and/or upgrades are sequenced accordingly.
- Develop a complete OPCC for the WWIP for build out and phasing options, to serve as basis for a FSPA finance plan.
- Finalize the FSPA phasing and Land Use Plans.

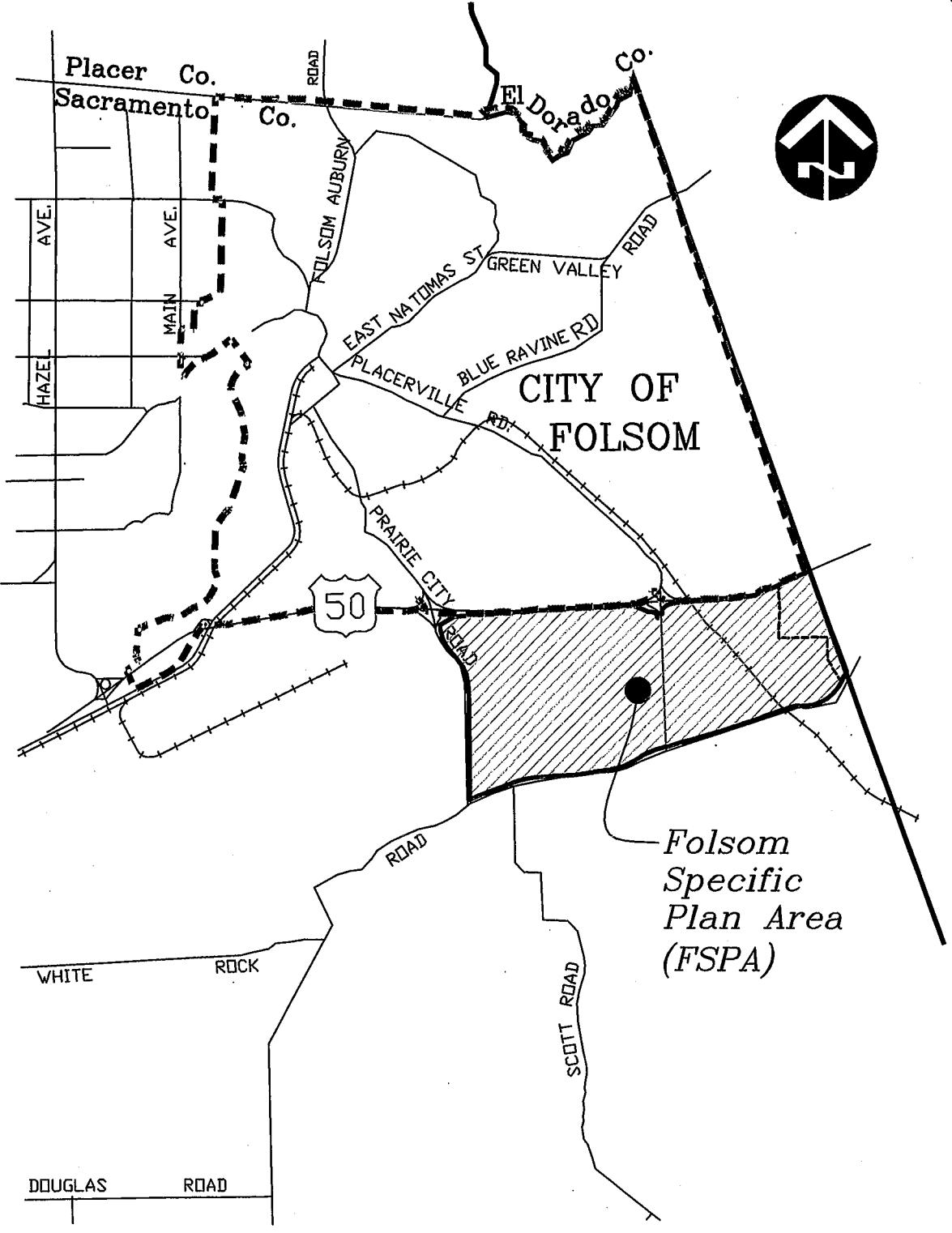
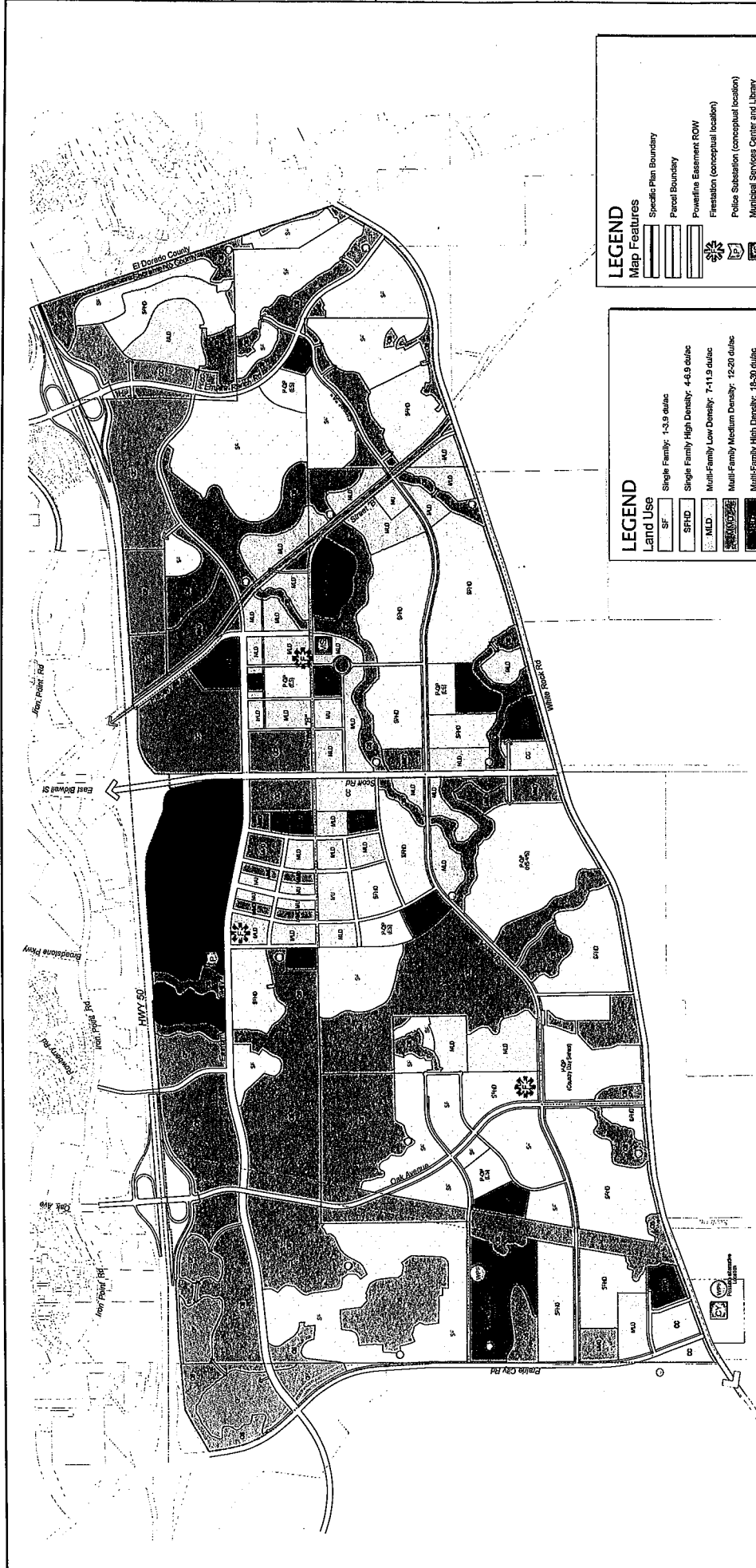


EXHIBIT ES-1
VICINITY MAP
 N.T.S.



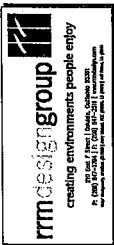
LEGEND
Map Features

- Specific Plan Boundary
- Faced Boundary
- Powerline Easement ROW
- Firestation (conceptual location)
- Police Substation (conceptual location)
- Municipal Services Center and Library (conceptual location)
- City Community Yard (conceptual off-site location - 25 ac)
- Water Public Facility (conceptual location)
- Detention Basins

Notes:
 1) Public facilities and civic uses will be located and sized per Facilities Analysis.
 2) Facilities are located outside project area subject to agreement by owners and City.
 3) Corporate Yard and Water Public Facility are placeholders for future development. Final locations to be determined through the technical studies needed to support the appropriate locations of these facilities.
 4) Land use designations are based on the Land Use Analysis map, but are accounted for in the Land Use Analysis.

LEGEND
Land Use

- SF Single Family: 1-3.9 du/acre
- SFD Single Family High Density: 4-6.9 du/acre
- MLD Multi-Family Low Density: 7-11.9 du/acre
- MLM Multi-Family Medium Density: 12-20 du/acre
- MUH Multi-Family High Density: 18-30 du/acre
- MU Mixed Use: 9-30 du/acre
- OP Office Park
- CC Community Commercial
- GC General Commercial
- RC Regional Commercial
- PA Public (Community/Neighborhood Parks)
- OS Open Space
- POP Public-Quasi-Public



GRAPHIC SCALE
0 400 800

City of Folsom
SACRAMENTO COUNTY, CA

Folsom Plan Area Specific Plan
Proposed Land Use Plan-05.28.08

EXHIBIT ES-3
Wastewater Infrastructure Plan
City of Folsom Plan Area
 County of Sacramento, California
 Scale: 1" = 500'
 August 2008

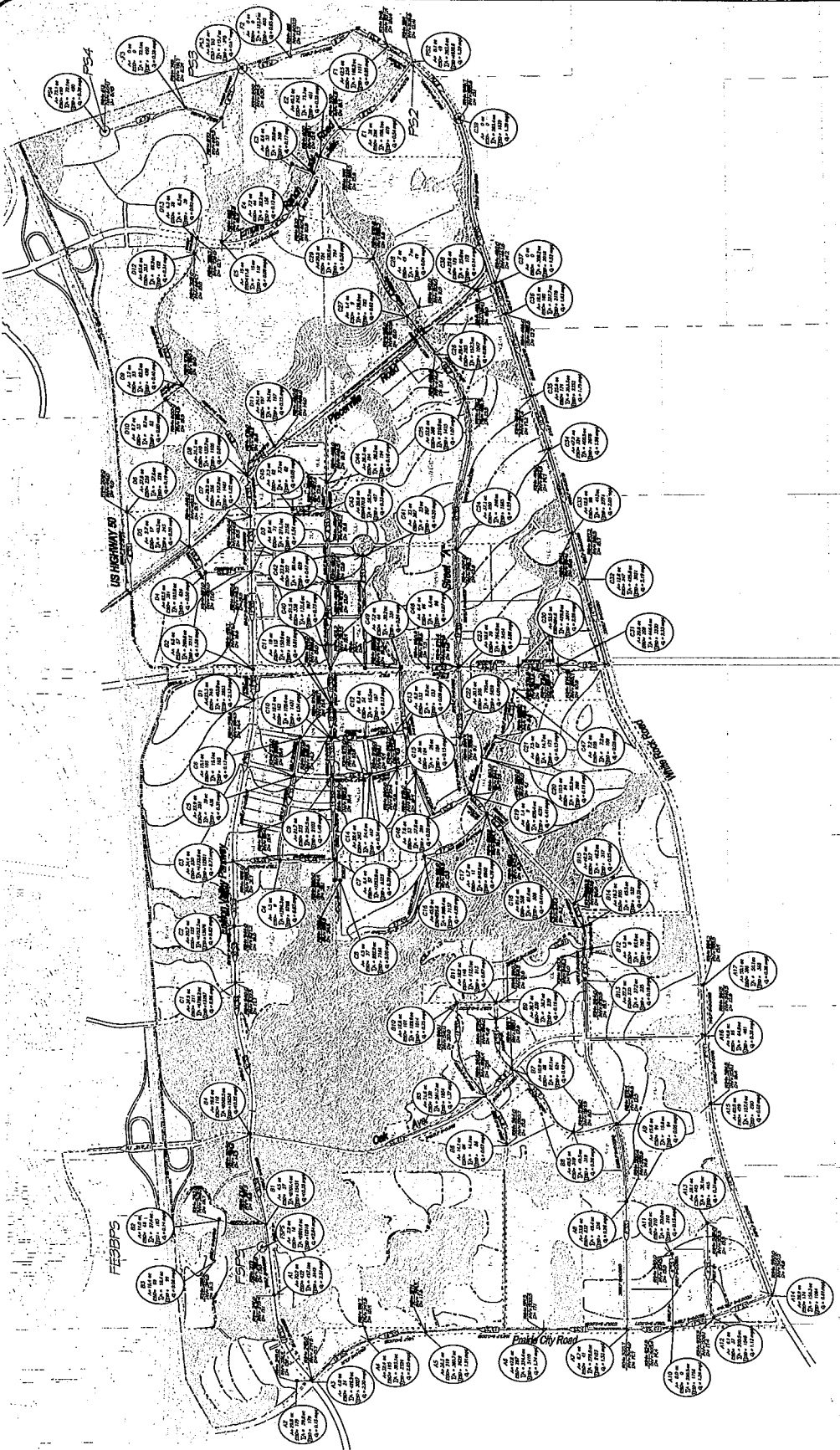
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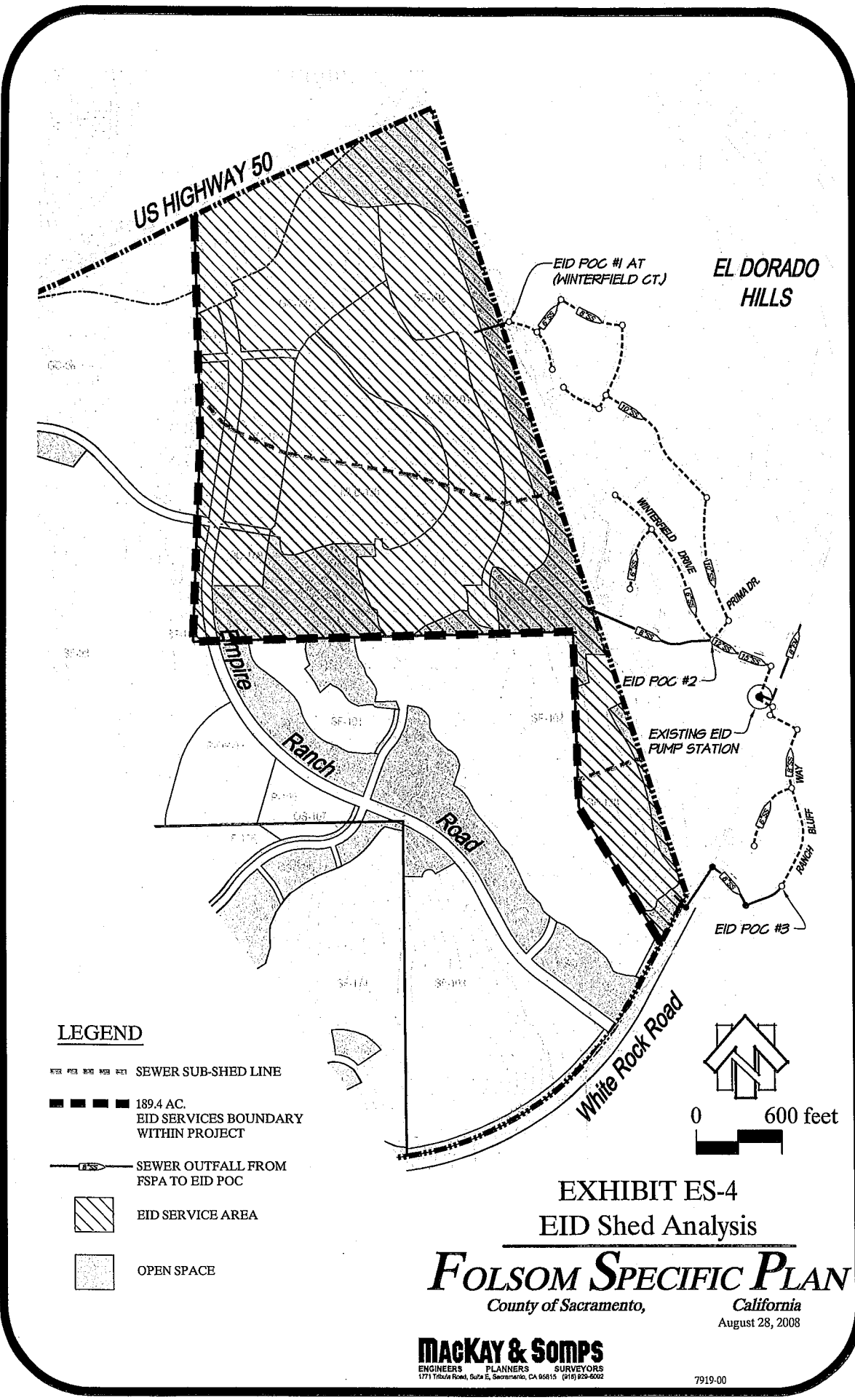


DRAFT

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- LEGEND**
- MANHOLE NODE NUMBER
 - CONTRIBUTING AREA (ACRES)
 - COMBINED AREA (ACRES)
 - CHIMNEY AREA (ACRES)
 - CALCULATED EQUIVALENT SINGLE FAMILY DWELLINGS
 - PEAK NET WEATHER FLOW (MILLION GALLONS PER DAY)
 - TRUNK SEWER
 - FORCE MAIN
 - PUMP STATION
 - OPEN SPACE





LEGEND

- SEWER SUB-SHED LINE
- 189.4 AC. EID SERVICES BOUNDARY WITHIN PROJECT
- SEWER OUTFALL FROM FSPA TO EID POC
- ▨ EID SERVICE AREA
- OPEN SPACE

**EXHIBIT ES-4
EID Shed Analysis**

FOLSOM SPECIFIC PLAN
County of Sacramento, California
August 28, 2008

MACKEY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1771 Tibbels Road, Suite E, Sacramento, CA 95815 (916) 922-6002

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1.3 Study Area Description

The FSPA consists of approximately 3,502 acres south of the existing Folsom southern boundary. The FSPA is bounded by the El Dorado County Line on the east, White Rock Road on the south, Prairie City Road on the west, and Highway (HWY) 50/Folsom City limit on the north, as shown on Exhibit A.

1.4 On-Site Topography and Site Design Considerations

The general onsite topography and site design considerations include the following:

Existing

- Existing MSL elevations range from 794 feet in the northeast corner, to 300 in the southwest corner, and 240 in the northwest corner.
- Topography generally falls from east to west, with Alder Creek flowing from south to north between Prairie City and Scott Roads.
- A ridge exists on the eastern side of the FSPA, draining 155 acres to local swales along the FSPA east boundary.
- Lands east of Scott Road consists of dry rangeland with a few stock ponds.
- Lands west of Scott Road include an oak woodland area, and a few stock ponds.

Proposed

- After development, proposed grading of the FSPA will generally follow the existing rolling topography. Grades vary for each major roadway, generally ranging from 1 percent to 3 percent west of Placerville Road, and up to 10 percent east of Placerville Road.
- Conceptual grading, has been pre-designed such that each major parcel will balance earthwork (cuts and fills) individually.
- Bridges are proposed at several Alder Creek crossings, including Easton Valley and Street A. Where the bridge height is adequate, a gravity sewer will be attached to the bridge structure to minimize sewer depth both up and downstream of the creek crossing.

SECTION 2 - LAND USE

2.1 Proposed Land Use

This WWIP is based on the Land Use Plan dated June 6, 2008 (RRM Design Group). This section shows the latest proposed land uses for the FSPA. The FSPA land use plan continues to be evaluated and updated to address constraints and environmental concerns identified throughout the planning process.

The proposed land uses, designations, as well as anticipated density ranges, are shown on Exhibit B and also summarized in Table 1 below. Currently, the FSPA proposes an allocated dwelling unit (DU) count of 10,045 units.

TABLE 1: PROPOSED LAND USE

Land Use	Acreage	Percent of Total	Density Range (DU/ac)	Maximum DU
SF - Single Family	562.7	16%	1.0 - 3.9	1,695
SFHD - Single Family High Density	475.7	14%	4.0 - 6.9	2,629
MLD - Multi Family Low Density	301.1	9%	7.0 - 11.9	2,727
MMD - Multi Family Med. Density	75.8	2%	12.0 - 20.0	1,386
MHD - Multi Family High Density	48.9	1%	18.0 - 30.0	1,226
MU - Mixed Use District	33.1	1%	9.0 - 30.0	382
OP - Office Park	113.3	3%		
CC - Community Commercial	39.9	1%		
GC - General Commercial	206.3	6%		
RC - Regional Commercial	130.3	4%		
P - Park (Community)	64.5	2%		
P - Park (Neighborhood)	44.7	1%		
LP - Local Park	inc.			
PQP HS/MS	79.3	2%		
PQP - Elementary School	50	1%		
PQP - Country Day School	49.7	1%		
OS - Open Space	1053	30%		
MAJ CIRC - Major Circulation	173.6	5%		
Total	3,502	100%		10,045

2.2 Project Phasing

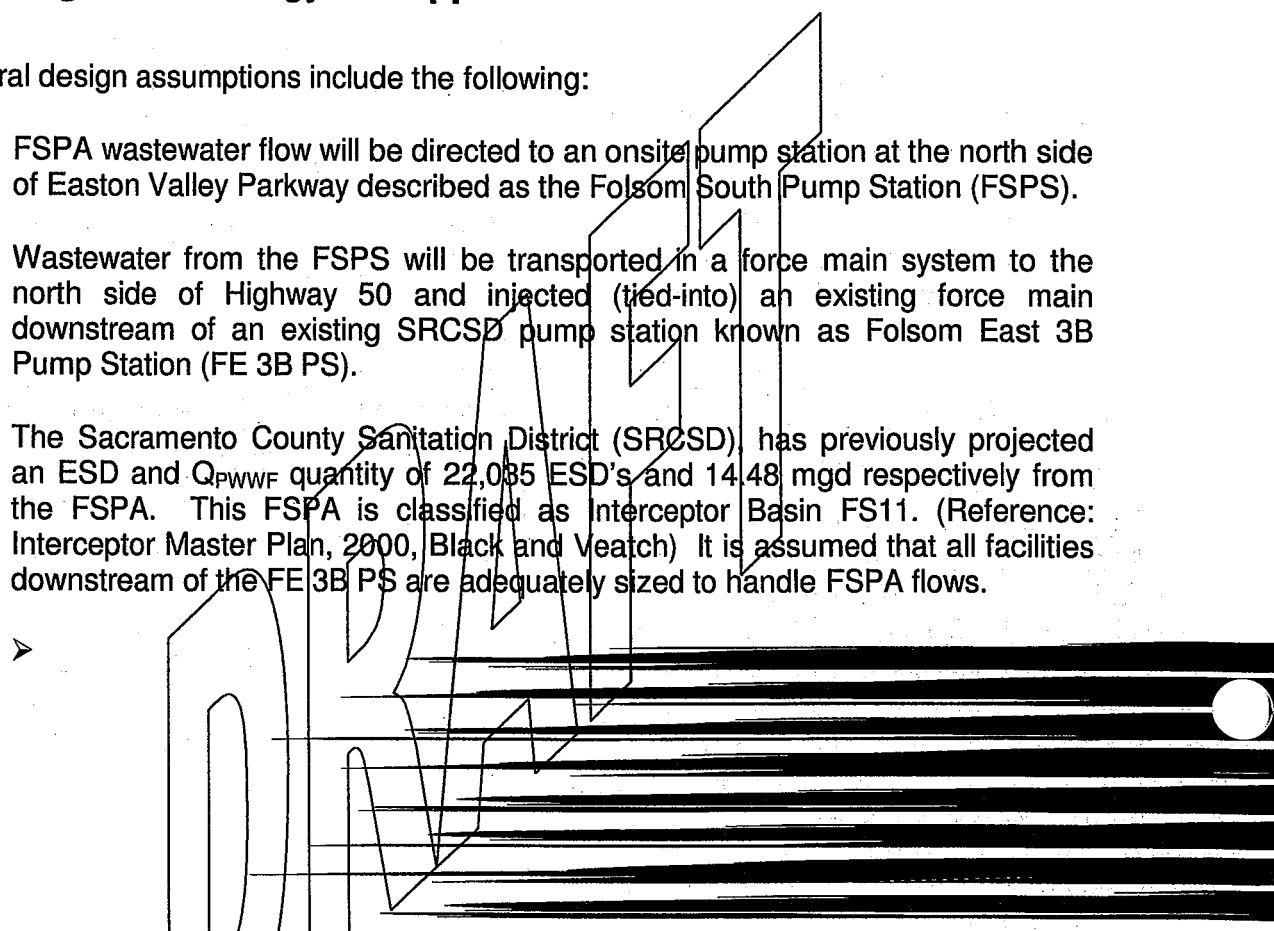
To initiate development, this WWIP studies infrastructure to serve the final build-out of the FSPA. The FSPA landowners have developed a conceptual project phasing plan, where multiple disconnected properties will require service in Phase 1. In-depth sewer phasing to serve Phase 1 and subsequent phases, is not addressed in this WWIP. More specific information on phasing will be addressed in other FSPA entitlement documents.

SECTION 3 - WASTEWATER FLOW PROJECTIONS

3.1 Design Methodology and Approach

General design assumptions include the following:

- FSPA wastewater flow will be directed to an onsite pump station at the north side of Easton Valley Parkway described as the Folsom South Pump Station (FSPS).
- Wastewater from the FSPS will be transported in a force main system to the north side of Highway 50 and injected (tied-into) an existing force main downstream of an existing SRCSD pump station known as Folsom East 3B Pump Station (FE 3B PS).
- The Sacramento County Sanitation District (SRCSD) has previously projected an ESD and Q_{PWWF} quantity of 22,085 ESD's and 14.48 mgd respectively from the FSPA. This FSPA is classified as Interceptor Basin FS11. (Reference: Interceptor Master Plan, 2000, Black and Veatch) It is assumed that all facilities downstream of the FE 3B PS are adequately sized to handle FSPA flows.

- 
- The FSPA may require construction of an onsite emergency wastewater storage tank facility to be sited at the regional FSPS location. The pump station and appurtenant facilities, will require design approval by SRCSD.
 - A portion of the FSPS in the northeast corner lies within the EID service area.

- Future upstream development is not anticipated and is negligible for this project. The FSPA trunk system has been analyzed for FSPA area generated flows only.

Design Methodology

The basic design and analysis methodology for this WWIP is as follows:

Compile Record Data:

A compilation of known data and resources was acquired, from previously prepared studies and reports including:

- 2006 Draft CSD-1 Sewerage Facilities Expansion Master Plan (SFEMP)
- Sacramento Area Sanitation District Design Standards, February 2008
- Sphere of Influence Specific Plan Area Wastewater Infrastructure Plan Draft, October 2007, Prepared by J. Crowley Group
- As-built improvement plan drawings, Folsom East Interceptor – Section 3B, prepared by Sacramento Regional County Sanitation District (SRCSD) dated January 2002
- The best available topography information (2 foot contour map)
- Land Use Plan, dated June 6, 2008, with acreages and densities use for the FSPA, prepared by RRM Design Group
- Folsom Heights, Overall Sewer Exhibit, November 2006, prepared by CTA Engineering
- Preliminary grading and composite development plans, prepared by MacKay & Soms
- City of Folsom, Wastewater Collection System Capacity Analysis Update, January 2006, prepared by ECO:LOGIC
- SRCSD Interceptor Master Plan 2000, Black and Veatch

Identify Points of Connection and Capacity:

One point of connection (POC) to the SRCSD interceptor system is identified in this WWIP at SRCSD force main facilities downstream of the existing FE 3B PS north of Highway 50.

In addition, three possible POCs to the EID system are identified if EID provides service to lands within its service area boundary. POCs are summarized as follows:

1. EID POC #1 - Existing 6-inch sewer: located in Winterfield Court, approximately 100 ft. east of the FSPA boundary
2. EID POC #2 - Existing 6-inch sewer: located at the Stonebriar Drive / Prima Way intersection, approximately 1000 ft east of the FSPA boundary
3. EID POC #3 - Existing 6-inch sewer: located at Ranch Bluff Way approximately 1200 feet from the FSPA boundary south of White Rock Road

Obtain Criteria to Calculate ESD's and Design Flows:

This WWIP utilizes sewer design criteria from the following sources:

- Sacramento Area Sanitation District Design Standards (SASD), dated February 2008

Lay out and design pipe network system:

- Calculate ESD's and Peak Flows at nodes using 2008, SASD Design Standards
- Overlay proposed grading with latest land use plan and determine contributing flow areas at nodes. (See Table 10: Land Use Area/ESD Summary, bound at rear)
- Analyze flow in pipe runs and size collection system using peak wet weather flows (Q_{PWWF}). (See Table 11 Sewer Calculations, bound at rear)

3.2 Flow Components Updates

Flow Formulas

Table 2 summarizes the formulas and factors used to calculate wastewater flows for the FSPA.

TABLE 2: DESIGN FLOW FORMULAS

Collector and Trunk Sewers	Formula or Value
ESDs	Number of equivalent residential dwelling units
ESD =	310 GPD per ESD
ADWF (mgd) =	$(\text{ESDs} \times 310) \div 1,000,000$
Infiltration and Inflow (I/I)	1400 gal/ac/day ~ new pipelines
Infiltrations and Inflow (I/I)	1600 gal/ac/day ~ existing pipelines
Collector & Trunk ~ PF =	3.5 (1.8 x ADWF ^{0.05}), Minimum PF 1.2
Peak Dry Weather Flow - PDWF (mgd) =	ADWF x PF
Peak Wet Weather Flow - PWWF (mgd) =	PDWF + Q _{WI}

ESD Factors

Table 4 summarizes the ESD factors based on the maximum density value for each land use category. For conservative flow projections, and to allow for changes in the land use plan, the ESD count per parcel is based on the larger of acres times maximum density or 6 ESD's/acre. Multi family unit ESDs are based on 0.75 ESD per unit times the maximum anticipated density allowed in the zone. Mixed use district (MU) meets the description as a Transit Oriented Development (TOD), and is described in the CSD-1 Trunk Manual as:

"Transit Oriented Developments (TOD's) are areas of mixed residential and commercial uses centered around transit corridors. TOD's are projected to consist of approximately 40 percent commercial and 60 percent medium density land uses. Based on this distribution, the areal unit flow rate for TOD's is calculated to be 11 ESD's per acre"

Wastewater flow projected for schools varies depending on type of school and is the larger of the Average Dry Weather Flows (ADWF) as shown in Table 3 below.

TABLE 3: SCHOOL DESIGN FLOWS

Type of School	ADWF (mgd)	ADWF
Elementary School (ES)	0.0250	or (acres x 6 ESD/acre) x (310 gpd/ESD)
Middle School (MS)	0.0600	or (acres x 6 ESD/acre) x (310 gpd/ESD)
High School (HS)	0.0800	or (acres x 6 ESD/acre) x (310 gpd/ESD)

Non-Tributary Areas Within FSPA

A provision in Measure W, approved by city of Folsom voters in 2004, requires that 30 percent of the SOI area be preserved as permanent OS. In the FSPA, the 30 percent OS can be generally divided into two categories: 1) landscape strips, and 2) OS area adjacent to drainage corridor, oak woodlands, environmentally sensitive areas and steep terrain. Category one OS, the landscape strips adjacent to roadways, are included as potential flow contributing areas calculated at 6 ESD/ac. Category two open space, is permanently encumbered by Measure W and is considered non-flow contributing for this WWIP. (See Table 10, Land Use Area/ESD Summary, bound at rear)

TABLE 4: LAND USES AND ESDS

Land Use	Abbreviation	(ESDs / acre)
Single Family	SF ^[1]	6
Single Family High Density	SFHD ^[1]	6.9
Multi Family Low Density	MLD	= (11.9x75%) = 8.9
Multi Family Medium Density	MMD	= (20.0x75%) = 15.0
Multi Family High Density	MHD ^[2]	= (30.0x75%) = 22.5
Mixed Use District	MU ^[3]	11
Office Park	OP	6
Community Commercial	CC	6
General Commercial	GC	6
Regional Commercial	RC	6
Park (Community)	P	6
Park (Neighborhood)	P	6
Local Park		included within residential
High School-Middle School	PQP	= > of (0.025 mgd) or (6 ESD/ac)
Elementary School	PQP	= > of (0.060 mgd) or (6 ESD/ac)
Country Day School	PQP	= > of (0.080 mgd) or (6 ESD/ac)
Open Space	OS	= 6.0 in assumed areas

Notes:

[1] Per SASD standards, the minimum flow is calculated as the larger of 6 ESDs/ac. or the expected number of units (density).

[2] Per SASD standards one Multi-Family unit = 0.75 ESD.

[3] Transit oriented development use 11 ESD's/acre, per CSD-1 trunk design manual, 2002.

[4] Landscape strip area only adjacent to roadways are included as flow contributing.

3.3 Projected Flows

These calculations assume all wastewater within the FSPS boundary is directed to the Folsom South Pump Station (FSPS).

The summary of FSPA sewered area (2,601 acres) matches the Land Use Summary (3,502) acres minus large block OS areas (901 acres). Only landscaped OS parcels adjacent to roadways are included as contributing to the ESD count. Acreages for Schools (P-QP) are broken out into High School (HS), Middle School (MS) and Elementary School (ES) per SASD requirements.

Table 5 summarizes the following:

- Average Dry Weather Flow (ADWF) and Inflow and Infiltration per land use
- ADWF for the FSPA
- Peaking Factor (PF) for the FSPA
- Peak Dry Weather Flow (PDWF) for the FSPA
- Peak Wet Weather Flow (PWWF) for the FSPA

TABLE 5: WASTEWATER FLOW PROJECTIONS

Land Use	LUP Area, acres	Sewered Area, acres	Max Density, DU	ESD factor (ESD/acre)	Total ESD	Q _{ADWF} (mgd)	Q _W (mgd)
SF - Single Family	562.7	562.7	3.9	6.0	3,382	1.05	0.79
SFHD - Single Family High Density	475.7	475.7	6.9	6.9	3,300	1.02	0.67
MLD - Multi Family Low Density	301.1	301.1	11.9	8.9	2,691	0.83	0.42
MMD - Multi Family Medium Density	75.8	75.8	20	15.0	1,140	0.35	0.11
MHD - Multi Family High Density	48.9	48.9	30	22.5	1,102	0.34	0.07
MU - Mixed Use District	33.1	33.1	30	11.0	365	0.11	0.05
OP - Office Park	113.3	113.3		6.0	685	0.21	0.16
CC - Community Commercial	39.9	39.9		6.0	241	0.07	0.06
GC - General Commercial	206.3	206.3		6.0	1,248	0.39	0.29
RC - Regional Commercial	130.3	130.3		6.0	788	0.24	0.18
P - Park (Community)	64.5	64.5		6.0	390	0.12	0.09
P - Park (Neighborhood)	44.7	44.7		6.0	270	0.08	0.06
LP - Local Park	Included			6.0		0.00	0.00
PQP - High School/Middle School	79.3	39.7	MS portion only	6 or 0.080 mgd	259	0.08	0.06
PQP - Middle School (only)	Included	39.6	MS portion only	6 or 0.060 mgd	239	0.07	0.06
PQP - Elementary School	50.0	50.0		6 or 0.025 mgd	404	0.13	0.07
PQP - Country Day School	49.7	32.1	HS portion only	6 or 0.080 mgd	258	0.08	0.04
PQP - Country Day School (MS)	Included	17.6	MS portion only	6 or 0.060 mgd	194	0.06	0.02
OS - Open Space	1053.0	152.1	Sideline strips at roadways	6.0	916	0.28	0.21
Roadway	173.6	173.6		6.0	1,045	0.32	0.24
Plan Area Total	3,501.90	2,601.0			18,918	5.86	3.64
Peaking Factor:						1.53	
Peak Dry Weather Flow:						8.99	
Peak Wet Weather Flow:						12.64	

SECTION 4 - SEWER COLLECTION SYSTEM ANALYSIS

4.1 Pipe Design Assumptions and Calculations

Assumptions

Preliminary pipeline alignments and profiles were laid out and pre-designed with the following assumptions:

- Maintain sewer alignments within proposed roadway rights of ways if possible. If a non-roadway alignment is proposed, show locations of possible easements.
- Limit sewer depths to less than 20 feet, where practicable.
- Try to avoid pump station(s).
- If the above conditions cannot be met, study and list alternatives. (See Section 5 - Pipeline Alignment Alternatives).

Pipes were designed and analyzed according the criteria outlined by SASD design standards, as shown Table 6.

TABLE 6: PIPE DESIGN SLOPES & VELOCITIES

Pipe Diameter	Collector and Trunk Sewer					
	Minimum Design Slope	Minimum Schematic Slope	Velocities		Maximum Design Capacity (At min. slope) (mgd)	d/D ratio
			Min. (fps)	Max. (fps)		
8"	0.0035	0.0060	2.0	8.0	0.38	0.7
10"	0.0025	0.0035	2.0	8.0	0.58	0.7
12" [2]	0.0020	0.0024	2.0	8.0	1.03	1.0
15"	0.0015	0.0018	2.0	8.0	1.6	1.0
18"	0.0012	0.0014	2.0	8.0	2.35	1.0
21"	0.0011	0.0012	2.0	8.0	3.4	1.0
24"	0.0010	0.0011	2.0	8.0	4.5	1.0
27"	0.0010	0.0010	2.0	8.0	6.2	1.0
30"	0.0010	0.0010	2.0	8.0	8.2	1.0
33"	0.0010	0.0010	2.0	8.0	10.5	1.0
36"	0.0010	0.0010	2.0	8.0	13.63	1.0
FORCE MAIN [3]			3.0	8.0	N/A	1.0

Notes: [1] Sewer Based on minimum design slope(excluding force main), Manning's 'n'=0.013, and full pipe.

[2] A 12-inch sewer may be either a collector or a trunk. A 12-inch trunk has no service connections and design minimum slope and velocity assume full pipe.

[3] Force main head loss is to use Hazen Williams C factor = 100.

Calculations and Results

In general, gravity service for 90.3 percent of the FSPA sewered ESDs is achievable. Within most roadways, pipe slopes are adjusted to values above the minimum requirements. Design calculations for pipes are summarized in Table 11. To provide flexibility for density transfers in the FSPA, all pipe sizes have been sized to maintain a maximum of 0.7 or less depth-to-diameter (d/D) ratio for pipes 12 inch and larger.

Inverts are calculated at all nodes, and determined by extending slopes upstream from critical downstream inverts, and matching all pipe crowns. Inverts are evaluated at culvert and bridge crossing locations. At drainage crossings, the gravity sewer will usually be above the drainage structure. At bridge crossing of creeks, the gravity sewer will be hung on the side of the bridge or under bridge soffit.

Pipe velocities have been evaluated for all major pipe sections shown in Exhibit C. The results, shown in Table 11, indicate that pipe velocities exceed the minimum required velocity of 2 feet per second (fps).

Easement Locations

Potential easements may be required for sewer trunk alignments at three locations:

- East side of Lot MLD-158, fronting Alder Creek corridor
- West side of Lots SF-148, P-QP-147, and P-149, fronting Alder Creek corridor
- Border between Lots MHD-74 and GC-75

These alignments were chosen to avoid placing sewer in roadways with profile grades that would result in sewer depths in excess of 35 feet.

4.2 Pipeline Depth Analysis

The city of Folsom has expressed an interest in minimizing sewer depth for future maintenance. This section reviews the general depths of the proposed system. The final depths may vary with grading and land use updates, however, the general sewer depth zones are reflected in Exhibit E. As shown, the depth zones are the following:

- Force mains (depth generally less than 10 feet)
- 10 to 15 feet
- 15 to 20 feet
- More than 20 feet deep
- Attached to bridge structure or elevated at an Open Space (OS) drainage crossing.

Note that bridge crossings details and elevated crossings at OS drainage ways will not be detailed in this document.

The summary of proposed pipe sizes and depths are shown in Table 7.

TABLE 7: SEWER DEPTH SUMMARY

DEPTH ZONES					
SIZE	TOTAL LENGTH	Attached to Bridge	10-15'	15-20'	>20'
8	53,042	1,040	35,482	16,520	0
10	15,644	0	7,474	8,170	0
12	14,203	0	4,377	8,240	1,586
15	6,914	0	2,201	3,407	1,306
18	8,151	0	630	7,521	0
21	3,352	0	2,944	408	0
24	0	0	0	0	0
27	4,541	0	1,213	3,000	328
30	6,902	760	1,058	5,084	0
TOTAL	112,749	1,800	55,379	52,350	3,220

4.3 Pipeline Alignment Alternatives

Alternatives have been analyzed in two areas where projected sewer depth is greater than 20 feet. These alternatives look at constructing sewer pump stations near sewer basin low points and sewer force mains within street rights of ways. Exhibits F and G show these alternatives. Preliminary cost estimates has been prepared to determine the relative cost difference for these alternates compared to the WWIP gravity system. See Exhibit I for the Alternative Sewer Facilities Cost Estimates.

The two Alternatives are summarized as:

Alternative 1: West side of Alder Creek

Construct a 0.6 mgd (Q_{PWWF}) pump station, and a 6-inch force main west in Street A to a reception manhole with gravity outfall sewer at the Oak Avenue intersection. From the Oak/Street A intersection, a 10-inch transitioning to a 12-inch gravity sewer that flows north in Oak Ave to the Easton Valley Parkway trunk sewer. (Reference Exhibit E)

The cost difference for Alternative 1 compared to WWIP is approximately \$405,500. Alternate 1 benefits include:.

- Reduced depth of gravity sewers from Street A to Oak Avenue.
- Parcels can develop more independently as all backbone sewers will be in the street

Alternate 1 negatives include:

- Added sewer pump station and force main system capital cost
- Future operation and maintenance cost (O&M)
- Loss of open space for pump station

Alternative 2: East side of Alder Creek

Construct a 4.8 mgd pump station, and parallel 8-inch and 12-inch force mains north along the west side (within easement) of Lots P-149 and a portion of P-QP-147 to a reception manhole 800 feet south of Street B. A 24-inch gravity sewer exits the reception manhole and flows to the proposed system. (Reference Exhibit F)

The additional cost for Alternative 2 over the WWIP is approximately \$4.9 M.

Alternative 2 benefits include:

- Reduced depth of gravity sewers from Street A to Street B.
- Parcels can develop more independently as all backbone sewers will be in the street

Alternative 2 negatives include:

- Added sewer pump station and force main system capital cost
- Future operation and maintenance cost (O&M)
- Loss of open space for pump station

FSPS Force Main

Currently, alternative routes are being evaluated to connect the force main system from the proposed FSPS to the force main system downstream of the existing FE 3B PS north of Highway 50. Depending on the timing of development and construction of an Oak Avenue over crossing, the force main system may require a jacked casing crossing under Highway 50.

SECTION 5 - EID SERVICE AREA DISCUSSION

The WWIP provides service to 189.4 gross / 134.4 sewered acres at the east edge of the FSPA that are currently within the El Dorado Irrigation District (EID) service boundary. Land use, acres, ESDs and PWWFs for the entire EID area within the FSPA, are summarized in Table 8.

TABLE 8: EID SERVICE AREA – FLOW CALCULATIONS

LAND USE	LOT NO	AREA (ac)	ESD/AC	ESD's	ADWF	PF	PWWF	I/I	Q _{PWWF} (mgd)
SF	192	20.1	6.0	121	0.04	1.97	0.07	0.03	0.10
SF	193	13.7	6.0	82	0.03	2.00	0.05	0.02	0.07
SFHD	191	31	6.9	214	0.07	1.93	0.13	0.04	0.17
GC	189	3	7.9	24	0.01	2.09	0.02	0.00	0.02
GC	187	17	6.0	102	0.03	1.99	0.06	0.02	0.09
GC	188	9.4	6.0	56	0.02	2.03	0.04	0.01	0.05
GC	184	1.3	6.0	8	0.00	2.17	0.01	0.00	0.01
GC	185	3.8	6.0	23	0.01	2.09	0.01	0.01	0.02
MLD	190	27.9	8.9	248	0.08	1.92	0.15	0.04	0.19
OS	196	13.5	0	-					0
OS	197	1.3	0	-					0
OS	195	26.6	0	-					0
OS	194	3	0	-					0
ROADWAY		7.2	6	43	0.01	2.05	0.03	0.01	0.04
MAJ CIRC.		10.6							0
TOTAL		189.4		921					0.76
Net Sewered Acres		134.4							

Notes: [1] Open Space and Major Circulation (future interchange ROW) are non-flow contributing.

To provide service to EID lands, the FSPA requires two sewer pump stations, PS 3 and PS 4, at local low points along the east edge of the FSPA. A combination of force mains and gravity sewers along the east boundary would transport wastewater to Pump Station 2 at the NW corner of Empire Ranch and White Rock Roads.

Reference Exhibit C for the proposed pump station locations.

In response to initial contact by the FSPA developers, the EID has indicated that it wants to provide sewer service to all lands within its district boundary. Based on conceptual grading prepared by CTA Engineering for lands within the EID service area boundary, connection to EID gravity sewer lines may be possible. Table 9 summarizes each EID POC location, benefit, as well as estimated projected wastewater flow to each POC.

TABLE 9: EID POINT OF CONNECTION SUMMARY

1	Winterfield Court	Eliminates PS 4	101.8	71.5	502	0.41
2	Stonebriar Drive / Prima Way intersection	Eliminates PS 3	77.7	48.0	371	0.31
3	Ranch Bluff Way south of White Rock Road	Reduces PS 2 pumping	10.2	8.0	48	0.04
TOTAL			189.4	127.2	921	0.76

If EID is to be a service provider, detailed routing studies and downstream capacity at these three POCs must be confirmed by EID or others.

Reference Exhibit H for location of the three possible EID POCs, and Table 12, bound at the rear, for EID wastewater projection calculations per each EID POC.

EID Service Area Summary

The FSPA WWIP proposes service to the EID service area. EID, however, has stated it wants to provide service to lands within its service area boundary. Adherence to the current EID service boundary line will require two additional sewer pump stations (PS 3 and PS 4) to transport wastewater west to the FSFS.

This study recommends that EID, the city of Folsom, and the FSPA owners group meet to resolve the service provider for the EID service area.

SECTION 6 – CONCLUSIONS, RECOMMENDATIONS, NEXT STEPS

Calculated Wastewater Flow Summary

SASD, 2008 Design Standards were used to calculate flows for 2601 sewered acres in the FSPA. A comparison of projected FSPA wastewater flows to previous SRCSD Master Plan studies is as follows.

SRCSD Interceptor Master Plan, 2000, Black & Veatch	FS11 to *FE 3B PS	22,035	14.48
Folsom Specific Plan Area (FSPA)	FS11 to *FE 3B PS	18,918	12.64

**FE 3B PS is an existing SRCSD Pump Station located north of Highway 50 at the south side of Iron Point Road approximately 1500 feet west of Oak Avenue.*

Pump Stations and the EID Service Area Summary

All wastewater within the FSPA boundary, including 189.4 gross / 134.4 sewered acres within the EID service area, is directed by gravity sewers and pump stations/force mains to the proposed Folsom South Pump Station (FSPS). The proposed FSPS is located at the north side of Easton Valley Parkway approximately 1500 feet west of Oak Avenue. The FSPS will pump wastewater to the north side of Highway 50 and tie into the existing SRCSD force main system at the downstream side of FE 3B PS. See Exhibit C.

Upstream of the proposed FSPS, gravity systems will provide service to over 90% of ESDs in the FSPA. Lands within the EID service area, and a sub-shed east of Empire Ranch Road will be served by three small pump stations described as PS 2, 3, and 4 with peak pumping capacities as follows:

FSPA PS 2	NW corner of White Rock and Empire Ranch Roads	1.39
FSPA PS 3	East FSPA boundary near existing Stonebriar Court	0.65
FSPA PS 4	East FSPA boundary near existing Winterfield Court	0.38

Reference Exhibit C for the proposed Pump Station 2, 3, and 4 locations.

EID has stated that it wants to provide service to lands within its service area boundary. Based on conceptual grading prepared by CTA Engineering for lands within the EID service area boundary, connection to EID gravity sewer lines may be possible at:

EID POC Location	Benefit
1. Winterfield Court	Eliminates PS 4
2. Stonebriar Drive / Prima Way intersection	Eliminates PS 3
3. Ranch Bluff Way south of White Rock Road	Reduces PS 2 pumping

If EID is to be a service provider, detailed routing studies and downstream capacity at these three POCs (921 ESDs) must be confirmed by EID or others. Reference Exhibit H for location of the three possible EID POCs.

Conclusion...SRCSD Capacity

This WWIP confirms that the projected FSPA PWWF, including flow from the EID service area (12.64 mgd), is less than the projected FSPA/SOI flow in the SRCSD Interceptor Plan, 2000 (14.48 mgd). Based on that Interceptor Plan, this report concludes that SRCSD Pump Station FE 3B and the downstream interceptor system have adequate capacity to serve the FSPA.

Recommendations... EID/City of Folsom Sewer Service Area

EID, the city of Folsom, and the FSPA owners group should meet to resolve the service provider for the EID service area.

Next Steps

As the FSPA environmental and entitlement process moves forward, the following tasks are anticipated, and may require updates to this WWIP:

- Coordination with EID, the city of Folsom and owners group to resolve the EID sewer service area issue. If EID is confirmed as the service provider, perform routing studies, evaluate EID capacity, and quantify required upgrades to the EID system to provide an acceptable level of service.
- Confirmation by SRCSD that downstream interceptor and treatment facilities are adequate and/or upgrades are sequenced accordingly.
- Develop a complete OPCC for the WWIP for build out and phasing options, to serve as basis for a FSPA finance plan.
- Finalize the FSPA phasing and Land Use Plans.

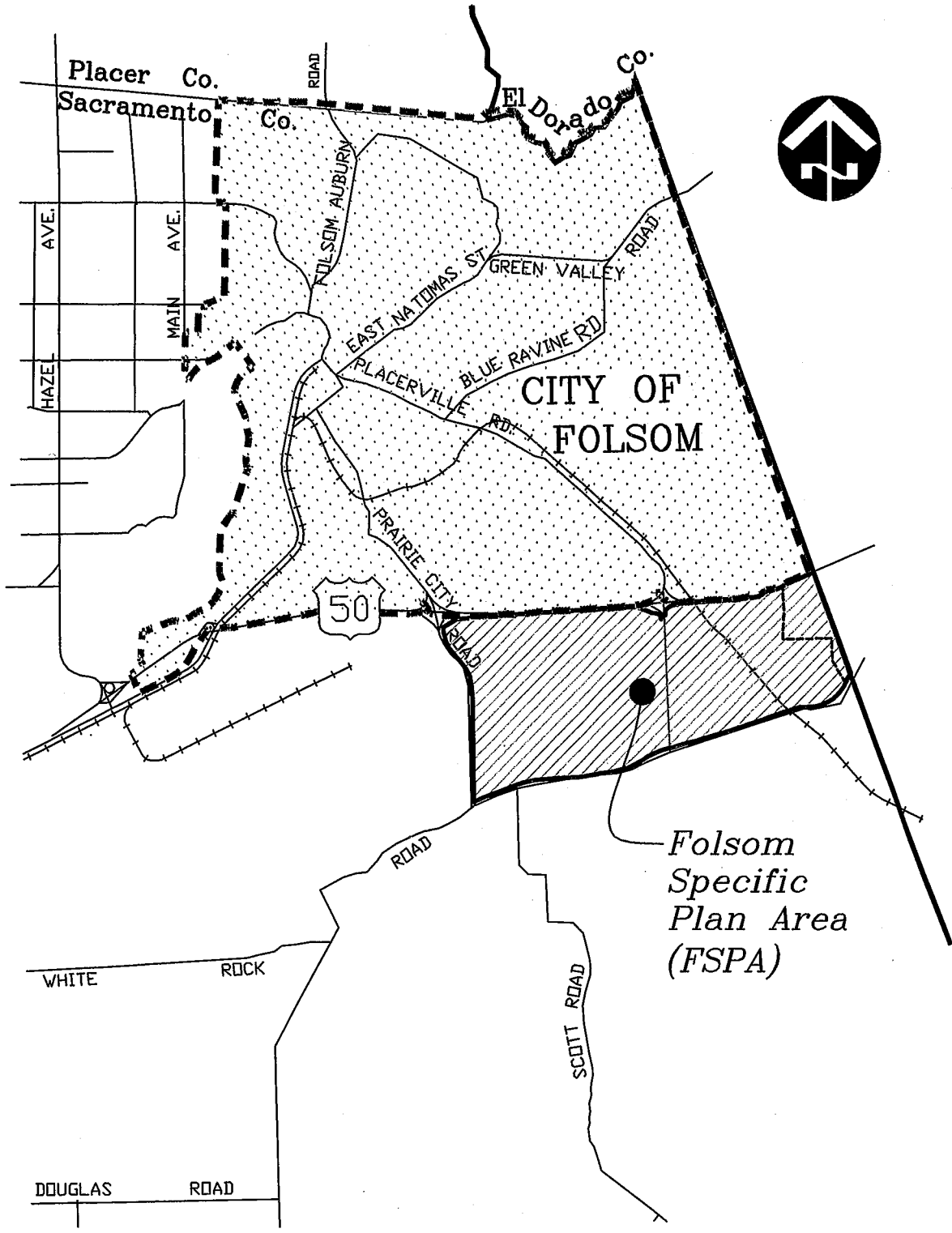
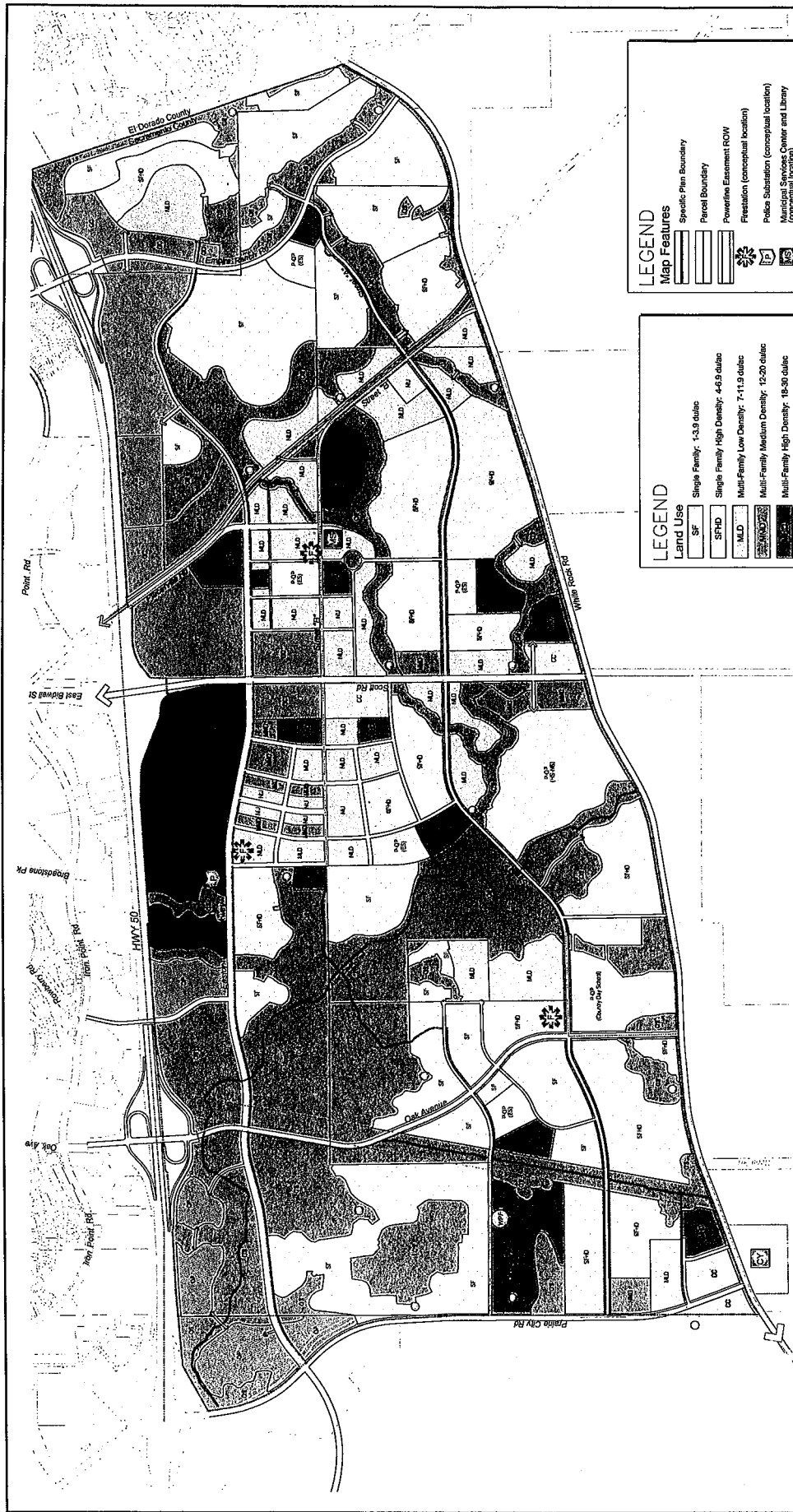
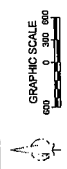


EXHIBIT A
VICINITY MAP
 N.T.S.





City of Folsom
 SACRAMENTO COUNTY, CA
 Folsom Plan Area Specific Plan
 Proposed Land Use Plan-05.28.08

LEGEND

Map Features

- Specific Plan Boundary
- Parcel Boundary
- Powerline Easement ROW
- Firestation (conceptual location)
- Police Substation (conceptual location)
- Municipal Services Center and Library (conceptual location)
- City Corporate Yard (conceptual office location - 25 ac)
- Water Public Facility (conceptual location)
- Deamston Basins

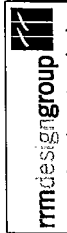
Notes:

- 1) Parks, facilities and civic uses will be located and sized per Facilities Analysis.
- 2) Corporate Yard to be located outside project area subject to future development.
- 3) Corporate Yard and Water Public Facility are placeholders subject to negotiations with landowners and subject to appropriate locations of these facilities.
- 4) Local parks are not currently shown on the Land Use map, but are indicated for in the Land Use Analysis.

LEGEND

Land Use

- Single Family: 1-3.9 du/ac
- Single Family High Density: 4-6.9 du/ac
- Multi-Family Low Density: 7-11.9 du/ac
- Multi-Family Medium Density: 12-20 du/ac
- Multi-Family High Density: 18-30 du/ac
- Mixed Use: 5-30 du/ac
- Office Park
- Community Commercial
- General Commercial
- Regional Commercial
- Parks (Community/Neighborhood Parks)
- Open Space
- Public/Quasi-Public



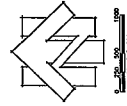
rmdesigngroup
 creating environments people enjoy
10000 Old River Road, Suite 1000, Sacramento, CA 95826
 Tel: 916.486.1000 Fax: 916.486.1001
 www.rmdesigngroup.com

EXHIBIT C

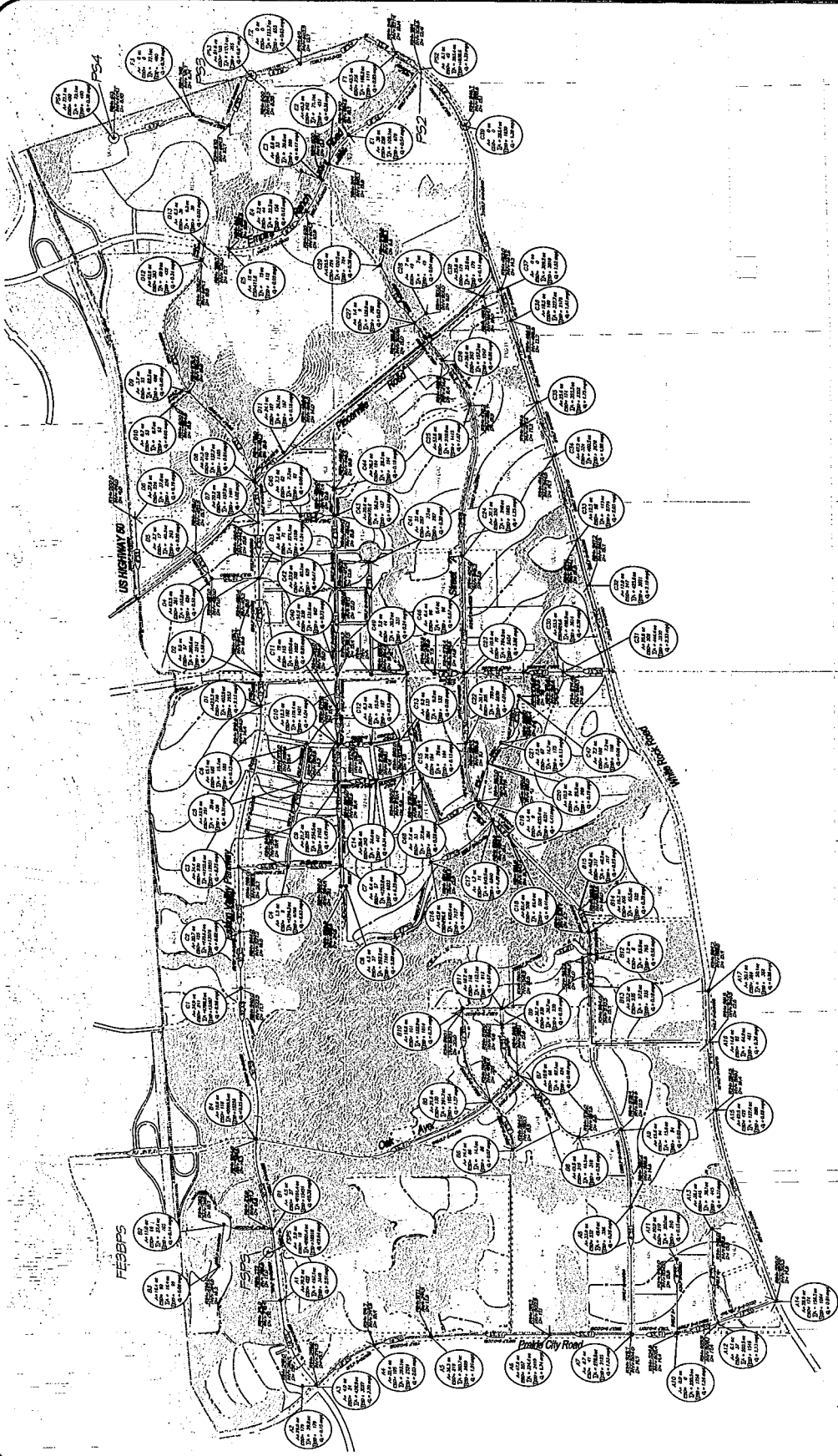
Wastewater Infrastructure Plan

City of Folsom Plan Area
 County of Sacramento, California
 Scale: 1" = 500'
 August 2008

MACKEY & SOMPS
 CIVIL ENGINEERS, PLANNERS, ARCHITECTS
 1000 RIVER STREET, SUITE 200, FOLSOM, CA 95630
 (916) 452-1000



DRAFT



- NOTES:
- 1) This plan is to be used in conjunction with the Wastewater Infrastructure Plan and the Wastewater Treatment Plant Design Report.
 - 2) The flow direction is shown by the arrow on the line.
 - 3) The flow direction is shown by the arrow on the line.
 - 4) The flow direction is shown by the arrow on the line.
 - 5) The flow direction is shown by the arrow on the line.
 - 6) The flow direction is shown by the arrow on the line.

- LEGEND:
- MANHOLE NODE NUMBER
 - CONTRIBUTING AREA (ACRES)
 - CONTRIBUTING EQUIVALENT SINGLE FAMILY DWELLINGS
 - CUMULATIVE EQUIVALENT SINGLE FAMILY DWELLINGS
 - PEAK NET WEATHER FLOW (MILLION GALLONS PER DAY)
 - TRUNK SEWER
 - TRIBUTARY
 - PUMP STATION
 - OPEN SPACE

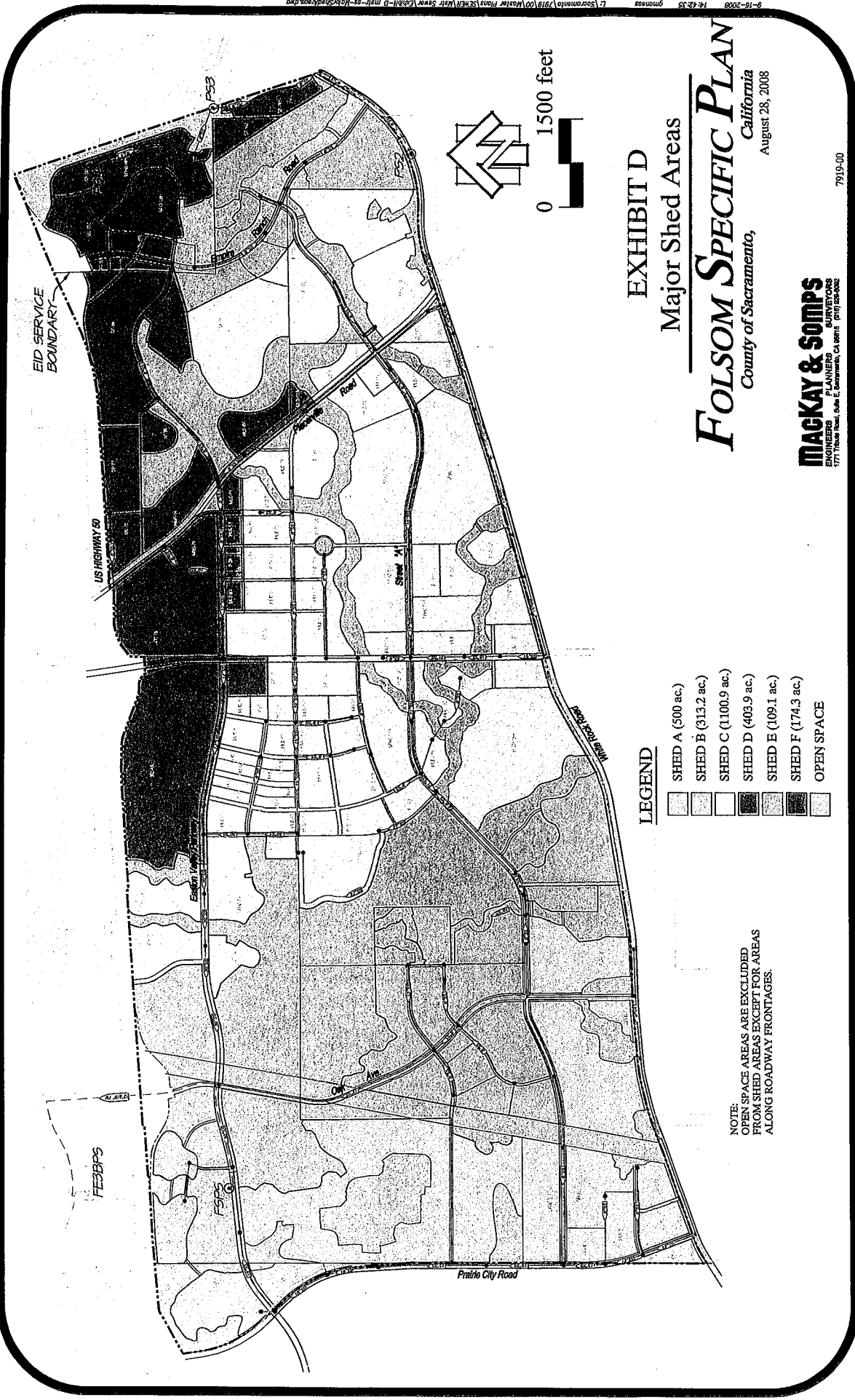


EXHIBIT D
Major Shed Areas

FOLSOM SPECIFIC PLAN
County of Sacramento, California

August 28, 2008

LEGEND

- SHED A (500 ac.)
- SHED B (313.2 ac.)
- SHED C (1100.9 ac.)
- SHED D (403.9 ac.)
- SHED E (109.1 ac.)
- SHED F (174.3 ac.)
- OPEN SPACE

NOTE:
OPEN SPACE AREAS ARE EXCLUDED
FROM SHED AREAS EXCEPT FOR AREAS
ALONG ROADWAY FRONTAGES.

MACKAY & SOMPS
ENGINEERS
PLANNERS
SURVEYORS
1777 Thibodeau Road, Suite E, Sacramento, CA 95811 (916) 486-0002

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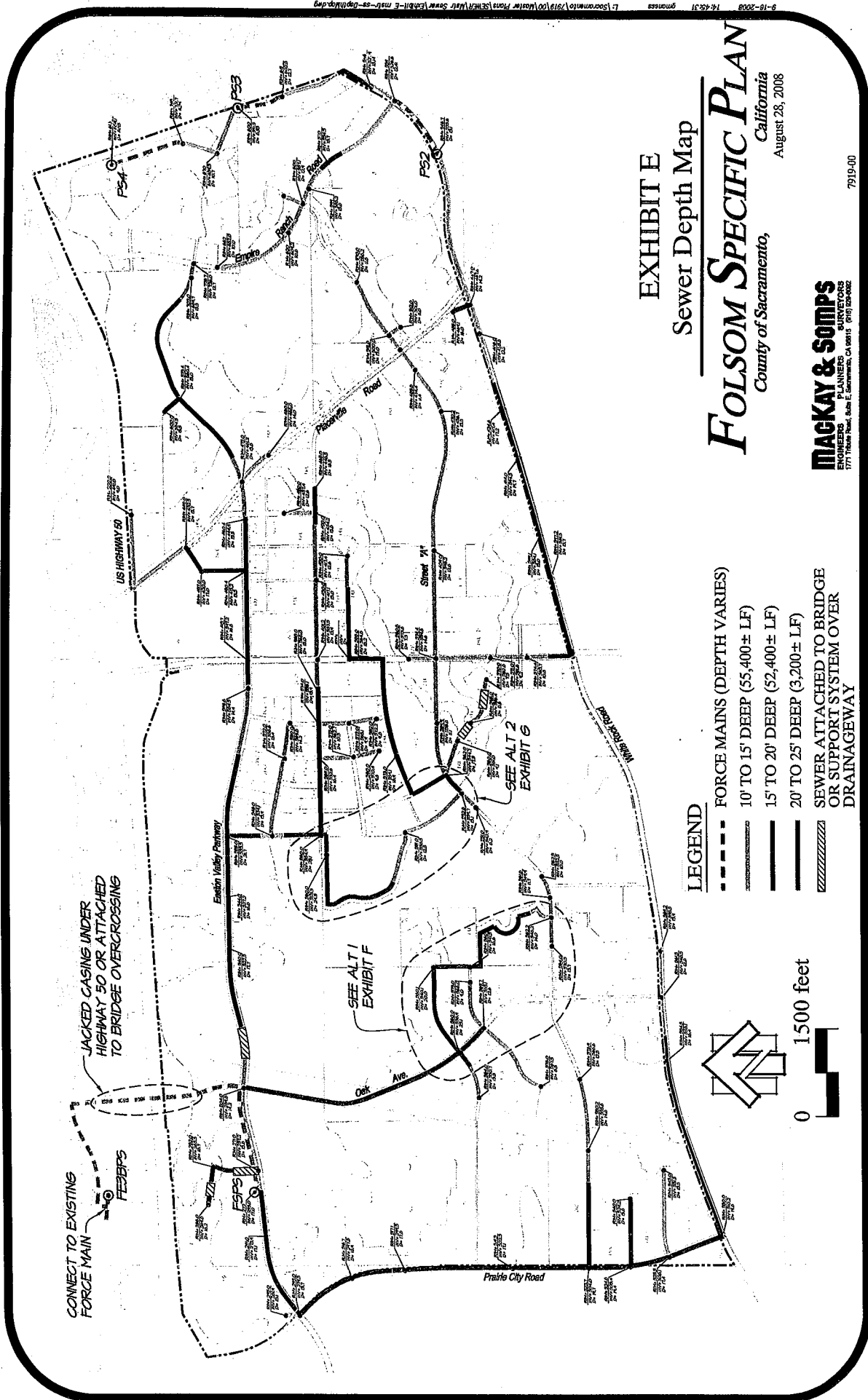


EXHIBIT E
Sewer Depth Map

FOLSOM SPECIFIC PLAN

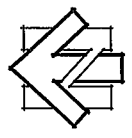
County of Sacramento,
California
August 28, 2008

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PLANNERS
SURVEYORS
1777 Hudson Park, San Francisco, CA 94115 (415) 778-8800

7919-00

LEGEND

- FORCE MAINS (DEPTH VARIES)
- 10' TO 15' DEEP (55,400± LF)
- 15' TO 20' DEEP (52,400± LF)
- 20' TO 25' DEEP (3,200± LF)
- ▨ SEWER ATTACHED TO BRIDGE OR SUPPORT SYSTEM OVER DRAINAGEWAY



CONNECT TO EXISTING FORCE MAIN FE23PS

JACKED CASING UNDER HIGHWAY 50 OR ATTACHED TO BRIDGE OVERCROSSING

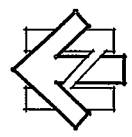
SEE ALT 1 EXHIBIT F

SEE ALT 2 EXHIBIT G

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LEGEND

- PROPOSED SEWER
- - - ALTERNATE SEWER
- - - ALTERNATE FORCE MAIN
- - - SEWER SUB-SHED LINE
- PS PUMP STATION
- OPEN SPACE



0 400 feet

EXHIBIT F

Alternative 1
Pump Station and Force Main

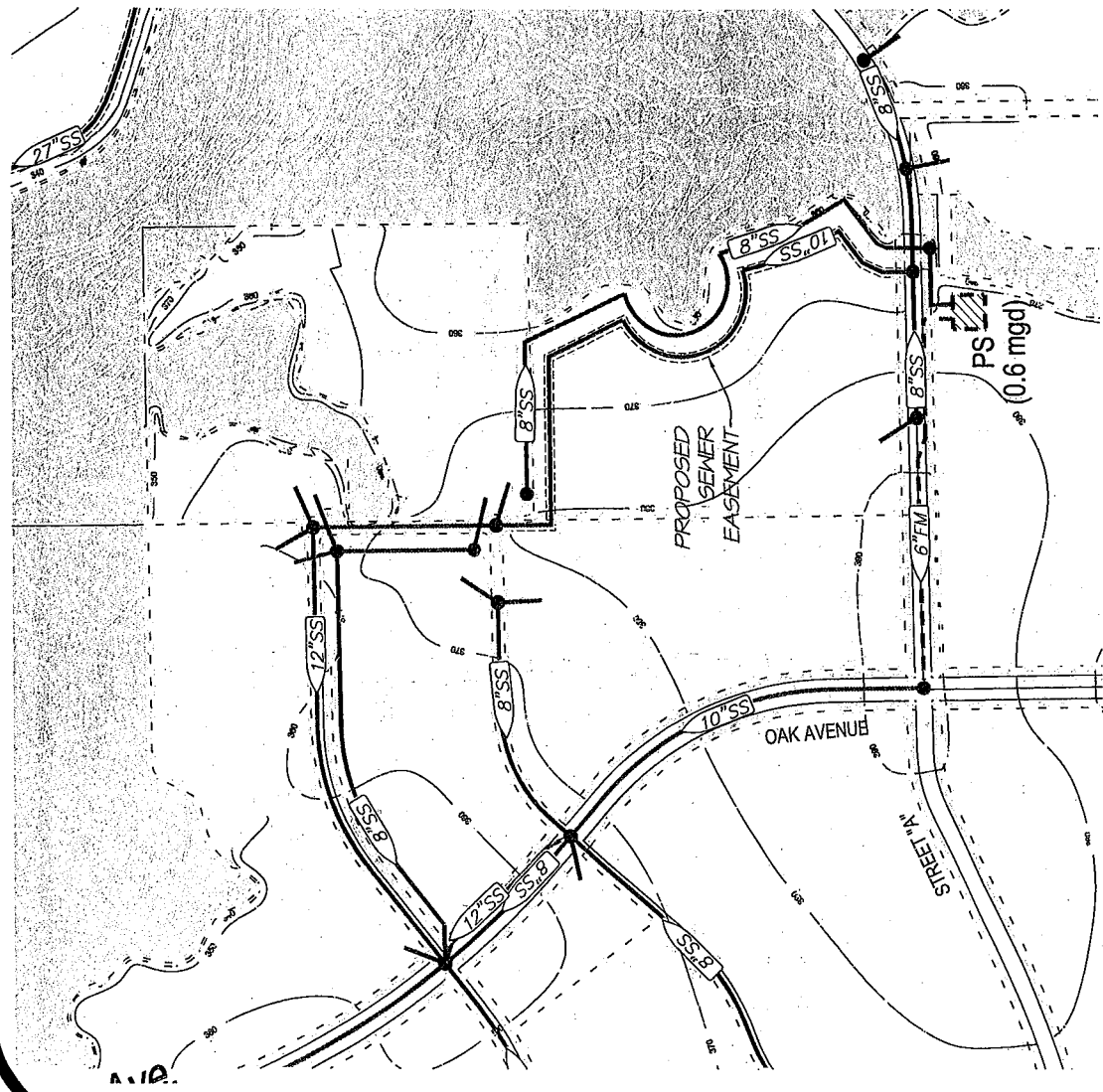
FOLSOM SPECIFIC PLAN

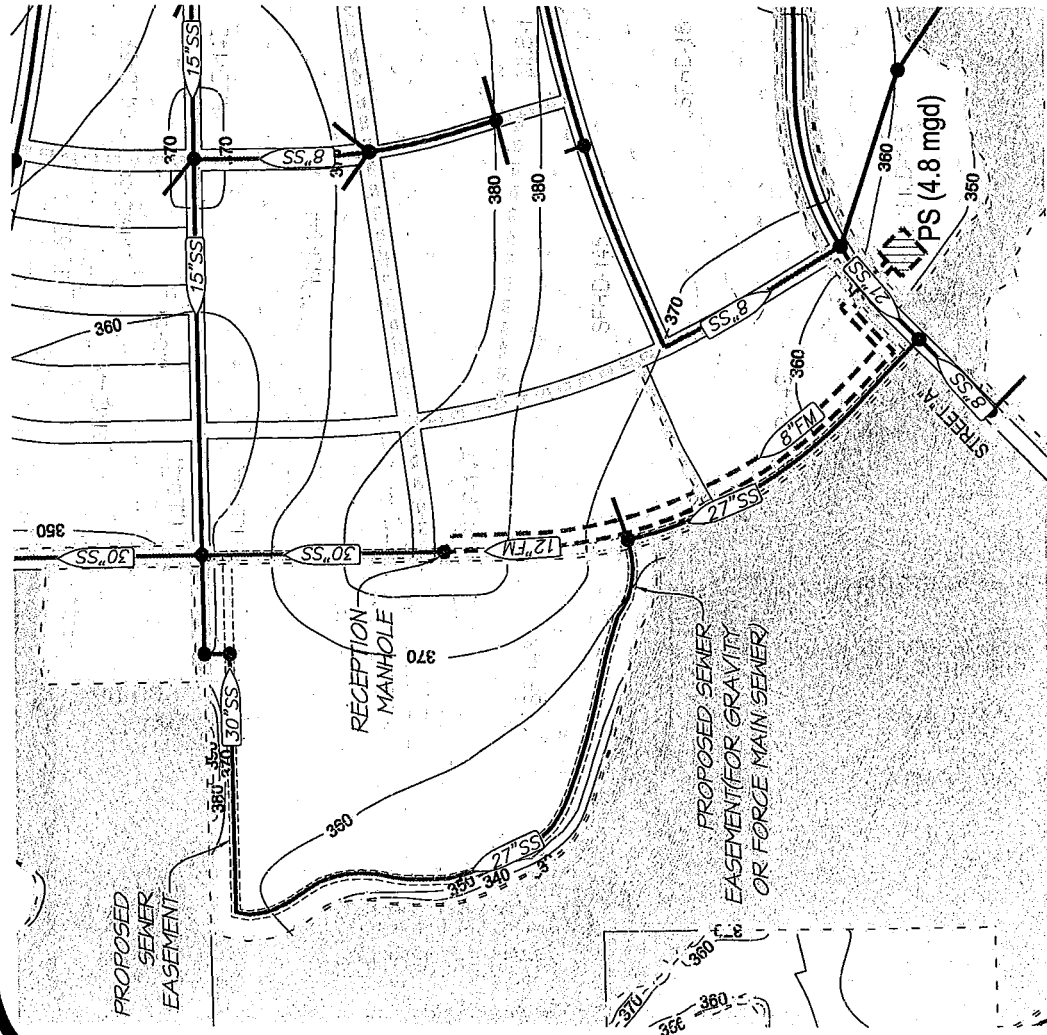
County of Sacramento,
California
August 28, 2008

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PLANNERS SURVEYORS
ENGINEERS
1771 Tiburon Road, Suite E, Sacramento, CA 95815 (916) 235-0002

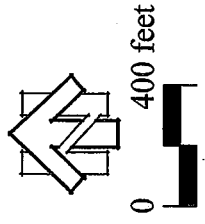
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LEGEND

	PROPOSED SEWER
	ALTERNATE GRAVITY SEWER
	ALTERNATE FORCE MAIN
	SEWER SUB-SHED LINE
	PUMP STATION
	OPEN SPACE



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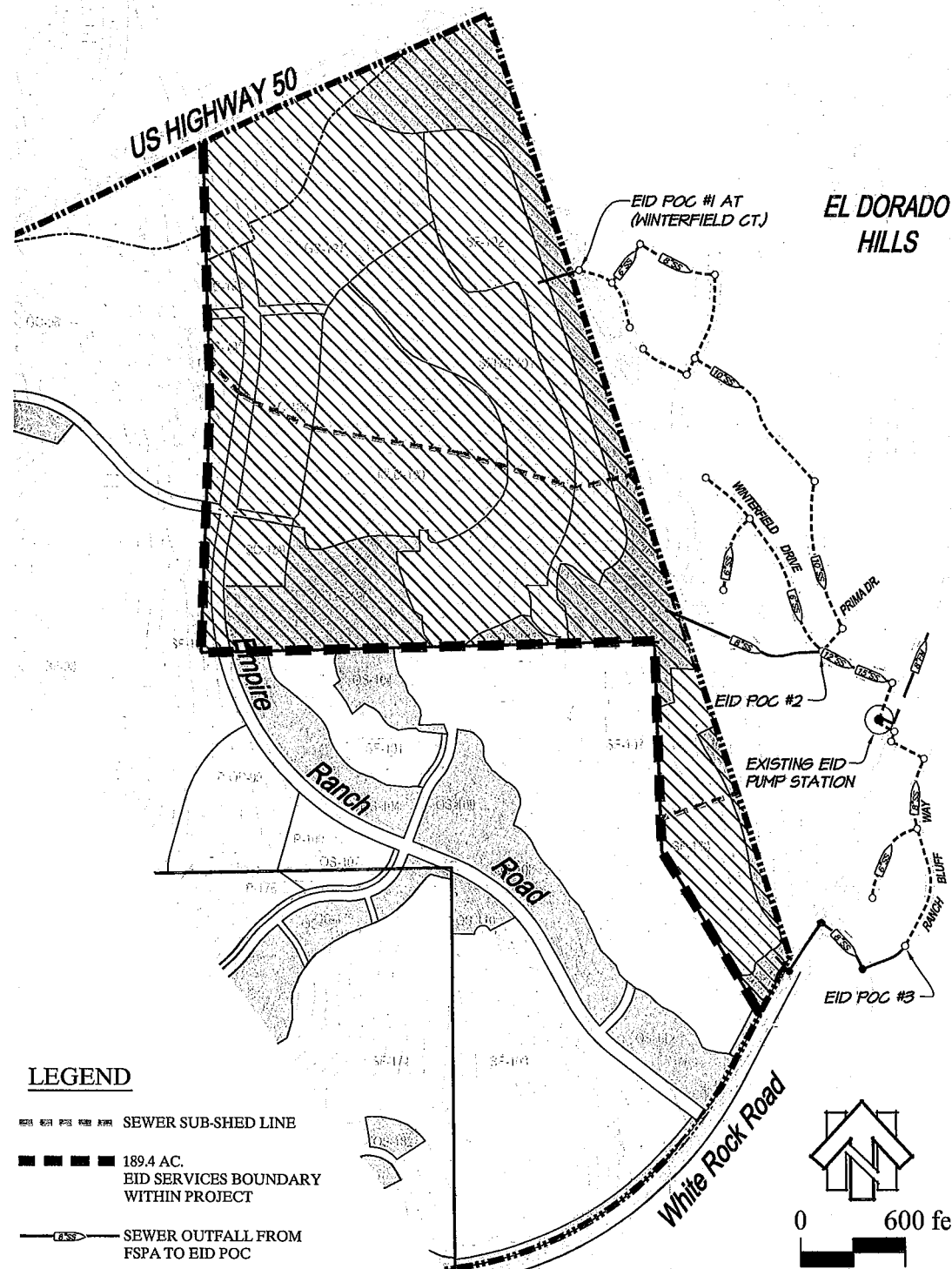
EXHIBIT G
Alternative 2
Pump Station and Force Main

FOLSOM SPECIFIC PLAN
County of Sacramento, California
August 28, 2008






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LEGEND

-  SEWER SUB-SHED LINE
-  189.4 AC. EID SERVICES BOUNDARY WITHIN PROJECT
-  SEWER OUTFALL FROM FSPA TO EID POC
-  EID SERVICE AREA
-  OPEN SPACE

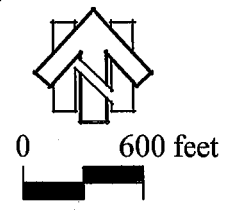


EXHIBIT H
EID Shed Analysis
FOLSOM SPECIFIC PLAN
 County of Sacramento, California
 August 28, 2008

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Exhibit I

ALTERNATIVE SEWER FACILITIES ROUTING

**OPINION OF PROBABLE
CONSTRUCTION COST**

for

Folsom Specific Plan Area

County of Sacramento, California

September 15, 2008

MACKEY & SOMPS
CIVIL ENGINEERS, INC.
SACRAMENTO, CALIFORNIA (916) 929-6092

Folsom Specific Plan Area

Opinion of Probable Construction Costs: Alternative 1: West Side of Alder Creek

Alternative 1:

Construct a 0.6 mgd (QPWWF) pump station, and a 6-inch force main west along Street A to a reception manhole with gravity outfall sewer at the Oak Avenue intersection. From the Oak/Street A intersection, 10-inch and 12-inch gravity sewers flow north in Oak Ave to the Easton Valley Parkway trunk sewer. (Reference Exhibit E)

In place of Proposed:

Gravity sewer (10 inch and 12 inch) trunk lines from Point 1 to Point 2 (As shown on Exhibit E) *Note: Easement may be required within lot MLD 158 (Cost not Included)*

ALTERNATIVE 1

<u>ITEM No.</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	1,450	LF	6" Sewer Force Main	\$60.00	\$109,000
2.	1,400	LF	10" Gravity Sewer (10' - 15' deep)	\$75.00	\$119,000
3.	610	LF	12" Gravity Sewer (10' - 15' deep)	\$85.00	\$52,000
4.	5.0	EA	48" Trunk SSMH (400' spacing)	\$8,500.00	\$43,000
5.	0.6	MGD	Sanitary Sewer Pump/Lift Station	\$1,000,000.00	\$600,000
Subtotal					\$923,000
Construction Contingency (30%)					\$277,000
Engineering, Staking, Permits, Inspection (20%)					\$185,000
TOTAL ALTERNATIVE 1					\$1,385,000

PROPOSED

<u>ITEM No.</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	2,360	LF	10" Trunk Gravity Sewer (10' - 15' deep)	\$75.00	\$177,000
2.	625	LF	12" Trunk Gravity Sewer (15' - 20' deep)	\$100.00	\$63,000
3.	1,600	LF	12" Trunk Gravity Sewer (20' - 25' deep)	\$125.00	\$200,000
4.	12	EA	48" Trunk SSMH (400' spacing)	\$8,500.00	\$102,000
5.	27,600	SF	12' Maintenance access road (2" AC/10" AB)	\$4.00	\$111,000
Subtotal					\$653,000
Construction Contingency (30%)					\$195,900
Engineering, Staking, Permits, Inspection (20%)					\$130,600
TOTAL PROPOSED					\$979,500

TOTAL COST DIFFERENCE	\$405,500
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Notes:

- Estimated costs rounded up to the nearest \$1000.

Folsom Specific Plan Area

**Opinion of Probable Construction Costs:
Alternative 2: East Side of Alder Creek**

Alternative 2:	Construct a 4.8 mgd pump station, and 8-inch and 12-inch force mains north along the west side (within easement) of Lots P-149 and a portion of P-QP-147 to a reception manhole 800 feet south of Street B. A 24-inch gravity sewer exits the reception manhole and flows to the point of connection. (Reference Exhibit F) <i>Note: Easement may be required with lots P-149 and P-QP-147 (Cost not included)</i>
In place of Proposed:	Gravity sewer (27 inch) trunk line from Point 1 to Point 2 (As shown on Exhibit F) <i>Note: Easement may be required with lots P-149 and P-QP-147 (Cost not included)</i>

ALTERNATIVE 2

<u>ITEM No.</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	1,900	LF	8" Sewer Force Main (10' deep)	\$80.00	\$152,000
2.	1,900	LF	12" Sewer Force Main (10' deep)	\$120.00	\$228,000
3.	800	LF	24" Gravity Sewer (10' - 15' deep)	\$150.00	\$120,000
4.	4.8	MGD	Sanitary Sewer Pump/Lift Station	\$900,000.00	\$4,320,000
5.	75,000	SF	12' Maintenance access road (2" AC/10" AB)		
			Subtotal		\$4,820,000
			Construction Contingency (30%)		\$1,446,000
			Engineering, Staking, Permits, Inspection (20%)		\$964,000
			TOTAL ALTERNATIVE 2		\$7,230,000

PROPOSED

<u>ITEM No.</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	2,550	LF	27" Gravity Sewer (15' - 20' deep)	\$260.00	\$663,000
2.	2,000	LF	27" Gravity Sewer (20' - 25' deep)	\$275.00	\$550,000
3.	12	EA	60" Trunk SSMH (400' spacing)	\$11,000.00	\$132,000
4.	53,400	SF	12' Maintenance access road (2" AC/10" AB)	\$4.00	\$214,000
			Subtotal		\$1,559,000
			Construction Contingency (30%)		\$467,700
			Engineering, Staking, Permits, Inspection (20%)		\$311,800
			TOTAL PROPOSED		\$2,338,500

TOTAL COST DIFFERENCE	\$4,891,500
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Notes:

- Estimated costs rounded up to the nearest \$1000.

FOLSOM PLAN AREA
TABLE 10
(AREA/ESD)

Node ID	SF (0.0 ESD/AC)		SFRD (8.8 ESD/AC)		MID (8.8 ESD/AC)		MKD (15.0 ESD/AC)		MHD (22.5 ESD/AC)		MU (11.0 ESD/AC)		P (6.0 ESD/AC)		E-SCHOOL (0.024 mgd)		M-SCHOOL (0.080 mgd)		H-SCHOOL (0.080 mgd)		GC (6.0 ESD/AC)		OP (6.0 ESD/AC)		RC (6.0 ESD/AC)		ROADWAY (6 ESD/AC)		Node ESD				
	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	
C1	11.6	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C3	0	0	25.8	177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	0	0	5.6	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C16	35.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C22	0	0	25.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C24	0	0	23.6	205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C25	0	0	51.3	354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C29	0	0	5.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C30	116.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C31	0	0	13.2	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C34	0	0	44.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C35	0	0	20.3	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C38	0	0	25.8	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C48	0	0	7.6	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C49	164.3	987	255.1	1784	191.0	1709	44.8	672	25.0	584	33.1	357	47.3	289	30.0	262	39.8	237	39.7	258	134	24.7	149	124	20.8	17.5	105	117.0	71.6	110.5	84.6	84.6	

TABLE 10
LAND USE (ESD/Acre) Summary:
Sheet C

FOLSOM PLAN AREA
TABLE 10
(AREA/ESD)

Node ID	SF (6.0 ESD/AC)		SFHD (6.0 ESD/AC)		MLD (6.0 ESD/AC)		MMD (15.0 ESD/AC)		MHD (22.5 ESD/AC)		MU (11.0 ESD/AC)		P (6.0 ESD/AC)		E. SCHOOL (0.025 IMP/AC)		M. SCHOOL (0.050 IMP/AC)		H. SCHOOL (0.050 IMP/AC)		CC (6.0 ESD/AC)		OP (6.0 ESD/AC)		GC (6.0 ESD/AC)		RC (6.0 ESD/AC)		ROADWAY (6.0 ESD/AC)		Node Area (AC)			
	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	ESD	Area	
E1	37.0	222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38.0	228	
E2	32.0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32.0	53	
E4	32.0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32.0	53	
E5	1.2	6	0	0	0	0	0	0	0	0	0	0	0	4.8	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.2	44
Total	85.2	513	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	4.8	28	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	108.1	678

FOLSOM PLAN AREA
TABLE 10
(AREA/ESD)

Node ID	SF (6.0 ESD/AC)		SEVP (6.0 ESD/AC)		M1D (8.8 ESD/AC)		MMD (15.0 ESD/AC)		MHD (22.5 ESD/AC)		MU (11.0 ESD/AC)		P (6.0 ESD/AC)		E SCHOOL (0.025 mpd)		M SCHOOL (0.050 mpd)		H SCHOOL (0.075 mpd)		CC (6.0 ESD/AC)		OP (6.0 ESD/AC)		GC (6.0 ESD/AC)		RC (6.0 ESD/AC)		ROADWAY (6.0 ESD/AC)		Node Area (AC)		
	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)	ESD	Area (AC)		
PS2	40.3	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	
F2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	
PS3	23.4	141	14.1	86	14.1	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PS4	15.3	92	18.9	117	13.8	123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	79.0	475.0	31.0	215	27.9	249	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	174.3

TABLE 10
LAND USE (ESD/Acre) Summary
Shed F

FOLSOM PLAN AREA
TABLE 11 - Sewer Calculations

Node ID	Down-stream Node	Area		ESD		Q _{ADWF} (mgd)	Peaking Factor (PF)	Q _{p-DWF} (mgd)	Q _{in} (mgd)	Q _{p-WWF} (mgd)	Pipe Size (in)	Slope (ft/ft)	Pipe Length (ft)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Cum PWWF Velocity	Depth of Flow (ft.)	(d/D)%
		Per Node (AC)	Cum. (AC)	Dir.	Cum.															
A17	A16	50	366	366	0.11	1.89	0.27	0.09	0.36	0.28	8	0.0085	794	365.30	348.55	369.2	13.9	3.00	0.29	43.6
A16	A15	15	65	95	461	1.87	0.21	0.18	0.68	0.28	8	0.0095	1,076	348.45	338.22	361.3	12.8	3.32	0.32	48.2
A15	A14	63	127	429	890	1.81	0.50	0.26	0.31	0.68	10	0.0085	3,169	338.05	311.19	354.5	16.4	3.74	0.43	51.2
A14	A12	29	156	174	1,064	1.80	0.59	0.22	0.81	0.22	12	0.0020	997	310.19	308.19	330.0	19.8	2.25	0.67	66.9
A13	A12	38	38	445	445	1.87	0.26	0.05	0.31	0.31	8	0.0150	1,495	331.52	309.09	345.0	13.5	3.79	0.26	39.2
A12	A10	6	201	37	1,546	1.76	0.85	0.28	1.13	0.28	12	0.0035	685	308.09	305.69	325.5	17.4	3.00	0.69	69.3
A11	A10	20	20	210	210	1.93	0.13	0.03	0.15	0.15	8	0.0150	1,164	324.15	306.69	340.0	15.8	3.11	0.18	27.1
A10	A7	-	221	-	1,756	1.75	0.95	0.31	1.26	0.31	15	0.0017	725	305.44	304.20	324.8	19.4	2.37	0.80	63.7
A9	A8	16	16	94	94	1.99	0.06	0.02	0.08	0.08	8	0.0250	1,233	366.55	335.72	378.9	12.3	3.08	0.11	17.2
A8	A7	34	49	232	326	1.89	0.19	0.07	0.26	0.26	8	0.0150	2,011	335.62	305.45	350.2	14.6	3.81	0.24	35.7
A7	A6	7	277	41	2,123	1.74	1.14	0.39	1.53	1.53	18	0.0012	1,332	303.95	302.35	323.7	19.7	2.19	0.88	58.8
A6	A5	48	324	287	2,410	1.73	1.29	0.45	1.74	1.74	18	0.0015	1,887	302.25	299.41	319.3	17.1	2.46	0.89	59.5
A5	A4	36	361	219	2,629	1.72	1.40	0.50	1.91	1.91	18	0.0015	918	299.31	297.93	317.1	17.8	2.51	0.95	63.1
A4	A3	32	393	195	2,824	1.71	1.50	0.56	2.05	2.05	18	0.0165	1,177	297.63	279.89	316.7	18.9	6.24	0.49	33.0
A2	A3	30	30	179	179	1.94	0.11	0.04	0.15	0.15	8	0.0045	250	281.92	280.79	295.0	13.1	2.00	0.24	36.6
A3	A1	4	427	24	3,027	1.71	1.60	0.60	2.20	2.20	18	0.0035	1,511	279.29	274.00	295.0	15.7	3.80	0.79	52.8
B1	FSPS	5	2,101	27	15,451	1.55	7.44	2.94	10.38	10.38	30	0.0060	368	257.21	255.00	271.0	13.8	6.49	1.26	50.3
A1	FSPS	70	497	422	3,449	1.69	1.81	0.70	2.51	2.51	18	0.0250	756	273.90	255.00	291.0	17.1	7.67	0.49	32.9
FSPS	FE3BPS	3	2,601	18	18,918	1.53	8.99	3.64	12.64	12.64	see below	see below	see below	272.0						
PS1	FE3BPS								4	4	12	-0.0084	7,400					7.88	1.00	100.0
PS1	FE3BPS								8	8	18	-0.0084	7,400					7.00	1.50	100.0

TABLE 11
SEWER CALCULATIONS:
 Shed A

FOLSOM PLAN AREA
TABLE 11 - Sewer Calculations

Node ID	Downstream Node	Area		ESD		Q _{ADWF} (mgd)	Peaking Factor (PF)	Q _{ADWF} (mgd)	Q _{ADWF} (mgd)	Q _{ADWF} (mgd)	Q _{ADWF} (mgd)	Pipe Size (in)	Slope (ft/ft)	Pipe Length (ft)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Cum PWWF Velocity	Depth of Flow (ft.)	(d/D)%
		Per Node (AC)	Cum. (AC)	Dir.	Cum.																
B15	B14	46.2	46.2	317	0.10	1.90	0.19	0.06	0.25	0.25	8	0.0060	389	352.27	349.93	362.3	10.0	2.56	0.30	44.9	
B14	B12	19.3	65.5	205	0.16	1.86	0.30	0.09	0.39	0.39	8	0.0045	344	349.93	348.38	361.6	11.7	2.55	0.43	64.5	
B13	B12	27.2	27.2	235	0.07	1.92	0.14	0.04	0.18	0.18	8	0.0450	487	370.30	348.38	384.0	13.7	4.80	0.15	22.1	
B12	B11	1.2	93.9	8	765	1.82	0.43	0.13	0.56	0.56	10	0.0025	2,358	348.21	342.31	362.2	14.0	2.23	0.56	67.5	
B11	B10	18.2	112.1	148	913	1.81	0.51	0.16	0.67	0.67	12	0.0020	625	341.31	340.06	360.1	18.8	2.16	0.59	58.7	
B9	B7	36.7	36.7	239	0.07	1.92	0.14	0.05	0.19	0.19	8	0.0150	860	365.98	353.08	375.0	9.0	3.32	0.20	30.5	
B8	B7	49.5	49.5	319	0.10	1.90	0.19	0.07	0.26	0.26	8	0.0100	1,438	367.46	353.08	376.0	8.5	3.10	0.26	39.5	
B10	B5	16.8	128.9	101	1,014	1.80	0.57	0.18	0.75	0.75	12	0.0020	1,566	340.06	336.88	360.1	20.0	2.21	0.63	63.1	
B6	B5	14.1	14.1	86	86	2.00	0.05	0.02	0.07	0.07	8	0.0150	855	350.71	337.88	364.0	13.3	2.50	0.12	18.7	
B7	B5	10.9	97.1	66	624	1.84	0.36	0.14	0.49	0.49	8	0.0250	608	353.08	337.88	365.7	12.6	5.16	0.29	43.9	
B5	B4	21.6	281.7	130	1,854	1.75	1.01	0.37	1.37	1.37	12	0.0115	3,960	336.88	291.34	360.0	23.1	4.99	0.53	53.2	
C1	B4	34.9	1788.2	211	13,287	1.57	6.46	2.50	8.96	8.96	30	0.0135	2,404	322.30	289.84	340.0	17.7	8.42	0.92	36.9	
B3	B2	16.4	16.4	99	99	1.99	0.06	0.02	0.08	0.08	8	0.0100	656	269.83	263.27	286.0	16.2	2.26	0.15	22.1	
B4	B1	19.6	2069.5	118	15,259	1.56	7.35	2.90	10.25	10.25	30	0.0225	1,450	289.84	257.21	304.0	14.2	10.51	0.87	34.6	
B2	B1	11.0	27.4	66	165	1.95	0.10	0.04	0.14	0.14	8	0.0045	789	263.27	259.71	282.0	18.7	1.96	0.23	35.0	
B1	PS1	4.5	2101.4	27	15,451	1.55	7.44	2.94	10.38	10.38	30	0.0060	368	257.21	255.00	271.0	13.8	6.49	1.26	50.3	

TABLE 11
SEWER CALCULATIONS:
SHED B

FOLSOM PLAN AREA

TABLE 11 - Sewer Calculations

Node ID	Downstream Node		Area		ESD		Q _{down} (mgd)	Peaking Factor (PF)	Q _{down} (mgd)	Q _{down} (mgd)	Q _{in} (mgd)	Q _{wwf} (mgd)	Pipe Size (in)	Slope (ft/ft)	Pipe Length (ft)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Cum PWWF Velocity	Depth of Flow (ft.)	(D/D)%
	Per Node (AC)	Node	Per Node (AC)	Cum.	Dir.	Cum.																
C45	7.3	7.3	62.0	62	62.0	62	0.04	2.02	0.04	0.05	0.05	541	437.42	434.17	430.0	434.17	430.0	12.6	1.61	0.13	19.3	
C44	28.3	28.3	194.0	194	194.0	194	0.12	1.94	0.12	0.04	0.16	412	446.53	434.17	465.0	434.17	465.0	18.5	4.00	0.15	22.9	
C43	20.6	56.2	170.6	427	170.6	427	0.13	1.87	0.25	0.08	0.33	8	0.0150	1,141	434.17	417.05	430.0	15.8	3.84	0.27	40.3	
C42	23.9	80.1	202.0	629	202.0	629	0.19	1.84	0.36	0.11	0.47	8	0.0220	1,346	417.05	387.43	430.0	13.0	4.87	0.30	44.4	
C41	23.0	23.0	287.0	287	287.0	287	0.09	1.91	0.17	0.03	0.20	8	0.0300	1,751	417.05	364.84	430.0	12.6	4.31	0.17	26.1	
C49	7.2	30.2	44.0	331	44.0	331	0.10	1.89	0.19	0.04	0.24	8	0.0035	1,650	364.84	359.06	383.0	18.2	2.06	0.34	50.7	
C39	8.1	283.4	49.0	1839	49.0	1839	0.57	1.75	1.00	0.40	1.39	8	-0.006	1,166	527	533.59	539.00	12.4	6.18	0.67	100.0	
C37	0.0	283.4	0.0	1839	0.0	1839	0.57	1.75	1.00	0.40	1.39	10	0.0240	2,740	533.59	467.83	546.7	13.1	6.59	0.48	57.9	
C38	25.8	25.8	179.0	179	179.0	179	0.06	1.94	0.11	0.04	0.14	8	0.0035	300	469.05	468.00	485.0	16.0	1.81	0.26	38.3	
C36	0.0	309.2	0.0	2018	0.0	2018	0.63	1.74	1.09	0.43	1.52	10	0.0320	437	467.83	453.84	482.0	14.2	7.51	0.47	55.9	
C35	18.5	327.7	160.0	2178	160.0	2178	0.68	1.74	1.17	0.46	1.63	10	0.0270	1,348	453.84	417.44	466.0	12.2	7.14	0.51	61.7	
C34	25.6	353.3	174.0	2352	174.0	2352	0.73	1.73	1.26	0.49	1.75	10	0.0250	874	417.44	395.59	454.6	17.2	7.03	0.56	66.6	
C33	47.2	400.5	324.0	2676	324.0	2676	0.83	1.72	1.42	0.56	1.98	15	0.0075	1,368	394.34	384.08	414.0	19.7	4.66	0.66	52.9	
C32	12.5	413.0	98.0	2774	98.0	2774	0.86	1.71	1.47	0.58	2.05	15	0.0035	733	384.08	381.51	399.1	15.0	3.48	0.87	69.6	
C31	12.8	425.8	247.0	3021	247.0	3021	0.94	1.71	1.60	0.60	2.19	15	0.0080	2,201	381.51	363.90	397.2	15.7	4.90	0.69	55.1	
C30	20.6	446.4	209.0	3230	209.0	3230	1.00	1.70	1.70	0.62	2.33	18	0.0025	630	363.90	362.07	374.4	10.8	3.20	0.91	60.8	
C29	120.5	120.5	724.0	724	724.0	724	0.22	1.83	0.41	0.17	0.58	8	0.0550	1,058	558.16	499.97	570.0	11.8	7.20	0.26	38.6	
C28	7.0	7.0	49.0	49	49.0	49	0.02	2.04	0.03	0.01	0.04	8	0.0035	300	501.02	499.97	512.0	11.0	1.26	0.13	20.1	
C27	1.4	128.9	9	782	9	782	0.24	1.82	0.44	0.18	0.62	8	0.0350	731	499.97	474.38	515.0	15.0	6.22	0.30	45.6	
C26	28.4	157.3	265	1,047	265	1,047	0.32	1.80	0.56	0.22	0.80	8	0.0210	833	474.38	456.88	485.8	11.4	5.44	0.42	62.3	
C25	53.6	210.9	368	1,415	368	1,415	0.44	1.77	0.78	0.30	1.07	10	0.0248	2,399	456.71	397.21	470.2	13.5	6.27	0.41	48.9	
C24	6.4	6.4	96	96	96	96	0.03	1.99	0.06	0.01	0.07	8	0.0050	2,400	373.55	361.55	360.8	7.3	1.66	0.16	23.7	
C23	53.5	499.9	385	3,614	385	3,614	1.12	1.88	1.89	0.70	2.59	21	0.0011	940	361.55	359.80	371.0	9.2	2.41	1.14	65.4	
C22	37.1	248.0	250	1,665	250	1,665	0.52	1.76	0.91	0.35	1.25	12	0.0325	1,828	396.21	360.55	409.0	12.8	7.16	0.38	37.7	
C21	10.6	764.9	79	5,454	79	5,454	1.69	1.65	2.79	1.07	3.86	21	0.0025	1,097	359.80	358.84	374.4	14.6	3.62	1.14	64.9	
C20	7.5	14.7	67	175	67	175	0.05	1.94	0.11	0.02	0.13	8	0.0060	381	356.40	356.40	370.0	7.3	1.94	0.15	23.1	
C19	7.6	37.8	53	384	53	384	0.12	1.88	0.22	0.05	0.28	8	0.0030	1,400	359.06	346.46	378.0	8.6	2.12	0.21	31.0	
C18	30.1	795.0	205	5,659	205	5,659	1.75	1.65	2.89	1.11	4.01	21	0.0230	907	358.84	344.71	369.9	11.1	8.38	0.61	34.6	
C17	10.5	25.2	94	269	94	269	0.08	1.91	0.16	0.04	0.19	8	0.0110	614	350.95	346.46	360.0	9.1	2.98	0.22	33.2	
C16	1.4	859.4	9	6,321	9	6,321	1.96	1.64	3.21	1.20	4.41	21	0.0110	408	344.71	340.22	362.0	17.3	6.57	0.78	44.7	

TABLE 11
SEWER CALCULATIONS:
SHED C

FOLSOM PLAN AREA
TABLE 11 - Sewer Calculations

Node ID	Down-stream Node	Area		ESD		Q _{AO} WIF (mgd)	Peaking Factor (PF)	Q _{PO} WIF (mgd)	Q _{HI} (mgd)	Q _{PO} WIF (mgd)	Pipe Size (in)	Slope (ft/ft)	Pipe Length (ft)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Cum PWWF Velocity	Depth of Flow (ft.)	(d/D)%
		Per Node (AC)	Cum. (AC)	Dir.	Cum.															
C18	C17	81.4	81.4	508	508	0.16	1.86	0.29	0.11	0.41	8	0.0035	250	342.85	341.87	351.0	8.2	2.31	0.49	72.8
C17	C16	1.7	942.5	11	6,840	2.12	1.63	3.46	1.32	4.78	27	0.0010	1,213	339.72	338.50	352.8	13.1	2.71	1.46	64.9
C16	C8	45.9	988.4	297	7,137	2.21	1.63	3.60	1.38	4.98	27	0.0010	3,000	336.50	335.50	351.0	12.5	2.73	1.50	66.9
C15	C14	26	26.0	184	184	0.06	1.94	0.11	0.04	0.15	8	0.0175	440	370.44	362.74	380.0	9.6	3.24	0.17	25.5
C13	C12	9.2	9.2	133	133	0.04	1.97	0.08	0.01	0.09	8	0.0150	474	372.21	365.10	382.0	9.8	2.70	0.14	21.2
C40	C11	51.5	131.6	338	967	0.30	1.81	0.54	0.18	0.73	10	0.0350	550	387.26	368.01	401.2	13.9	6.41	0.30	35.8
C12	C10	6.3	15.5	54	187	0.06	1.94	0.11	0.02	0.13	8	0.0110	522	365.10	359.35	375.0	9.9	2.68	0.18	27.4
C11	C10	19	150.6	115	1,082	0.34	1.80	0.60	0.21	0.81	10	0.0160	541	368.01	359.35	383.0	15.0	4.96	0.39	47.3
C14	C9	28.4	54.4	263	447	0.14	1.87	0.26	0.08	0.34	8	0.0150	594	362.74	353.83	373.0	10.3	3.87	0.27	40.9
C10	C9	12.3	178.4	162	1,431	0.44	1.77	0.79	0.25	1.04	15	0.0095	581	358.10	352.68	374.0	15.9	4.29	0.43	34.4
C9	C7	21.7	254.5	225	2,103	0.65	1.74	1.13	0.36	1.49	15	0.0095	1,306	352.58	340.17	369.0	16.4	4.73	0.52	41.9
C8	C7	4.5	992.9	27	7,164	2.22	1.63	3.61	1.39	5.00	27	0.0010	328	335.50	335.17	360.0	24.5	2.73	1.51	67.1
C6	C5	15.1	15.1	185	185	0.06	1.94	0.11	0.02	0.13	8	0.0150	611	365.80	356.63	380.0	14.2	2.98	0.17	25.1
C7	C4	6.4	1253.8	57	9,323	2.89	1.60	4.63	1.76	6.39	30	0.0010	850	334.92	334.07	360.0	25.1	2.91	1.63	65.3
C5	C4	23.9	39.0	251	436	0.14	1.87	0.25	0.05	0.31	8	0.0150	1,337	356.63	336.87	372.0	15.4	3.78	0.26	39.0
C4	C3	1.5	1294.3	9	9,768	3.03	1.60	4.84	1.81	6.65	30	0.0200	775	334.07	333.29	348.0	13.9	2.93	1.68	67.2
D1	C3	1.71	403.9	740	2,953	0.92	1.71	1.56	0.57	2.13	12	0.0200	2,548	384.25	333.29	398.6	14.4	6.84	0.59	58.9
C3	C2	34.4	1732.6	230	12,951	4.01	1.57	6.31	2.43	8.73	30	0.0050	1,018	333.29	327.18	355.0	21.7	6.21	1.14	45.5
C2	C1	20.7	1753.3	125	13,076	4.05	1.57	6.36	2.45	8.82	30	0.0055	887	327.18	322.30	344.0	16.8	6.03	1.17	46.9
C1	B4	34.9	1788.2	211	13,287	4.12	1.57	6.46	2.50	8.96	30	0.0135	2,404	322.30	289.84	340.0	17.7	8.42	0.92	36.9

TABLE 11
SEWER CALCULATIONS:
SHED C

FOLSOM PLAN AREA

TABLE 11 - Sewer Calculations

Node ID	Down-stream Node	Area (AC)		ESD		Q _{ADWF} (mgd)	Peaking Factor (PF)	Q _{ADWF} (mgd)	Q _{ADWF} (mgd)	Q _{ADWF} (mgd)	Pipe Size (in)	Slope (ft/ft)	Pipe Length (ft)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Cum PWWF Velocity (fps)	Depth of Flow (ft.)	(d/D)%
		Per Node	Cum.	Dir.	Cum.															
D13	D12	6.3	6.3	39	39	0.01	2.06	0.02	0.01	0.03	8	0.1500	242	725.99	689.69	738.7	12.7	4.45	0.05	7.4
D12	D9	63.6	69.9	383	422	0.13	1.87	0.25	0.10	0.34	8	0.0550	2,351	689.69	560.38	703.0	13.3	6.22	0.20	29.3
D10	D9	8.7	8.7	53	53	0.02	2.03	0.03	0.01	0.05	8	0.0700	344	584.46	560.38	600.0	15.5	3.74	0.07	10.3
D9	D8	3.7	82.3	23	488	0.15	1.86	0.29	0.12	0.40	8	0.0550	1,804	560.38	461.16	575.4	15.0	6.51	0.21	31.8
D11	D8	24.1	24.1	197	197	0.06	1.93	0.12	0.03	0.15	8	0.0075	647	466.02	461.16	480.0	14.0	2.42	0.21	32.2
D8	D7	31.3	137.7	410	1,105	0.34	1.79	0.61	0.19	0.81	8	0.0300	541	461.16	444.93	475.0	13.8	6.26	0.37	55.6
D6	D5	37.6	37.6	226	226	0.07	1.92	0.13	0.05	0.19	8	0.0250	2,351	481.04	432.26	500.0	9.0	3.95	0.18	26.3
D5	D4	2.7	40.3	17	243	0.08	1.92	0.14	0.06	0.20	8	0.0250	485	432.26	420.13	448.0	15.7	4.03	0.18	27.3
D7	D3	20.2	157.9	356	1,461	0.45	1.77	0.80	0.22	1.02	8	0.0330	872	444.93	416.15	460.4	15.5	6.85	0.42	62.9
D4	D3	63.5	103.8	381	624	0.19	1.84	0.36	0.15	0.50	10	0.0050	762	419.96	416.15	437.0	17.0	2.84	0.42	50.1
D3	D2	9.4	271.1	71	2,156	0.67	1.74	1.16	0.38	1.54	12	0.0120	1,514	415.15	396.98	430.4	15.3	5.21	0.56	56.4
D2	D1	9.5	280.6	57	2,213	0.69	1.73	1.19	0.39	1.58	10	0.0250	476	397.15	385.25	413.7	16.6	6.89	0.52	62.0
D1	C3	123.3	403.9	740	2,953	0.92	1.71	1.56	0.57	2.13	12	0.0200	2,548	384.25	333.29	398.6	14.4	6.84	0.59	58.9

TABLE 11 SEWER CALCULATIONS: SHED D

FOLSOM PLAN AREA
TABLE 11 - Sewer Calculations

Node ID	Down-stream Node	Area		ESD		Q _{adv} (mgd)	Peaking Factor (PF)	Q _{pswf} (mgd)	Q _{in} (mgd)	Q _{pswf} (mgd)	Pipe Size (in)	Slope (ft/ft)	Pipe Length (ft)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Cum PWWF Velocity (fps)	Depth of Flow (ft.)	(d/D)%
		Per Node (AC)	Cum. (AC)	Dir.	Cum.															
E5	E4	15.0	15.0	112	112	0.03	1.98	0.07	0.02	0.09	8	0.0300	1,427	652.04	609.23	662.0	10.0	3.40	0.12	17.4
E4	E3	7.2	22.2	44	156	0.05	1.95	0.09	0.13	0.13	8	0.0400	553	609.23	587.11	620.0	10.8	4.15	0.13	19.2
E3	E2	8.6	30.8	53	209	0.06	1.93	0.12	0.17	0.17	8	0.0070	277	587.11	585.17	600.0	12.9	2.43	0.23	34.6
E2	E1	40.3	71.1	242	451	0.14	1.87	0.26	0.36	0.36	8	0.0550	562	585.17	554.26	599.0	13.8	6.31	0.20	30.1
E1	PS2	38.0	109.1	228	679	0.21	1.83	0.39	0.54	0.54	8	0.0175	1,581	554.26	526.59	570.0	15.7	4.63	0.34	51.3
PS2	C39	8.1	283.4	49	1,839	0.57	1.75	1.00	0.40	1.39	8	-0.0060	1,166	526.59	533.59	539.0	12.4	6.18	0.67	100.0

Node ID	Down-stream Node	Area		ESD		Q _{adv} (mgd)	Peaking Factor (PF)	Q _{pswf} (mgd)	C _{in} (mgd)	Q _{pswf} (mgd)	Pipe Size (in)	Slope (ft/ft)	Pipe Length (ft)	Upstream Invert	Downstream Invert	Upstream Rim Elevation	Depth @ Upstream Invert	Cum PWWF Velocity (fps)	Depth of Flow (ft.)	(d/D)%
		Per Node (AC)	Cum. (AC)	Dir.	Cum.															
PS4	F3	72.1	72.1	490	490	0.15	1.86	0.28	0.10	0.38	4	-0.0933	1,340	609.05	734.05	618.0	9.0	6.80	0.33	100.0
F3	PS3	0.0	72.1	0	490	0.15	1.86	0.28	0.10	0.38	8	0.0950	1,478	731.71	591.30	743.0	11.3	7.81	0.18	27.0
PS3	F2	51.6	123.7	365	855	0.27	1.82	0.48	0.17	0.65	6	-0.0180	832	591.47	606.47	600.0	8.5	5.16	0.30	100.0
F2	F1	0.0	123.7	0	855	0.48	1.82	0.48	0.17	0.65	8	0.0425	1,728	602.30	528.86	615.0	12.7	6.77	0.30	44.4
F1	PS2	42.5	166.2	266	1,111	0.34	1.79	0.62	0.23	0.85	12	0.0035	453	527.86	526.25	546.0	18.1	2.83	0.57	57.2
PS2	C39	8.1	283.4	49	1,839	0.57	1.75	1.00	0.40	1.39	8	-0.0060	1,166	526.59	533.59	539.0	12.4	6.18	0.67	100.0

TABLE 11
SEWER CALCULATIONS
SHED E and F

TABLE 12: EID SERVICE AREA - TOTAL SEWER CALC (EID POC-1)

LAND USE	LOT NO	AREA (ac)	ESD/AC	ESD's	Q _{PWWF} (mgd)
SF	192	15	6.0	90	0.08
SF	193	0	6.0	-	0.00
SFHD	191	17.7	6.9	122	0.10
GC	189	0	7.9	-	0.00
GC	187	17	6.0	102	0.09
GC	188	4.7	6.0	28	0.02
GC	184	1.3	6.0	8	0.01
GC	185	1.6	6.0	10	0.01
MLD	190	14.2	8.9	126	0.10
OS	196	0	0.0	-	
OS	197	0	0.0	-	
OS	195	17	0.0	-	
OS	194	0	0.0	-	
ROADWAY		2.7	6.0	16	0.01
MAJ CIRC.		10.6			
TOTAL		101.8		502	0.415
Net Sewered Acres		71.5			

TABLE 12
EID Wastewater Projections
POC - #1

TABLE 12: EID SERVICE AREA - TOTAL SEWER CALC (EID POC-2)

LAND USE	LOT NO	AREA (ac)	ESD/AC	ESD's	Q _{PWWF} (mgd)
SF	192	5.1	6.0	31	0.03
SF	193	5.7	6.0	34	0.03
SFHD	191	13.3	6.9	92	0.08
GC	189	3	7.9	24	0.02
GC	187	0	6.0	-	0.00
GC	188	4.7	6.0	28	0.02
GC	184	0	6.0	-	0.00
GC	185	2.2	6.0	13	0.01
MLD	190	13.7	8.9	122	0.09
OS	196	13.5	0.0	-	
OS	197	1.3	0.0	-	
OS	195	9.6	0.0	-	
OS	194	0.8	0.0	-	
ROADWAY		4.5	6.0	27	0.02
MAJ CIRC.		0			
TOTAL		77.4		371	0.306
Net Sewered Acres		47.7			

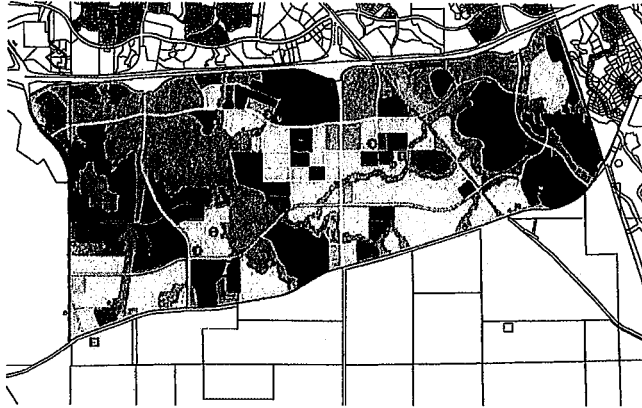
TABLE 12
EID Wastewater Projections
POC - #2

TABLE 12: EID SERVICE AREA - TOTAL SEWER CALC (EID POC-3)

LAND USE	LOT NO	AREA (ac)	ESD/AC	ESD's	Q _{PWWF} (mgd)
SF	192	0	6.0	-	0.00
SF	193	8	6.0	48	0.04
SFHD	191	0	6.9	-	0.00
GC	189	0	7.9	-	0.00
GC	187	0	6.0	-	0.00
GC	188	0	6.0	-	0.00
GC	184	0	6.0	-	0.00
GC	185	0	6.0	-	0.00
MLD	190	0	8.9	-	0.00
OS	196	0	0.0	-	
OS	197	0	0.0	-	
OS	195	0	0.0	-	
OS	194	2.2	0.0	-	
ROADWAY		0	6.0	-	0.00
MAJ CIRC.		0			
TOTAL		10.2		48	0.042
Net Sewered Acres		8.0			

TABLE 12
EID Wastewater Projections
POC - #3

ADDENDUM No. 1 WASTEWATER INFRASTRUCTURE PLAN



FOR THE

FOLSOM SPECIFIC PLAN AREA

**CITY OF FOLSOM , CA
DECEMBER 16, 2008**

PREPARED FOR:
CITY OF FOLSOM, UTILITIES DEPT.
CITY OF FOLSOM
50 NATOMA STREET
FOLSOM, CA 95630

PREPARED BY:
MACKAY & SOMPS CIVIL ENGINEERS, INC.
1771 TRIBUTE ROAD, SUITE E
SACRAMENTO, CA 95815-4487

Addendum No. 1

Summary Statement

For: Folsom Specific Plan Area Wastewater Infrastructure Plan

Summary:

A Wastewater Infrastructure Plan (WWIP) dated September 16, 2008 was prepared by MacKay & Soms Civil Engineers, Inc. for the Folsom Specific Plan Area (FSPA). Subsequent to that date, minor changes to the land use plan have been made.

The FSPA Land Use and Wastewater Infrastructure changes can be generally summarized as follows:

- Minor horizontal alignment shift of Easton Valley Parkway
- Minor land use changes (configuration and acres) at the mall and town center sites
- Minor change in total site acreage by plus 8 acres
- Minor horizontal alignment shift of the trunk sewer at the north edge of Parcel SF-148, and shift of the OS boundary at the property SF-138 (formerly SF-148). See revised Exhibit G.
- Minor change in total ESD count by plus 3 ESDs

The FSPA land use changes and increased ESDs did not affect:

- Location and size of infrastructure trunk sewers except a minor change at SF-138 (formerly SF-148)
- Location of the Plan Area wastewater pump stations

The FSPA land use changes and increased ESDs caused a negligible affect to:

- Size of the proposed Folsom South Pump Station
- Local sewer sub-basin acreages and flows

Addendum No. 1 includes the following:

- Red-line / strikeout cut sheets for affected text and tables from the Sept, 16 report
- Updated Land Use Plan to replace Exhibit ES-2, Exhibit B, and Exhibit G

Conclusion:

- Changes to the FSPA land use and density cause negligible impacts to the Wastewater Infrastructure Plan. The proposed Folsom South Pump Station PWWF increases from 12.64 to 12.65 mgd. Sewer trunk lines remain the same size and remain in the same location except for a minor horizontal shift of Easton Valley Parkway.

Future Update of the FSPA Wastewater Infrastructure Plan

- Because the changes summarized above produce negligible impacts, updates to WIP exhibits showing sub-basin detail, and flow calculations with ESDs by node are deferred until preparation of infrastructure construction documents.

(FROM OF EXECUTIVE SUMMARY)

Calculated Wastewater Flow Summary

SASD, 2008 Design Standards were used to calculate flows for 2601 sewered acres in the FSPA. A comparison of projected FSPA wastewater flows to previous SRCSD Master Plan studies is as follows.

Wastewater Projection Study	Basin	ESDs	PWWF (MGD)
SRCSD Interceptor Master Plan, 2000, Black & Veatch	FS11 to *FE 3B PS	22,035	14.48
Folsom Specific Plan Area (FSPA)	FS11 to *FE 3B PS	18,921	12.64 12.65

**FE 3B PS is an existing SRCSD Pump Station located north of Highway 50 at the south side of Iron Point Road approximately 1500 feet west of Oak Avenue.*

Pump Stations and the EID Service Area Summary

All wastewater within the FSPA boundary, including 189.4 gross / 134.4 134.6 sewered acres within the EID service area, is directed by gravity sewers and pump stations/force mains to the proposed Folsom South Pump Station (FSPS). The FSPS is located at the north side of Easton Valley Parkway approximately 1500 feet west of Oak Avenue. The FSPS will pump wastewater to the north side of Highway 50 and tie into the existing SRCSD force main system at the downstream side of FE 3B PS. See Exhibit ES-3.

Upstream of the proposed FSPS, gravity systems will provide service to over 90% of ESDs in the FSPA. Lands within the EID service area, and a sub-shed east of Empire Ranch Road, will be served by three small pump stations described as PS 2, 3, and with peak pumping capacities as follows:

Description	Location	Q_{PWWF} (mgd)
FSPA PS 2	NW corner of White Rock and Empire Ranch Roads	1.39
FSPA PS 3	East FSPA boundary near existing Stonebriar Court	0.65
FSPA PS 4	East FSPA boundary near existing Winterfield Court	0.38

Reference Exhibit ES-3 for the proposed Pump Station 2, 3, and 4 locations.

EID has stated that it wants to provide service to lands within its service area boundary. Based on conceptual grading prepared by CTA Engineering for lands within the EID service area boundary, connection to EID gravity sewer lines may be possible at:

EID POC	Location	Benefit
1	Winterfield Court	Eliminates PS 4
2	Stonebriar Drive / Prima Way intersection	Eliminates PS 3
3	Ranch Bluff Way south of White Rock Road	Reduces PS 2 pumping

If EID is to be a service provider, detailed routing studies and downstream capacity at these three POCs (924– 923 ESDs) must be confirmed by EID or others. Reference Exhibit ES-4 for location of the three possible EID POCs.

Conclusion...SRCSD Capacity

This WWIP confirms that the projected FSPA PWWF, including flow from the EID service area (42.64–12.65mgd), is less than the projected FSPA/SOI flow in the SRCSD Interceptor Plan, 2000 (14.48 mgd). Based on that Interceptor Plan, this report concludes that SRCSD Pump Station FE 3B and the downstream interceptor system have adequate capacity to serve the FSPA.

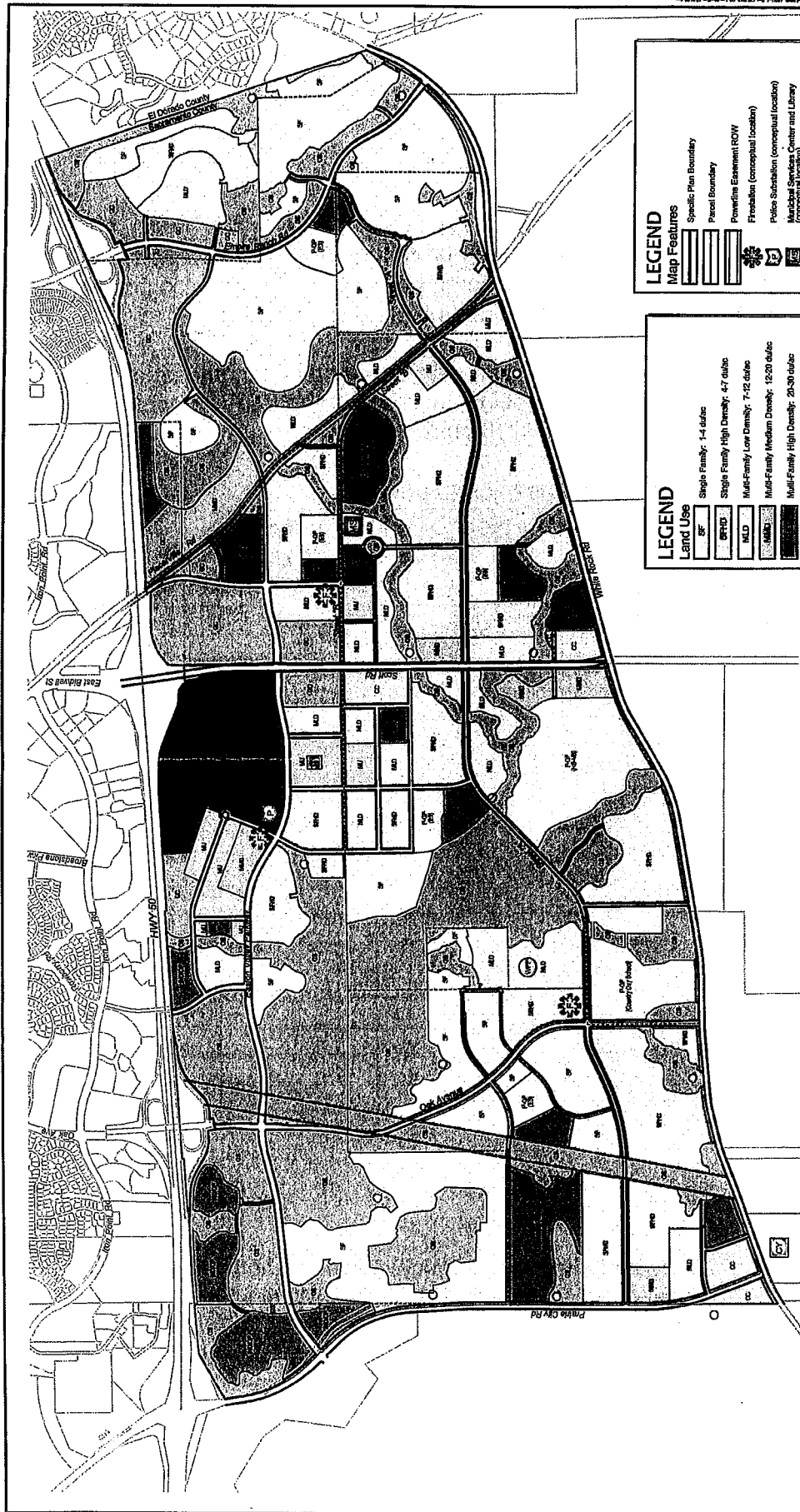
Recommendations... EID/City of Folsom Sewer Service Area


EID, the city of Folsom, and the FSPA owners group should meet to resolve the service provider for the EID service area.


Next Steps

As the FSPA environmental and entitlement process moves forward, the following tasks are anticipated, and may require updates to this WWIP:

- Coordination with EID, the city of Folsom and owners group to resolve the EID sewer service area issue. If EID is confirmed as the service provider, perform routing studies, evaluate EID capacity, and quantify required upgrades to the EID system to provide an acceptable level of service.
- Confirmation by SRCSD that downstream interceptor and treatment facilities are adequate and/or upgrades are sequenced accordingly.
- Develop a complete OPCC for the WWIP for build out and phasing options, to serve as basis for a FSPA finance plan.
- Finalize the FPSA phasing and Land Use Plans.




City of Folsom
 SACRAMENTO COUNTY, CA
Folsom Plan Area Specific Plan
 Proposed Land Use Plan-12.01.08


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LEGEND

Land Use

- SF Single Family 1-4 du/dw
- GFHD Single Family High Density 4-7 du/dw
- MFLD Multi-Family Low Density 7-12 du/dw
- MMD Multi-Family Medium Density 12-20 du/dw
- MFLD Multi-Family High Density 20-30 du/dw
- MFLD Mixed Use 30-50 du/dw
- IOF Industrial/Office Park
- CC Community Commercial
- GC General Commercial
- RC Regional Commercial
- PA Parks (Community/Neighborhood Parks)
- OS Open Space
- PPF Public/Quasi-Public

LEGEND

Map Features

- Specific Plan Boundary
- Parcel Boundary
- Powerline Easement (ROW)
- Firestation (conceptual location)
- Police Substation (conceptual location)
- Community Center and Library (conceptual location)
- City Community Center (conceptual off-site location) 25 ac
- Water Public Facility (conceptual location)
- Detention Basins

NOTES:

- 1) Public facilities and other items will be located and sized according to the City of Folsom's General Plan and subject to agreement by voters and City.
- 2) Corporate Yard to be located outside project area subject to agreement by voters and City.
- 3) City Community Center and Library are subject to agreement with local partners and subject to finalizing the technical studies needed to support the project.
- 4) Local parks are not currently shown on the Land Use map, but are accounted for in the Land Use estimates.

EXHIBIT ES-2

SECTION 2 - LAND USE

2.1 Proposed Land Use

This WWIP is based on the Land Use Plan dated ~~June 6, 2008~~ December 1, 2008 (RRM Design Group). This section shows the latest proposed land uses for the FSPA. The FSPA land use plan continues to be evaluated and updated to address constraints and environmental concerns identified throughout the planning process.

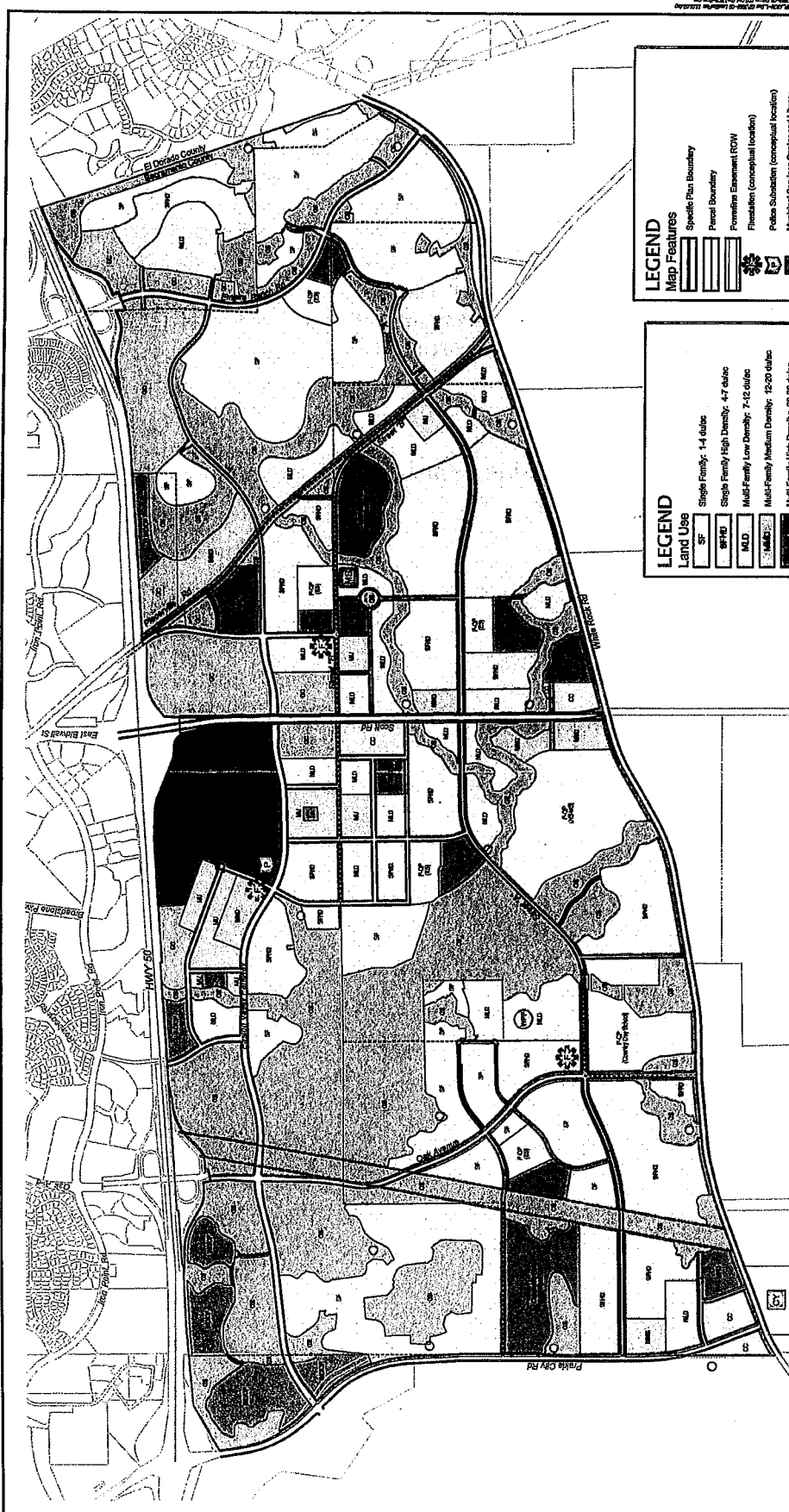
The proposed land uses, designations, as well as anticipated density ranges, are shown on Exhibit B and also summarized in Table 1 below. Currently, the FSPA proposes an allocated dwelling unit (DU) count of ~~40,045~~ 10,210 units.

TABLE 1: PROPOSED LAND USE

Land Use	Acreeage	Percent of Total	Density Range (DU/ac)	Maximum Target DU
SF - Single Family	562.7 <u>560.7</u>	16%	1.0 - 3.9	4,695 <u>1,687</u>
SFHD - Single Family High Density	475.7 <u>531.2</u>	14% <u>15%</u>	4.0 - 6.9	2,629 <u>2,933</u>
MLD - Multi Family Low Density	304.4 <u>268.5</u>	9% <u>8%</u>	7.0 - 11.9	2,727 <u>2,434</u>
MMD - Multi Family Med. Density	75.8 <u>66.9</u>	2%	12.0 - 20.0	1,386 <u>1,224</u>
MHD - Multi Family High Density	48.9 <u>49.9</u>	1%	18.0 - 30.0	1,226 <u>1,251</u>
MU - Mixed Use District	33.4 <u>59.1</u>	4% <u>2%</u>	9.0 - 30.0	382 <u>681</u>
OP - Office Park	113.3 <u>89.2</u>	3%		
CC - Community Commercial	39.9 <u>38.9</u>	1%		
GC - General Commercial	206.3 <u>213.1</u>	6%		
RC - Regional Commercial	130.3 <u>110.8</u>	4% <u>3%</u>		
P - Park (Community)	64.5 <u>70.6</u>	2% <u>3%</u>		
P - Park (Neighborhood)	44.7 <u>47.8</u>	1%		
LP - Local Park	Inc.			
PQP HS/MS	79.3 <u>79.6</u>	2%		
PQP - Elementary School	50 <u>51.6</u>	1%		
PQP - Country Day School	49.7 <u>49.4</u>	1%		
OS - Open Space	1053 <u>1053.4</u>	30%		
MAJ CIRC - Major Circulation	173.6 <u>169.7</u>	5%		
Total	3,502 <u>3,510.4</u>	100%		40,045 <u>10,210</u>

2.2 Project Phasing

To initiate development, this WWIP studies infrastructure to serve the final build-out of the FSPA. The FSPA landowners have developed a conceptual project phasing plan, where multiple disconnected properties will require service in Phase 1. In-depth sewer phasing to serve Phase 1 and subsequent phases, is not addressed in this WWIP. More specific information on phasing will be addressed in other FSPA entitlement documents.



LEGEND
Map Features

- Specific Plan Boundary
- Parcel Boundary
- Promotive Easement ROW
- Fossiliferous (conceptual location)
- Police Substation (conceptual location)
- Municipal Services Center and Library (conceptual location)
- City (City of Folsom) Yard (conceptual off-site)
- Vibrant Public Facility (conceptual location)
- Directional Buoys

Notes:

- Public facilities and other uses will be located and sized in accordance with the City's General Plan and subject to agreement by owners and City.
- Conceptual Yard to be located outside project area subject to agreement with adjacent property owners.
- Facilities are subject to subject to negotiations with landowners and subject to existing the existence of future facilities needed to support the City's growth.
- Local plans are not currently shown on the Land Use map, but are accounted for in the Land Use analysis.

LEGEND
Land Use

- SF: Single Family: 1-4 du/ds
- SFRB: Single Family High Density: 4-7 du/ds
- MLD: Multi-Family Low Density: 7-15 du/ds
- MAF: Multi-Family Medium Density: 12-20 du/ds
- MAF2: Multi-Family High Density: 20-30 du/ds
- MAF3: Mixed Use: 8-30 du/ds
- I-1: Industrial/Office Park
- CC: Community Commercial
- Regional Commercial
- Community Commercial
- Parks: Community/Neighborhood Parks
- Open Space
- Public/Quasi-Public

GRAPHIC SCALE
0 300 600

City of Folsom
SACRAMENTO COUNTY, CA

Folsom Plan Area Specific Plan
Proposed Land Use Plan-12.01.08

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EXHIBIT B

3.3 Projected Flows

These calculations assume all wastewater within the FSPS boundary is directed to the Folsom South Pump Station (FSPS).

The summary of FSPA sewered area (~~2,604~~ 2,612 acres) matches the Land Use Summary (~~3,502~~ 3,510.4) acres minus large block OS areas (~~904~~ 898.4 acres). Only landscaped OS parcels adjacent to roadways are included as contributing to the ESD count. Acreages for Schools (P-QP) are broken out into High School (HS), Middle School (MS) and Elementary School (ES) per SASD requirements.

Table 5 summarizes the following:

- Average Dry Weather Flow (ADWF) and Inflow and Infiltration per land use
- ADWF for the FSPA
- Peaking Factor (PF) for the FSPA
- Peak Dry Weather Flow (PDWF) for the FSPA
- Peak Wet Weather Flow (PWWF) for the FSPA

Folsom Specific Plan Area – Wastewater Infrastructure Plan – Addendum 1

TABLE 5: WASTEWATER FLOW PROJECTIONS

Land Use	LUP Area, acres	Sewered Area, acres	Max Density, DU	ESD factor (ESD/acre)	Total ESD	Q _{ADWF} (mgd)	Q _{II} (mgd)
SF - Single Family	562.7 560.7	562.7 560.7	3.9	6.0	3,382 3,364	1.05 1.04	0.79 0.78
SFHD - Single Family High Density	475.7 531.2	475.7 531.2	6.9	6.9	3,300 3,665	1.02 1.14	0.67 0.74
MLD - Multi Family Low Density	301.4 268.5	301.4 268.5	11.9	8.9	2,694 2,390	0.83 0.74	0.42 0.38
MMD - Multi Family Medium Density	75.8 66.9	75.8 66.9	20	15.0	1,140 1,004	0.35 0.31	0.14 0.09
MHD - Multi Family High Density	48.9 49.9	48.9 49.9	30	22.5	1,102 1,123	0.34 0.35	0.07
MU - Mixed Use District	33.4 59.1	33.4 59.1	30	11.0	365 650	0.11 0.20	0.05 0.08
OP - Office Park	413.3 89.2	413.3 89.2		6.0	685 535	0.24 0.17	0.16 0.12
CC - Community Commercial	39.9 38.9	39.9 38.9		6.0	244 233	0.07	0.06 0.05
GC - General Commercial	206.3 213.1	206.3 213.1		6.0	1,248 1,279	0.39 0.40	0.29 0.30
RC - Regional Commercial	430.3 110.8	430.3 110.8		6.0	788 665	0.24 0.21	0.18 0.16
P - Park (Community)	64.5 70.6	64.5 70.6		6.0	390 424	0.12 0.13	0.09 0.10
P - Park (Neighborhood)	44.7 47.8	44.7 47.8		6.0	270 287	0.08 0.09	0.06 0.07
LP - Local Park	Included			6.0		0.00	0.00
PQP - High School/Middle School	79.3 79.6	39.7 40.0	HS portion only	6 or 0.080 mgd	259	0.08	0.06
PQP - Middle School (only)	Included	39.6	MS portion only	6 or 0.060 mgd	239	0.07	0.06
PQP - Elementary School	50.0 51.6	50.0 51.6		6 or 0.025 mgd	404	0.13	0.07
PQP - Country Day School	49.7 49.4	32.4 31.8	HS portion only	6 or 0.080 mgd	258	0.08	0.04
PQP - Country Day School (MS)	Included	17.6	MS portion only	6 or 0.060 mgd	194	0.06	0.02
OS - Open Space	1053.0 1053.4	152.1 155	Sideline strips at roadways	6.0	946 930	0.28 0.29	0.24 0.22
Roadway	473.6 169.7	473.6 169.7		6.0	1,045 1,018	0.32	0.24
Plan Area Total	3,504.90 3,510.4	2,604.0 2,612.0			18,918 18,921	5.86 5.88	3.64 3.65
Peaking Factor:						1.53	
Peak Dry Weather Flow:						8.99 9.00	
Peak Wet Weather Flow:						12.64 12.65	

Section 5 - EID Service Area Discussion

The WWIP provides service to 189.4 gross / ~~134.4~~ 134.6 sewered acres at the east edge of the FSPA that are currently within the El Dorado Irrigation District (EID) service boundary. Land use, acres, ESDs and PWWFs for the entire EID area within the FSPA, are summarized in Table 8.

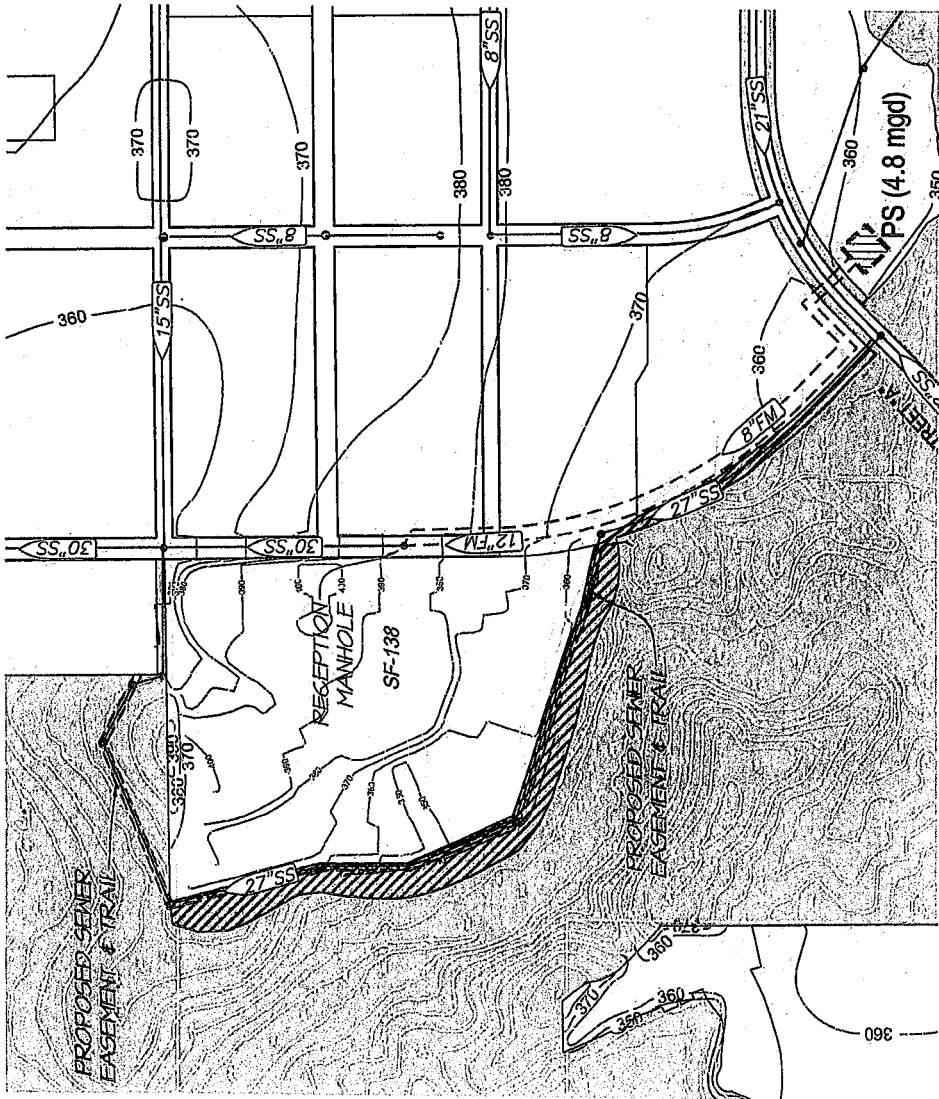
TABLE 8: EID SERVICE AREA – FLOW CALCULATIONS

LAND USE	LOT NO	AREA (ac)	ESD/AC	ESD's	ADWF	PF	PDWF	I/I	Q _{PWWF} (mgd)
SF	492 185	20.1	6.0	121	0.04	1.97	0.07	0.03	0.10
SF	493 186	13.7	6.0	82	0.03	2.00	0.05	0.02	0.07
SF	179	1.2	6.0	7	0.002	2.17	0.005	0.005	0.01
SFHD	494 184	31	6.9	214	0.07	1.93	0.13	0.04	0.17
GC	489 182	3	7.9	24	0.01	2.09	0.02	0.00	0.02
GC	487 180	17	6.0	102	0.03	1.99	0.06	0.02	0.09
GC	488 181	9.4 9.5	6.0	56 57	0.02	2.03	0.04	0.01	0.05
GC	484 177	1.3	6.0	8	0.00	2.17	0.01	0.00	0.01
GC	485 178	3.8	6.0	23	0.01	2.09	0.01	0.01	0.02
MLD	490 183	27.9	8.9	248	0.08	1.92	0.15	0.04	0.19
OS	496 190	13.5	0	-					0
OS	497 189	1.3	0	-					0
OS	495 188	26.6	0	-					0
OS	494 187	3	0	-					0
ROADWAY		7.2 6.1	6	43 37	0.01	2.06 2.05	0.03 0.02	0.01	0.04 0.03
MAJ CIRC.		10.6							0
TOTAL		189.4		924 923					0.76
Net Sewered Acres		134.4 134.6							

Notes: [1] Open Space and Major Circulation (future interchange ROW) are non-flow contributing.

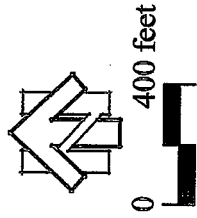
To provide service to EID lands, the FSPA requires two sewer pump stations, PS 3 and PS 4, at local low points along the east edge of the FSPA. A combination of force mains and gravity sewers along the east boundary would transport wastewater to Pump Station 2 at the NW corner of Empire Ranch and White Rock Roads.

Reference Exhibit C for the proposed pump station locations.



LEGEND

- 27" SS — PROPOSED SEWER
- 30" SS — ALTERNATE GRAVITY SEWER
- - - 8" FM - - - ALTERNATE FORCE MAIN
- PS [Symbol] PS PUMP STATION
- [Symbol] OPEN SPACE
- [Symbol] ADDED OPEN SPACE (On Land Use Plan 12.01.08)



DRAFT

EXHIBIT G

Alternative 2
Pump Station and Force Main

FOLSOM SPECIFIC PLAN
County of Sacramento, California

August 26, 2008
Revised 12-16-08

7919-00

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