

**LEGEND**

- - - - - DRAINAGE AREA BOUNDARY
- A-1 DRAINAGE AREA
- $\rightarrow$  DIRECTION OF FLOW
- $\leftarrow$  OVERLAND RELEASE
- RD ROOF DOWNSPOUT

**SIZING OF CURB OPENING FOR 2 YEAR**

$Q = AV = 1.486/N \times R^{2/3} \times S^{1/2} \times A$

A = CROSS SECTIONAL AREA (CFS)  
 V = FLOW VELOCITY (F/S)  
 R = HYDRAULIC RADIUS  
 S = SLOPE PER FT  
 n = MANNING COEFFICIENT

A = 0.556 AC.  
 S = 0.01  
 R =  $a/p = 1.5 / 4 = 0.375ft$   
 n = 0.13  
 Q =  $1.486/0.13 \times (0.375)^{2/3} \times (0.1)^{1/2} \times 0.556$   
 Q = 8.96 CFS

**STORMWATER QUALITY FLOW CALCULATIONS FOR HYDRAULIC DESIGN**

Q = CIA  
 C = 0.95 FOR COMMERCIAL/INDUSTRIAL PROPERTY  
 I = 0.20 INCHES PER HOUR  
 A = AREA, ACRES

AREA -1 0.556 AC  
 Q =  $0.95 \times 0.20 \times 0.556 = 0.1056$  CFS

AREA -2 0.520 AC  
 Q =  $0.95 \times 0.20 \times 0.520 = 0.0988$  CFS

**MINIMUM TCMS AND BMPs FOR LAND USE OF CONCERN:**

- GAS STATION OR EQUIPMENT FUELING FACILITIES:**
- ALL NEW FUELING STATIONS OR EXPANSION OF SUCH USES SHOULD INCLUDE THE FOLLOWING BMPs:**
1. INSTALL AND MAINTAIN A TREATMENT CONTROL MEASURE
  2. PAVE THE FUELING AREA FLOORS WITH AN IMPERMEABLE SURFACE (I.E., PORTLAND CEMENT CONCRETE OR EQUIVALENT SMOOTH IMPERVIOUS SURFACE).
  3. COVER THE FUELING AREAS WITH A CANOPY OR COVER THAT EXTENDS A MINIMUM OF TEN FEET IN EACH DIRECTION FROM EACH PUMP. ALTERNATIVELY, COVER THE FUELING AREAS WITH A CANOPY OR COVER THAT HAS MINIMUM DIMENSIONS EQUAL TO OR GREATER THAN THE AREA WITH THE GRADE BREAK OR FUEL DISPENSING AREA (THE FUEL DISPENSING AREA IS DEFINED AS THE AREA EXTENDING A MINIMUM OF 6.5 FEET FROM THE CORNER OF EACH FUEL DISPENSER OR THE LENGTH AT WHICH THE HOSE AND NOZZLE ASSEMBLY MAY BE OPERATED PLUS A MINIMUM OF ONE FOOT, WHICHEVER IS GREATER. IN NO CASE SHOULD THE CANOPY OR COVER DRAIN ONTO THE FUELING AREA.)
  4. GRADE THE FUEL AREA TO PREVENT WATER DRAINING TOWARD THE FUELING AREA.
  5. GRADE THE FUEL AREA WITH THE MINIMUM SLOPE NECESSARY TO PREVENT PONDING.
  6. SEPARATE THE FUELING AREA FROM THE REST OF THE SITE BY A GRADE BREAK THAT PREVENTS RUN-ON OF STORM WATER TO THE MAXIMUM EXTENT PRACTICABLE.
  7. DRY SWEEP THE FUELING AREA ROUTINELY.
  8. STENCIL ALL ON-SITE STORM DRAINS IN CONFORMANCE WITH THE CITY'S REQUIREMENTS.
  9. PREPARE A SPILL CLEANUP PLAN IN CONFORMANCE WITH THE CITY OF SAN JOSE FIRE CODE.

**DESIGN CALCULATION FOR STORMWATER PLANTER**

**PLANTER-1**

**STEP 1: CALCULATE REFERENCE STORMWATER QUALITY DESIGN VOLUME (SQDVref) FOR IMPERVIOUS AREA TRIBUTARY TO LID STORMWATER PLANTER.**

$WQV = Vu * (1 \text{ FT.} / 12 \text{ IN.}) * \text{Aimp}$   
 WQV : WATER QUALITY VOLUME, FT<sup>3</sup>  
 Vu: UNIT BASIN STORAGE VOLUME, IN. (FIGURE 5-1 IMPERVIOUSNESS = 1 & 12-HR DRAWDOWN)  
 Aimp: IMPERVIOUS AREA TRIBUTARY TO LID STORMWATER PLANTER, SF

$WQV = 0.42 \text{ IN.} * 0.556 \text{ AC.} / 12 \text{ IN.}$   
 WQV = 0.0195 AC.

**STEP 2: DETERMINE DESIGN SURCHARGE STORAGE DEPTH (Ds) AND SURFACE AREA (Aplanter) OF LID STORMWATER PLANTER**

Ds: DESIGN AVERAGE SURCHARGE DEPTH, FT.  
 Aplanter: PLANTER SURFACE AREA PROVIDED, SF  
 Ds = 0.5 FT.  
 Aplanter = 1,857 SF

**STEP 3: CALCULATE DESIGN PLANTER SURFACE AREA (As)**

$As = WQV / Ds$   
 $As = 0.0195 \text{ AC.} / 0.50$   
 $As = 0.0389 \text{ AC.} * (43560 \text{ SF} / 1 \text{ AC.})$   
 $As = 1,695 \text{ FT}^2$

$1,857 \text{ SF} > 1,695 \text{ SF}$

**PLANTER-2**

**STEP 1: CALCULATE REFERENCE STORMWATER QUALITY DESIGN VOLUME (SQDVref) FOR IMPERVIOUS AREA TRIBUTARY TO LID STORMWATER PLANTER.**

$WQV = Vu * (1 \text{ FT.} / 12 \text{ IN.}) * \text{Aimp}$   
 WQV : WATER QUALITY VOLUME, FT<sup>3</sup>  
 Vu: UNIT BASIN STORAGE VOLUME, IN. (FIGURE 5-1 IMPERVIOUSNESS = 1 & 12-HR DRAWDOWN)  
 Aimp: IMPERVIOUS AREA TRIBUTARY TO LID STORMWATER PLANTER, SF

$WQV = 0.42 \text{ IN.} * 0.52 \text{ AC.} / 12 \text{ IN.}$   
 WQV = 0.0182 AC.

**STEP 2: DETERMINE DESIGN SURCHARGE STORAGE DEPTH (Ds) AND SURFACE AREA (Aplanter) OF LID STORMWATER PLANTER**

Ds: DESIGN AVERAGE SURCHARGE DEPTH, FT.  
 Aplanter: PLANTER SURFACE AREA PROVIDED, SF  
 Ds = 0.5 FT.  
 Aplanter = 1,678 SF

**STEP 3: CALCULATE DESIGN PLANTER SURFACE AREA (As)**

$As = WQV / Ds$   
 $As = 0.0182 \text{ AC.} / 0.50$   
 $As = 0.0364 \text{ AC.} * (43560 \text{ SF} / 1 \text{ AC.})$   
 $As = 1,586 \text{ SF}$

$1,678 \text{ SF} > 1,586 \text{ SF}$

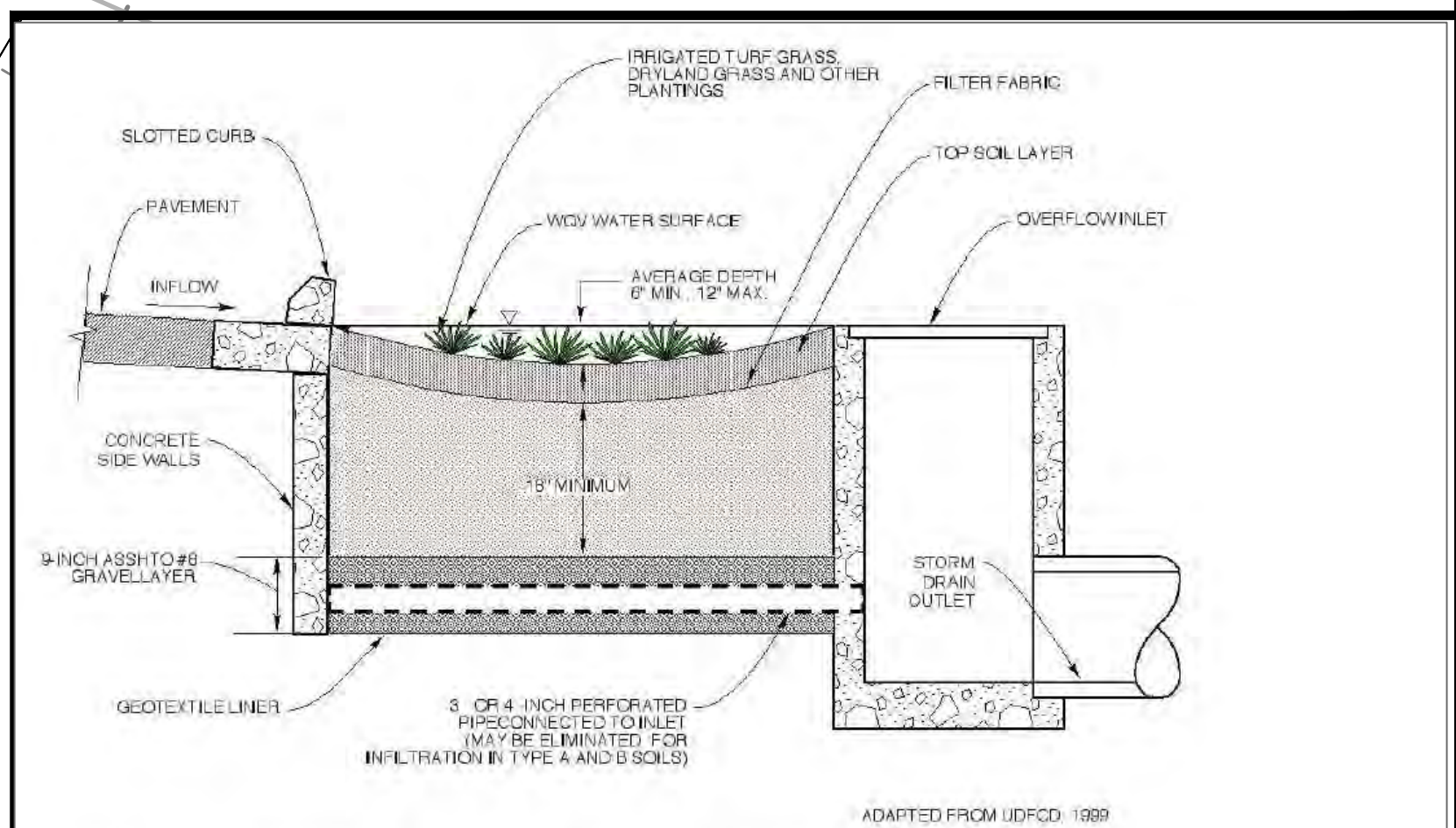


Figure SP-1. Infiltration Stormwater Planter Configuration  
 (other media mix and overflow design options may be allowed; check with permitting agency for verification)

BENCHMARK ELEV. \_\_\_\_\_  
 FIELD BOOK NO. \_\_\_\_\_ PG. \_\_\_\_\_

**STUKAM CONSULTING ENGINEERS, INC.**  
 11344 COLOMA RD. SUITE 235C  
 GOLD RIVER, CALIFORNIA 95670  
 (916) 858-8241 PHONE (916) 988-6316 FAX

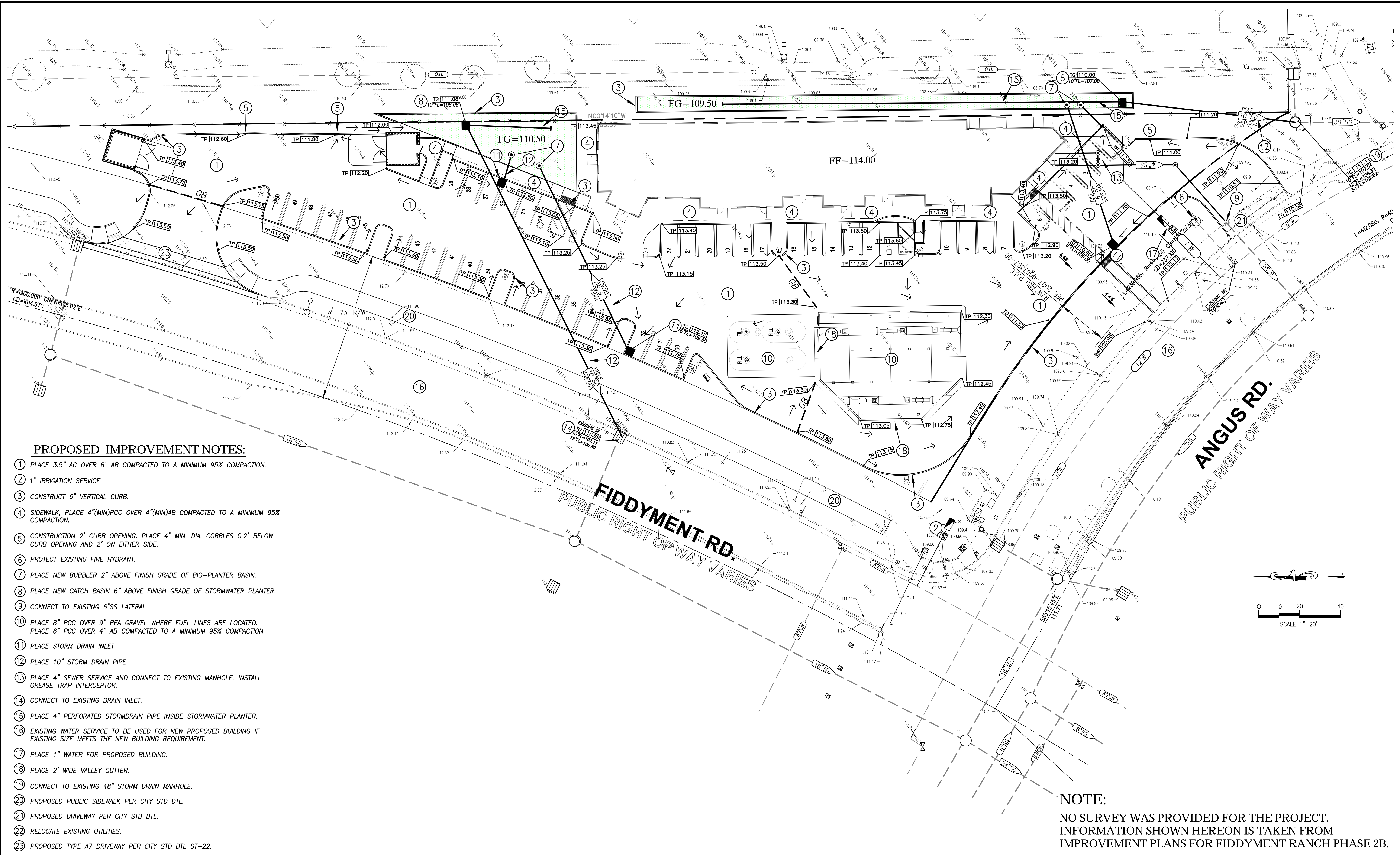
DESIGNED: FTS	SCALE: 1"=20'
DRAWN: FTS	
CHECKED: FTS	
SUBMITTED: FAREED T. SIDDIQUI	RCE: 56122



NO	REVISION	APPROVAL BY:	DATE

**PRELIMINARY STORMWATER CONTROL PLAN**  
**4701 FIDDYMENT RD.**  
 CONVENIENCE STORE & GAS STATION  
 APN: 492-001-031  
 CITY OF ROSEVILLE  
 PLACER COUNTY  
 CALIFORNIA

DATE: 01/09/19  
 SHEET  
**C2**  
 OF 2



**PROPOSED IMPROVEMENT NOTES:**

- 1 PLACE 3.5" AC OVER 6" AB COMPACTED TO A MINIMUM 95% COMPACTION.
- 2 1" IRRIGATION SERVICE
- 3 CONSTRUCT 6" VERTICAL CURB.
- 4 SIDEWALK, PLACE 4"(MIN)PCC OVER 4"(MIN)AB COMPACTED TO A MINIMUM 95% COMPACTION.
- 5 CONSTRUCTION 2' CURB OPENING. PLACE 4" MIN. DIA. COBBLES 0.2' BELOW CURB OPENING AND 2" ON EITHER SIDE.
- 6 PROTECT EXISTING FIRE HYDRANT.
- 7 PLACE NEW BUBBLER 2" ABOVE FINISH GRADE OF BIO-PLANTER BASIN.
- 8 PLACE NEW CATCH BASIN 6" ABOVE FINISH GRADE OF STORMWATER PLANTER.
- 9 CONNECT TO EXISTING 6"SS LATERAL
- 10 PLACE 8" PCC OVER 9" PEA GRAVEL WHERE FUEL LINES ARE LOCATED. PLACE 6" PCC OVER 4" AB COMPACTED TO A MINIMUM 95% COMPACTION.
- 11 PLACE STORM DRAIN INLET
- 12 PLACE 10" STORM DRAIN PIPE
- 13 PLACE 4" SEWER SERVICE AND CONNECT TO EXISTING MANHOLE. INSTALL GREASE TRAP INTERCEPTOR.
- 14 CONNECT TO EXISTING DRAIN INLET.
- 15 PLACE 4" PERFORATED STORMDRAIN PIPE INSIDE STORMWATER PLANTER.
- 16 EXISTING WATER SERVICE TO BE USED FOR NEW PROPOSED BUILDING IF EXISTING SIZE MEETS THE NEW BUILDING REQUIREMENT.
- 17 PLACE 1" WATER FOR PROPOSED BUILDING.
- 18 PLACE 2' WIDE VALLEY GUTTER.
- 19 CONNECT TO EXISTING 48" STORM DRAIN MANHOLE.
- 20 PROPOSED PUBLIC SIDEWALK PER CITY STD DTL.
- 21 PROPOSED DRIVEWAY PER CITY STD DTL.
- 22 RELOCATE EXISTING UTILITIES.
- 23 PROPOSED TYPE A7 DRIVEWAY PER CITY STD DTL ST-22.

**NOTE:**

NO SURVEY WAS PROVIDED FOR THE PROJECT. INFORMATION SHOWN HEREON IS TAKEN FROM IMPROVEMENT PLANS FOR FIDDYMENT RANCH PHASE 2B.

BENCHMARK ELEV. \_\_\_\_\_  
FIELD BOOK NO. \_\_\_\_\_ PG. \_\_\_\_\_



**STUKAM CONSULTING ENGINEERS, INC.**  
11344 COLOMA RD. SUITE 235C  
GOLD RIVER, CALIFORNIA 95670  
(916) 858-8241 PHONE (916) 988-6316 FAX

DESIGNED: FTS	SCALE: 1"=20'
DRAWN: FTS	
CHECKED: FTS	
SUBMITTED: FAREED T. SIDDIQUI	RCE: 56122



NO	REVISION	APPROVAL BY:	DATE

PRELIMINARY GRADING & UTILITY PLAN  
**4701 FIDDYMENT RD.**  
CONVENIENCE STORE & GAS STATION  
APN: 492-001-031  
CITY OF ROSEVILLE PLACER COUNTY CALIFORNIA

DATE: 01/09/19  
SHEET  
**C1**  
OF 2